UNANI MADE EASY 2.0

A Comprehensive Book For AIAPGET & MO Exams

One Book Covering Many Subjects

High Yeild Points of All Subject

By: EASY UNANI

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…….. and many more

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ABOUT

Easy Unani is the first Platform for Unani graduates where we practiced, Trained the students for competitive exams such as AIAPGET / Mo exams.

We realized there many platforms of Modern Medicine, & other streams of AYUSH where as there is no separate platform for Unani Graduates.
Students use to join modern platform for modern subjects and there is no proper guidance for them.
For this we started EASY UNANI, Where we cover Both Unani as well as modern topics make students to become perfect and make them perfect for COMPETITIVE exams such as AIAPGET / MO in a very negligible amount.
Easy Unani is the only platform where we provide Best services in less amount.
For Completing this book our team has done very hard work with dedication, further also we will update this book as for further need according to demand.
Some more subject also we'll add shortly and will release UNANI MADE EASY 3.0.
A meritorious UNANI graduate always pursue PG sooner or later. So wiser are those who do it without wasting time are prepare sincerely for it.
Wish you all the best not only in AIAPGET but also in life.

Silent Features

Unani Made Easy A special points chosen by subject experts from EASY UNANI, to help AIAPGET / MO aspirants for a Quick Revision of the complete syllabus of almost all subjects.
Maximum information in minimum time.
The best book for last week of your examination.

PREFACE

This is an extremely gratifying moment for us to present the second edition of this book to you. It hag proved to be a very helpful and very popular book for the students preparing for post graduation course or for various Medical Officer examination conducting in Unani stream.

The whole book is in tabular & short notes, which will be extremely useful for the students who do not know the art of appearing questions in the examination and do not farewell despite their vast knowledge of the subjects.

The compilation is intended to refresh the knowledge of subjects in a simplified manner. Special feature of this book is addition of all subjects, we made easy notes for these subjects to made quick revision & to understand concept for competitive exam purpose. Furture work is going to modify this book.
The authors however do not claim it as a substitute to text book, infant they advises the students to consult the text books wherever necessary.
The team of of authors would like to receive compliments, comments or criticism from you.
We owe a debt of gratitude to all our worthy readers for their overwhelming acceptance and valuable suggestions.

Suggestions regarding the-subject matter and the pattern shall be welcomed.

These may be sent to authors directly via email at info@gmail.com
We have provide Note space so you can note any important points or pneumonic etc.
Finally we would like to express our gratitude to help us.

Team
Easy Unani

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Second Edition. 2023.

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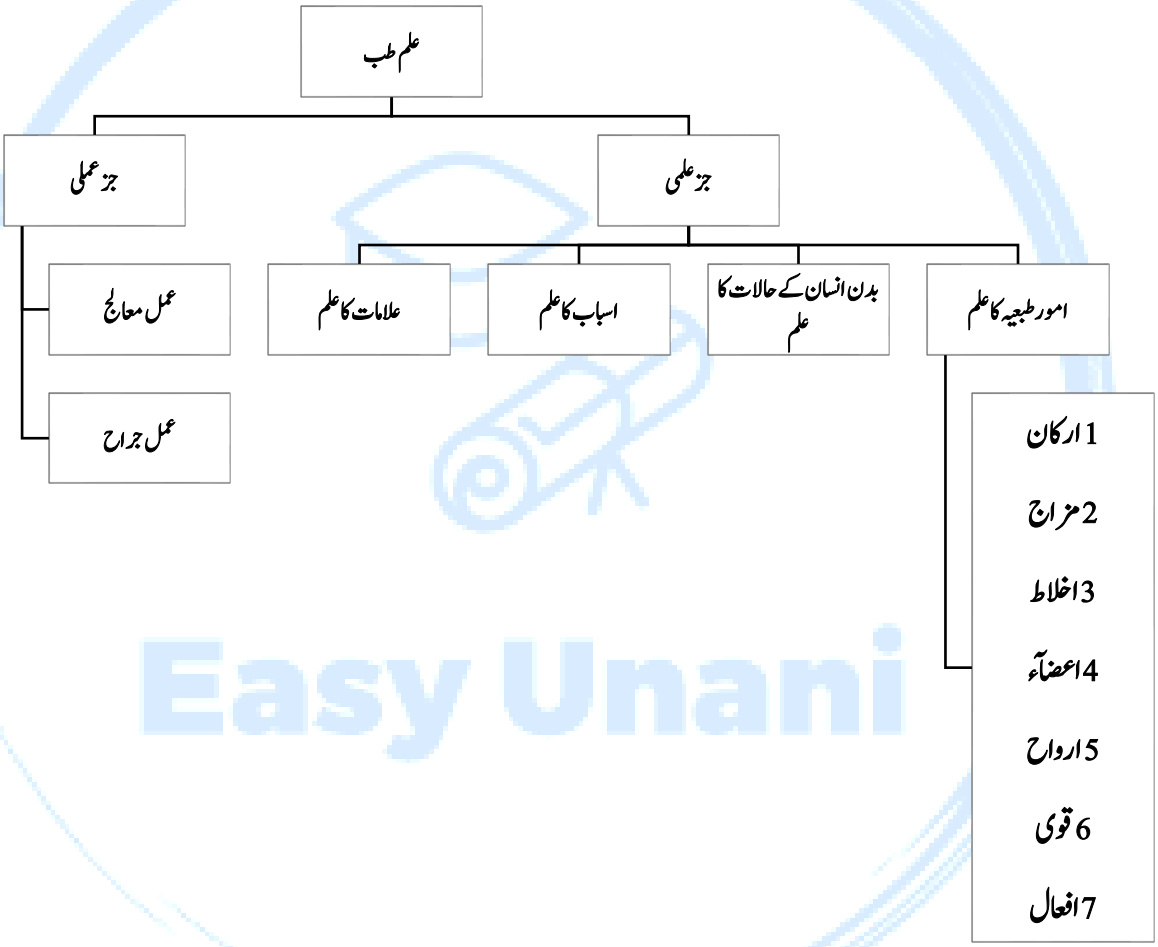
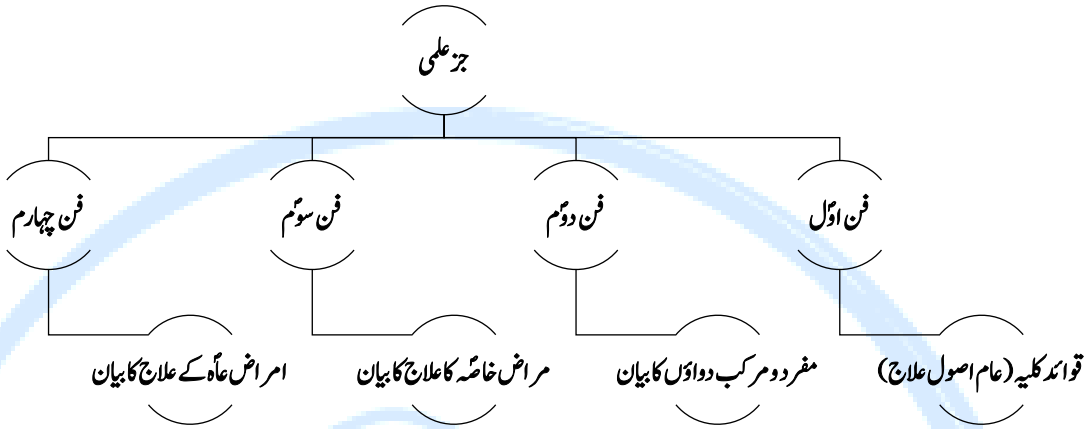
UMOOR TABBIYAH

امور طبعیہ

امور طبعیہ

علم طب کی تقسیم





ارکان

امور طبعیہ میں پہلا نمبر ارکان کا ہے

عناصر میں اختلاف

ایک عنصر

1 پہلا گروہ = بخار

2 دوسرا گروہ = ارص (مٹی)

3 تیسرا گروہ = نار (آگ)

4 چتھا گروہ = ماء (پانی)

5 پانچواں گروہ = ہواء

دو عنصر

6 چھٹا گروہ = آگ اور مٹی

7 ساتواں گروہ = مٹی اور ہانی

8 آٹواں گروہ = ہواء اور مٹی

تین عنصر

9 نواں گروہ = آگ، ہواء اور مٹی (انکے نزدیک پانی ہواء کی بدلی ہوئی شکل ہے)

10 دسواں گروہ = پانی، ہواء، مٹی (آگ ہواء کی بدلی شکل ہے جسمیں شدید حرارت ہے)

11 گیارواں گروہ = اہل اکسیر ہے ان کا ماننا ہے کہ تین خاص قسم کے اجزاء ہے (روغن (دھن)، ملح (نمک)، کبریت (گندھک))

چار عنصر

12 بارواں گروہ = آگ، ہواء، مٹی، پانی (اس گروہ کا ماننا تھا فلسفہ مشائین)

پانچ عنصر

13 تیرواں گروہ کا ماننا تھا پانچ عنصر ہے (آگ، ہواء، مٹی، پانی، آکاش)

عناصر کثیر

14 چودواں گروہ کا ماننا ہے کہ عناصر کی تعداد بہت زیادہ ہے (اس گروہ کئ اصحاب خلیط کہتے ہیں)

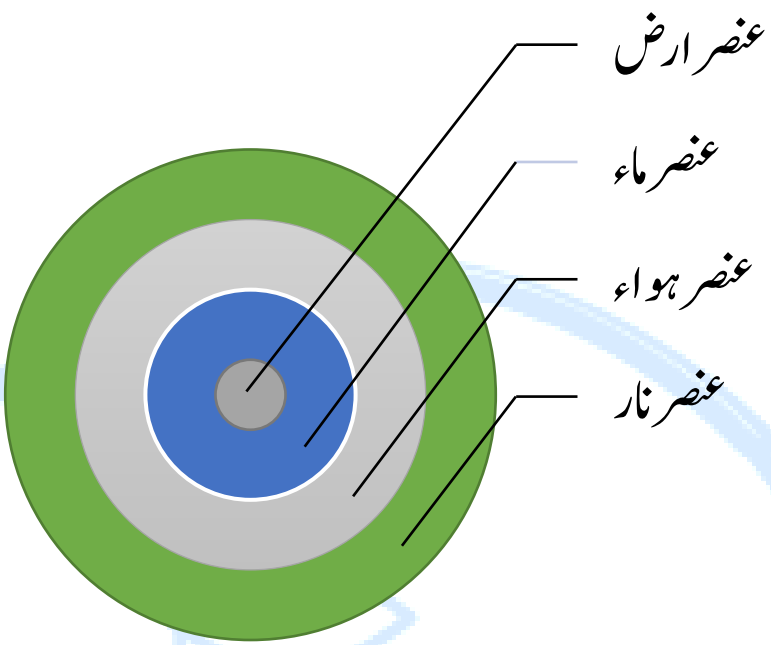
عناصر کا طبعی مقام

عنصر ارض:-(باردیابس) ٹھوس تمام عنصر کے وسط میں واقع ہوتا ہے

عنصر ماء:-(باردرطب) عنصر ارض کے اوپر گھیرے ہوئے ہوتا ہے، اسکی وجہ سے عنصر ارض مختلف شکلیں اختیار کرتا ہے۔

عنصر ہواء:-(حاررطب) مرکبات میں تخلخل پیداء ہوتی ہے اور مرکبات ہلکے اور لطیف ہوتے ہے۔

عنصر نار:-(حاریابس) سب سے بلند ہوتا ہے۔



جدید تحقیق سے یہ بات پتہ چلی ہیکہ 108 عناصر سے 16 یہ 19 عناصر انسانی جسم کی تکمیل کیلئے ضروری ہے جنکو عناصر انسانیہ کہا جاتا ہے

ان کو چار حصّوں میں تقسیم کیا گیا ہے

عناصر نار:- نسیم، نورین، حضرین، سیلین

عناصر ہوائیہ:- البقرین،

عناصر مائیہ:- مائین

عناصر ارضیہ:- ان میں 13 عناصر آتے ہے

عناصر کا جدید نظریہ

تحقیق کے مطابق 108 عناصر آئے ہیں، جن میں 16 عناصر اور بعض حالات میں 19 عناصر انسانی تکمیل کت لحاظ سے مورر کئے ہے

ان عناصر کو باعتبار شکل چار قسموں میں تقسیم کیا ہے

ناریہ

- آکسیجن(نسیم)
- فاسفورس(نورین)
- کلورین(حضرین)
- فلورین(سیلین)

ہوائی

- نائٹروجن(ابقرین)

مائی

- ہائیڈروجن(مائین)

ارضیہ

- کاربن(محمین)
- سلفر(کبریت)
- آیوڈین(بنفشجین
- سیلینیم(ریلین)
- سوڈیم(نطرون)
- پٹشیم(قلوین)
- کیلیسم(کلسین)
- میگنیشیم(معنیشیا)
- لیتھیم(ارضین)
- آئرن(حدید،لوہا)
- مینگنیز
- کوپر(تانبہ)
- زنک(سیسہ)

مزاج

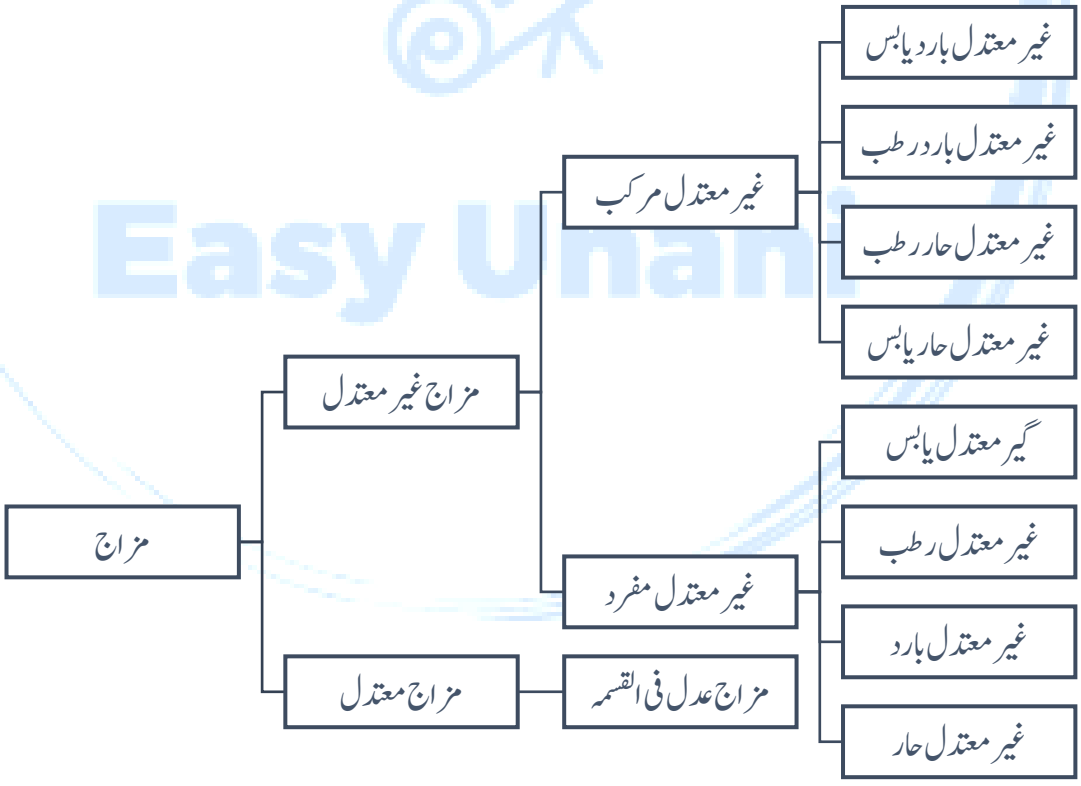
امتزاج سادہ

دو یا دو سے زیادہ عناصر باہم سادہ طور پر ملنا اور انکے سابقہ خواص بدستور قائم رہنا (مثال:- پانی اور شکر کا ملنا)

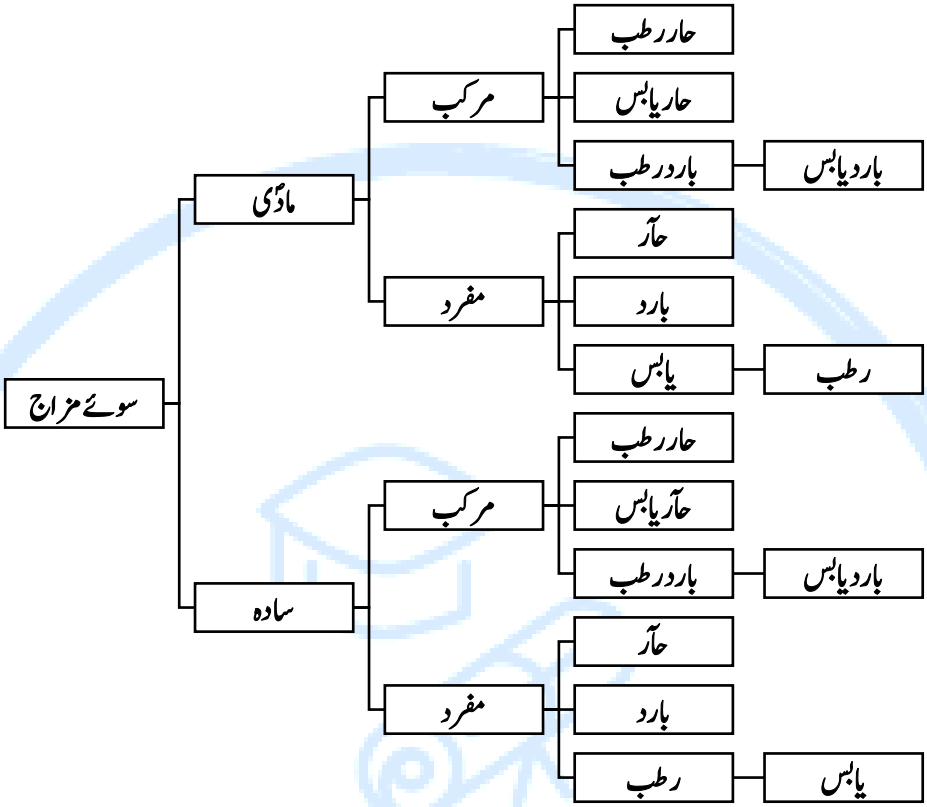
امتزاج حقیقی

دو یا دو سے زیادہ عناصر باہم سادہ طور پر ملنا اور انکے سابقہ خواص بدستور قائم نہ رہنا اور نئی کیفیت پیداء ہونا (مثال:- اخلاط کا خون بننا)

مزاج کی تقسیم



سوئے مزاج کی تقسیم



حرارت غریزیہ

انسان و دیگر حیوان مای ایک طبعی حرارت پائی جاتی ہے جسکو حرارت غریزیہ کہا جاتا ہے، جو خون کے دورانگی سے واقع ہوتا ہے۔ خون اور ارواح کے مخصوص اجزاء کے احتراق سے یہ حرارت قایم ہوتی ہے۔

عمروں کا مزاج:-

اسنان اربعہ

1. سن نمو
   a. سن طفولت
   b. سن صبا
   c. سن ترعرع
   d. سن رہاق
   e. سن فتی
2. سن وقوف
3. سن کہولت
4. سن شخوخت

سن نمو: حار رطب، اعضآء میں نشو نماء کرتے ہیں۔

سن وقوف: حار یابس، اس عمر میں اعضاء نہ گھٹتے ہیں نہ بڑھتے ہیں۔

سن کہولت: بارد یابس، اس عمر میں قوی میں انحطاط ہوتا ہے لیکن محسوس نہی ہوتا۔

سن شخوخت: بارد رطب، اس عمر میں قوی میں انحطاط ہوتا ہے۔

مزاج اعضاء:-

تمام اعضاآ میں سب سے زیادہ معتدل مزاج سبابہ کی انگلی کے اگلے پورے کی جلد> اسکے بعد دوسری انگلیوں کی جلد کے اگلے پورے> ہتھیلی کی جلد> سارے بدن کی جلد

اعضاء حارہ:-

تمام اعضاء میں سب سے زیادہ حار، قلب> جگر > گوشت

اعضاء باردہ:-

تمام اعضاء میں سب سے زیادہ بارد اعضاء، ہڈی> عضروف> رباط > اعضاب> نخاع > دماغ

اعضاء رطب:-

تمام اعضاء میں سب سے زیادہ رطب اعضاء، سمین (رواج)> شحیم > گلٹی> دماغ> نخاع

اعضاء یابسہ:-

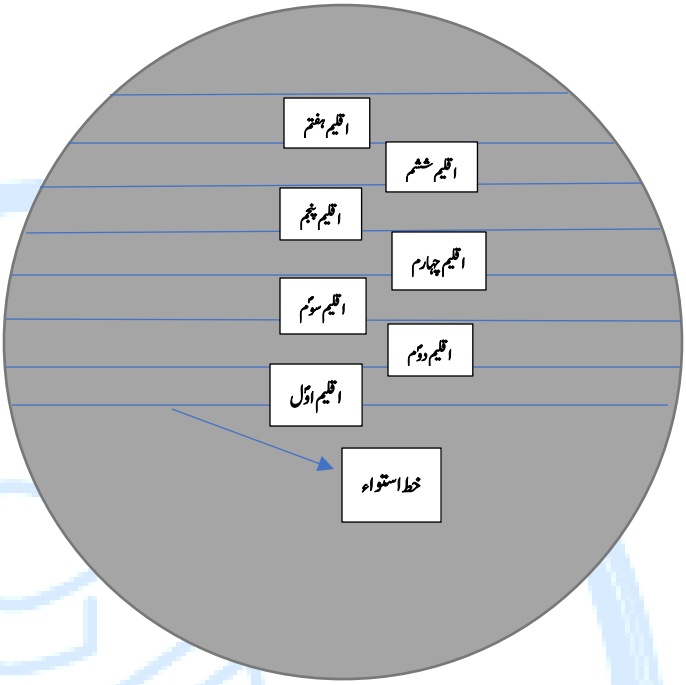
تمام اعضاء میں سب سے زیادہ یابس اعضاء، بال > ہڈی> عضروف> رباط> اعصاب

مزاج اقالیم

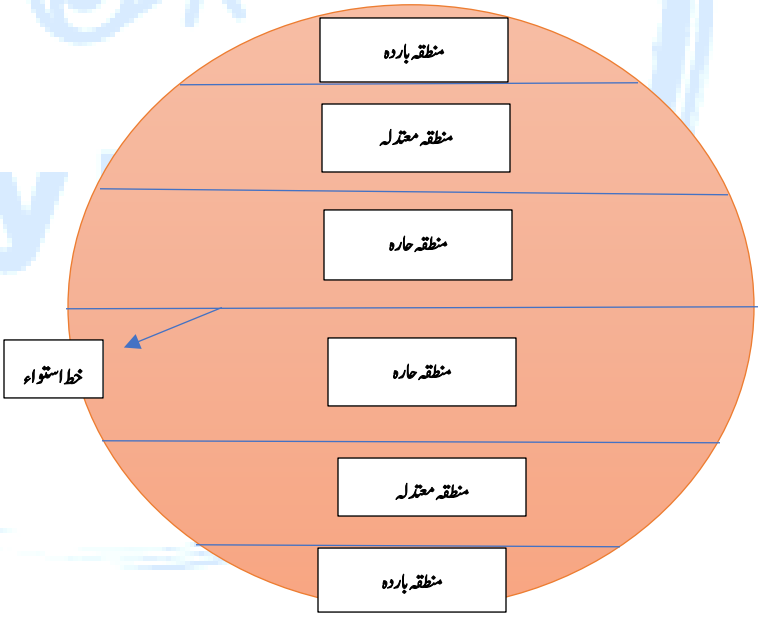
فخر الدین رازی وابو سہل مسیحی کے مطابق اقلیم چہارم معتدل حقیقی کے قریب ہے

شیخ الرئیس کے مطابق خط استواء کے لوگ معتدل حقیقی کے قریب ہے

کرۂ ارض کی قدیم اقلیمی تقسیم



کرہ ارض کی تقسیم جدید اقلیم کے مطابق



اخلاط

اخلاط کی تعداد چار ہیں

1. دم
2. بلغم
3. صفراء
4. سوداء

- اسکے چار ہونے کی دلیل عمل استر قاء سے ہوا ہے
- اس عمل کو علامہ نفیسی، علی گیلانی، محمود آملی نے تصریح کیا ہے

اس عمل سے بلحاظ رنگ چار بڑے خانوں میں تقسیم کیا ہے

1. سرخ (خلط احمر)–خون
2. سفید (خلط ابیض)–یہ بے رنگ کی رطوبتیں ہیں–بلغم
3. زرد (خلط اصفر)–صفراء
4. سیاہ (خلط اسود)–اسمیں نیلے رنگ کی رطوبت بھی شامل ہیں۔

نظریہ اخلاط اور بقراط

اخلاط کے بانی بقراط کو مانا ہے، اور اخلاط کی تعلیم سب سے پہلے دینے والے طبیب

- خون میں سرخ اجزاء کے ساتھ سفید، زرد اور سیاہ اجزاء بھی پائے جاتے ہیں، جو سرخ رنگ میں دبے ہوتے ہیں، ان ہی چاروں اجزاء کو اخلاط اربعہ کہلاتا ہے، جن سے انسان کی صحت و بیماری وابستہ ہوتی ہے۔
- یہ سارے اجزاء خون میں ایک خاص تناسب سے ملے جلے رہتے ہیں جس سے صحت قائم رہتی ہے، اور جب اس تناسب میں بلحاظ کمیّت یا کیفیّت فرق واقع ہوتا ہے تو صحت کا خاتمہ ہو جاتا ہے۔

علامہ علی حسین گیلانی نے اخلاط کی چار ہونے پر دلالت پیش کیا مشاہدہ سے فصد کے ذریعہ۔

دم

مزاج:-حار رطب

فوائد:-

- بدن کا تغذیہ کرنا
- اعضاء کو بڑھانا(سن نمو میں)
- بدن میں حرارت پیداء ہوتی ہے
- بشرہ میں جمال اور حسن پیداء کرتی ہے
- انجماد خون(خون کے خارج ہونے کو روکتا ہے)

طبعی خون

- رنگ-سرخ
- بو-بے بو
- قیوام-معتدل قیوام
- مزہ-شیرین

غیر طبعی خون

ایک خصوصیت میں غیر معتدل ہونا

1. رنگ کے اعتبار سے
2. بو کے اعتبار سے
3. قیوام کے اعتبار سے
4. مزہ کے اعتبار سے

دو خصوصیت میں غیر معتدل ہونا

1. رنگ وبو
2. رنگ وقیوام
3. رنگ ومزہ
4. بووقیوام
5. بوومزہ
6. قیوام ومزہ

تین خصوصیت میں غیر معتدل ہونا

1. رنگ و، بو، مزہ
2. رنگ، بو، قیوام
3. رنگ، قیوام، مزہ
4. قیوام، مزہ، بو

چار خصوصیت میں غیر معتدل ہونا

1. رنگ، بو، مزہ، قیوام

بلغم

مزاج: سرد وتر (باردرطب) (علامہ قرشی)

حار رطب (صاحب کمال علی بن عباس مجوسی، ابو سہل مسیحی)

شیخ کے مطابق حار (لیکن صفراء کے مقابل زیادہ بارد)

فوائد:

- خون کی شکل اختیار کر سکتا ہے
- اعضاء کو تر رکھتا ہے
- دماغ جیسے اعضاء (بلغمی مزاج) کے تغذیہ کا کام کرتا ہے
- بلغم خون کے ساتھ ملکر قوام میں لزوجت پیداء کرتا ہے

غیر طبعی بلغم

مزہ کے لحاظ سے

- بلغم مالح (نمکین بلغم): (گرم خشک)
- بلغم حامض (ترش بلغم): (سرد خشک)
- بلغم مسیخ (پھیکا بلغم): سرد
- بلغم عفص (کسیلہ بلغم): سرد خشک
- بلغم حلو (شیرین): گرم تر

قوام کے لحاظ سے

- بلغم مائی (پانی جیسا رقیق بلغم)
- بلغم حصّی (نہایت غلیظ بلغم)
- بلغ خام / مخاطی (قوام مختلف ہوتا ہے)
- بلغم زجاجی (پگلی ہوئی کانچ کی طرح لسیدار اور گاڑا قوام ہوتا ہے / مزہ ترش یہ پھیکا ہوتا ہے)

بولحاظ سے

- بلغم منتن (بدبودار)

امراض بلغمیہ

- ورم تھبجی
- سلعہ عسلیہ
- سلوہ شحمیہ

صفراء :-

- مزاج:-حار خشک
- افعال:-
- شیخ کے مطابق
- ترقیق دم (خون کو لطیف بنا کر تنگ راستوں سے نفوذ کراتا ہے)
- تغزیہ اعذاء (پھیپھڑے، عضاریف، لسان، عروق دمویہ)
- غسل معدہ (صفراء کا ایک حصّہ آنتوں پر گر کر ان کو ثقل اور لسیدار بلغم سے دھوتے ہیں)
- (صفراء جو حصّہ خون میں شامل ہوتا ہے اسکو سریرہ کہتے ہے، صفراء کا جو حصّہ امعاء میں گرے اسکو جہیرہ کہتے ہے)
- علامہ نفیسی کے مطابق
- تحریک براز
- قتل دیدان
- علامہ طبری اور صاحب کمال
- ہضم غذاء
- طبعی صفراء

- علامہ قرشی کے مطابق:-احمر ناصع (اصفر زعفرانی)، خفیف (ہلکا)، حاد (تیز)
- ابو سہل مسیحی کے مطابق:-مزہ کڑوا، رنگ زرد، حاد (تیز)، لطیف ورقیق ہوتا ہے
- شیخ الرئیس کے مطابق:-صفراء کا مزہ تلخ، رنگ زرد اور قیوام رقیق ہوتا ہے
- صفراء غیر طبعی (صفراء غیر طبعی)
- صفراء محیّہ (غلیظ بلغم کے ساتھ ملجاتا ہے)
- مرّہ صفراء (رقیق بلغم کے ساتھ ملجاتا ہے)
- صفراء محترقہ (جلے ہوئے سوداء کے ساتھ ملجاتا ہے)
- صفراء کراثی (صفراء بذات خود جل جاتا ہے)
- صفراء زنجاری (اسمیں احتراق زیادہ شدید ہوتا ہے، یہ زہروں کے مشابہ ہوتا ہے)
- امراض صفراوی
- یرقان اصفر (زرد یرقان)
- حصاۃ الکبد (جگر کی پتھری، صفراوی پتھری)
- حصف صفراوی
- بثور صفراوی
- صغر الکبد اصفر (جگر کی زرد لاغری)
- قئے صفروی، اسہال صفراوی، بول اصفر، حمیات صفراویہ، قولنج صفراوی۔

- **سوداء:-**

- مزاج:-سرد وخشک (شیخ وعلامہ قرشی)
- حار (ابو سہل مسیحیٰ)

- **فوائد:-**

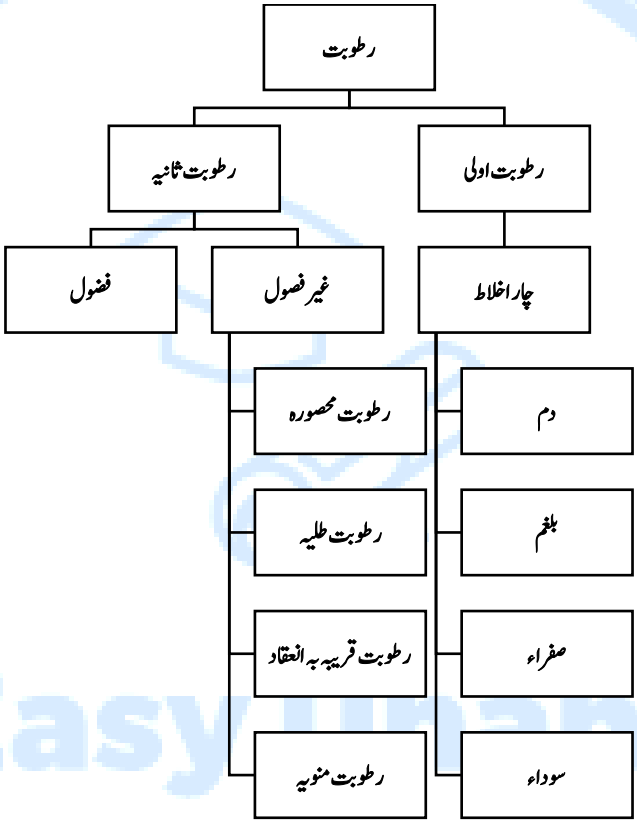
- 1۔ تغلیظ قیوام (خون کو گاڑا کرتا ہے)
- 2۔ تغذیہ اعضاء (ہڈی وعضروف کے مانند اعضاء کا تغزیہ کرتا ہے)
- تشہیہ طعام (فم معدہ پر گر کر بھوک کی خواہش کو بڑھاتا ہے)
- سوداء طبعی:-خون کا گاد / تلچھٹ ہے

- سوداء غیر طبعی:-ہر خلط کے احتراق سے یہ غیر طبعی کیفیت بنتی ہے
- **اسکی 4 قسمیں ہے**
- 1۔سوداء دموی(دم اسود)
- 2۔سوداء بلغمی(سیاہ صفراہ / مرّہ اسود)
- 3۔سوداء صفراوی
- 4۔سوداء سوداوی
- **امراض سوداویہ**
- 1۔براز سوداوی / خلفہ سوداویہ
- 2۔قے سوداوی
- 3۔بول سوداوی
- 4۔سوداویت = جلد سودای
- 5۔سلعہ سوداوی
- 6۔سرطان سوداوی / سیاہ سرطان
- 7۔سیقورس سوداوی
- 8۔عرق سوداوی / سیاہ پسینہ
- 9۔اوذیمائے سوداوی / سیاہ تہیج
- 10۔ظفرہ سوداوی / ناخونہ سیاہ
- 11۔یرقان سوداوی / یرقان سیاہ

علامہ علی حسین گیلانی نے اخلاط کی چار ہونے پر دلالت پیش کیا مشاہدہ سے فصد کے ذریعہ۔

- خلط طبعی اور خلط غیر طبعی
- شیخ الرئیس کے مطابق
- **خلط محمود (طبعی خلط)**
- اس میں یہ قابل ہوتی ہیکہ وہ جوہر عضوء یہ عضوء بن سکتا ہے یعنی بدل ما تحلل بن سکتا ہے

- **خلط غیر طبعی (خلط ردی)**
- **یہ فضلہ بنتا ہے**
- شیخ کے مطابق رطوبت کی دو قسمیں ہیں
- رطوبت اولی
- رطوبت ثانیہ



اعضاء

- بقراط کے مطابق تمام اعضاء میں اشرف و اعلی سردار دماغ ہے۔ جو نفس ناطقہ کا محل ہے
- بقراط کے مطابق سب سے پہلے عضو دماغ پیداء ہوا ہے
- ارسطو کے مجابق تمام اعضاء کا رئیس قلب ہے اور نفس ناطقہ کا محل قلب ہے

- جالینوس کے مطابق چار قوتوں کے خادم اعضاء چار ہے

✓ قوّت حیوانیہ کا عضوء رئیس قلب ہے اور عضوء خآدم شرائین ہے

✓ قوّت نفسانیہ کا عضوء رئیس دماغ ہے اور عضوء خادم اعصاب ہے

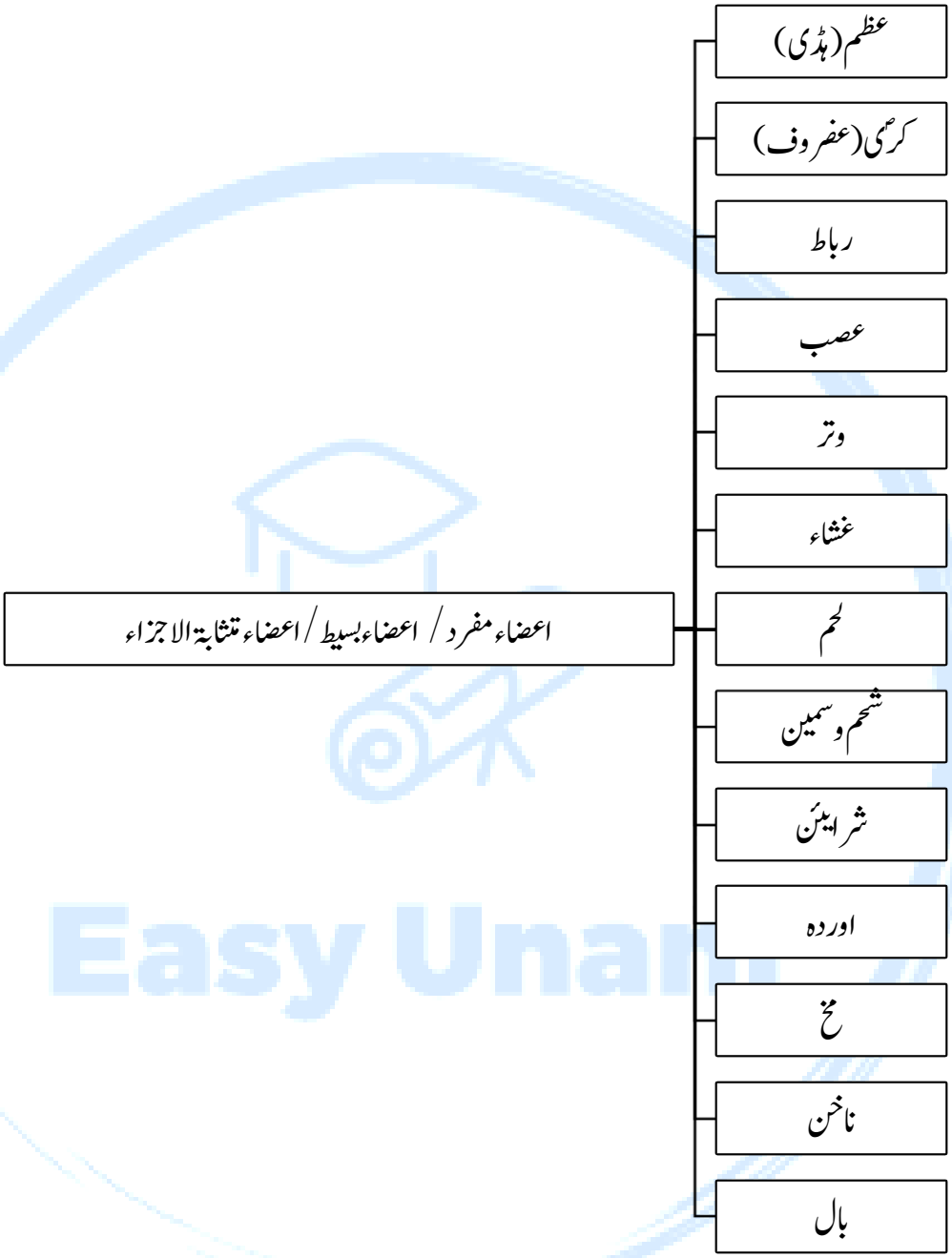
✓ قوّت طبعیہ کا عضوء رئیس جگر ہے اور عضوء خآدم ورید ہے

✓ قوّت تناسلیہ کا عضوء خصیہ ہے اور عضوء خآدم مگری منی ہے

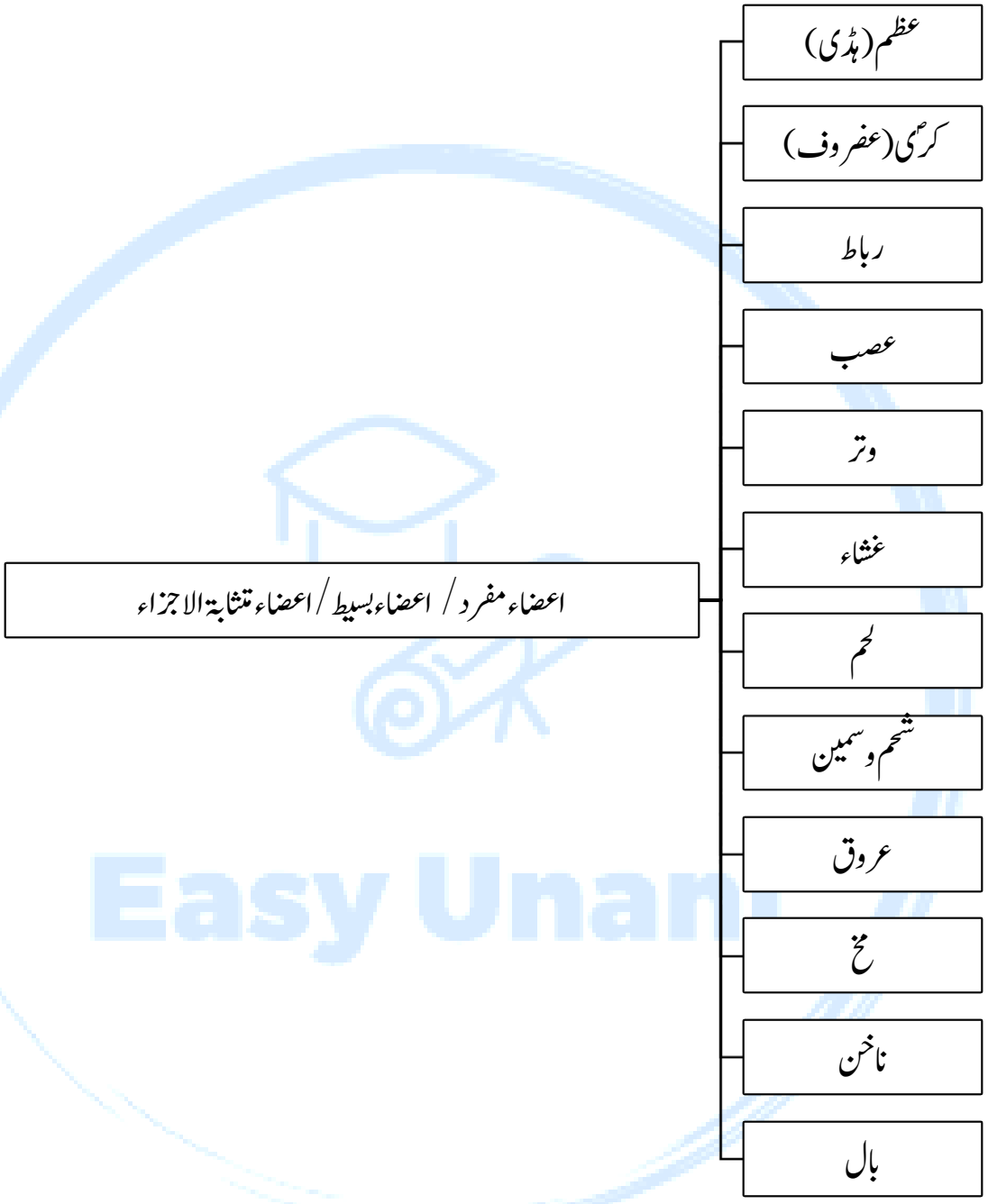
اعضاء مفرد

علامہ قرشی کے مطابق اعضاء مفرد 10 ہے

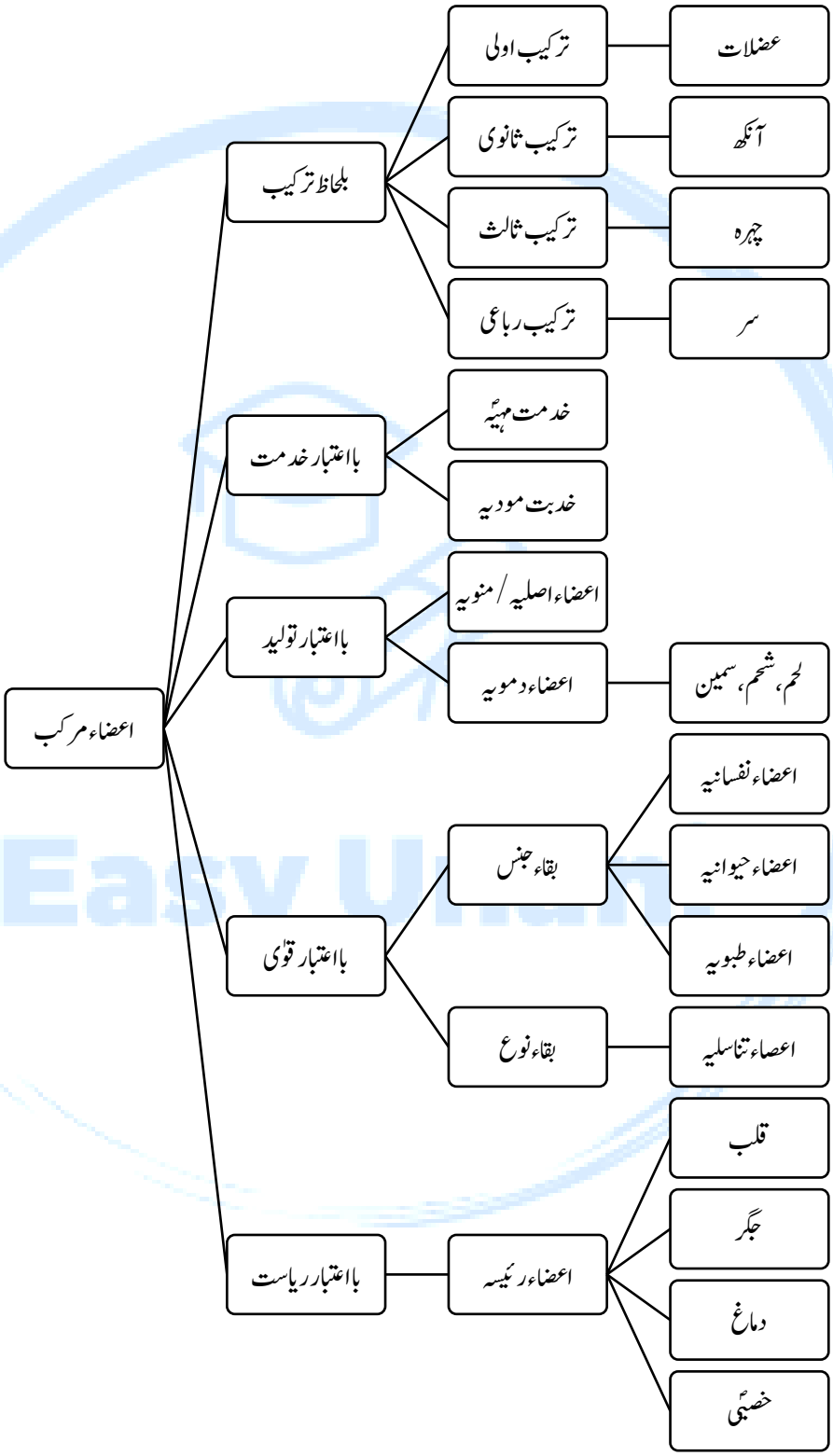
صاحب کمال کے مطابق اعضاء مفرد 13 ہے



ابو سہل مسیحی کے مطابق اعضاء مفرد 12 ہے



اعضاء مرکب


اعضاء مرکب
بلحاظ ترکیب
ترکیب اولی
عضلات
ترکیب ثانوی
آنکھ
ترکیب ثالث
چہرہ
ترکیب رباعی
سر
باعتبار خدمت
خدمت مہیّہ
خدمت مودیہ
باعتبار تولید
اعضاء اصلیہ / منویہ
اعضاء دمویہ
لحم، شحم، سمین
باعتبار قوٰی
بقاء جنس
اعضاء نفسانیہ
اعضاء حیوانیہ
اعضاء طبویہ
بقاء نوع
اعصاء تناسلیہ
باعتبار ریاست
اعضاء رئیسہ
قلب
جگر
دماغ
خصیّ

اعضاء مرکب

عضو معطی: کوئی عضوء دوسرے عضوء کو طاقت بخشتی ہے۔(مثال: دماغ کا اعصاب کو طاقت دینا)

عضو قابل: جو عضو کسی طاقت کو قبول کریں

ہڈی (عظم)

اسمیں مڑنے کی صلاحیت نہی ہوتی

فائدہ:

- بعض ہڈی بدن کیلئے سہارہ دیتی ہے، اور عضوء رئیس کی حفاظت کرتی ہے
- بعض ہڈیاں جوڑوں کے درمیانی خلاؤں کو پر کرتے ہیں
- بعض ہڈیاں دوسرے اعضاء کے افعال کی حفاظت کرتی ہے (مثال: عظم سمع)
- بعض ہڈیاں راستہ بناتی ہے (ناک کی ہڈی)

کرمی (عضروف)

- اسمیں نرمی اور لچک ہوتی ہے
- بعض عضوء رئیس کی حفاظت کرتی ہے
- بعض نرم ونازک اعضاء کو ڈھانکتا ہے
- کھلے راستوں کو بناتی ہے

رباط

✓ سفید ولچکدار عضوء جو دیکھنے اور چھونے میں عصب کے مانند نظر آتی ہے

رباط کے منافع

1. ایک ہڈی کو دوسری ہڈی سے باندھنا
2. رطاب وعصب ملکر خانہ دار جال بنتے ہے، اور یہ ریشہ خلاؤن (لحم عضلی) کو پر کرتے ہے
3. اوتار بننے میں رباط کا بیشتر حصہ ہوتا ہے
4. شریانوں اور وریدوں کے ساخت میں بھی رباطی جوہر پایا جاتا ہے

عصب

✓ سفید ولچکدار جو مڑنے میں نرم ٹوٹنے میں سخت ہوتی ہے

✓ یہ دماغ و نخاع سے متصل ہوتے ہے

عصب کے منافع

1. عصب اعضاء میں حس و حرکت پیداء کرتی ہے
2. دماغ و نخاع سے اعضاء کے درمیان تعلق قائم ہوتا ہے

وتر

✓ عضلات میں سفید حصہ وتر ہے جسکو نس بھی کہتے ہے۔

وتر کے منافع

1. اعصاب کی کھنچاؤ و تناؤ میں مدد کرتا ہے
2. اعصاب کی پھیلنے و سکڑنے کا کام کرتی ہے

غشاء:-

اقسام:-

1. رباطی جھلیاں / غشاء رباطی / صفاق: عصلات کو باندھتی ہیں
2. عروقی جھلیاں / غشاء عروقی /: وہ جھلیاں جن کے اندر عروق کی کثرت ہوتی ہے، یہ اعصاء کے تغذیہ کا کام کرتی ہے، مثلا: غشاء العظم، امّ عنکبوتیہ
3. غشاء مائی / طلّی: اس قسم کی غشاء اعضاء کو تر رکھتی ہے، یہ یس میں پانی جیسا مادہ بند رکھتی ہے مثلا: غشاء ریوی، باریطون۔
4. غشاء مفصلی: جو مفاصل کی ساختوں کے اندر استر کرتی ہے

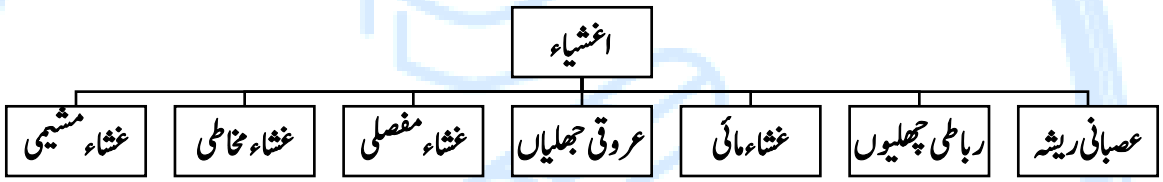
منافع:

1. بعض اعضاء کی ساخت کو برقرار رکھتی ہے
2. بعض اعضاء کو استر کرتی ہے اور دوسرے اعضاء کو جوڑتی ہے۔
3. بعض اعضاء میں قوّت حسّاسیہ معدوم ہوتی ہے، ایسے اعضاء پر ذی حسّ جھلّی استر کرکے ان میں احساس سطح بنا دیتی ہے۔
4. بعض جھلیاں سخت اور نرم عضوء کو جوڑنے کا کام کرتی ہے
5. جس عضوء پر جھلّی کرتی ہے اسکو مضر اثر سے بچاتی ہے
6. بعض جھلیاں جنین کی تغذیہ کا کام کرتی ہے (مثلا غشاء مشیمی)
7. بعض جھلیاں بدنی حرارت کی حفاظت کرتی ہے
8. بعض جھلیاں شریف اعضاء کی حفاظت کرتی ہے گندے بخارات سے مثلا: حجاب حاجز

9. بعض جھلیاں سے ایسے رطوبت کا ترشح ہوتا ہے اور دوسری چیزوں کے ہضم و تغیرؑ میں امداد ہوتی ہے

✓ یہ رقیق اور چوڑے اجسام ہیں، جو باریک عصبانی ریشوں سے بن کر تیار ہوتے ہیں جو دوسرے اعضاء کی سطحوں کو اندر باہر سے ڈھانکتی ہے

اقسام



غشاء کی منافع

1. اعضاء پر استر کرتی ہے
2. بعض اغشاء سخت اور نرم عضو کے بیچ میں حائل ہوتی ہے جسے جھٹکے کے دور کرتا ہے

لحم (گوشت)

✓ بقول ملا نفیسی، محمود آملی، شیخ الرئیس کے مطابق شحم و سمین بھی لحم میں شامل ہوتے

لحم میں منافع:

- اعضاء کی تحریک پیداء کرتے ہے
- بدن میں گرمی پیداء کرتی ہے
- رخاؤں کو پر کرتی ہے
- بعض اعضاء کو بیرونی ضدمات سے محفوظ کرتی ہے
- اعضاء میں حسن پیداء کرتی ہے

شحم و سمیں (چربی اور رواج)

- شحم (گاڑی چربی) معتدل مزاج
- نہایت سفید اور نہایت نرم
- سمین (پتلی چربی) بارد مزاج
- عضلات کو ڈھانکار کھتا ہے

• لحم (گوشت):-

- بقول ملا محمود آملی، شیخ الرئیس کے نزدیک شحم و سمین بھی لحم میں شامل ہے
- لحم کے اقسام
- لحم عضلی:- عضلات کے اندر جو لحم پایے جاتے ہے اور اعضاء کو تحریک دیتا ہے
- لحم غدی:- گلٹیوں میں پایے جاتی ہے اور رطوبت کی تولید ہوتی ہے

- لحم الأسنان:-دانتوں کا گوشت
- لحم الریہ:-پھیپھڑوں کا مخصوص گوشت
- لحم قلبی:-قلب کا مخصوص گوشت
- لحم کبدی:-جگر کا مخصوص گوشت
- لحم طحالی:-طحال کا مخصوص گوشت

- لحم کے منافع:-
- علامہ نفیسی کے مطابق
- لحم عضلی کا منافع:-
- تحریک اعضاء(اعضاء کی حرکت کا مخصوص فعل کرنا)
- بدن میں حرارت(گرمی)کو بند کرتا ہے
- اعضاء بسیط کے درمیان واقع خالی جگہوں کو پر کرتا ہے
- بعض اعضاء کو بیرونی صدمات سے محفوظ رکھتا ہے
- بعض اعضاء کو فرش بھی مہیہ کرتا ہے(مثلاًران وسرین کا گوشت)
- لحم اعضاء کی شکل وصورت میں حسن وخوبی حاصل ہوتی ہے۔(چنانچہ دق کے مریضوں میں گوشت کی کمی کی وجہ سے شکل بگڑ جاتی ہے۔
- لحم بیرونی حرارت کو نفوذ سے محفوظ رکھتا ہے۔
- لحم غدودی کے فواید علامہ محمود آملی نے قلم بند کیے ہیں
- بعض گلٹیاں ایسی رطوبت پیداء کرتے ہیں جو بقاء نوع کیلئے ضروری ہے(مثلاً:-غدہ ودی،غدہ مذی،انثیین)
- بعض گلٹیاں کوئی رطوبت پیداء کرتے ہیں جسے بدن کے تغذیہ کا فعل ہوتا ہے۔(مثلاً:-غدد تحت السان،غدد تحت الفلک،غدد اصل الاذن)جسے رطوبت لعابیہ پیداء ہوتی ہو۔
- لحم ریوی کا مخصوص فعل تنفس سے متعلق خدمات انجام دینا
- لحم قلبی کا مخصوص فعل دوران خون کا فعل انجام دینا
- لحم کبدی کا فعل صفراء پیداء کرتے ہوئے ہضم واستحالہ کا فعل انجام دینا
- لحم طحالی کا مخصوص فعل کریات حمراء ختم کرنا

شحم و سمین:-

- اسکی دو قسمیں ہیں
- سمین (رواج):- یہ نرم ہوتی ہے اسمیں جمنے کی صلاحیت کم ہوتی ہے۔ یہ چربی گوشت کے ساتھ اسکی جھلیوں میں رہتی ہے۔
- شحم:- یہ قسم جلد جمنے والی چربی ہے۔ یہ زیادہ خشک ہوتی ہے۔ یہ چربی کردوں پر اور شکم میں بکثرت پائی جاتی ہے۔

- شحم کے منافع
- تولید حرارت
- معین ہضم (بدن کے استحالہ کیلئے حرارت کی ضرورت ہے اور شحم حرارت پیدا کرتی ہے تو اس لحاظ سے معین حرارت ہے)
- اسمیں مخصوص قسم کی لزوجت رہتی ہے جسے حرارت کو بدن میں دیر تک محفوظ رکھتا ہے
- چربی سے بدن میں حسن و جمال پیدا ہوتی ہے
- اعضاء کو بیرونی حرارت و صدمات سے محفوظ رکھتا ہے
- اعضاء کو اپنی چکنائی سے نرم و تر رکھتا ہے جسے اسمیں خشکی جلد لاحق نہ ہو۔

اوردہ (ورید کی جمع):-

یہ تڑپتی نہی ہے اس وجہ سے عروق ساکنہ بھی کہا جاتا ہے۔

اسکی دیوار باریک رہتی ہے

اسمیں جو خون جاری ہوتا ہے وہ سیاہی مائل ہوتا ہے اور روح کی مقدار کم ہوتی ہے۔

اس میں نسیم / روح کی مقدار زیادہ ہوتی ہے

عروق شعریہ:-

ورید اور شرائین کے درمیان بال جیسی باریک رگیں ساخت کے اندر پائی جاتی ہے

اس عروق کے ذریعہ غزاء اور روح اعضاء تک پہنچ کر انکا تغذیہ کرتے ہے اور اعضاء سے دخان و فضلات کو دفع کرنے کا کام کرتے ہے

شرائین(شریان کی جمع)

یہ حرکت کرتی ہے(سکیڑتی اور پھیلتی ہے)اسکی وجہ سے اسکو عروق ضربہ کہتے ہے

شرایئن کے طبقات 3 ہے

1۔ورید

2۔شرائین

3۔عروق شعریہ(Capillaries)

ارواح

ابوالارواح:ایراسیسطراطس

مادہ روح دو چیزوں کے مرکب ہے

1. اخلاط لطیفہ
2. بیرونی ہواء

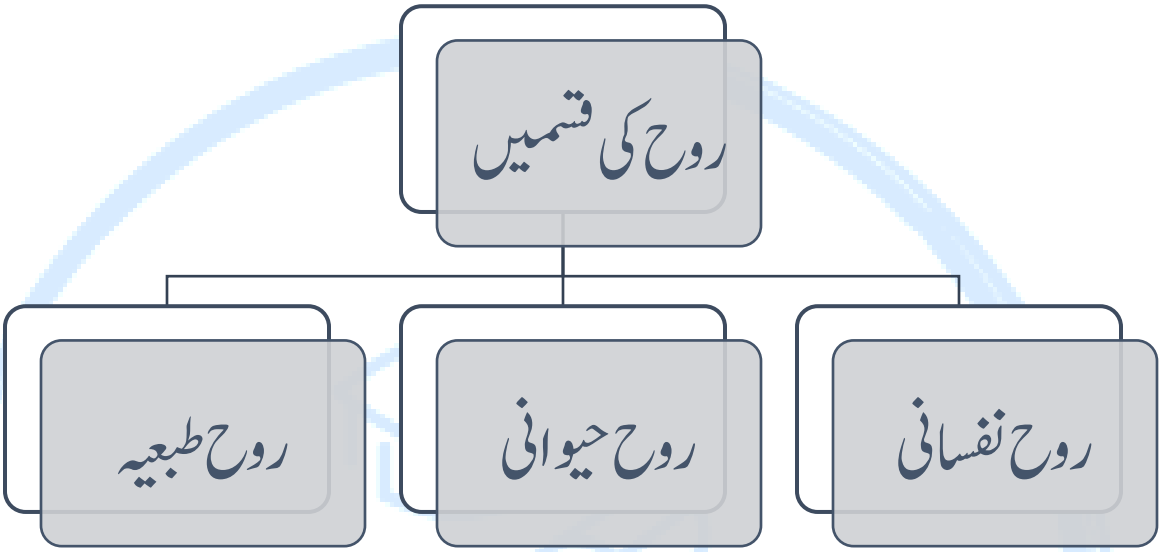
روح کے منافع

1. اعضاء میں حرارت پیداء کرتے ہے
2. اعضاء میں زندگی اور حیات قائم رہتی ہے
3. تمام اعضاء میں قوتیں قائم رہتی ہے

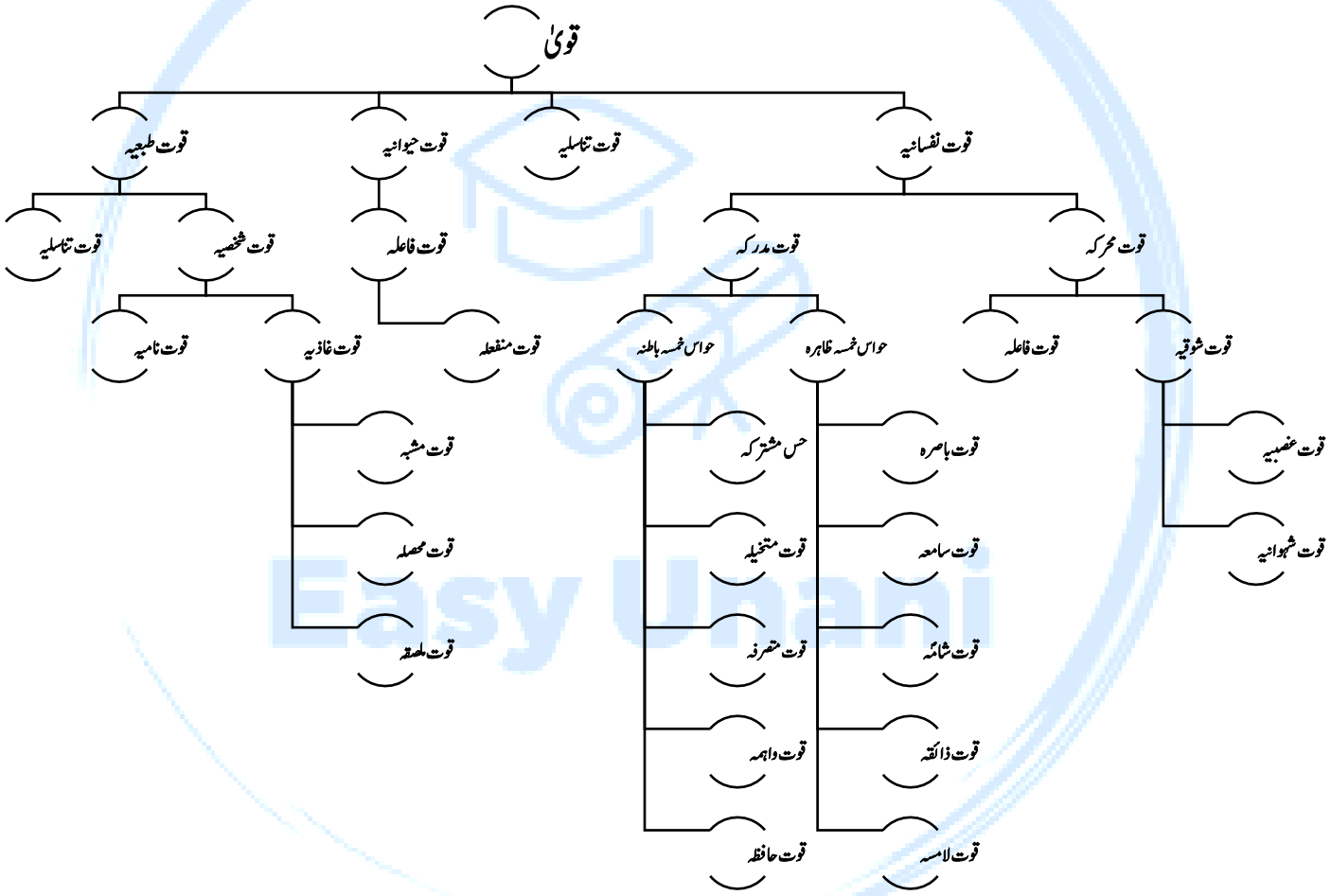
- ✓ تولید روح کی ابتداء پھیپھڑوں سے ہوتی ہے(علامہ گیلانی)
- ✓ عام روح کا مادّہ یہی ہواء ہے جو باہر سے سانس کے ذریعہ اندر کھینچی جاتی ہے(ابو سہل مسیحی)

✓ روح لطیف اخلاط سے پیدا ہوتی ہے (شیخ)

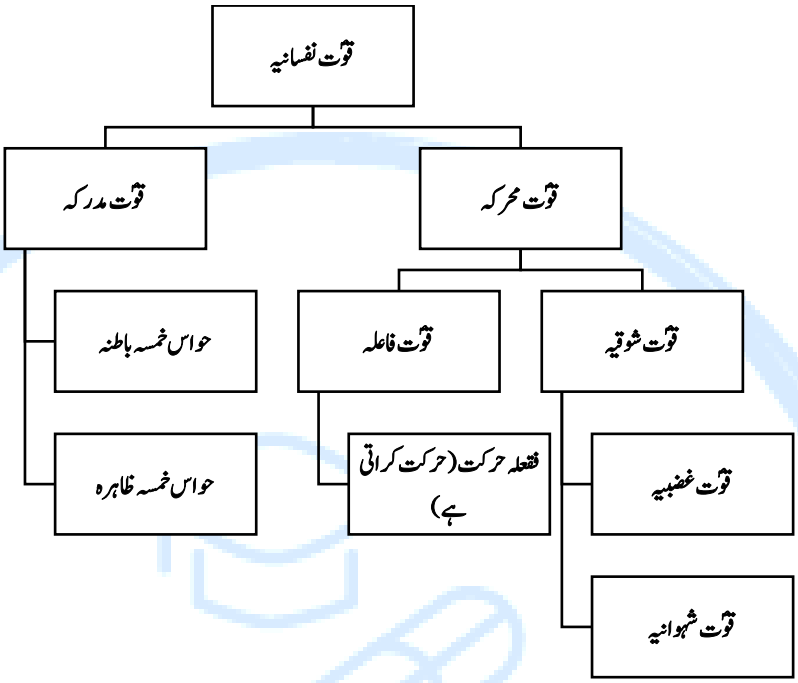
روح کی قسمیں



قویٰ


قویٰ
قوت طبعیہ
قوت حیوانیہ
قوت تناسلیہ
قوت نفسانیہ
قوت تناسلیہ
قوت شخصیہ
قوت فاعلہ
قوت مدرکہ
قوت محرکہ
قوت نامیہ
قوت غاذیہ
قوت منفعلہ
حواس خمسہ باطنہ
حواس خمسہ ظاہرہ
قوت فاعلہ
قوت شوقیہ
قوت مشبہ
قوت محللہ
قوت ملصقہ
حس مشترکہ
قوت متخیلہ
قوت متصرفہ
قوت واہمہ
قوت حافظہ
قوت باصرہ
قوت سامعہ
قوت شامہ
قوت ذائقہ
قوت لامسہ
قوت غضبیہ
قوت شہوانیہ

قوّت نفسانیہ



قوّت محرکہ

- حرکت دینے والی قوّت (ایسی قوّت جو بدن میں تحریک پیداء کریں)

قوّت شوقیہ / قوّت نزوعیہ

- وہ قوت جو حرکت کے باعث بنتی ہے، کسی حرکت یہ کسی کام سے پہلے دماغ میں جو عزم و خیال بنتا ہے اسکو اوّت شوقیہ کہا جاتا ہے

قوّت شہوانیہ

- جو خیال یا تصور باعث حرکت ہوتی ہے، اور یہ فی الحقیقت مفید ہو-اسکو قوّت شہوانیہ کہا جاتا ہے

قوّت غضبیہ

- جو خیال یا تصور باعث حرکت ہوتی ہے، اور یہ فی الحقیقت مضر ہو-اسکو قوّت شہوانیہ کہا جاتا ہے

علامہ برہانالدین نفیسی کے مطابق حرکت ارادی چار قوّتوں سے تکمیل پاتا ہے

1. قوّت خیال یا واہمہ:-(جسمیں کوئی تصور بنتا ہے)
2. قوّت شوقیہ:-(اسمیں تصور کے مطابق شوق پیداء ہوتا ہے)
3. قوّت عازمہ:-(اسمیں شوق کے بعد ارادہ ہوتا ہے)
4. قوّٹ فاعلہ:-(اسمیں ارادہ کے بعد عمل ہوتا ہے)

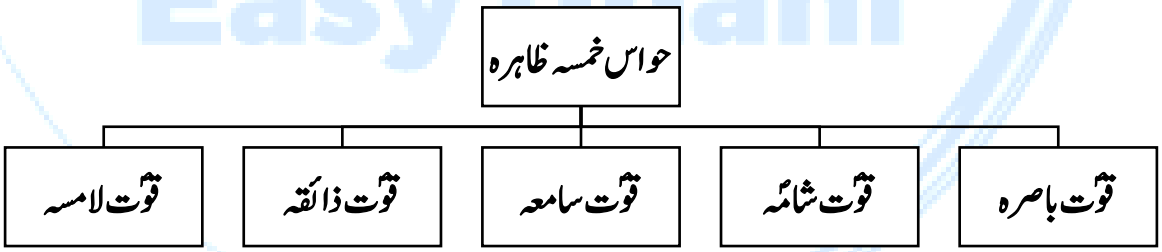
- شیخ کے مطابق حرکت عضلات کے اوتار میں سکڑنا اور ڈیلا کرنا (تشنج وارخاء) ہے، جسے عضلات و مفاصل میں حرکت پیداء ہوتی ہے۔

حرکت عضلات

1. حرکت ارادی:-(جس کا عمل ہمارے ارادے سے پورا ہوتا ہے؛مثال:بدن کے عام عضلات)
2. حرکت طبعیہ:-(جس میں ہمارے ارادہ کا کچھ دخل نہی:مثال: قلب، ادعاء کے عضلات)

قوّت مدرکہ

- اسکی دو قسمیں ہیں
- حواس خمسہ ظاہرہ



قوّت باصرہ:-

عضوءرئیس: آنکھ

آنکھ کے طبقات اور ینکا دماغی اغشیہ سے تعلق

1. طبقہ صلبیہ:-(ام غلیظ کا بڑھاؤ)
2. طبقہ مشیمہ:-(ام عنکبوتیہ کا بڑھاؤ)
3. طبقہ شکبیہ:-(عصب باصرہ کے ریشوں کی شاخ)

قوّت سامعہ:-

عضو رئیس:-کان

قوّت شامہ

عضو رئیس:-ناک

قوّت ذائقہ:-

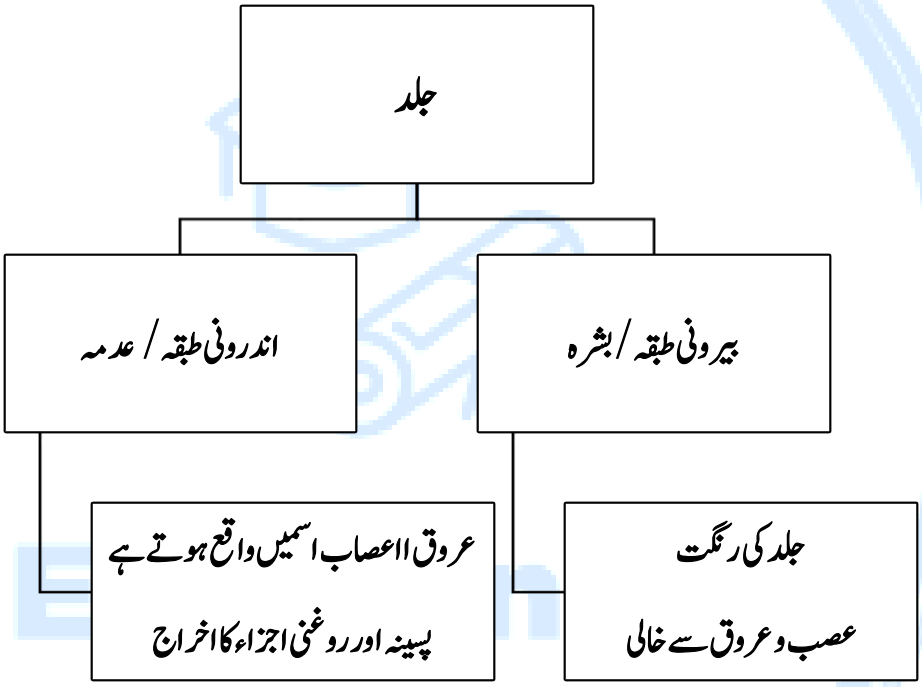
عضو رئیس:-زبان

قوت لامسہ

عضوءرئیس: جلد

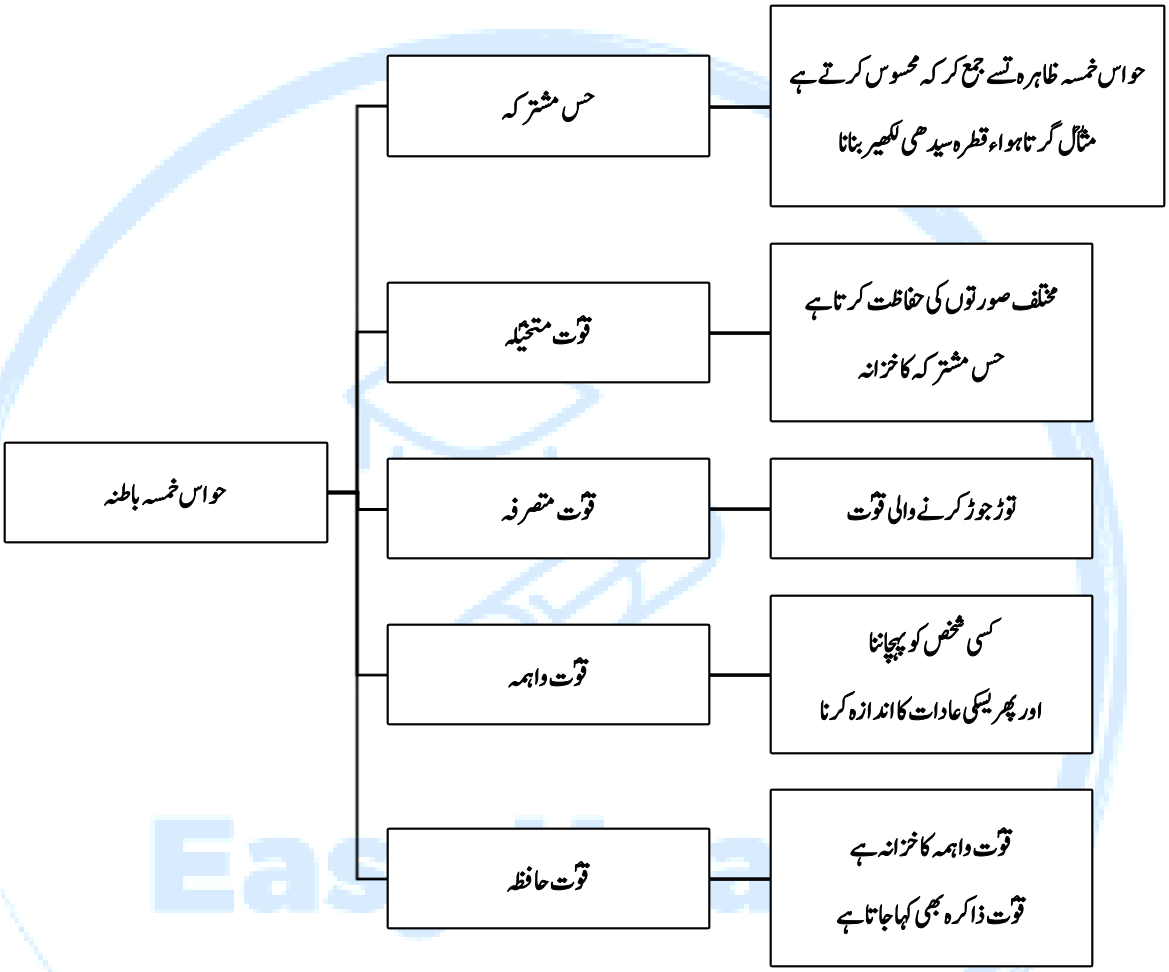
اس قوت کاکام چھوئے ہوئے اجسام کی حرارت، برودت، یبوست، رطوبت، خشونت (کھردرہٹ)، ملاست (چکناہٹ)، صلابت (سختی)، لیونت (نرمی)، خفت (ہلکاپن)، ثقل (بوجھ) کا ادرار کرنا

ابو سہل مسیحی کے مطابق



- صاحب کمال لکھتے ہیکہ بال اور ناخن کے علاوہ حس لمس بدن کے سارے اعضاء میں موجود ہے۔
- کیوں کہ ہر عضوء میں کوئی نہ کوئی حساس عصب ضرور پہنچتا ہے

حواس خمسہ باطنہ



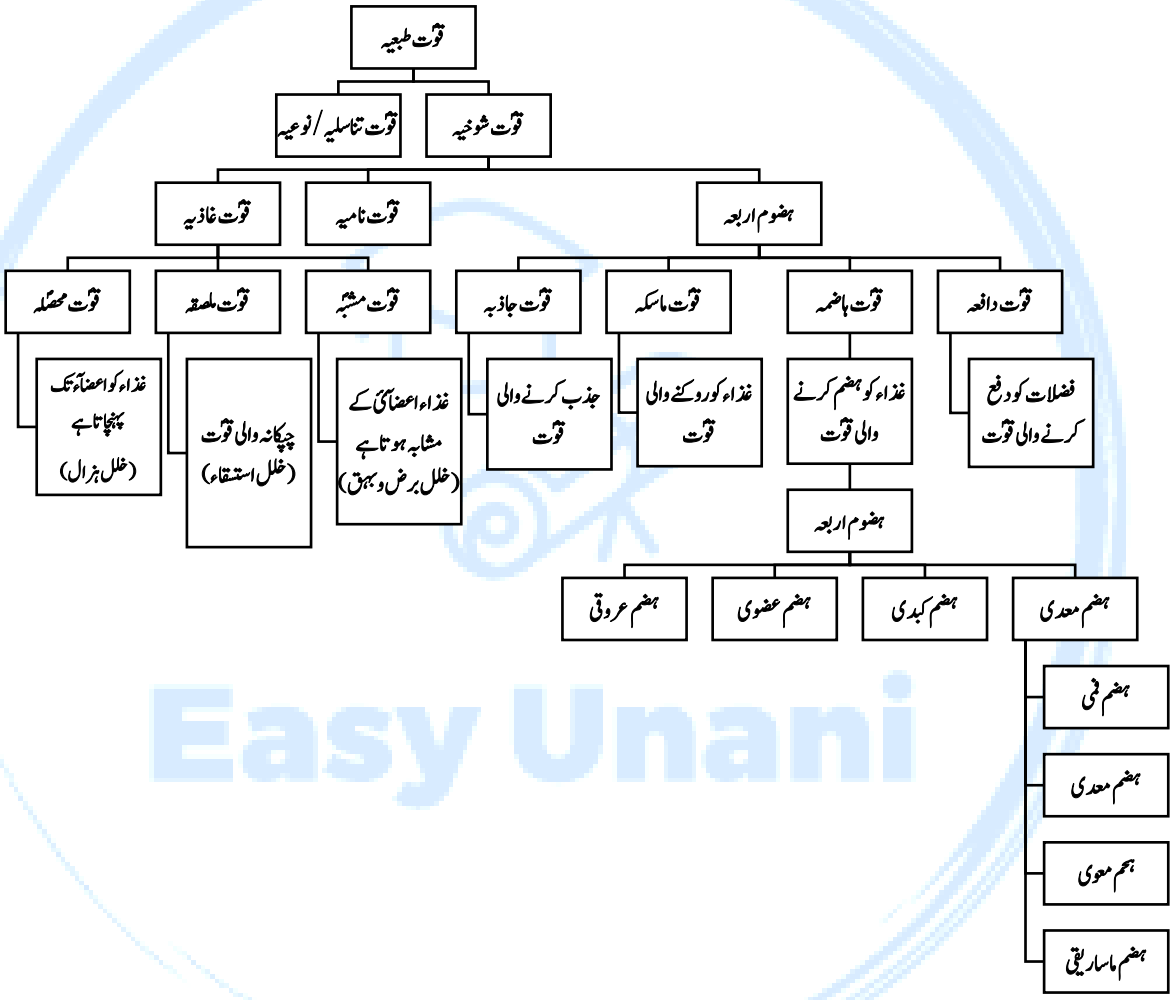
قوّت حیوانیہ

- عضوءرئیس:- قلب
- علامہ نفیسی کے مطابق تمام اعضاء کو حس کی قوت اور حرکت ارادی کی قوت قبول کرنے کے لئے آمادہ کرتی ہے.
- روح حیوانی کے ذریعہ تمام اعضاء کی حیات کو قائم رکھتی ہے
- اس قوّت کے ذریعہ روح تمام بدن تک پہنچتی ہے
- عضوء مفلوج زندہ رہتا ہے قوّت حیوانیہ کے فعل سے، اگر روح کی رسائی نہ ہو تو وہ عضوء سڑ کر خراب ہو جائے گا۔

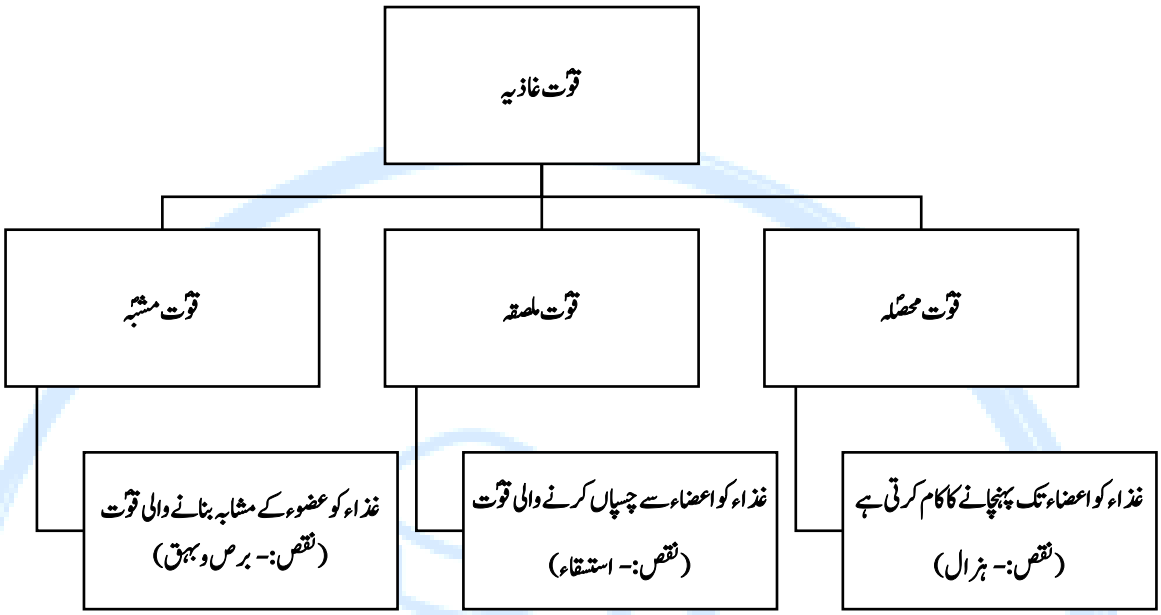
ابو سہل مسیحی کا قول ہے

- دوسری قوّتوں (انسانی، طبعیہ) پر حیوانیہ مقدم ہے
- ✓ اس قوّت میں دو قسم کی حرکت ہوتی ہے (1) انقباض (2) انبساط
- ✓ ان دو قوّتوں کے ذریعہ سے قوّت حیوانیہ پوری ہوتی ہے
- ✓ حرکات نفسانیہ مثلاً: خوف و غضب کو بھی اسی سے وابستہ کرتے ہے

قوت طبعیہ

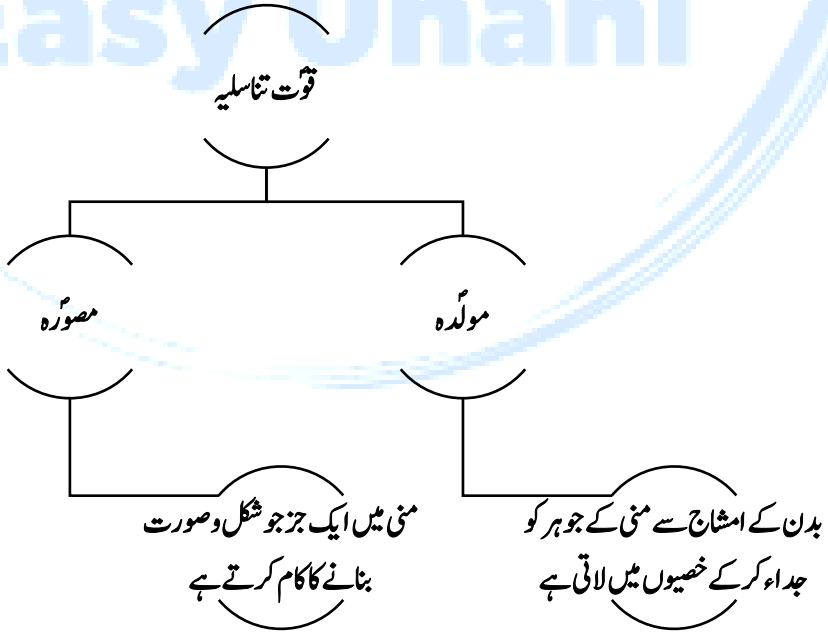

قوت طبعیہ
قوت شوخیہ
قوت تناسلیہ / نوعیہ
ہضوم اربعہ
قوت نامیہ
قوت غاذیہ
قوت دافعہ
قوت ہاضمہ
قوت ماسکہ
قوت جاذبہ
قوت مشبہ
قوت ملصقہ
قوت محللہ
فضلات کو دفع کرنے والی قوت
غذاء کو ہضم کرنے والی قوت
غذاء کو روکنے والی قوت
جذب کرنے والی قوت
غذاء اعضائی کے مشابہ ہوتا ہے (خلل برص و بہق)
چپکانہ والی قوت (خلل استسقاء)
غذاء کو اعضاء تک پہنچاتا ہے (خلل ہزال)
ہضوم اربعہ
ہضم معدی
ہضم کبدی
ہضم عضوی
ہضم عروقی
ہضم ماساریقی
ہجم معوی
ہضم معدی
ہضم فمی

قوّت غاذیہ

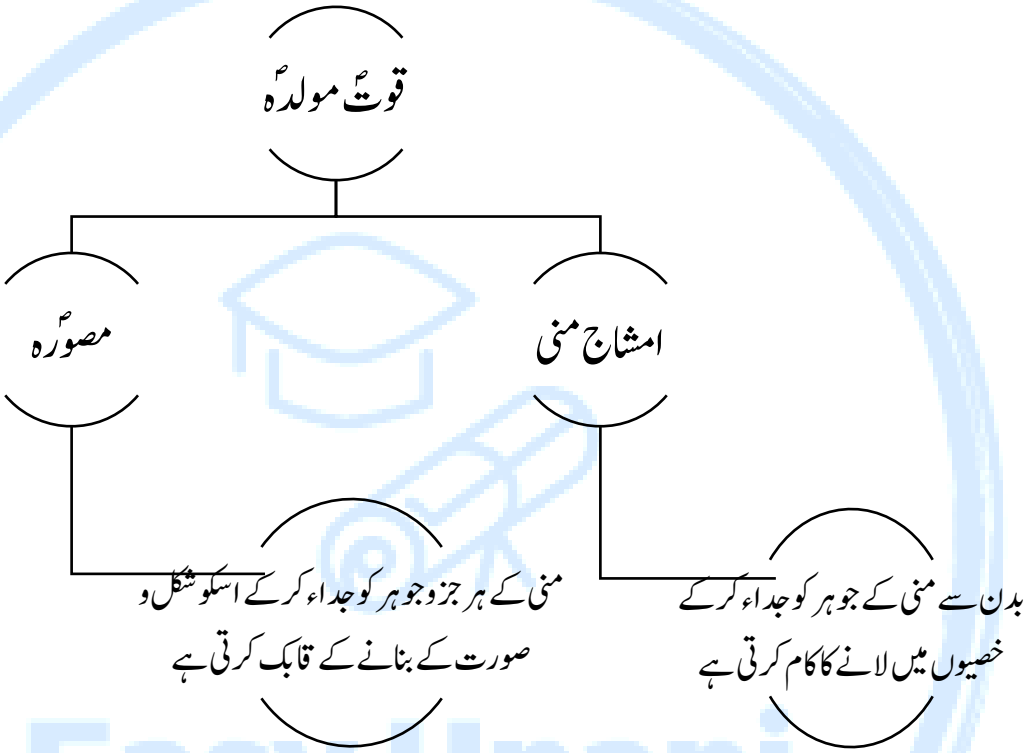


قوّت نامیہ

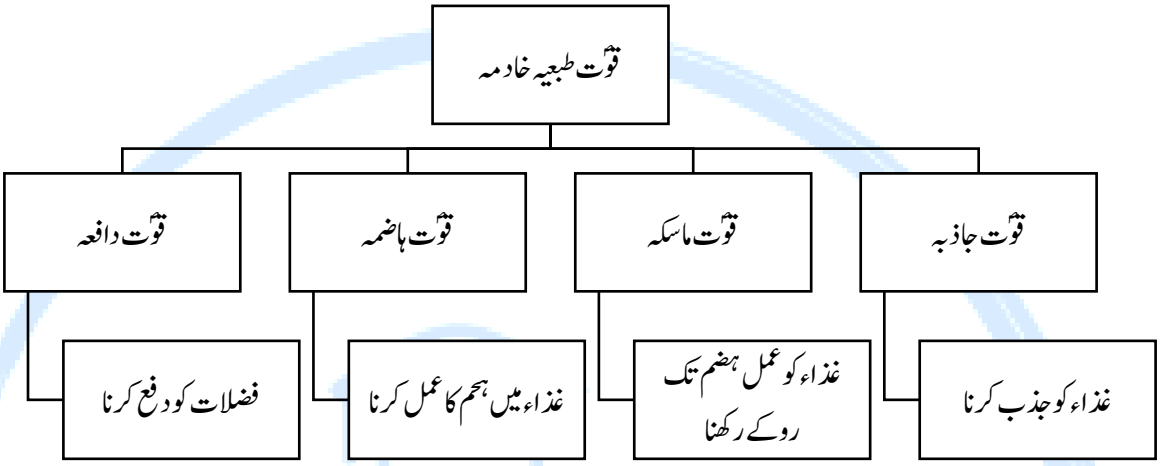
وہ قوّت جو جسم کو تینوں قطاروں (لمبائی، چوڑائی، موٹائی) میں تناسب سے بڑھانے کا کام کرتی ہے۔



قوتِ مولدہ


قوتِ مولدہ
امشاج منی
مصورہ
بدن سے منی کے جوہر کو جداء کر کے
خصیوں میں لانے کا کام کرتی ہے
منی کے ہر جزو جوہر کو جداء کر کے اسکو شکل و
صورت کے بنانے کے قابل کرتی ہے

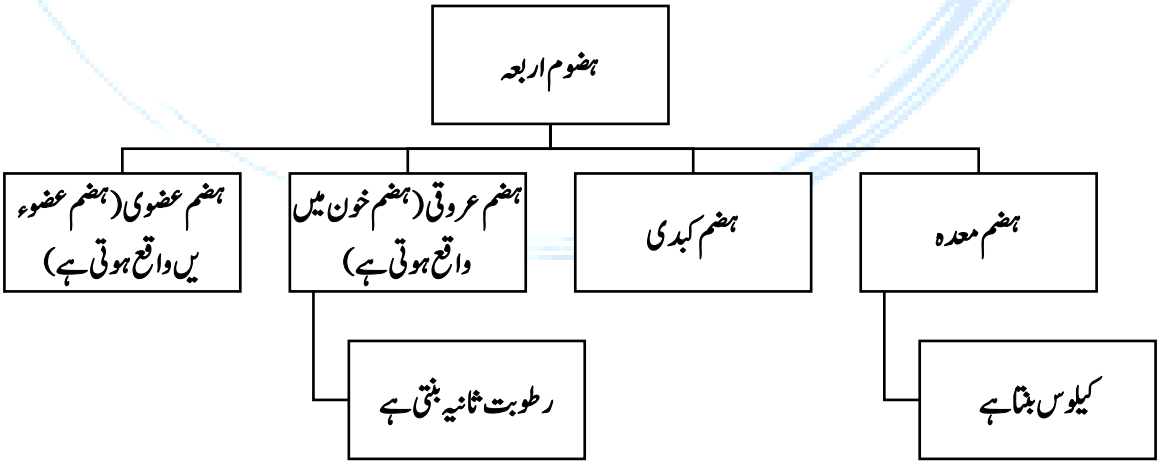
قوّت طبعیہ خادمہ



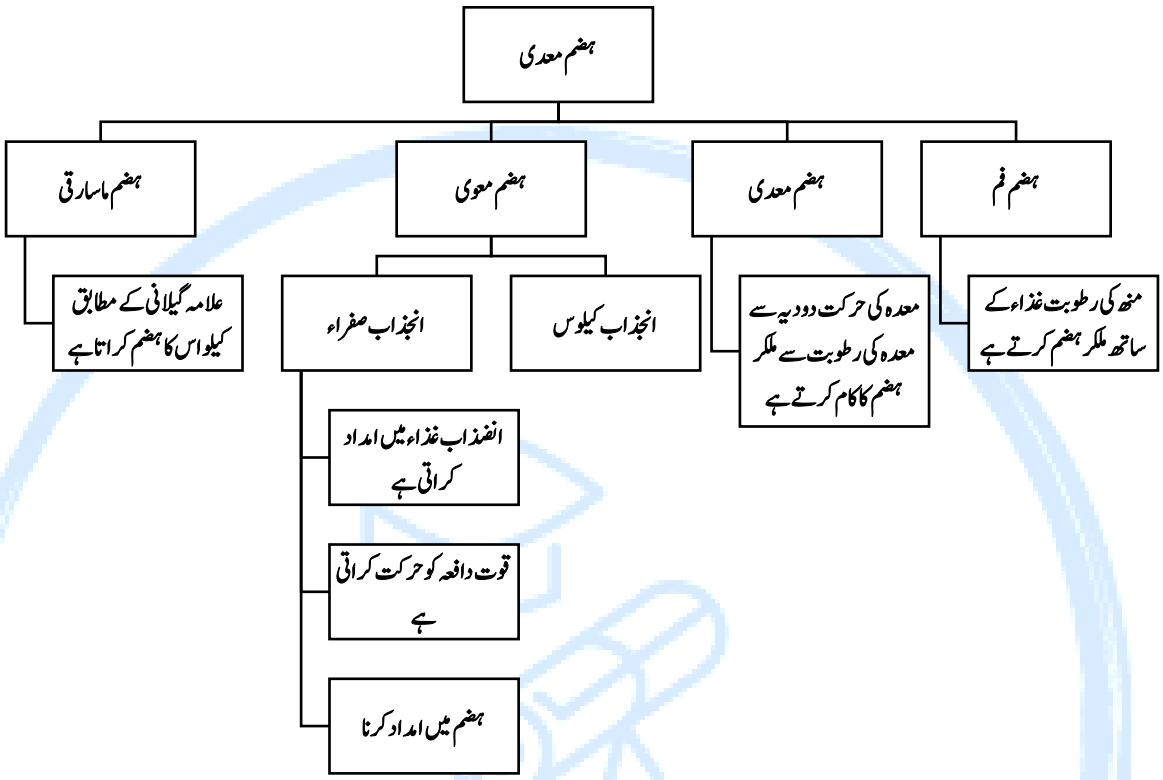
ہضم کی قسمیں

اطباء نے ہضم کو چار حصوں میں تقسیم کیا ہے

ابو سہل مسیحی کے مطابق ہضم کو تین حصوں میں تقسیم کیا ہے (معدی، کبدی، عضوی) (عروقی اسمیں نہی ہے)

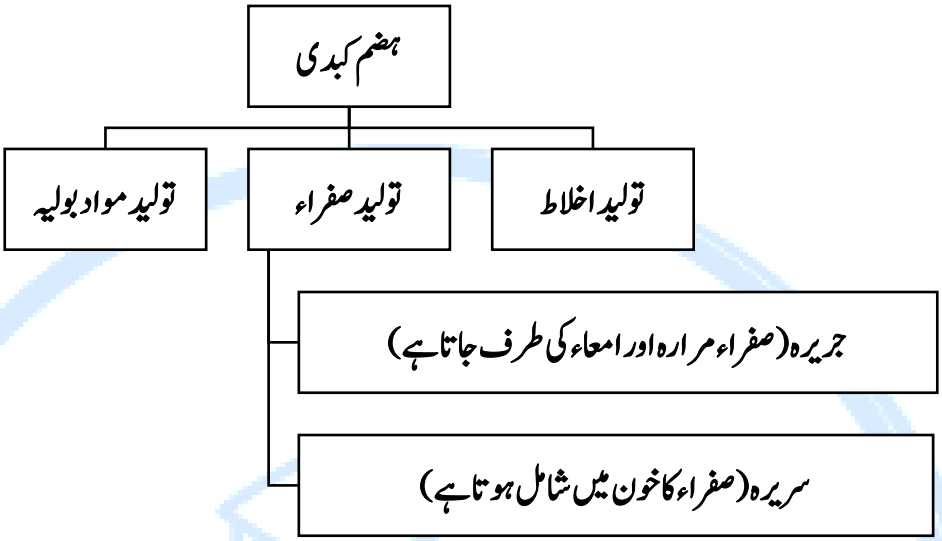


ہضم معدی



1. اوپر کی امعاء کو دقاق کہتے ہے۔ قوت ہاضمہ و قوت مُغیرہ میں زیادتی ہوتا ہے۔
2. نیچے کے امعاء کو غیلاظ کہتے ہے۔ قوت دافعہ قوی ہوتی ہے اور ینجذاب کا عمل بھی ہوتا ہے۔
3. ہضم معدی کے نتیجہ میں کیلوس بنتا ہے۔

ہضم کبدی



ہضم عروقی

- عروق کے اندر خان میں تغیرّات ہوتا ہے
- اس ہضم کے نتیجہ میں غذاء رطوبت ثانیہ میں بدلتی ہے

ہضم عضوی

- اس ہضم میں غذاء عضو کے مشابہ بنتی ہے (مزاج و شکل عضوٴ کے مشابہ ہوتا ہے)

قوٹ دافعہ

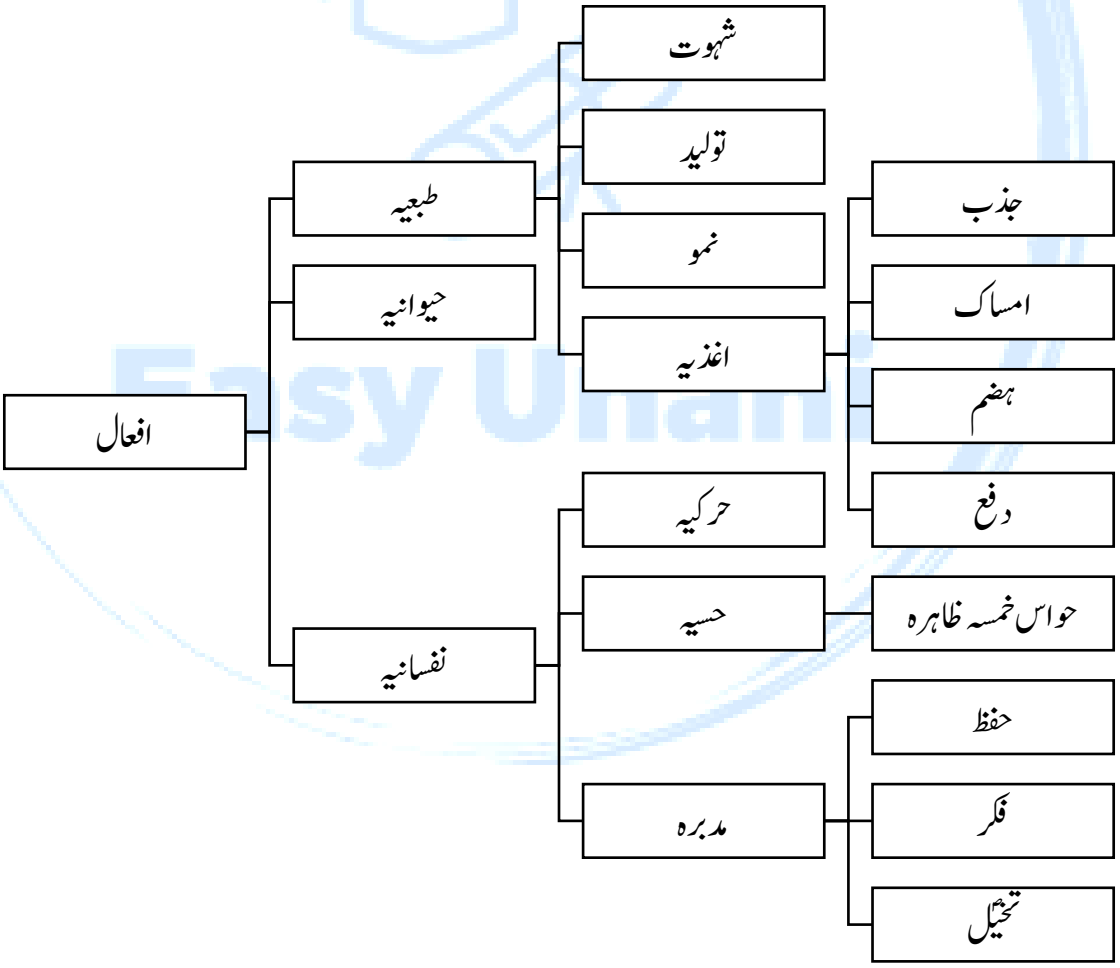
جو فضلات ہضم کے نتیجہ میں بنے ہے اسکو بدن سے دفع کرتے ہے

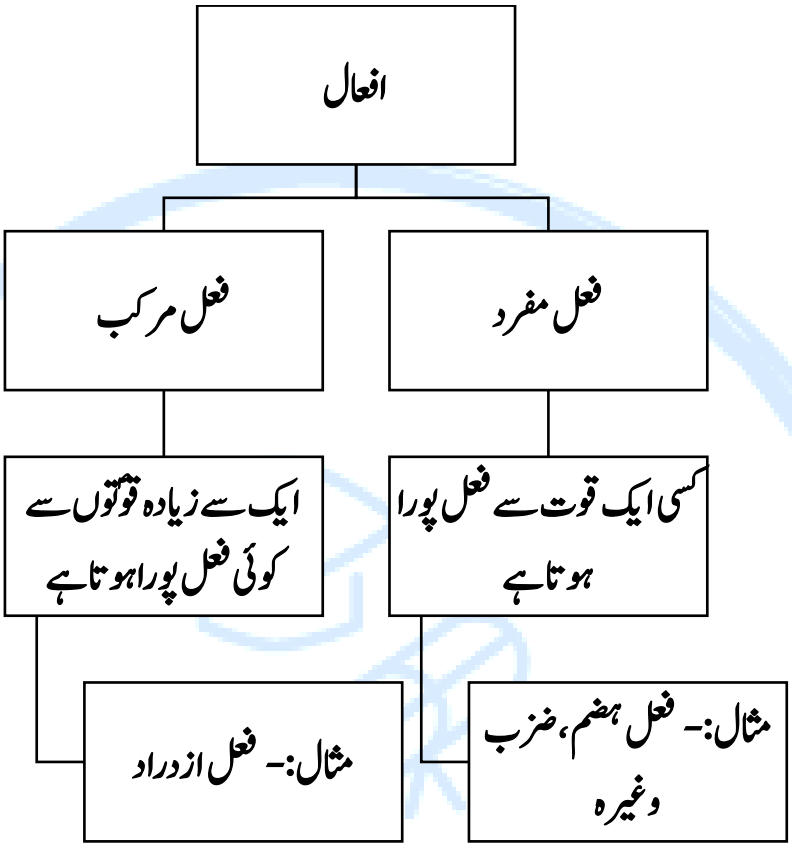
افعال

قوی اور افعال کے کے درمیان لازم وملزوم کا تعلق ہے

قوی اگر اسباب ہو تو افعال ان کے مسبب ہے

ابو سہل مسیحی کی مطابق قوی کی قسمیں





ازدراد (لقمہ نگلنا): علامہ نفیسی کے مطابق یہ عمل دو قوتوں سے پورا ہوتا ہے۔ ایک قوت ہضم دوسری حلق کی قوت دافعہ

Easy Unani

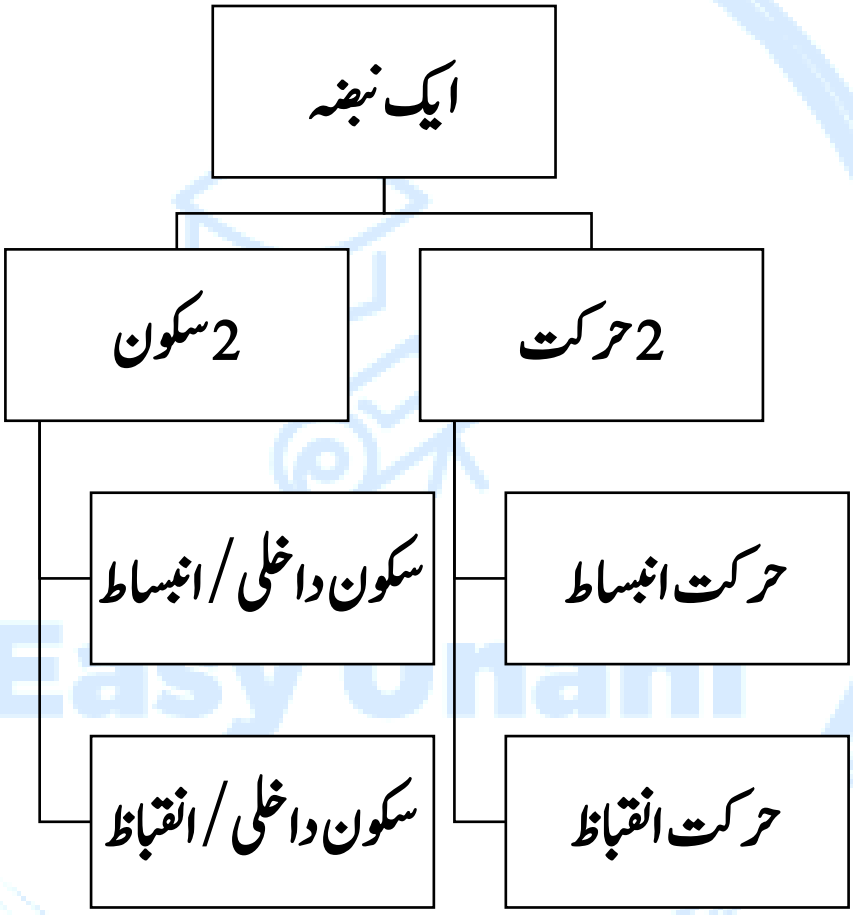
Nabz, Baul, Baraz

نبض، بول، براز

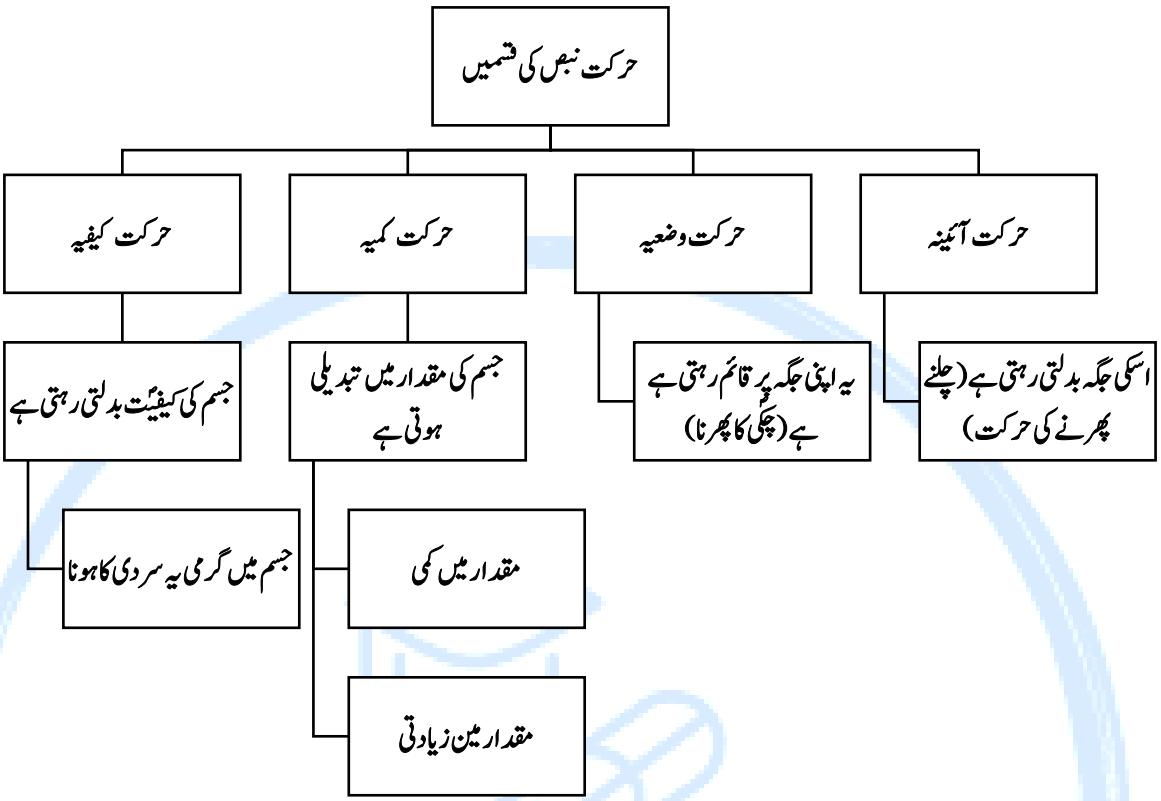
نبض

نبض شرائین کی حرکت کانام ہے

ترکیب نبض: ایک نبضہ چار نبضوں سے ملکر بنتی ہے



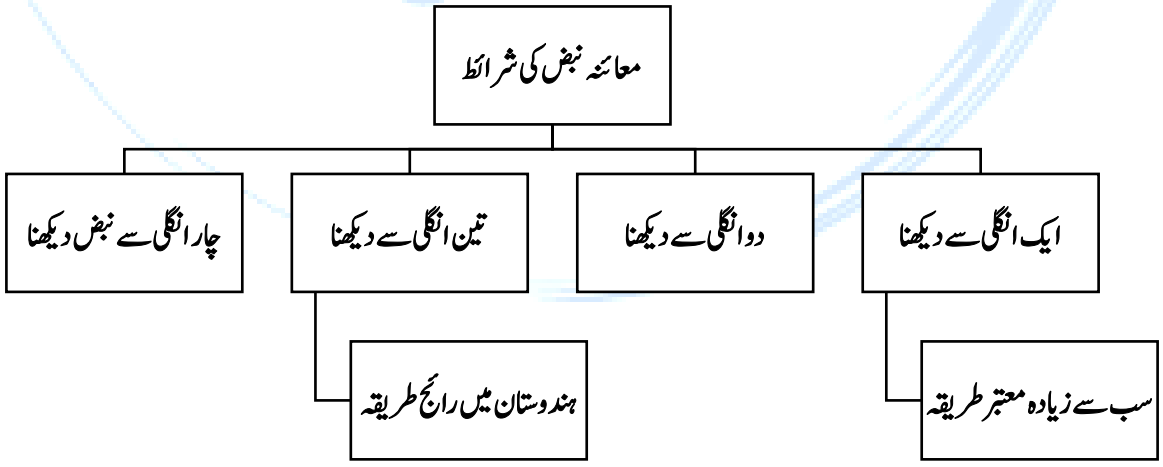
علامہ قرشی کے مطابق نبض حرکت نبض قلب کی حرکت کے تابع ہے


حرکت نبض کی قسمیں
حرکت کیفیہ
حرکت کمیہ
حرکت وضعیہ
حرکت آئینہ
جسم کی کیفیّت بدلتی رہتی ہے
جسم کی مقدار میں تبدیلی ہوتی ہے
یہ اپنی جگہ پر قائم رہتی ہے ہے (چکّی کا پھرنا)
اسکی جگہ بدلتی رہتی ہے (چلنے پھرنے کی حرکت)
جسم میں گرمی یہ سردی کا ہونا
مقدار میں کمی
مقدار مین زیادتی

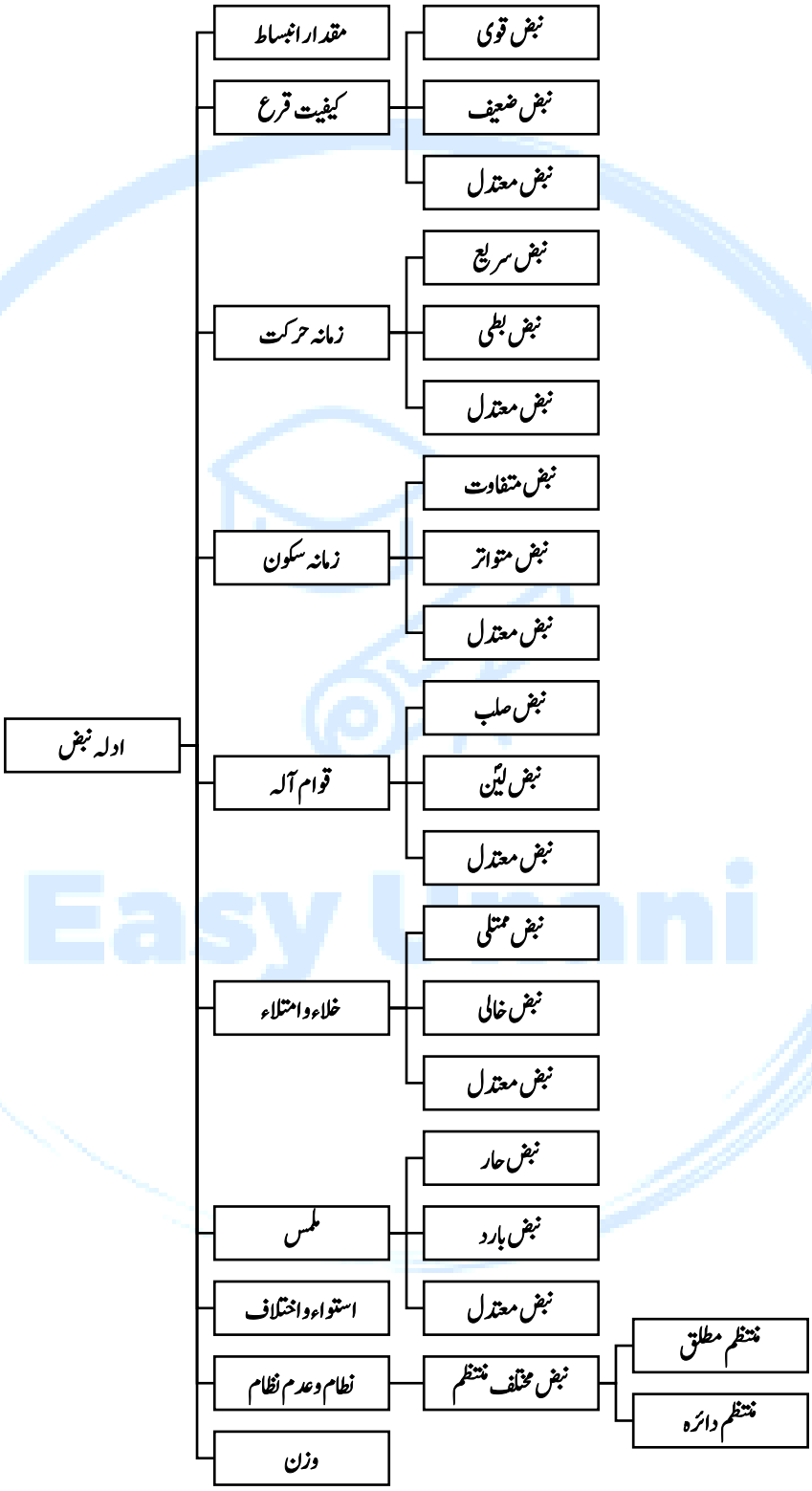
معائنہ نبض کے شرائط

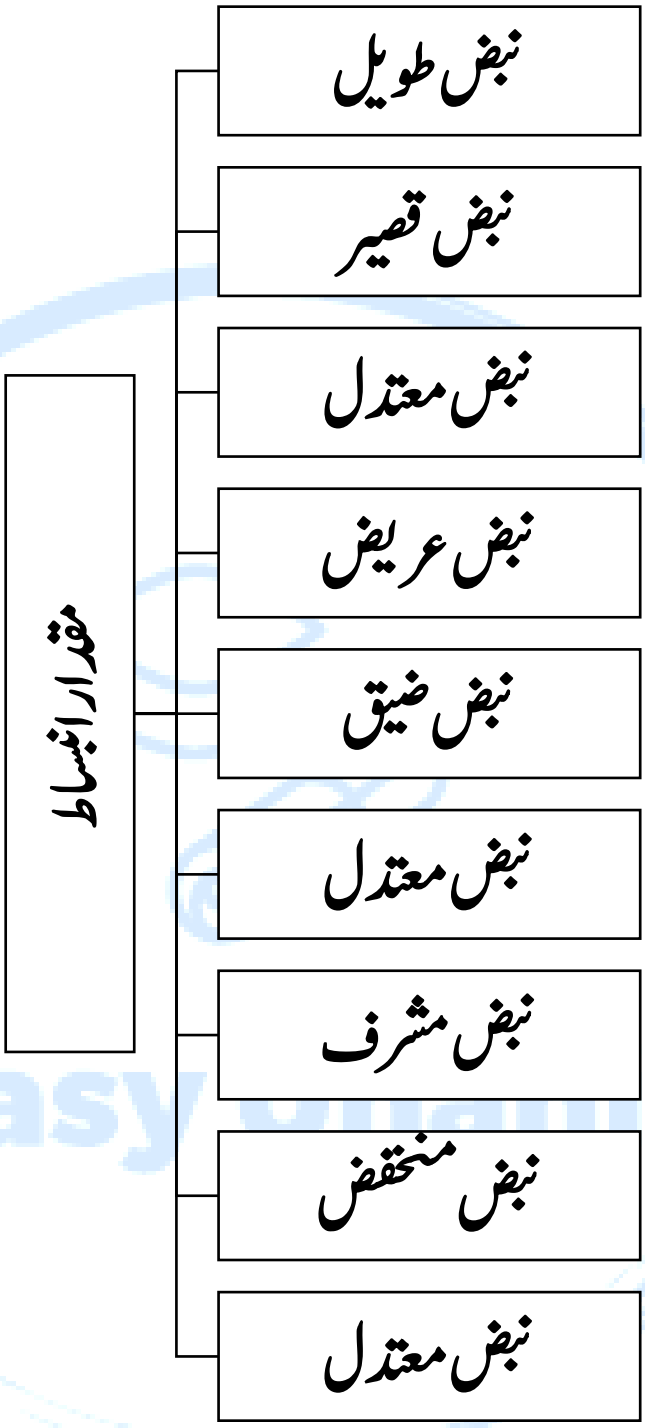
- مریض کا ہاتھ ایسے ہو کہ انگھوٹا اوپر ہو
- نبض ایسے وقت دیکھنا جس وقت انفعالات نفسانیہ میں مریض نہ ہو
- داہنیٔ ہاتھ سے دائیں ہاتھ اور بائیں ہاتھ سے بائیں ہاتھ کی نبض دیکھنا
- طبیب کی انگلوں کے پورے کھردرے نہ ہوں بلکہ اسکا بشرہ نرم اور ملائم ہو
- نبض قوی کو زور سے اور ضعیف نبض کو ہلکا سے دبا کر دیکھنا
- نبض دیکھتے قوت نبض مرحتک نہ ہو
- سکون اور اطمنان سے نبض دیکھنا
- طبیب کو چاہئے کے مریض کو کم از کم تیس سکنڈ تک نبض دیکھیں
- مریض کے اطمنان سے بٹھائیں اور دوسری طرگ متعجہ نہ ہونے دیں

معائنہ نبض کے طریقہ



ادلہ نبض


ادلہ نبض
مقدار انبساط
نبض قوی
کیفیت قرع
نبض ضعیف
نبض معتدل
زمانہ حرکت
نبض سریع
نبض بطی
نبض معتدل
زمانہ سکون
نبض متفاوت
نبض متواتر
نبض معتدل
قوام آلہ
نبض صلب
نبض لیّن
نبض معتدل
خلاء وامتلاء
نبض ممتلی
نبض خالی
نبض معتدل
ملمس
نبض حار
نبض بارد
نبض معتدل
استواء واختلاف
نظام وعدم نظام
نبض مختلف منتظم
منتظم مطلق
منتظم دائرہ
وزن


مقدار انبساط
نبض طویل
نبض قصیر
نبض معتدل
نبض عریض
نبض ضیق
نبض معتدل
نبض مشرف
نبض منحقض
نبض معتدل

نبض استواء واختلاف

نبض استواء واختلاگ کے مطابق اسکی نبض میں جو کیفیت پائی جاتی ہے تین قسمیں ہیں

1. مختلف نبضات میں
2. ایک نبض میں مخلف نبضات میں
3. نبضہ کے کسی ایک جز میں

امور خمسہ

1. عظم وصغر
2. قوّت وضعف
3. سرعت وبطی
4. تواتر وتفقوت
5. صلابت ولیونت

نبض مستوی کی دو قسمیں

1. نبض مستوی مطلق:-امور خمسہ بالا کے اجزاء مستوی ہونا
2. نبض مستوی مفید:-امور خمسہ بالا میں کسی ایک امور میں مستوی ہو گا اور دوسروں میں مستوی نہ ہو

نبض مختلف

1. نبض مختلف مطلق:-وہ نبض جسمیں مذکورہ بالا امور میں ہر ایک میں اختلاگ ہو
2. نبض مختلف مفید:-کسی ایک امور میں مختلف ہو

a) اخلاف ثنائی:- دو اجزاء میں اخلاف ہو اور دو اجزاء میں اختلاف ہو

b) اخلاف ثالثی:- تین اجزاء میں اکلاف ہو

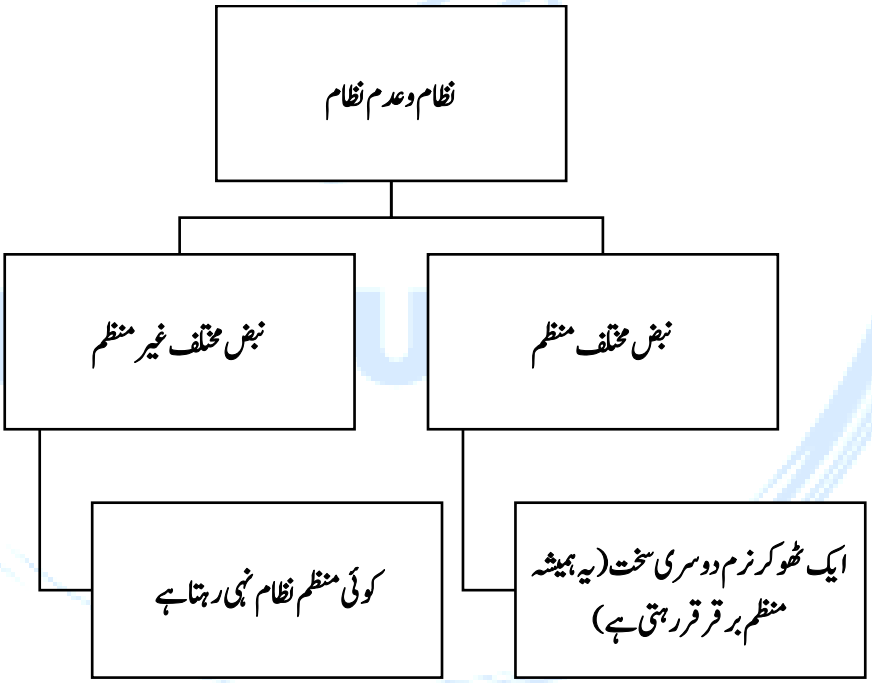
c) اخلاف رابعی:- اسمیں چار اجزاء میں اختلاف ہو

نبض منقطع:- کٹی ہوئی نبض

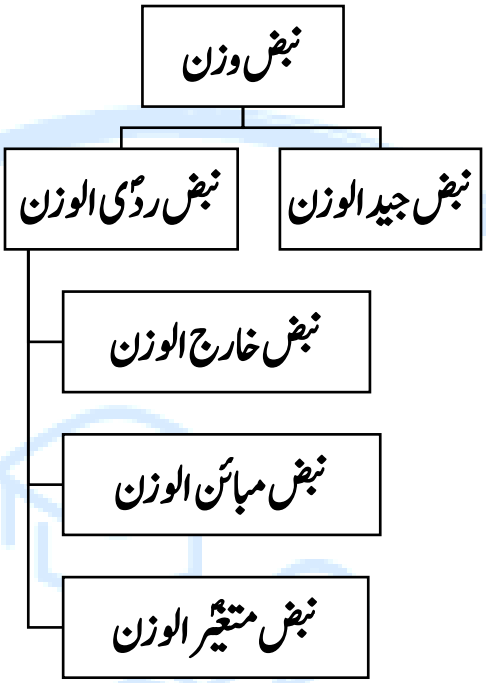
نبض عائد:- لوٹنے والی نبض

نبض متصل

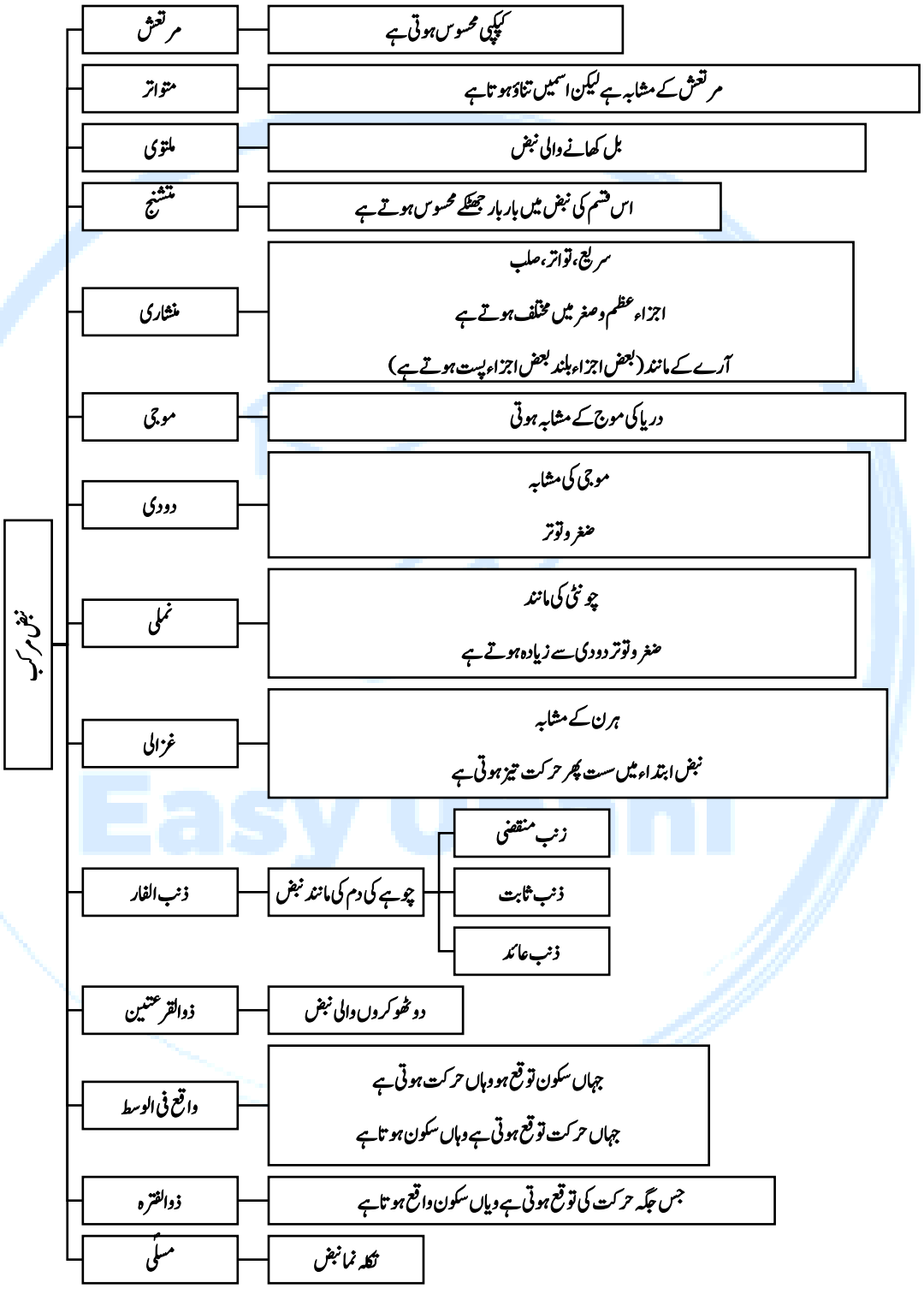
نبض انتظام عدم انتظام



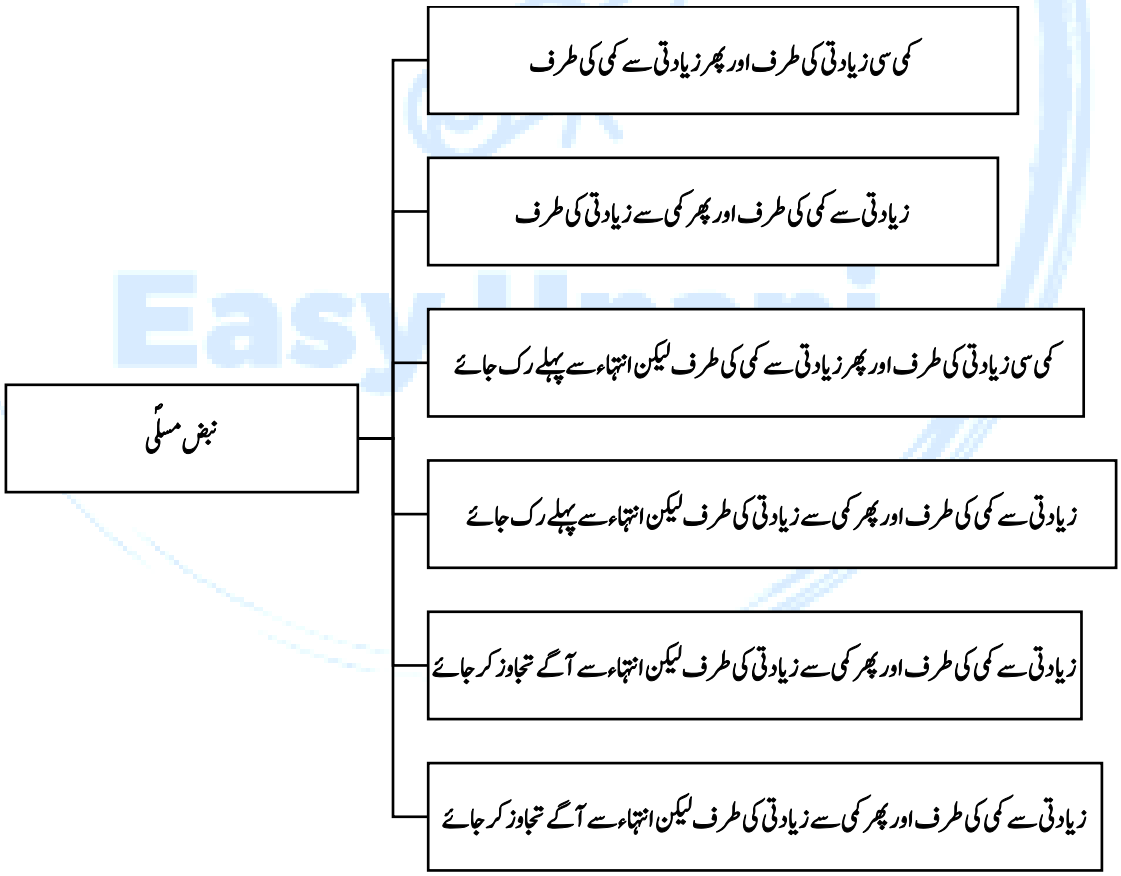
نبض وزن



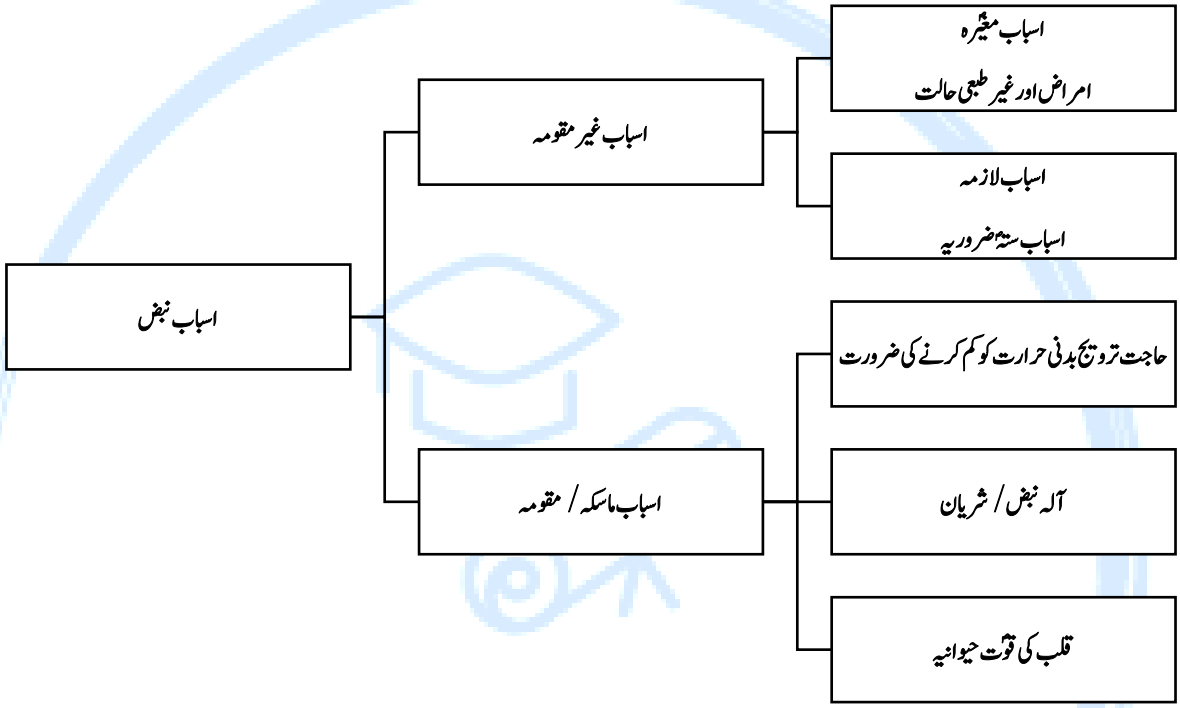
نبض مرکب


نبض مرکب
مرتعش
کپکپی محسوس ہوتی ہے
متواتر
مرتعش کے مشابہ ہے لیکن اسمیں تناؤ ہوتا ہے
ملتوی
بل کھانے والی نبض
متشنج
اس قسم کی نبض میں بار بار جھٹکے محسوس ہوتے ہے
منشاری
سریع، تواتر، صلب
اجزاء عظم وصغر میں مختلف ہوتے ہے
آرے کے مانند (بعض اجزاء بلند بعض اجزاء پست ہوتے ہے)
موجی
دریا کی موج کے مشابہ ہوتی
دودی
موجی کی مشابہ
صغر وتوتر
نملی
چونٹی کی مانند
صغر وتوتر دودی سے زیادہ ہوتے ہے
غزالی
ہرن کے مشابہ
نبض ابتداء میں سست پھر حرکت تیز ہوتی ہے
ذنب الفار
چوہے کی دم کی مانند نبض
ذنب منقضی
ذنب ثابت
ذنب عائد
ذوالقرعتین
دو ٹھوکروں والی نبض
واقع فی الوسط
جہاں سکون توقع ہو وہاں حرکت ہوتی ہے
جہاں حرکت توقع ہوتی ہے وہاں سکون ہوتا ہے
ذوالقرہ
جس جگہ حرکت کی توقع ہوتی ہے وہاں سکون واقع ہوتا ہے
مسلی
تکلہ نما نبض

- علامہ گیلانی کے مطابق نبض دودی کو اس کیڑے سے تشبیہ دی گئی ہے جس کی ٹانگیں زیادہ ہو جس کو دخالۃ الاذن (کان سلائی) کہتے ہے
- نبض موجی کے اجزاء عظم وصغر، شہوق وانحقاص، عرض وضیق، سرعت وبطوء، تواتر وتفاوت، صلابت ولیونت کے اعتبار سے مختلف ہوتی ہے
- شیخ الرئیس کے مطابق نبض ذوالقرعتین میں دو نبضہ کے درمیان جو زمانہ ہے اسمیں اتنی گنجائش نہی ہوتی کہ اسمیں حرکت واقع ہو۔



اسباب نبض



نبض اورام

ورم حار کی نبض

- رطوبت پیداء کرنے والا سبب مانع نہ ہو:- منشاریت، مرتعش، سرعت، تواتر
- رطوبت پیداء کرنے والا سبب مانع ہو:- موجیّت، مرتعش، سرعت، تواتر

ورم حار کے درجات

1. زمانہ تزید:- منشاریّت، سرعت، تواتر، صلابت
2. درجہ انتہاء:- سرعت، تواتر،
3. درجہ انحطاط:- نبض قوی ہو جاتی ہے۔
4. زمانہ دراز ہو جائے تو نبض نملی ہو جاتی ہے

- ✓ ورم لیّن:- موجی، بطی، متفاوت
- ✓ ورم صلابت:- منشاریت برج جاتی ہے

نبض اوجاع (درد کی نبض)

- ابتدائی زمانے میں قوّت مدارعت میں ہیجان و تحریک ہوتی ہے جسے بدنی حرارت مشتعل ہوتی ہے نبض عظیم، سریع، متفاوت.
- جب درد شدید ہوتا ہے اور بدنی قوّت کمزور ہوتی ہے تو نبض متواتر پھر ضغیر پھر نملی اور آخیر میں دعدی ہو جاتی ہے۔

غصہ کی نبض

عظیم، سریع متواتر

ڈر کی نبض

سریع، مرتوش، مختلف، غیر منظّم

غم کی نبض

صغیر، ضعیف، متفاوت، بطی

لذت کی نبض

بطی و متفاوت

ریاضت کی نبض

ابتداء میں

عظیم، قوی (سرعت و تواتر)

ریاضت دیر میں

ضعف، نملی (سرعت میں کمی، تواتر میں زیادتی)

ریاضت میں اور زیادتی کی جائے تو نبض نملی پھر دودی اور آخیر میں متفاوت اور بطی ہو جاتی ہے۔

بول

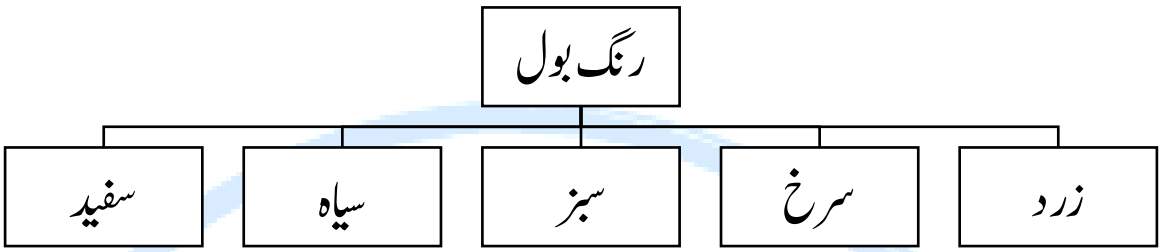
بول کے معائنہ کے شرائط

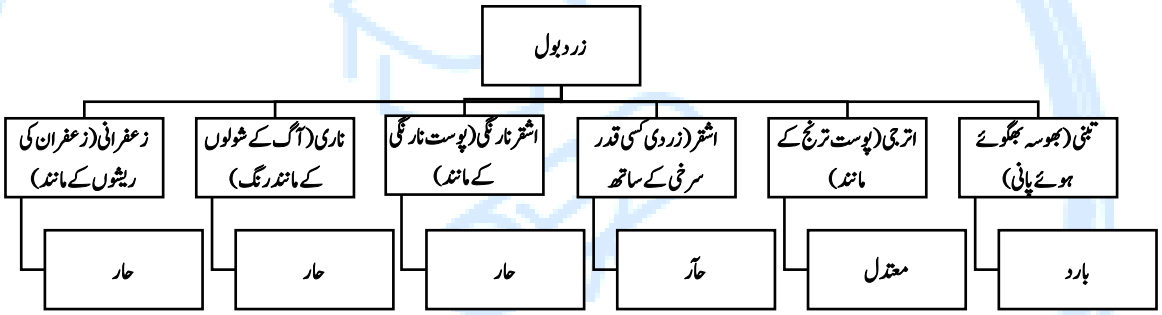
شیخ کے مطابق معائنہ بول کے 10 شرائط ہے

شرائط معائنہ بول

- صبح کا ہو
- مثانہ میں دیر تک نہ رہا ہو
- رات کا اکھٹا کیا ہو
- مریض نے پیشاب سے پہلے کچھ کھایا پیا نہ ہو
- کوئی رنگ والی چیز استعمال نہ کی ہو (مثلا: زعفران)
- مہندی عغیرہ نہ لگائی ہو
- ریاضت نہ کی ہو
- پیشاب کا معائنہ کچھ دیر بعد کرنا چاہئے
- ایسی جگہ رکھیں جہاں سے دھوپ اور گرمی سے محفوظ رہے

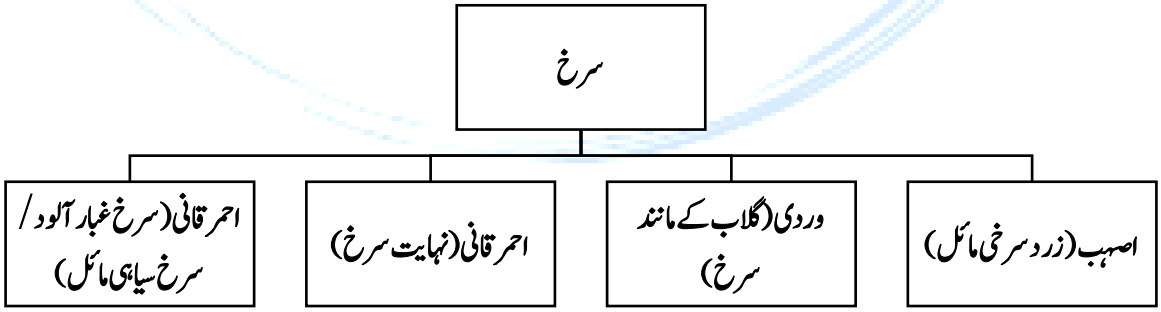
بول کی تقسیم باعتبار رنگ



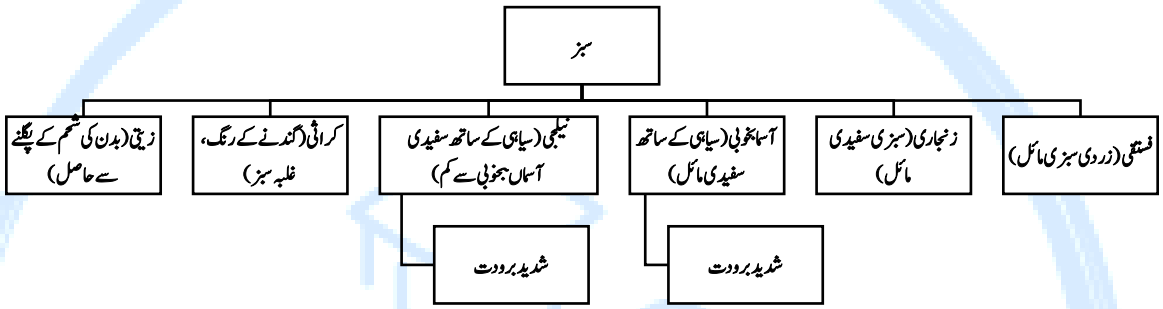


قارورہ جس میں جتنا زیادہ زعفرانیت ہوگی اتنا صفراء کی زیادتی ہوگی۔

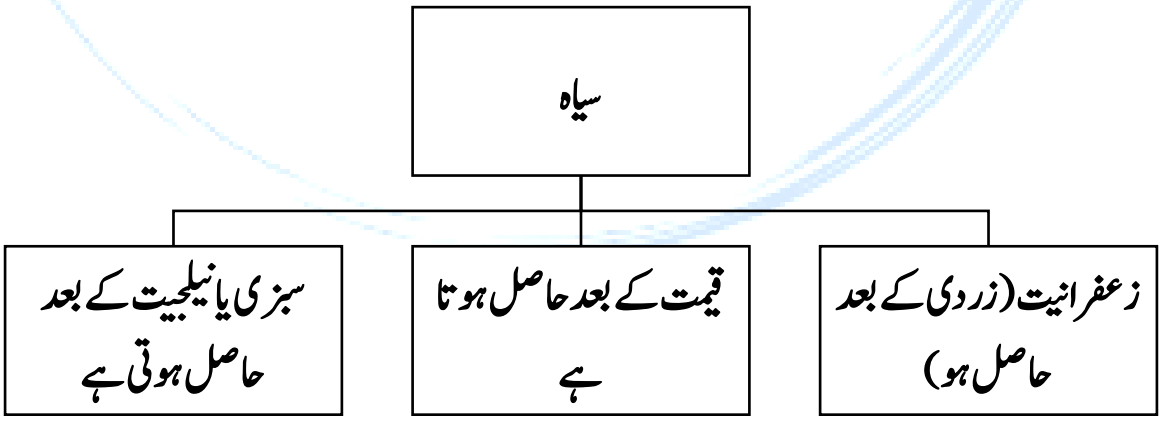
بول ناری بمقابل اضمر اقمتی کے حرارت پر زیادہ دلالت کرتی ہے۔



یہ ساری قسمیں غلبہ خون پر دلالت کرتی ہے

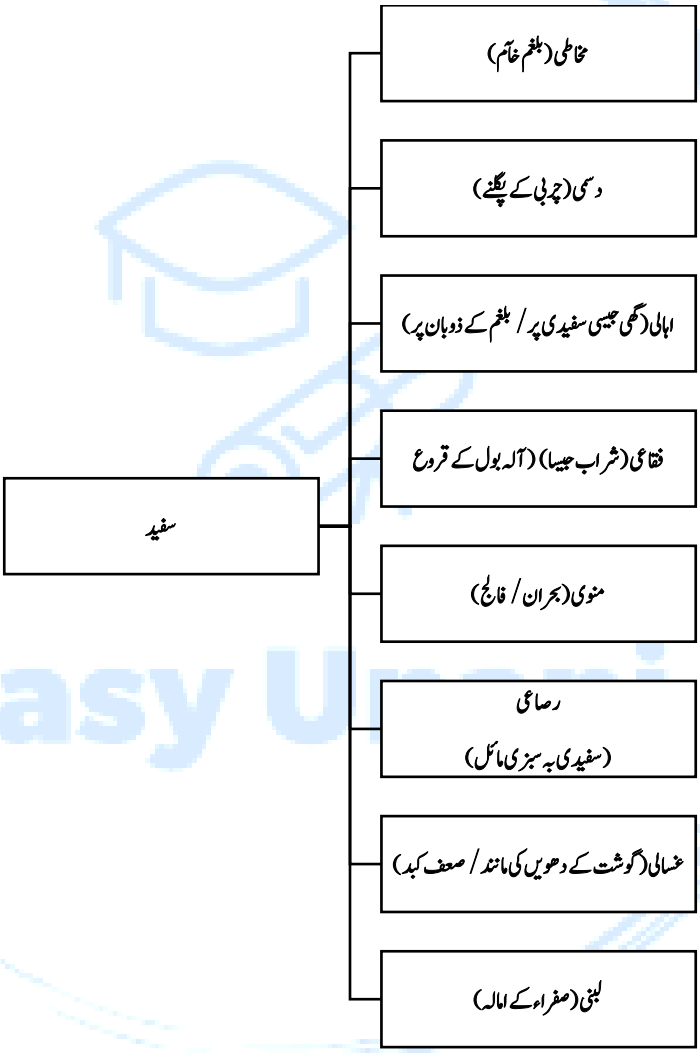


تکان جو سخت ورزش یا محنت سے پیداء ہو اس کے بعد قارورہ زنجاری ہو اور بچوں میں سبز قارورہ تشنج کی علامات ہے

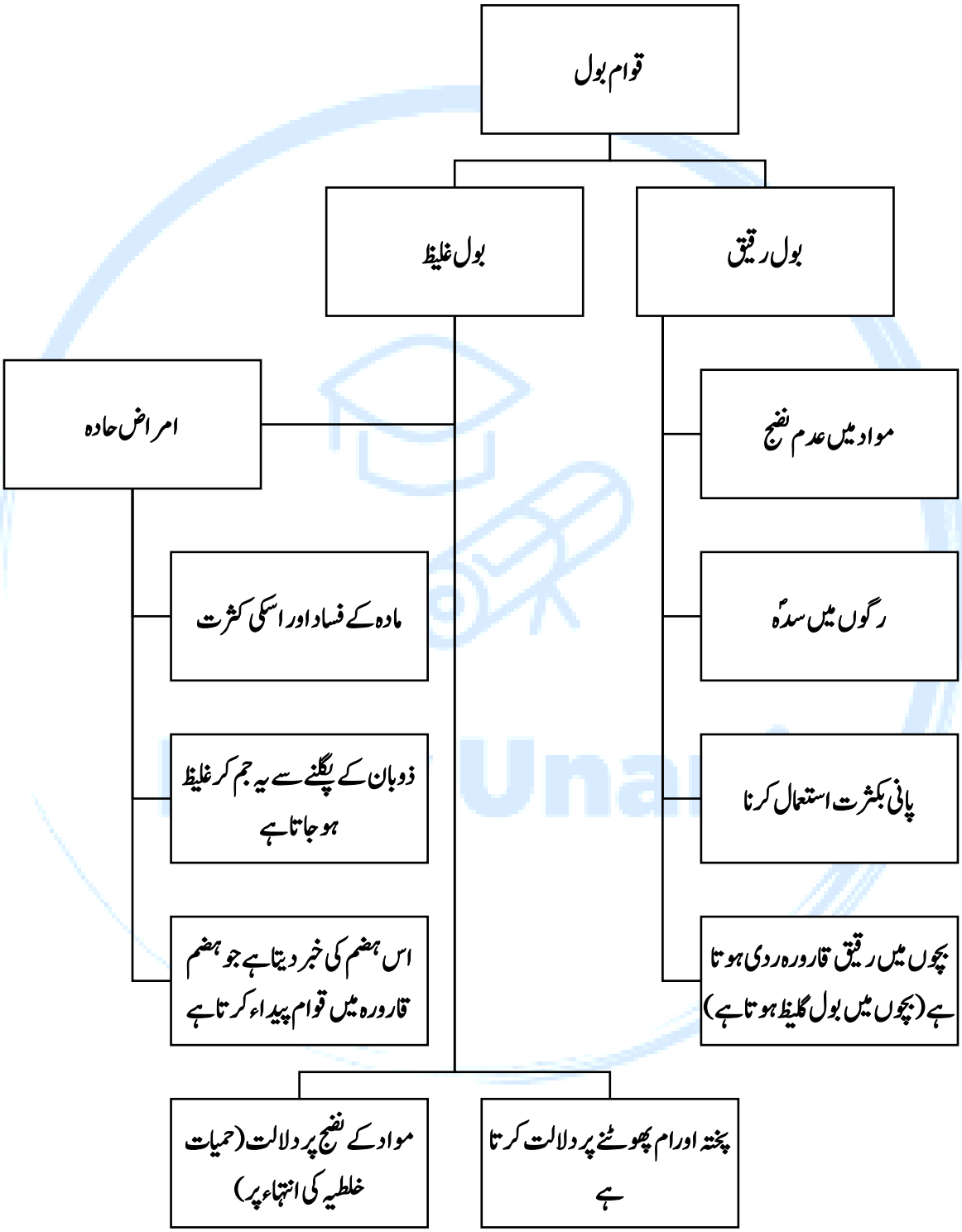


بول سیاہ مندرجہ ذیل امور پر دلالت کرتی ہے

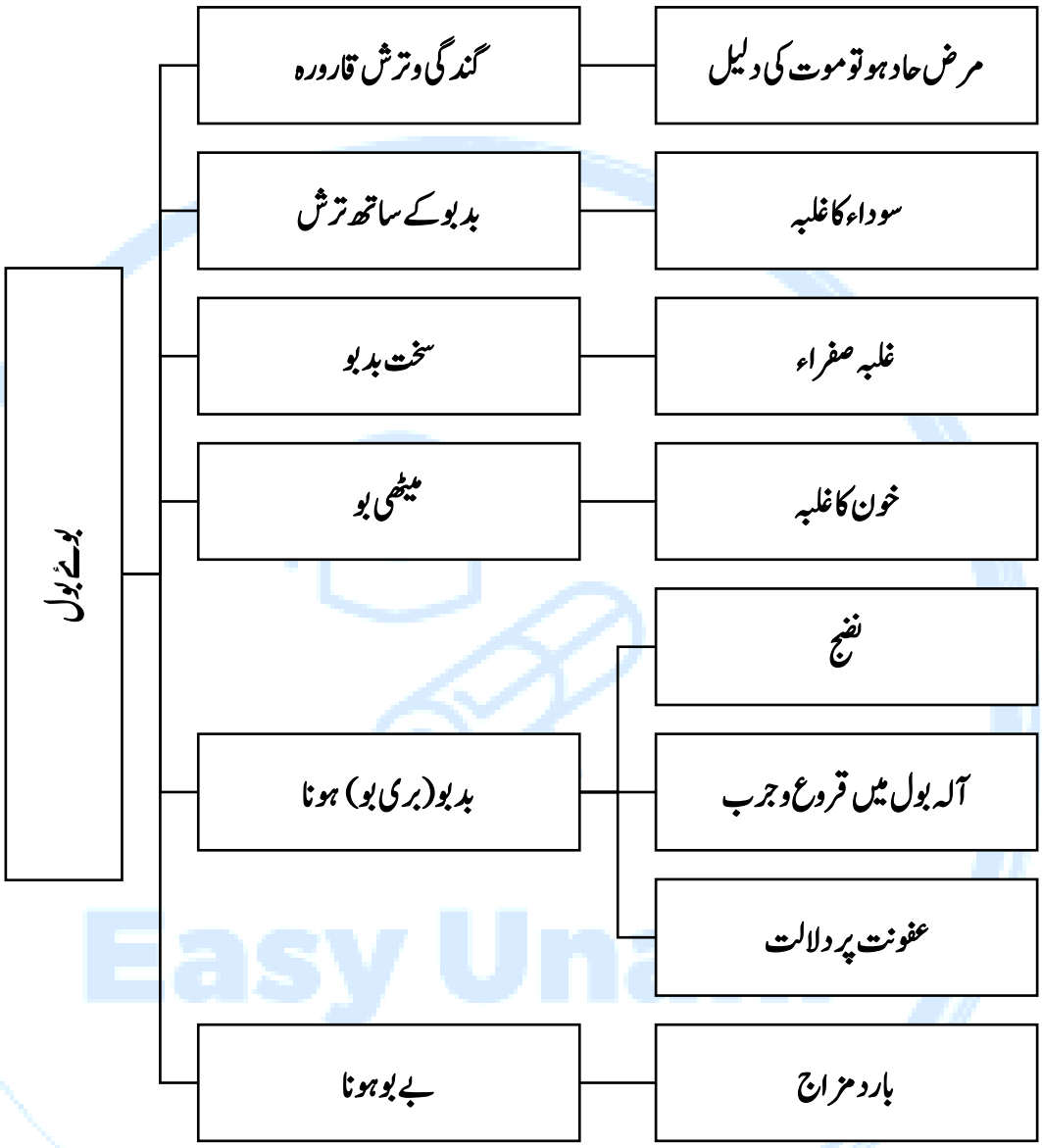
- شدید احتراق پر
- شدید برودت پر
- حرارت غریزیہ کی موت پر
- بحران واقع ہوتا ہے فضلات سوداویہ کو خارج کرتا ہے



بول کی قسمیں باعتبار قوام (دو قسمیں)



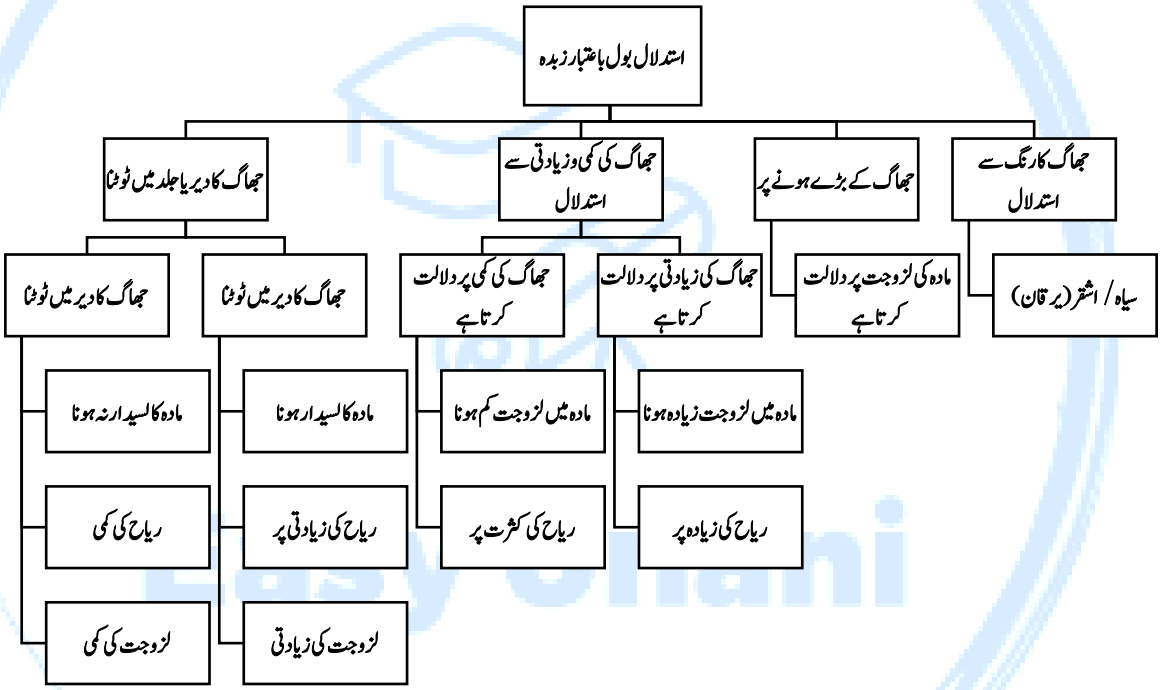
بوئے قارورہ کے دلائل



بول باعتبار زبدہ (جھاگ)

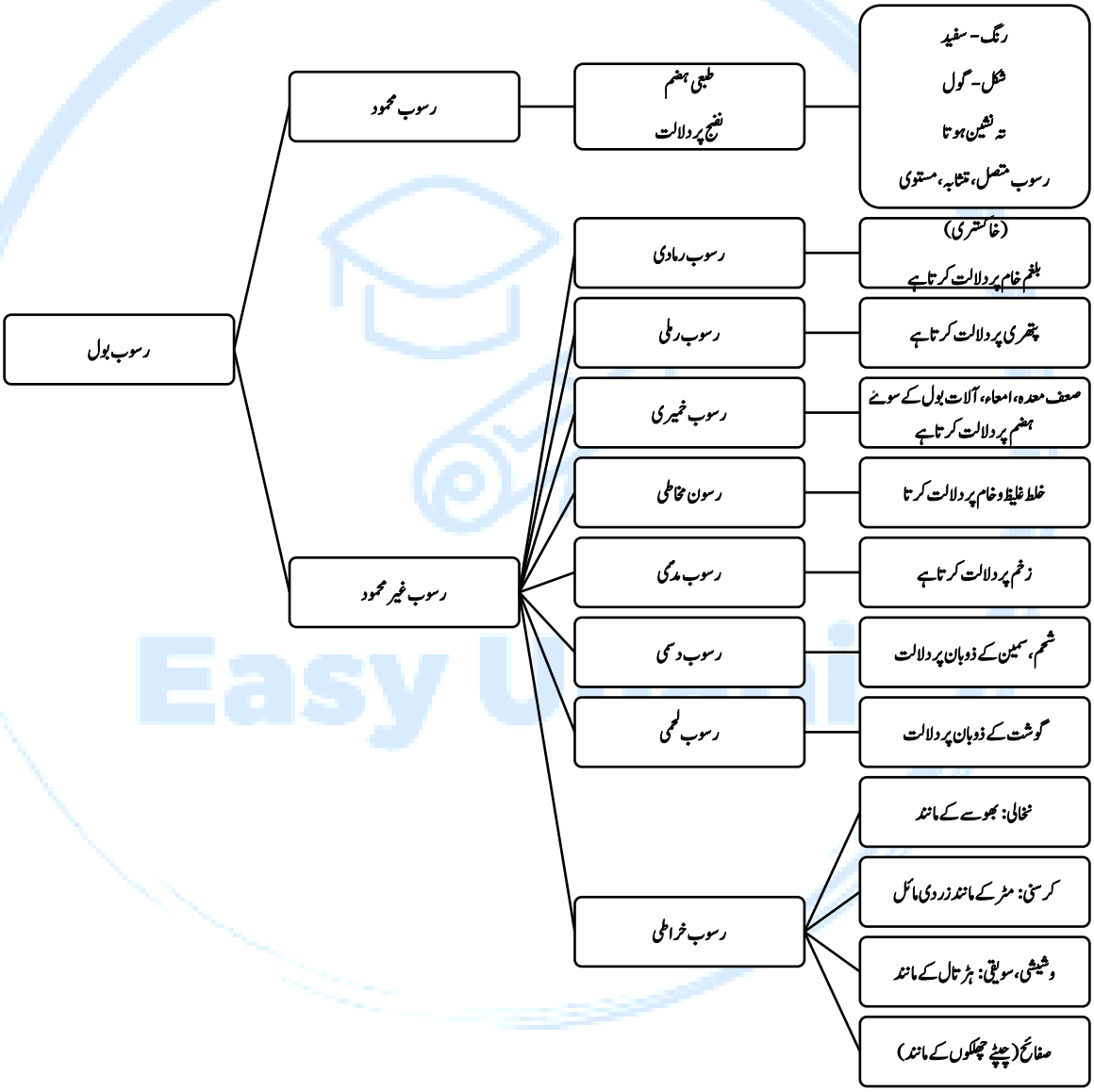
اسکی پیدائش رطوبت وریح سے ہوتی ہے جو قارورہ کے ساتھ خارج ہوتا ہے

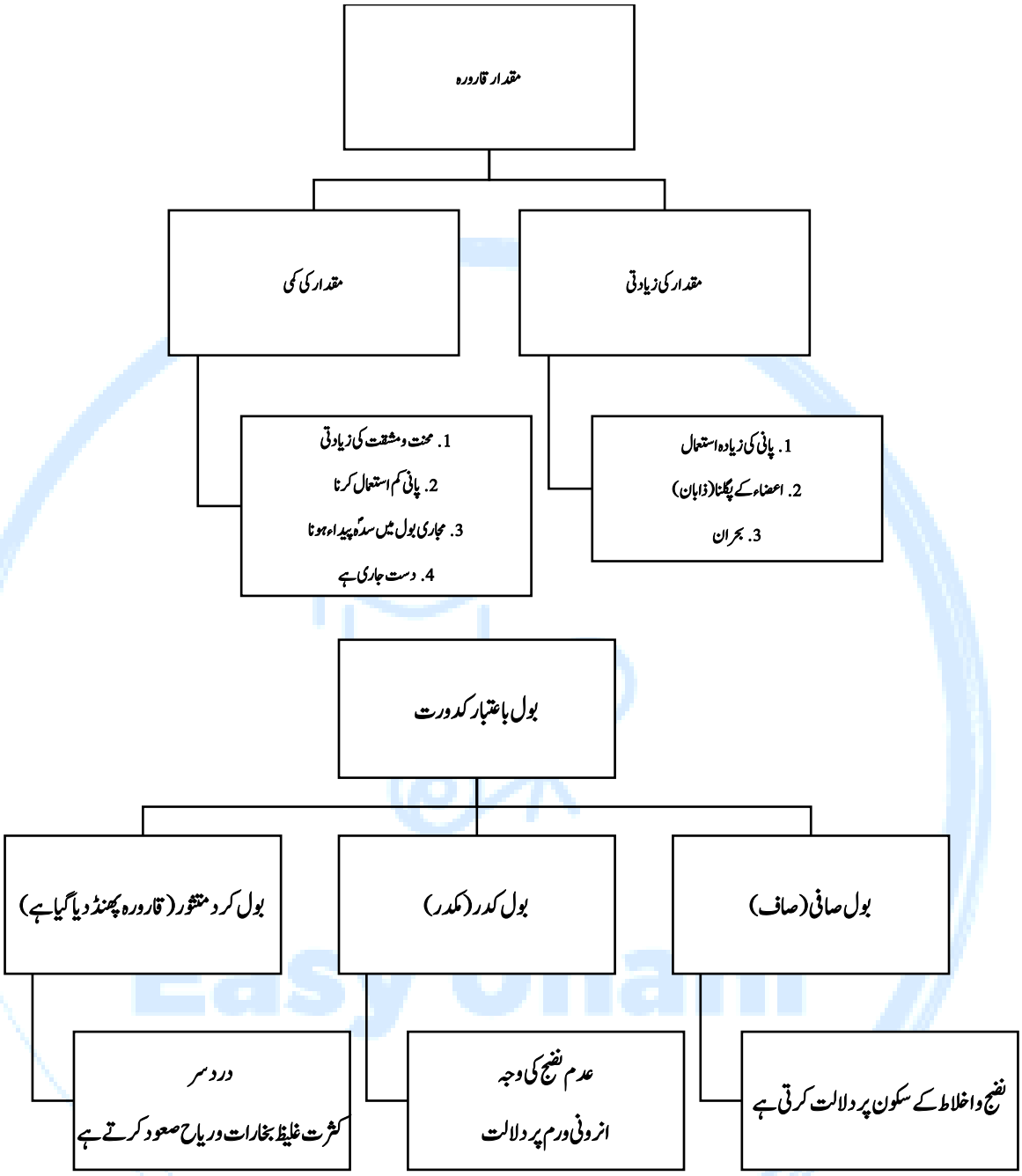
جھاگ کا رنگ سے استدلال



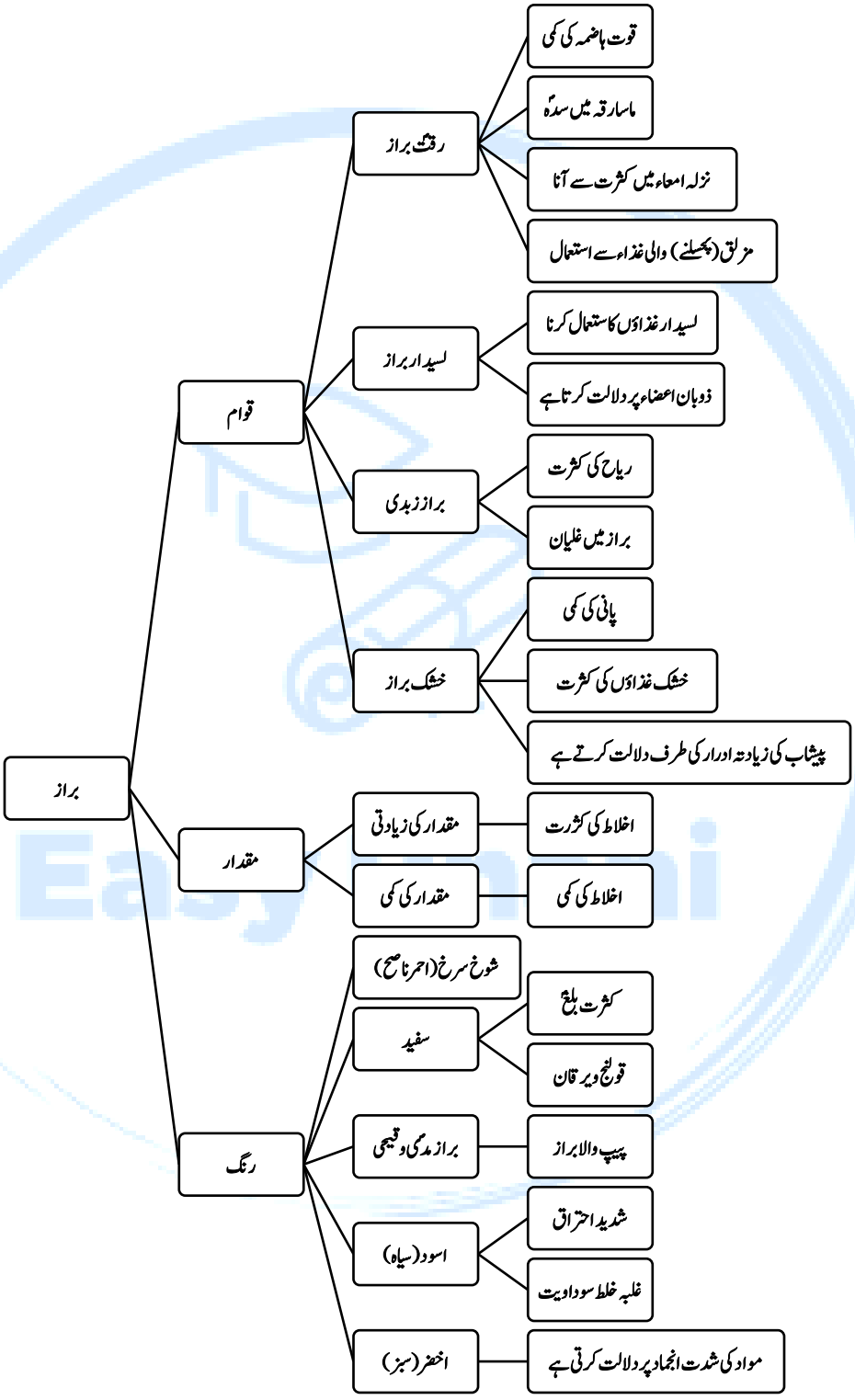
امراض گردہ میں لسیدار مادہ کا ضارج ہونا خراب علامت ہے اور یہ ردّی اخلاط سوداویہ و بلغمیہ پر دلالت کرتے ہے یا برودت یا کدورت یا گردہ کے سوئے مزاج بارد پر دلالت کرتے ہے۔

رسوب بول


رسوب بول
رسوب محمود
طبعی ہضم
نضج پر دلالت
رنگ- سفید
شکل- گول
تہ نشین ہوتا
رسوب متصل، تشابہ، مستوی
رسوب خیر محمود
رسوب رمادی
(خاکستری)
بلغم خام پر دلالت کرتا ہے
رسوب رملی
پتھری پر دلالت کرتا ہے
رسوب خمیری
صعف معدہ، امعاء، آلات بول کے سوئے ہضم پر دلالت کرتا ہے
رسوب مخاطی
خلط غلیظ وخام پر دلالت کرتا
رسوب مدمی
زخم پر دلالت کرتا ہے
رسوب دسمی
شحم، سمین کے ذوبان پر دلالت
رسوب لحمی
گوشت کے ذوبان پر دلالت
رسوب خراطی
نخالی: بھوسے کے مانند
کرسنی: مٹر کے مانند زردی مائل
وشیشی، سویقی: ہڑتال کے مانند
صفائح (چپٹے چھلکوں کے مانند)


مقدار قارورہ
مقدار کی زیادتی
مقدار کی کمی
1. پانی کی زیادہ استعمال
2. اعضاء کے پگھلنا(ذابان)
3. بحران
1. محنت ومشقت کی زیادتی
2. پانی کم استعمال کرنا
3. مجاری بول میں سدّہ پیداء ہونا
4. دست جاری ہے
بول باعتبار کدورت
بول صافی(صاف)
بول کدر(مکدر)
بول کرد منتثور(قارورہ پھنڈ دیا گیا ہے)
نضج واخلاط کے سکون پر دلالت کرتی ہے
عدم نضج کی وجہ
انرونی ورم پر دلالت
درد سر
کثرت غلیظ بخارات وریاح صعود کرتے ہے

براز

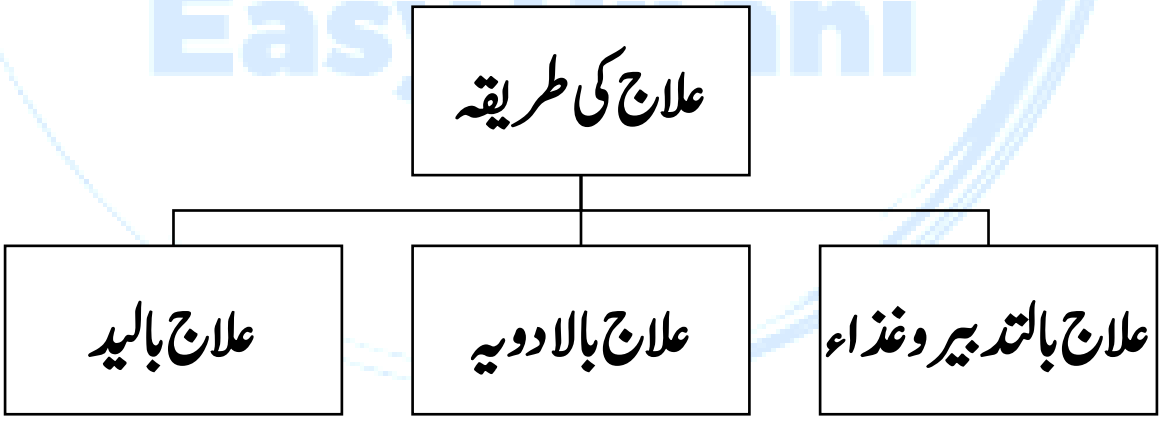

براز
قوام
رقتِ براز
قوت ہاضمہ کی کمی
ماسارقہ میں سدہ
نزلہ امعاء میں کثرت سے آنا
مزلق (پھسلنے) والی غذاء سے استعمال
لسیدار براز
لسیدار غذاؤں کا استعمال کرنا
ذوبان اعضاء پر دلالت کرتا ہے
براز زبدی
ریاح کی کثرت
براز میں غلیان
خشک براز
پانی کی کمی
خشک غذاؤں کی کثرت
پیشاب کی زیادتہ ادرار کی طرف دلالت کرتے ہے
مقدار
مقدار کی زیادتی
اخلاط کی کثرت
مقدار کی کمی
اخلاط کی کمی
رنگ
شوخ سرخ (احمر ناصع)
سفید
کثرت بلغم
قولنج ویرقان
براز مدمی و قیحی
پیپ والا براز
اسود (سیاہ)
شدید احتراق
غلبہ خلط سوداویت
اخضر (سبز)
مواد کی شدت انجماد پر دلالت کرتی ہے

طبعی براز کی خصوصیات

1. امعاء بہ سہولت خارج ہو
2. اجزاء ہموار ہو
3. ہلکی ناریّت (زردی) ہو
4. قیوام معتدل ہو
5. مقدار اوسط درجہ کی ہو
6. مناسب وقت میں اجابت ہو
7. بو معتدل ہو
8. اخراج کے وقت بقابق اور قراقر کی آواز پیدا ئے نہ ہوتی ہو
9. براز میں جھاگ نہ ہو

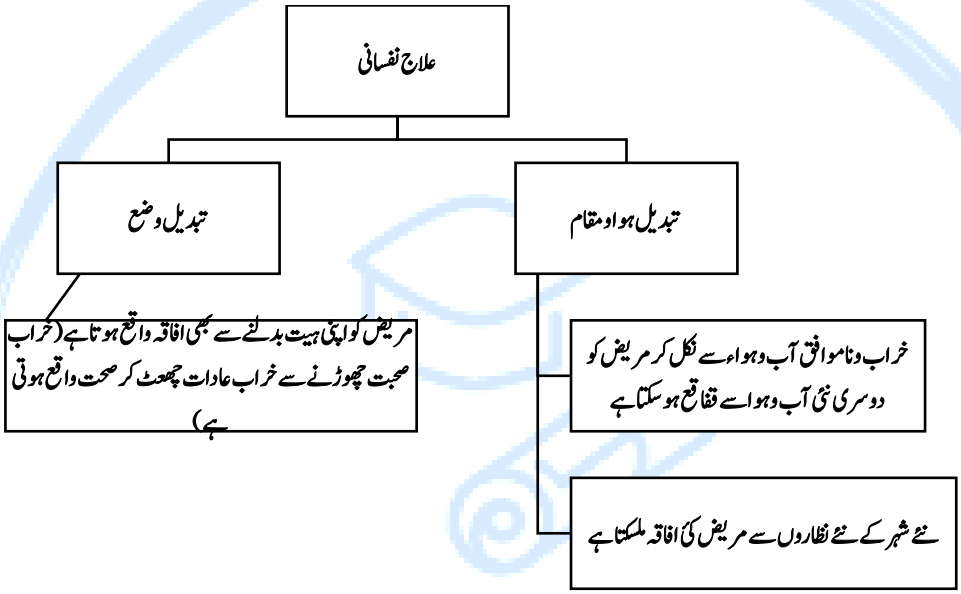
اصول علاج

علاج کی کل قسمیں

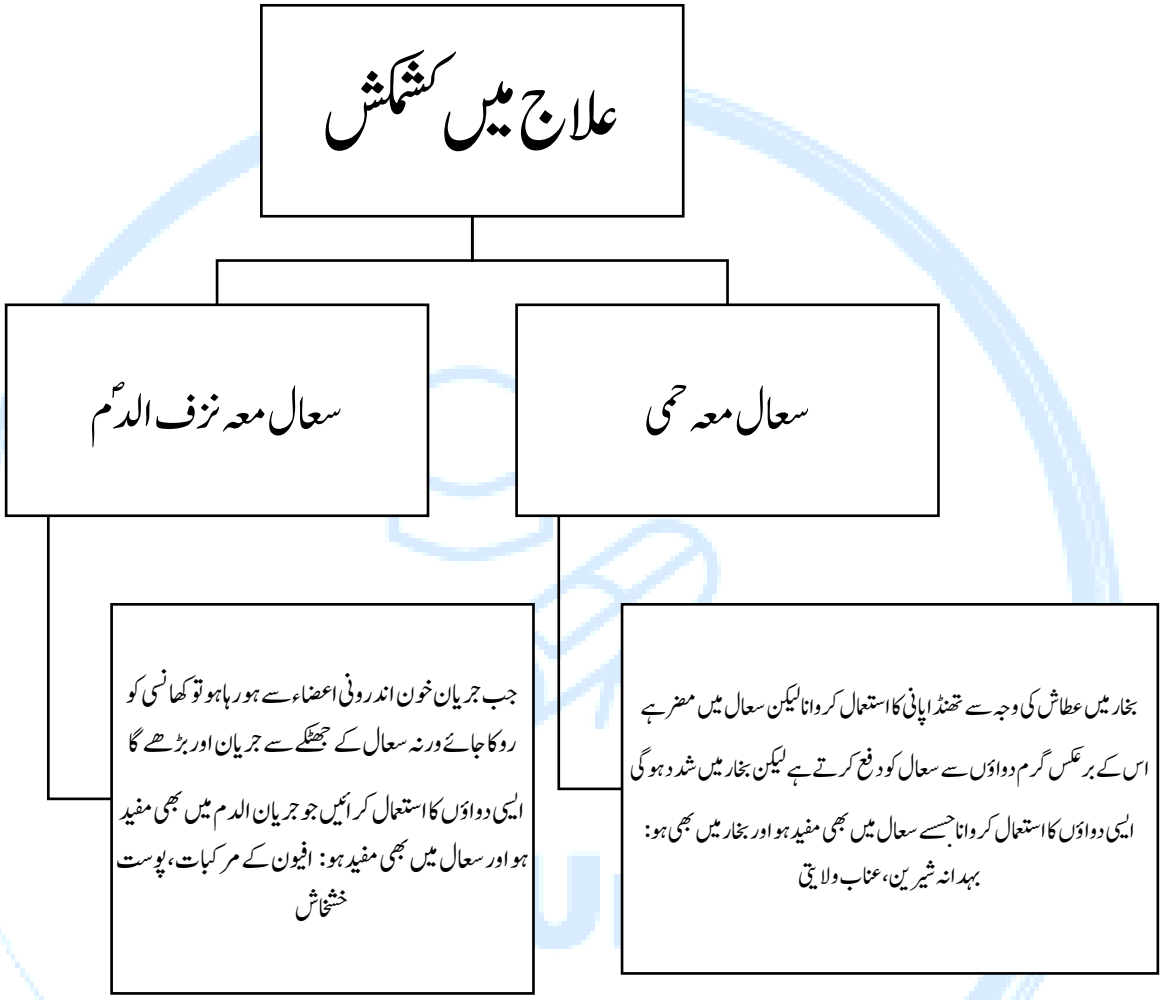


اصول علاج کے دیگر احکام

علاج نفسانی



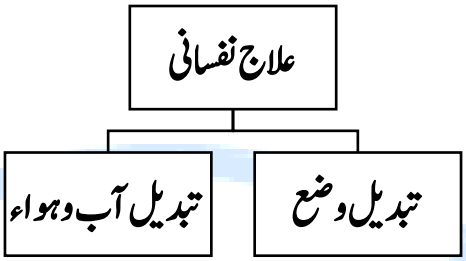
علاج میں کشمکش



تشخیص نہ ہونے کی صورت میں علاج

- ✓ شیخ کے مبابق ایسے مریض کو طبیعت کے حوالہ کر دیا جائے، اسے یا طبیعت غالب آئیگی اور مرض ختم ہو جائگا، یہ طبیعت مغلوب ہو گی تو مرض کی علامات نمایاں ہونگی تو علاج کرنے میں مدد ملے گی۔
- ✓ ایسے مریض کو بہتر ہے نسخہ خلل شکم کا استعمال کریں۔

علاج نفسانی



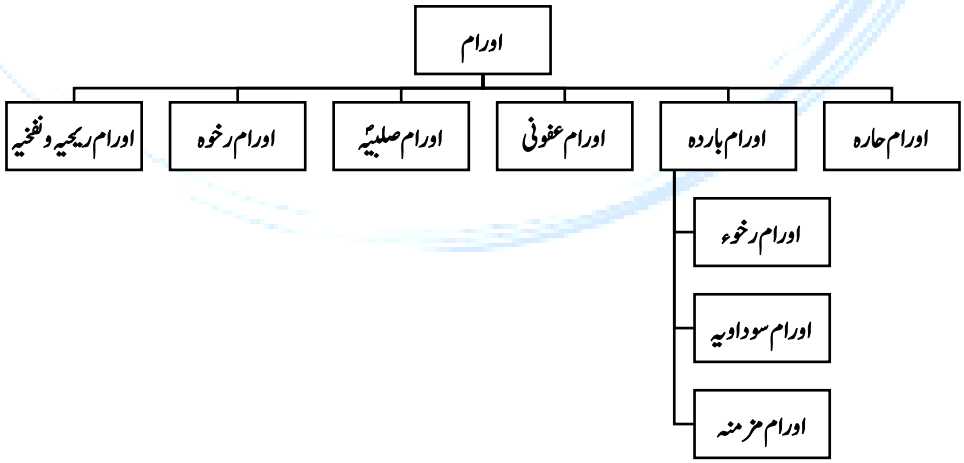
تبدیل وضع

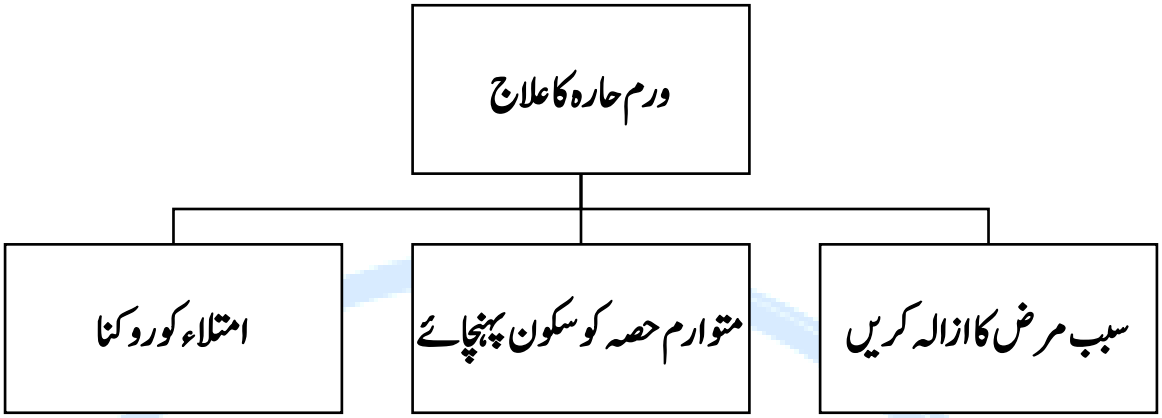
- وضع اور ہیئت کی تبدیلی سے بہت سی آفات دور ہو جاتی ہے
- مرض حول میں مخالف جانب گھورنے سے فائدہ ہوتا ہے اور لقوہ میں آئینہ دیکھکر اپنے خد کی حال درست کرنے سے فائدہ ہوتا ہے۔

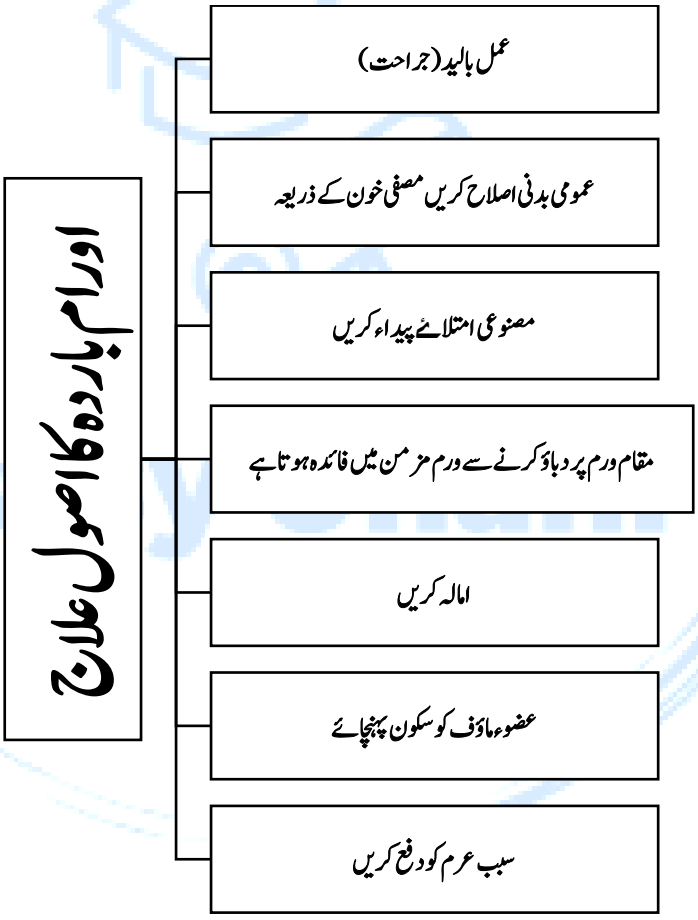
تبدیل ہواء

- مریض اگر اچھی آب وہواء میں جائے تو افاقہ ہو جاتا ہے
- نیز دل کش نظاہر دیکھ کر مریض کو سکون محسوس ہوتا ہے

اورام کے اقسام




ورم حارہ کا علاج
سبب مرض کا ازالہ کریں
متوارم حصہ کو سکون پہنچائے
امتلاء کو روکنا

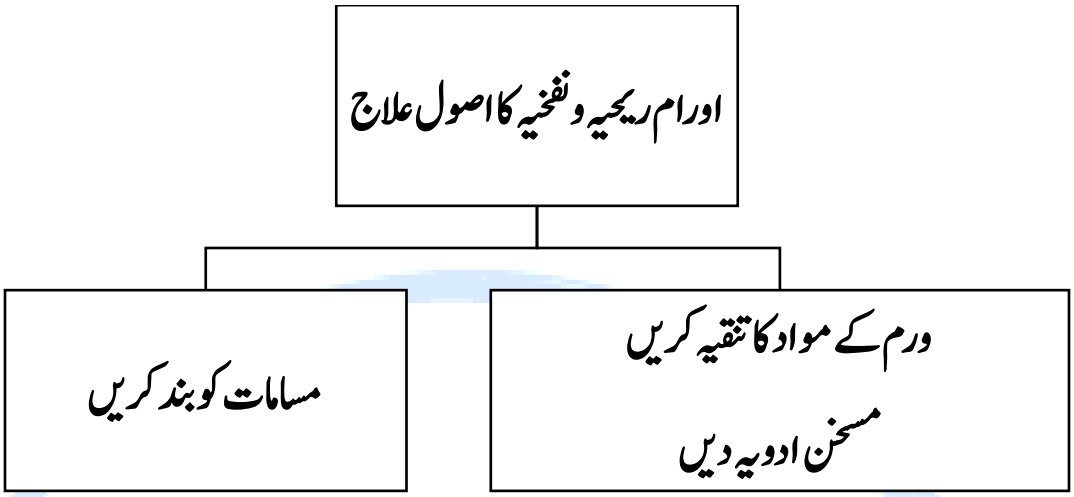

اورام بارده کا اصول علاج
عمل بالید (جراحت)
عمومی بدنی اصلاح کریں مصفی خون کے ذریعہ
مصنوعی امتلائے پیداء کریں
مقام ورم پر دباؤ کرنے سے ورم مزمن میں فائدہ ہوتا ہے
امالہ کریں
عضوء ماؤف کو سکون پہنچائے
سبب عرم کو دفع کریں

اورام صلبیہ:-جو زمانہ ابتداء سے تجاوز کر چکے ہوں ان پر ملینات و مرخیات استعمال کیے جائے جن سے حرارت و یبوست کم ہو تا کہ شدّت تحلیل کے باعث ان کے اکثر اجزاء سخت ہو کر ٹھہر نہ جائے بلکہ تحلیل کے لیے آمادہ ہو، اسکے بعد محللات میں تحلیل کی قوّت بڑھائی جائے

انجام ورم

علامہ گیلانی کے مطابق انجام ورم کتنے ہیں

1. تحلل:-ورم تحلیل ہو جاتی ہے
2. نضج:-ورم میں پیپ پڑ جاتا ہے
3. تحجر:-ورم سصنت ہو جاتا ہے



سوئے مزاج سادہ کا اصول علاج

اس مرض میں مواد نہی ہوتا اسلئے ضد تدابیر سے علاج کرانا چاہیئے

سوئے مزاج مادی کا اصول علاج

1. مواد کا استفراغ کرائیں (فصد، حجامہ)
2. مواد اگر اعضاء کی ساخت میں پیوست ہو تو اسکو عمل نضج کے ذریعہ بدن سے اخراج کرائیں

- ✓ نضج: مواد کو پختہ کر کہ اخراج ہونے کے قابل بناتی ہے
- ✓ بلغمی سوداوی امراض میں نضج کی ضرورت ہوتے ہے
- ✓ صفراوی امراض میں نضج کی ضرورت نہی ہے
- ✓ دموی امراض میں نضج نہی دیا جاتا ہے

احکامات منضج

- ✓ ہر خلط کا نضج الگ الگ ہوتا ہے
- ✓ منضج میں مرض کی مخصوص دواء بھی شامل کرنا چاہیئے
- ✓ مفاصل اور اعصاب کے مادہ میں منضج زیادہ عرصہ تک استعمال کرنا چاہیئے

علامات نضج

قارورہ سے استدلال

- ✓ صفراوی مادہ = اترجی، زردی مائل
- ✓ سوداوی مادہ = غلیظ سیاہ
- ✓ بلغمی مادہ = غلیظ

نضج کے ایام

صفراء خالص	3 دن
صفراء غیر خالص	5 دن
بلغم رقیق	5 دن
بلغم غلیظ	12 دن
سوداء خالص	15-40 دن

تسکین وجع

- ✓ درد کی اسباب کی صدد ابیر کرائیں
- ✓ مرخیات، تسکین درد کے لئے دواد کو نرم کر کے تحلیل کرائیں
- ✓ ضماد اور ٹکور سے درد میں سکون پیداء کرائیں
- ✓ حرارت کو دفع کرائیں

استفراغ

احکام استفراغ:-

- ✓ فضلات کی بڑی مقدار کو ایک ہی دفع خارج نہ کریں
- ✓ ضعیف القوی افراد میں گرم مواد کثرت سے ہوں یا مادے میں لزاجت یا خون ملا ہو تو تدریج سے کام لینا چاہئے

- ✓ اخراج میں شدد نہیں اختیار کرنی چاہئے
- ✓ عروق کے مواد آسانی سے خارج ہو جاتے ہیں، اعضاء مفاصل کے استفراغ میں دشواری ہوتی ہے
- ✓ استفراغ کے معد غذاء جلد نہیں کرنی چاہئے

اصول استفراغ

- ✓ موذی مواد کا استفراغ کرنا چاہئے
- ✓ مریض کے متحمل استفراغ کرنا چاہئے
- ✓ میلان کے طرف استفراغ (مثال: متلی میں قئے سے استفراغ کریں)
- ✓ مادہ کا اخراج ہمیشہ طبعی مخرج سے کریں تو بہتر ہے
- ✓ مادہ کو خارج کرنے سے پہلے نضج دیں

استفراغ کی قسمیں

- ○ اسہال:- آنتوں کے ذریعہ مواد کا خراج کرنا
- ○ قئے:- منہ کے ذریعہ مواد کا خراج کرنا
- ○ تعریق:- پسینہ (جلد کے مسامات) کے ذریعہ مواد کا خراج کرنا
- ○ ادرار:- پیشاب کے ذریعہ مواد کا خراج کرنا
- ○ فصد:- وریدوں کے ذریعہ شگاف دیکر مواد کا خراج کرنا
- ○ تنفیث:- بلغم کا استفراغ حلق کے ذریعہ
- ○ حجامہ:- سنگیوں کے ذریعہ خون کا استفراغ کریں

شرائط استفراغ

- ✓ امتلائے مواد نہ ہونے پر استفراغ ممنوع ہے
- ✓ قوت ضعیف میں ممنوع ہے
- ✓ حار، بارد، یابس کی شدت مانع استفراغ ہے
- ✓ امعاء میں زخم ہو تو اسہال ممنوع ہے
- ✓ بڑھاپے اور بچوں میں استفراغ ممنوع ہے
- ✓ سخت گرمی، سردی کے موسم میں استفراغ ممنوع ہے
- ✓ سخت گرمی و سردی میں استفراغ ممنوع ہے
- ✓ جس شخص کو استفراغ کی عادت نہ ہو تو قوی استفراغ ممنوع ہے

ILMUL AMRAAZ

علم الامراض

احوال بدن

جالینوس کے مطابق احوال بدن 3 ہے

صحت، مرض، حالت ثالثہ

شیخ کے مطابق احوال بدن 2 ہے

صحت، مرض

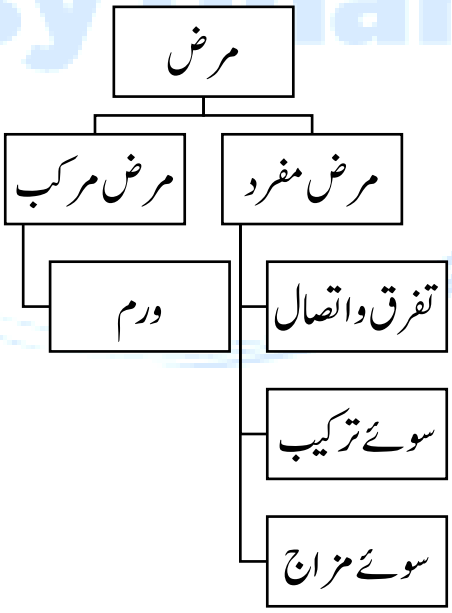
جالینوس قائل تھے

تقابل تضاد کے حالت ثالثہ، حالت لا صحت لا مرض حالت متوسطہ

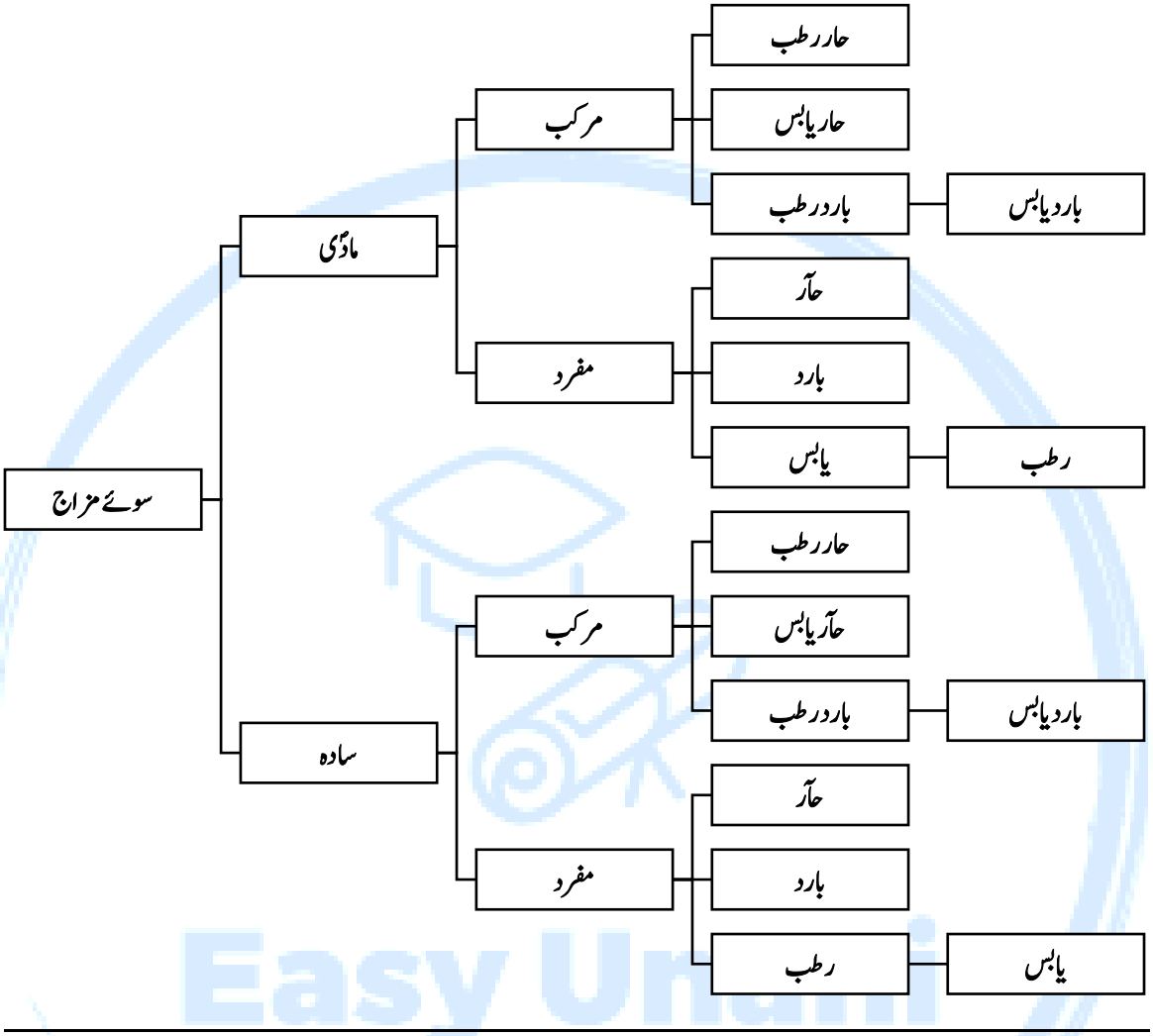
شیخ قائل تھے

تقابل ملکہ عدم ملکہ

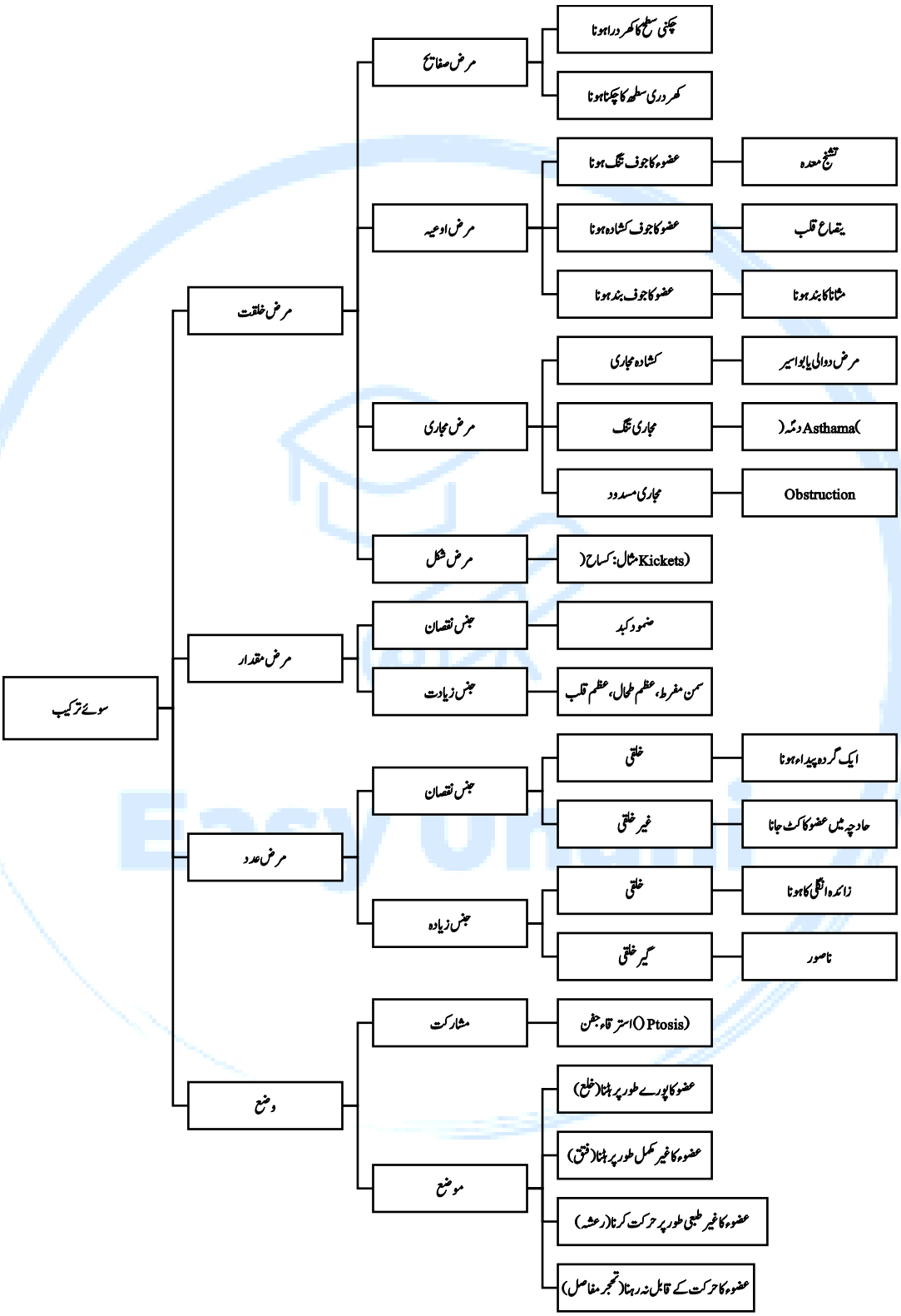
مرض کی تقسیم



سوئے مزاج کی تقسیم



سوئے ترکیب کی تقسیم

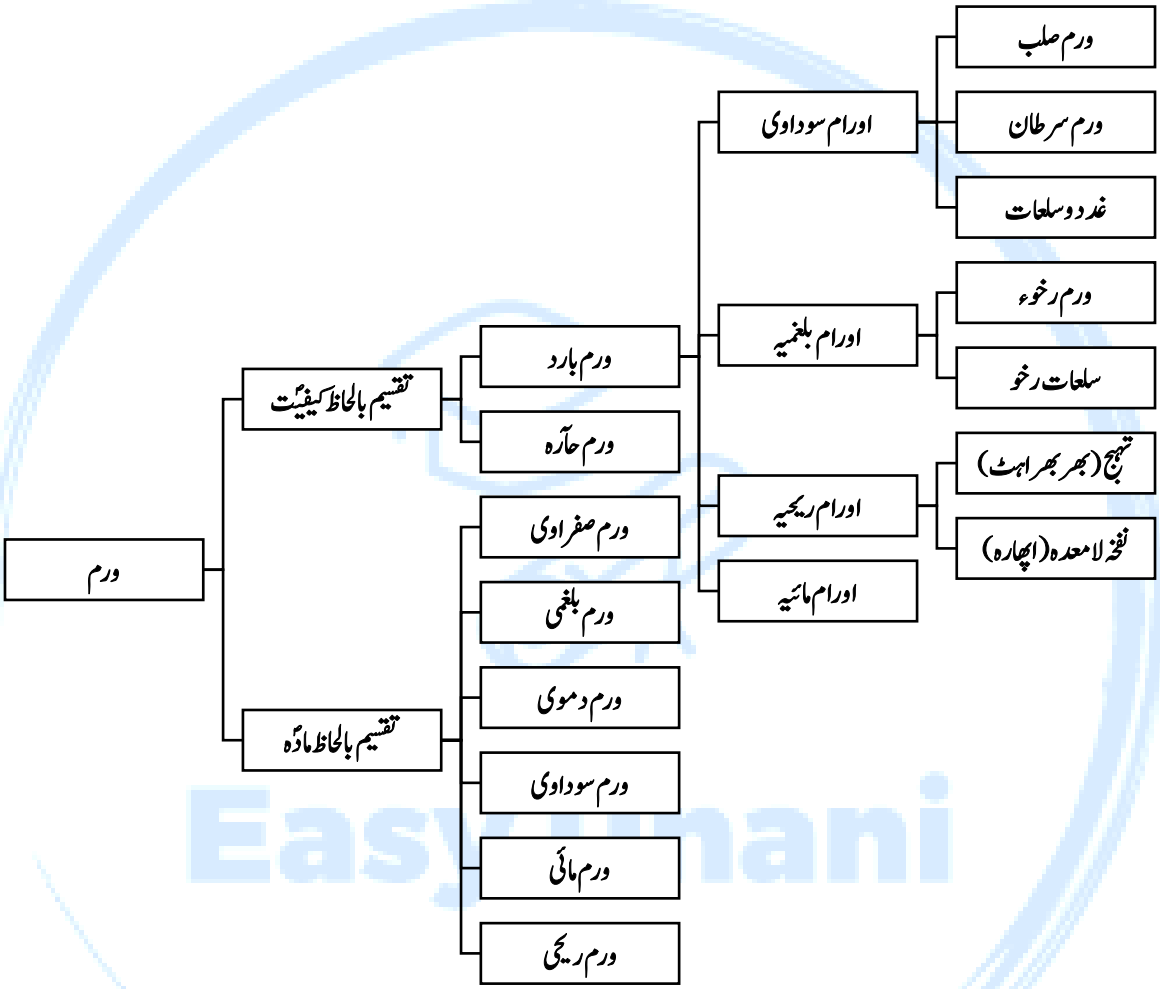


تفرق واتصال

جلد	• سمج (چھل جانا) (جلد میں پھیلا ہوتا ہے) • خدش (خراش) (لکھیر کی طرح ہوتا ہے)
گوشت	• جراحت (پیپ نہ پڑی ہو تو) • قرحہ (پیپ پڑ گئی ہو تو) • رض / نسخ (تفرق واتصال گوشت میں گہرا ہو)
ہڈی	• کسر (عرض میں تفرق واتصال ہو) • صادع (طول میں تفرق واتصال ہو) • فاسخ (ہڈی کے دو یہ زیادہ بڑے ٹکڑے ہو جائے) • مفتت (ہڈی چھوٹے چھوٹے ٹکڑے میں ٹوٹتی ہے)

عصب	• شرح(طول میں تفرق واتصال ہو) • پتک(عرض میں تفرق واتصال ہو)
عضلات	• فدغ(طول میں تفرق واتصال ہو) • حز(عرض میں تفرق واتصال ہو)
شرائن	• ام الدم(طول میں تفرق واتصال)(شرائین کو طبقات میں ڈیلاپن آنا) • قطع(عرض میں تفرق واتصال) • انفجار(شرائین کا منہ کھل جائے)
اغشیہ	• فتق

ورم کی تقسیم


ورم
تقسیم بالحاظ کیفیت
ورم بارد
ورم حارہ
تقسیم بالحاظ مادہ
ورم صفراوی
ورم بلغمی
ورم دموی
ورم سوداوی
ورم مائی
ورم ریحی
اورام سوداوی
ورم صلب
ورم سرطان
غدد وسلعات
اورام بلغمیہ
ورم رخوء
سلعات رخو
اورام ریحیہ
تہبج (بھربھراہٹ)
نفخہ لامعدہ (اپھارہ)
اورام مائیہ

علم السباب

اسباب محافظہ:-وہ اسباب جو بدن کے حالات کو اپنی جگہ قائم رکھتے اور ان کی حفاظت کرتے ہے

اسباب مغیرہ:-بدن کے حالات میں تغیر پیداء کرتے ہے

اسباب مخلفہ:-وہ اسباب جو بدن سے جداء ہونے کے بعد بھی انکا اثر باقی رہتا ہے

اسباب غیر مخلفہ:-وہ اسباب جو بدن سے جداء ہونے کے بعد اثر باقی نہی رہتا

اسباب مسخنہ:-وہ اسباب جو بدن میں حرارت پیداء کرتے ہے

- گرم ماکول ومشروب
- عفونت پیداء کرنے والی اشیاء کا استعمال
- حرکت مفرط

اسباب مبرّدہ:-بدن میں برودت پیداء کرتے ہے

- سکون مفرط
- باردماکول ومشروب
- تقلیل غذاء

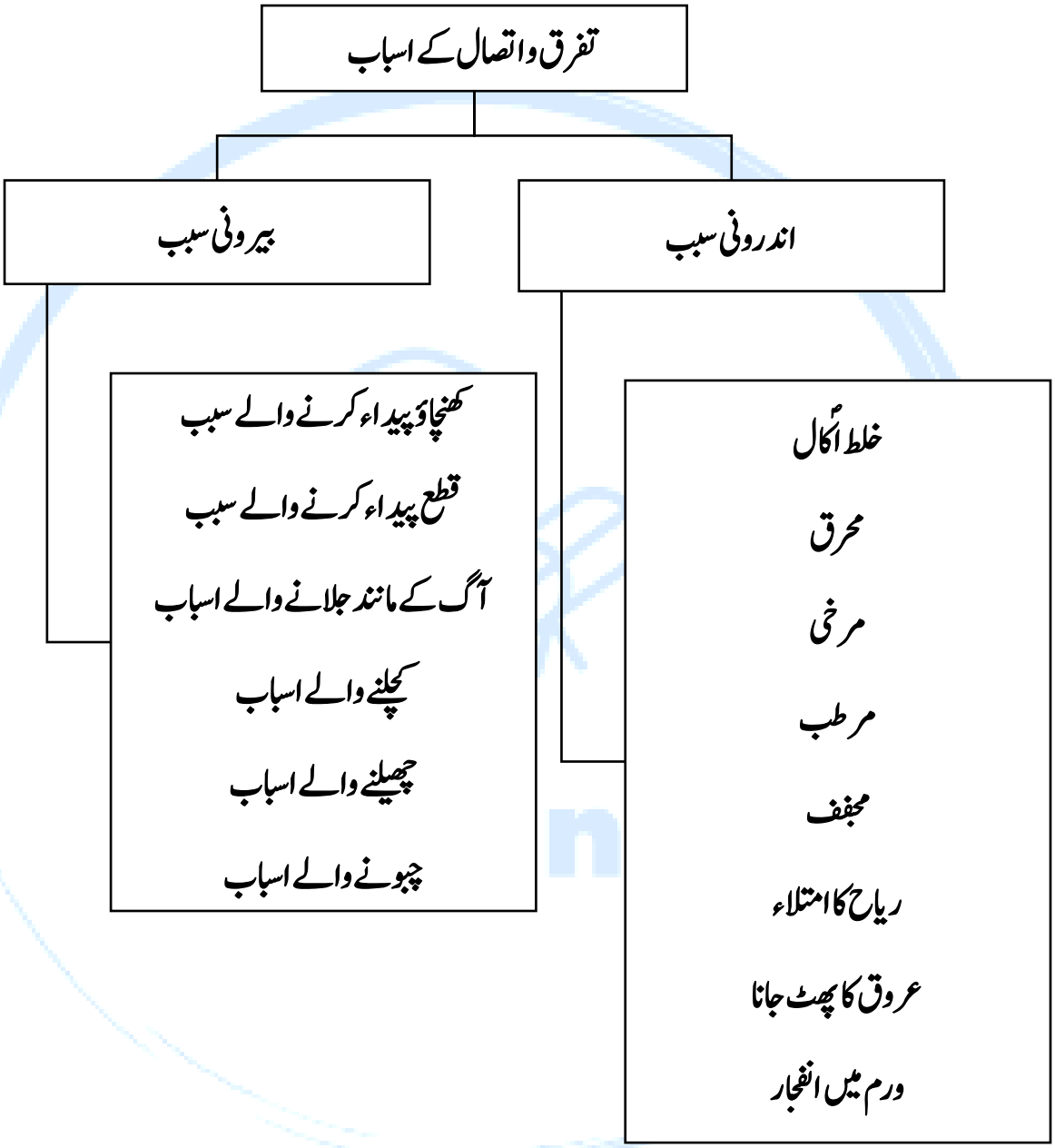
اسباب مجفف:-وہ اسباب جو بدن میں رطوبت پیداء کرتے ہے

- سکون و آرام
- کثرت نوم / نیند کی زیادتی
- خلط یابس کا بدن سے اخراج (صفراء)
- رطوبت غیر طبعی کا بدن میں احتباس
- رطابت پیداء کرنے والی اشیاء کا استعمال
- مرطبات کا استعمال
- ہلکے مسکنات کا استعمال
- فرحت معتدلہ

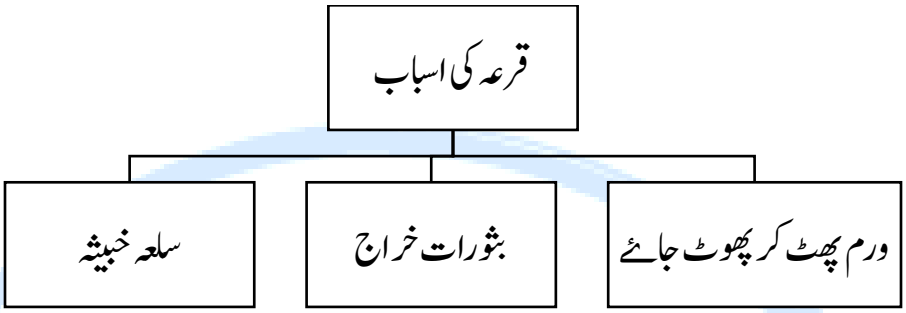
اسباب مفسدات شکل:-

- بعض اسباب جنینی زندگی سے تعلق رکھتے ہے، جو قوت مصورہ میں خلل ڈالتا ہے
- غیر طبعی وضع حمل
- بیرونی سبب جیسے: ضربہ وسکتہ
- دوران حمل گردش کرنا
- بعض اسباب عصبی ہوتے ہے مثلا: لقوہ، استسقاء، رعشہ، تشنجی
- جزام، آتشک، چیچک وغیرہ
- زیادہ بڑھاپا اور زیادہ لاغری

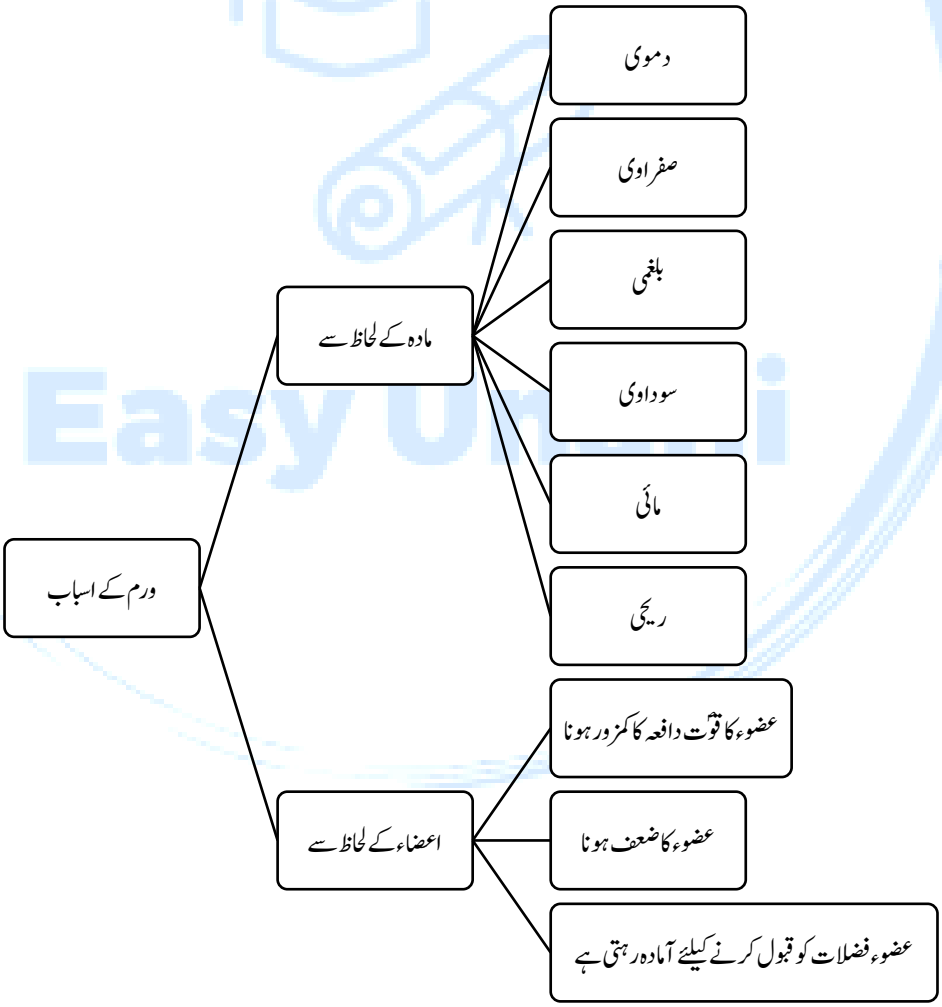
تفرق واتصال کے اسباب



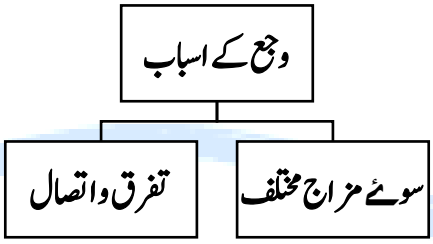
قرعہ کی اسباب



ورم کے اسباب

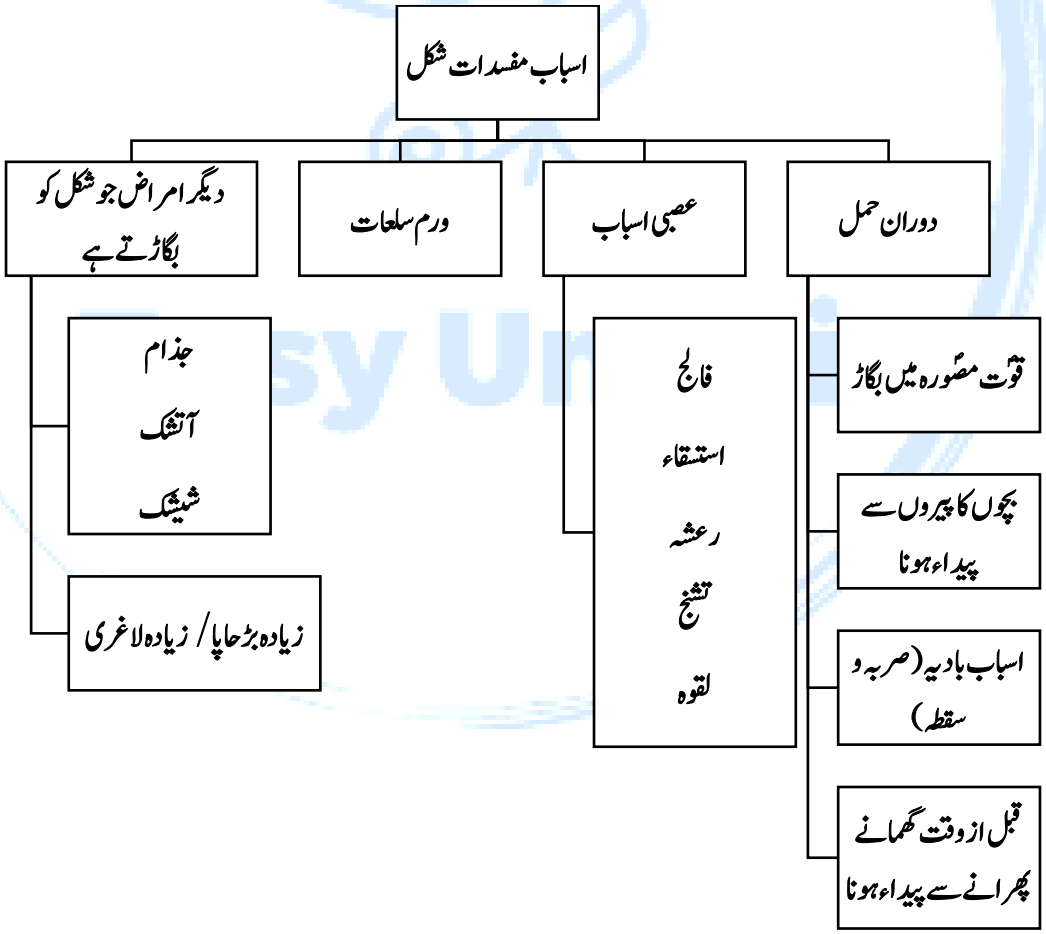


وجع کے اسباب



✓ جالینوس کے مطابق وجع کی اصل سبب تفرق واتصال (سوئے مزاج تفرق واتصال ہی کے ذریعہ ہوتا ہے)

اسباب مفسدات شکل



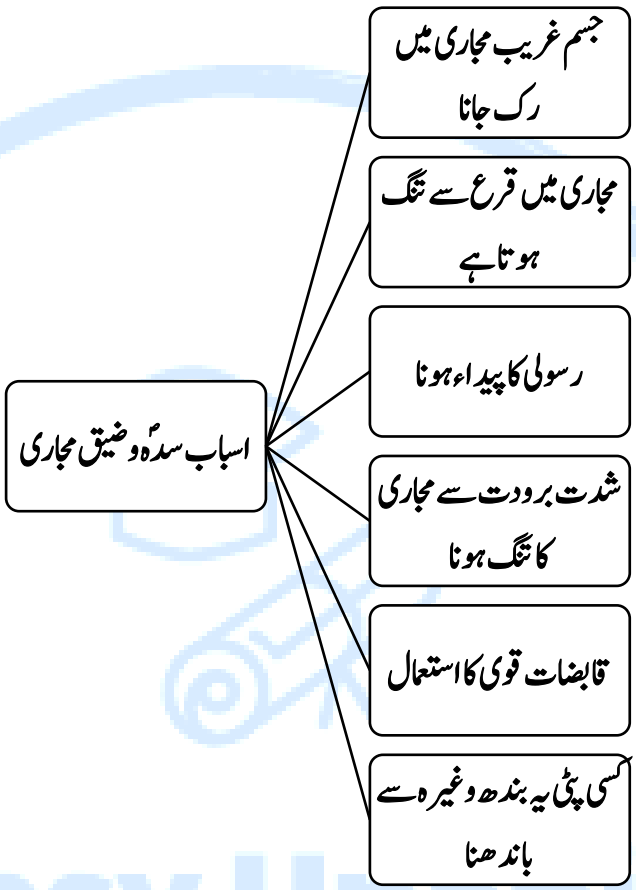
اسباب اتساع

- قوّت ماسکہ کا کمزور ہونا
- قوّت دافعہ کا قوی ہونا
- ادویہ مسہلہ کا استعمال
- ادویہ مرخیہ کا استعمال

اسباب خشونت

- مقطعات یا جالی ادویہ کا استعمال
- یابس اور قابضات کا استعمال
- بارد اور کثیف ادویہ کا استعمال
- اسباب سدّہ و ضیق مجاری

اسباب سدّہ وضیق مجاری



احتباس غیر ضروریہ کے اسباب

1. قوت دافعہ کا ضعیف ہونا
2. قوت ماسکہ کا قوی ہونا
3. قوت ہاضمہ کا ضعیف ہونا
4. مجاری کا تنگ یا مسدود ہونا
5. مادہ کا غلیظ، لسید اریا زیادہ مقدار میں ہونا جسے قوت دافعہ باہر نکال سکے

استفراغ غیر ضروری کے اسباب

1. قوت دافعہ کا قوی ہونا
2. قوت ماسکہ کا ضعیف ہونا
3. مادہ کا رقیق ہونا
4. مجاری کا کشادہ ہونا
5. مجاری کا طول یا عرض میں کٹ جانا یا ان کا منہ کھل جانا (نکسیر)
6. مادہ کا موذی ہونا

علم العلامات

علامات صحیحہ :- وہ علامات جن سے صحت کا پتہ چلے

علامات مرضیہ :- وہ علامات جن سے بیماری کا پتہ چلے

علامات صحت :-

1. علامات جوہریہ: بدن کی ترکیب کی درستگی کا اظہار ہوتا ہو
2. علامات مرضیہ :- اعضاء کی شکل وصورت، حسن وجمال سے تعلق رکھتا ہے (مزاج کے اعتدال کو ظاہر کرتی ہے)
3. علامات تمامیہ :- ان کا تعلق اعضاء کے افعال سے ہوتا ہے

علامات امزجہ

جن عوارضات سے مزاجوں کی کیفیت معلوم کی جاتی ہے

1. مملس
2. لحم شحم کی مقدار
3. بالوں کی نوعیت
4. بدن کی رنگت
5. ہیئت اعضاء
6. اعضاء کا جلد یا بدیر متاثر ہونا
7. نیند و بیداری
8. افعال اوضاء
9. عضلات بدن
10. انفعالات نفسانیہ

علامات امتلاء

امتلاء بحسب الادعیہ

✓ اخلاط و ارواح کی کیفیت درست ہوتی ہے لیکن ان کی کمیّت (مقدار) میں اضافہ ہوتا ہے

امتلاء بحسب قوۃ

✓ اخلاط کی مقدار کی زیادتی ہونا، اسکی کیفیّت ردی ہوتی ہے

اخلاط اربعہ کی امتلاء کی علامات

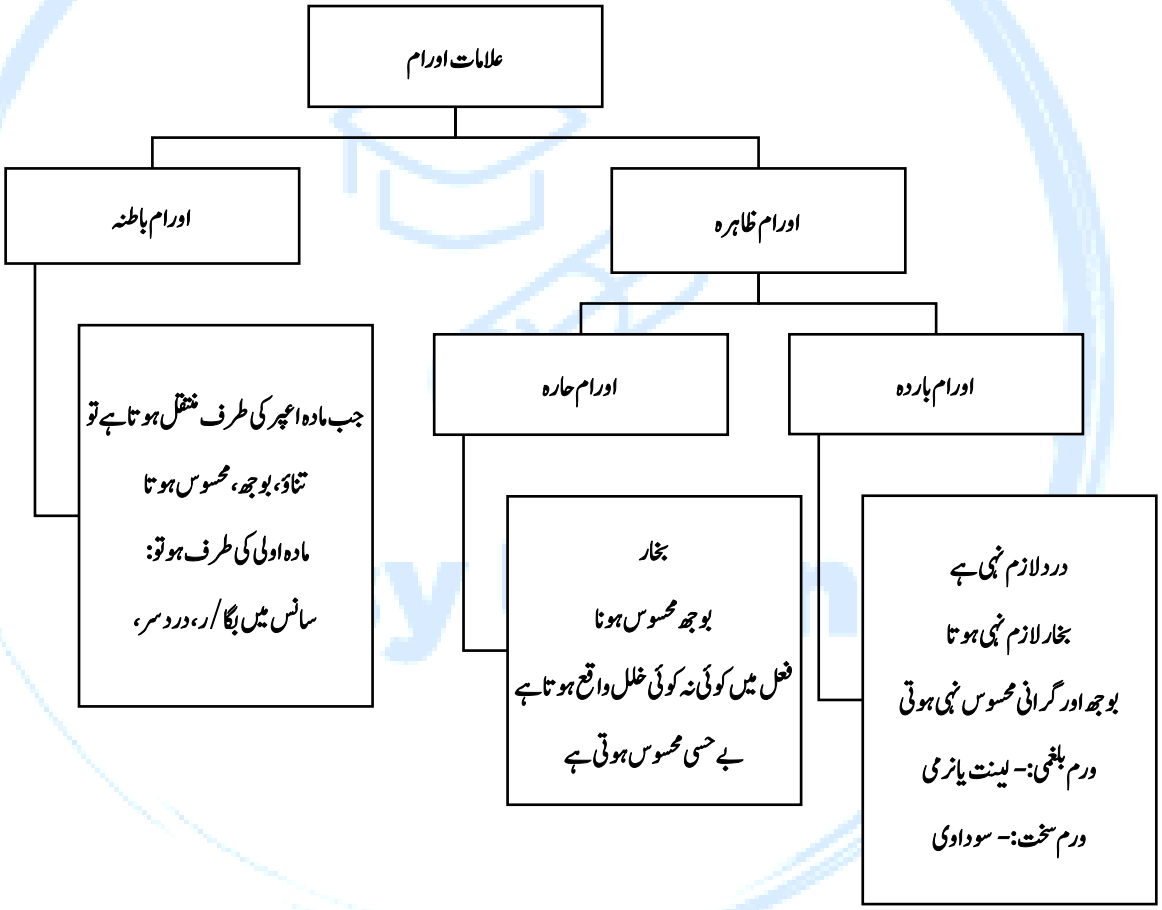
دم	آنکھوں اور کنپٹی میں بوجھ زبان، آنکھوں کا سرخ ہونا نکسیر یا بواسیر کا آنا
بلغم	بدن کا رنگ، سفیدی مائل تھوک کی کثرت اور پیاس کی کمی، ہضم ضعیف ہونا کھٹی ڈکاریں آنا، ذہن کند ہونا، نبض لیّن و بطی ہوتی ہے
صفراء	آنکھوں، بدن کا رنگ زرد، پیاس کی زیادتی ہونا منہ کا مزہ کڑواء، جلد میں خشکی و کھردراپن، حلق و معدہ مین سوزش صفراوی قے اور دست آنا، نبض ممتلی و سریع ہوتی ہے، بدن میں لرزہ و سوئی کی چبن ہوتی ہے
سوداء	جسم کا رنگ سیاہ، وبالوں کی کثرت، جلد پر سیاہ دھبوں کا ظاہر ہونا و امراض طحال کی کثرت بدن میں خشکی، سوزش و جلن محسوس ہوتی ہے پیشاب غلیظ و سیاہی مائل ہوتا ہے

علامات سدہؑ

جب بدن میں مواد رک جائیں اور تمدد کا احساس ہو تو بدن میں امتلاء پایا جاتا ہے، ایسی صورت میں سمجھنا چاہئے کہ یقیناً سدہ موجود ہے

سدہؑ مجاری میں ہو تو بخار نہی ہوتا، لیکن افعال میں کچھ نہ کچھ خلل پیداء ہوتا ہے اور فقر الدم میں محصوص ہوتا ہے

علامات اورام



وجہ کے اسباب دو ہیں

1. **سوئے مزاج مختلف**
2. **تفرق واتصال**

- **جالینوس کے مطابق وجہ کی ایک قسم ہے:- تفرق واتصال**
- جالینوس کے مطابق وجہ کی 15 قسمیں ہیں

وجع کی قسمیں

1. وجع حکاک (کھجانے والا درد)
2. وجع خشن (چبھنے والا درد)
3. وجع ناخس (چبھنے والا درد)
4. وجع ممدّد (تناؤ کا درد)
5. وجع صاغظ (دباؤ پیدا کرنے والا درد)
6. وجع مفسخ (پھاڑنے والا درد)
7. وجع مکسّر (ہڈی توڑ درد)
8. وجع رخو (ڈھیلا درد)
9. وجع ثاقب (چھیدنے والا درد)
10. وجع مسلّی (تکلہ والا درد)
11. وجع خدری (بے حس اور سن کرنے والا درد)
12. وجع ضربانی (ٹیس والا درد)
13. وجع ثقیل (بوجھل پیدا کرنے والا درد)
14. وجع اعیائی (تکان والا درد)
15. وجع لاذع

Inflammation

4 cardinal signs of inflammation are:- Rubor (Redness), Tumor (Swelling), Color (Heat), Dolor (Pain) according to Celsus.

5th sign is loss of function (Functio laesa) according to Virchow.

Acute Inflammation

A. Vascular events
- **Transient Vasoconstriction**
- **Vasodilation**

B. Cellular events

I. Migration (Accumulation of leukocytes in periphery of lumen)
II. Rolling Leucocyte adhere to endothelium
III. Adhesion
IV. Chemotaxis

Mediators & events of Inflammatory

Histamine → Vasodilators, Increase vascular permeability, Smooth muscle contraction, Pain.

Thromboxane A2 → Vasoconstriction, Platelet aggregation, Smooth muscle contraction.

Platelet aggregation factor → Platelet aggregation, Lysosomes granules release

Tricalcium aluminate → Smooth muscle contraction, Vasodilators, Mast cell granulation.

Leukotriene B4 → Chemotaxis, Vasoconstriction, Endothelial cell stickiness,

Complement component 3 (C3b) → Phagocytosis

Most potent mediator of Pain → Prostaglandins

Wound Healing

3 phases

- **Inflammatory Phase**
  Clot formation
  Increase vascular permeability
- **Proliferation Phase**

Deposition of granulation tissue

Angiogenesis

Wound contraction

- **Remodulation Phase**

Extracellular matrix deposition

Ischemia

- Ischemia is cell injury is most common type of cell injury
- Ischemia is reversable death of cell / Infraction is irreversible change of cell

Symptoms of local ischemia

- Pain, Cyanosis, Pulseless.

Area most prone to ischemia

I. Brain – Boarder zone of brain, Pyramidal cells, Purkinje cells
II. Heart – Sub endocardium
III. Colon – Griffith's point (Selenic flexure), Subdeck's point (Recto sigmoid segment)
IV. Kidney – Straight segment of PCT

Atherosclerosis

- Most common sites for atherosclerosis in descending order :

- Lower abdominal aorta > coronary arteries > popliteal artery > Descending thoracic aorta > Internal carotid artery.
  Risk factors:

Gender Male, Genetic abnormality, Dyslipidemia, Diabates, HTN, Saturated fatty acids, Metabolic syndrome, Obesity, Lack of exercise
Proinflammatory factors - Impaired fasting glucose.

Arteriosclerosis

It is a condition in which thickening and hardening of arterial walls

The following are morphological entities among the arteriosclerosis

1. Senile arteriosclerosis (Thickening of Tunica intima & Externa)
2. Hypertensive arteriosclerosis (Effects arterioles)
3. Monckeberg's arteriosclerosis (Medial calcified sclerosis / affects arteries)

Metaplasia:- It is a medical condition characterized by the transformation of one type of adult tissue into another type of tissue that is not normally present in that location. It occurs as a response to chronic irritation, inflammation, or other types of cellular stress.

Hyperplasia:- It is a medical condition characterized by an abnormal increase in the number of cells in a tissue or organ, leading to an enlargement of that tissue or organ. It can occur as a normal response to tissue damage or stimulation, or it can be caused by abnormal growth signals.

Infarction:- It is a medical condition characterized by tissue death or damage that results from a lack of oxygen supply to a particular area of the body. It most commonly occurs in the heart, brain, lungs, and other vital organs.

Infarction can be caused by a variety of factors, including blood clots, narrowed or blocked blood vessels, and other conditions that can disrupt blood flow to the affected area.

Note:- Infraction is reversable, Necrosis is irreversible.

Classification of different groups of bacteria

Gram positive Cocci

Name	Shape	Motile/Non motile	Size
Staphylococcus	Spherical or oval-shaped	Non-motile, Non-Flagellated	0.5 to 1.5 micrometers diameter
Streptococcus	Spherical or ovoid-shaped	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers diameter
Enterococcus	Spherical or ovoid-shaped	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers diameter

Gram negative Cocci

Name	Shape	Motile/Non motile	Size

Neisseria	Spherical or ovoid-shaped	Non-motile, Non-Flagellated	0.6 to 1.0 micrometers diameter
Veillonella	Spherical or ovoid-shaped	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers diameter
Moraxella	Spherical or ovoid-shaped	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers diameter

Gram positive bacilli

Name	Shape	Motile/Non motile	Size
Listeria monocytogenes	Typically rod-shaped, but they can also be coccobacillary or even coccoid in shape	Non-motile, Non-Flagellated	0.5 to 2 micrometers in diameter and 0.5 to 4 micrometers in length
Bacillus	Typically rod-shaped, but they can also be coccobacillary in shape.	Motile and have peritrichous flagella	0.5 to 1.0 micrometers in diameter and 2 to 10 micrometers in length.
Clostridium	Typically rod-shaped and occur singly, in pairs, or in short chains	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers in diameter and 2 to 8 micrometers in length
Corynebacterium	Typically rod-shaped and occur singly or in pairs	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers in diameter and 1 to 5 micrometers in length
Lactobacillus	Typically rod-shaped and occur singly, in pairs, or in short chains	Non-motile, Non-Flagellated	0.5 to 1.0 micrometers in diameter and 2 to 5 micrometers in length

Gram negative bacilli

Name	Shape	Motile/Non motile	Size
Enterobacteriaceae	Typically rod-shaped and occur singly or in chains	Motile and have peritrichous flagella, which means they have flagella all over their surface	0.5 to 1.5 micrometers in diameter and 1 to 5 micrometers in length
Pseudomonadaceae	Typically rod-shaped and occur singly or in chains	Motile and have polar flagella, which means they have flagella at one or both ends of the cell	0.5 to 1.5 micrometers in diameter and 1 to 5 micrometers in length
Acinetobacter	Typically coccobacilli, which means they are oval-shaped and can appear as either cocci (spherical) or bacilli (rod-shaped)	Non-motile, Non-Flagellated	0.5 to 1.5 micrometers in diameter and 1 to 3 micrometers in length
Hemophilus	Typically pleomorphic, meaning they can take on different shapes, including cocci (spherical), rods, and coccobacilli	Non-motile, Non-Flagellated	0.2 to 0.4 micrometers in diameter and 0.5 to 1.5 micrometers in length
Vibrio	Typically curved or comma-shaped, and can appear as either single cells or in pairs	Motile and have a single polar flagellum, which means they have a single flagellum at one end of the cell	0.5 to 1.0 micrometers in diameter and 1.5 to 3.0 micrometers in length
Legionella	Rod-shaped and can appear either straight or slightly curved	Non-motile, Non-Flagellated	0.3 to 0.9 micrometers in diameter and 2.0 to 20.0 micrometers in length
Helicobacter	Spiral-shaped and have a characteristic corkscrew appearance	Motile and have several flagella that extend from one end of the cell	0.5 to 1.0 micrometers in diameter and 2.5 to 5.0 micrometers in length

Tufailiyat (parasites)

- ✓ Parasites are organisms that live on or inside another organism, called the host, and depend on the host for their survival.
- ✓ Parasites can cause a wide range of health problems in humans and other animals, including infections and diseases.

Some examples of parasites that can infect humans include:

1. Protozoa: These are single-celled organisms that can cause diseases such as malaria, amoebic dysentery, and giardiasis.
2. Helminths: These are parasitic worms that can infect the intestines, liver, and other organs. Examples include tapeworms, roundworms, and hookworms.
3. Ectoparasites: These are parasites that live on the skin or hair of their host. Examples include lice, fleas, and ticks.
4. Arthropods: These are a diverse group of invertebrates that can include parasitic mites, such as scabies, and chiggers.

- ✓ Parasites can be transmitted through contact with contaminated soil, water, or food, as well as through insect bites and contact with infected animals.
- ✓ Symptoms of a parasitic infection can vary depending on the type of parasite involved, but may include fever, abdominal pain, diarrhea, skin rashes, and fatigue.

Fungi and Virus ka Ajmali Bayan

Fungi and viruses are both types of microorganisms that can cause infections in humans and other organisms. However, they differ in several ways.

Fungi are eukaryotic organisms, meaning they have complex cells with nuclei and organelles. They can be single-celled, like yeasts, or multi-cellular, like molds and mushrooms. Fungi can cause a wide range of infections in humans, including skin infections, lung infections, and systemic infections. They can also cause allergies and other types of immune reactions.

Viruses on the other hand, are much smaller and simpler than fungi. They are not considered living organisms because they cannot replicate on their own and require a host cell to reproduce. Once inside a host cell, a virus can take over the cell's machinery to produce more virus particles. Viruses can cause a wide range of infections in humans, including the common cold, influenza, HIV/AIDS, and COVID-19.

Treatment for fungal infections usually involves antifungal medications, while treatment for viral infections often involves antiviral medications. In some cases, vaccines can also be used to prevent viral infections.

It is important to practice good hygiene, such as washing hands regularly and avoiding contact with sick individuals, to reduce the risk of both fungal and viral infections.

Spirochete

- ✓ Spirochetes are a type of bacteria characterized by their spiral or corkscrew shape.
- ✓ They are classified as a phylum of bacteria called Spirochaetes, which includes several genera such as Treponema, Borrelia, and Leptospira.
- ✓ Spirochetes are unique in their ability to move through viscous environments by rotating their flagella in a corkscrew-like motion.
- ✓ This allows them to penetrate deep tissues and evade immune defenses, making them successful pathogens in humans and animals.
- ✓ Some notable examples of spirochetes include Treponema pallidum, the bacterium responsible for syphilis; Borrelia burgdorferi, the bacterium that causes Lyme disease; and Leptospira interrogans, the bacterium that causes leptospirosis.
- ✓ While some spirochetes are harmless or even beneficial to their hosts, others can cause serious diseases that can be difficult to treat.
- ✓ Treatment typically involves antibiotics, although some spirochetes have developed resistance to certain drugs.

TAREEQ TIBB

تاریخ الطب

تاریخ الطب

فن طب کے اوّلین مراکز

بابلی و آشوری طب:-

- BC3000
- سمیرئن قوم
- نظریات:-
- نظریہ صحت و مرض:- صحت و مرض دیوی دیوتاؤں کی ناراضگی کا نتیجہ سمجھے جاتے تھے۔ اگر کسی شخص کے بارے میں تصدیق ہو جاتی کہ وہ بے قصور ہے لیکن پھر بھی مرض میں مبتلا ہے تو یہ خیال تھا کہ مرض کا ذمہدار کوئی دیوتا نہیں بلکہ شیطانی طاقتیں و بدروحوں کی وجہ سے واقع ہوا ہے۔
- صحت کا دیوتا:- صحت عطاء کرنے کیلئے دیوی، دیوتاؤں کی پرستش کی جاتی ہے۔
- ایا:- صحت کے دیوتاؤں میں سب سے قدیم تھا۔
- مردک:- یہ ہر مرض پر غالبہ پانے کی قدرت رکھتا ہے
- نیبو:- یہ دیوتا بہت طاقتور مانا جاتا تھا
- اشٹر اور الاٹا کافی مشہور دیوی دیوتا تھا
- گلا سب سے زیادہ عظیم دیوی مانا جاتا تھا
- شیطانی طاقتیں:- بابلی لاگوں کے مطابق مرض شیطانی طاقتوں اور خبیث روحوں سے پیداء ہوتا ہے۔
- مندرجہ ذیل شیطان ان امراض کے ذمہدار ہیں
- شیطان آشکو نخار پیداء کرتا ہے
- نامتارو طاعون پیداء کرتا ہے
- اکّو گردن کے امراض کا سبب ہے
- الوہڈی کے امراض کا سبب ہے
- گلوہاتون کی بیماری لاتا ہے
- ربیسو جلدی امراض کا ذمہدار ہے
- پزوزو مہلک امراض کیلئے ذمہدار ہے

ان کے اطباء تین جماعتوں مین تقسیم تھے

- ایک جماعت:- بارو جو روحانی علاج میں ماہر

- دوسری جماعت:-اسٹیپو منتر کے ذریعہ تکلیف کو جسم سے نکالنے والے
- تیسری جماعت:- آزو مرض کا علاج دواؤں سے کیا جاتا تھا

طاریقہ تشخیص:-

- پانی اور تیل کو ملایا جاتا اگر پانی کی سطح پر تیل کا حالہ نمودار ہو جاتا تو علامت تھی کے مرض قابل علاج ہے
- اگر پانی کی سطح پر تیل پھیل جائے تو شفاء کی امید کم ہو جاتی ہے
- آگ جلا کر اسکی رنگت دیکھتے
- اگر آگ کی لال رنگت زرد یا سبز ہو جائے تو اشھی علامت نھی تھی
- مریض کی تھوک، پیشاب، اور پاخانے وغیرہ کی رنگت سے بھی تشخیص ہوتی تھی۔
- طریقہ علاج:- دیوتاؤں کی پوجا اور شیطان سے پناہ مانگتے اور پھر جگر کے مقام شگاف دیکر بدروح کو نکال نے کی کاشش کرنا یہ کا عقیدہ تھا۔
- علاج کیلئے نباتی، معدنی، حیوانی دواؤن کا استعمال کرتے 100 سے زیادہ باضم اور کاسر ریاح ادویہ اک استعمال کیا جاتا تھا۔

مصری طب:-

- 6000 قدیم مصر میں جادو اور سحر جیسے علم کا زور تھا۔BC
- ان کا عقیدہ تھا کہ ناگہانی حادثہ کو بھوت، پریت اور بدروحوں کا سایہ سمجھتے تھے، بھوت پریت اور بدروحوں سے حفاظت ممکن ہو جائے تو موت واقع نھی ہوتی۔
- طریقہ علاج:-انسانی جسم کئ چھتیس (36) حصوں میں تقسیم کیا تھا۔ اور ہر حصہ کی حفاظت کوئی ایک دیوتا کرتا ہے
- تمام صحت کے دیوتاؤں میں سب سے زیادہ مقدس اور شفاء بخش دیوتا اموحوطب تھا۔
- اموحوطب تاہ کا بیٹا تھا اور یہ (بی سی 3000) کے تھے
- مصری طب کی ذریعہ معلومات میں بردی نوشتوں کو غیر معمولی اہمیت دی گئی ہے۔

جارج ایبرس کا بروی نوشتہ:-

- AD1873
- لکسر کے مقام پر دریافت کیا یے،
- Lepzig University کے عجائب گھر میں محفوظ ہے
- یہ 20 میٹر لامبا اور 1700 امراض اور ان کے علاج کی تفصیل ہے۔
- اس نوشتہ کی تحقیق سے کئ چیزیں ثابت ہوئی
- علم تشریح، منافع الاعضاء، حرکت نبض، عمل تنفس وغیرہ۔

اڈون اسمتھ کا بردی نوشتہ:-

- 1862AD
- اسکو نوشتہ جراحت کے نام بھی جانا جاتا ہے۔

کاہون، بردی نوشتہ:-

- BC1800-2000
- اس میں طب حیوانی اور امراض نسواں کے بارے میں تفصیل بتایا گیا ہیں۔

ہرسٹ بردی نوشتہ:-

1600BC

لندن بردی نوشتہ:-

1300BC

بروگش بردی نوشتہ:-

1200BC

چینی طب:-

- BC3000
- قدیم چینی فلسفی، فوہسائی کا نظریہ یانگ اور ین
- وجود انسان، حفظ صحت اور اسباب مرض کی بنیاد رکھی
- یانگ اور ین جن ممکنہ صورتوں میں مادّے پر اثر انداز ہو سکتی ہے چینی فلسفہ میں اس علامت کو پی کو اکہتے ہے

شین ننگ:-

- سرخ شہنشاہ
- BC2800
- کتاب:- پین ساؤ 360 جڑی بوتیوں کا ذکر موجود ہے

- اس کتاب کے تین درجات ہے
- پہلا درجہ برتر ہے اسمیں 120 ادویہ کا ذکر ہے۔ جو غیر سمی اور شباب آوار ہیں
- دوسرا درجہ اوسط ہے اسمیں 120 ادویہ ہیں جو مقوی ہے
- تیسرا درجہ ادنی ہے اسمیں 125 ادویہ ہیں جو صرف دفع مرض کیلئے استعمال کرتے ہیں
- اس کتاب میں علاج بالابر کے 365 نقطوں کا ذکر کیا گیا ہے

ہوانگ ٹی:-

- شہنشاہ زرد
- BC2689-2599
- کتاب:-نی چنگ
- اس کتاب میں تشخیص کے چار معیاری طریقہ درج ہے۔
- مریض کا معائنہ
- مریض کا حال سننا
- مریض سے سوالات کرنا
- نبض دیکھنا
- اس کتاب میں ہاتھ میں نبض دیکھنے کے 12 مقامات بتائے گئے ہیں۔
- اس کتاب میں نبض کی تقریبا 200 اقسام کا ذکر ہے ان میں 26 قسم کی نبض موت پر دلالت کرتی ہیں۔
- چینی دور میں انسانی نعشوں کا ڈیسکشن کی ممانعت تھی اسلئے فن جراحت بہت کم ہی پایا گیا ہے
- جراحت کا ذکر نی چنگ میں صرف دو ہی بار آیا ہے
- ہوا تو نام سے ایک جراح کا ذکر موجود ہے جو اکثر عمل جراحی انجام دیا کرتا تھا۔

سن ژو میاؤ:-

- AD581-682
- کتاب:-چئین چن یاؤ فنگ
- اس میں ایک ہزار سنہرے نسخے لکھی ہے اور چالیس جلدوں پر مشتمل ہے

چینی طب کا مخصوص طریقہ علاج:-

- علاج بالابر Acupuncture
- علاج باللذع Moxibustion
- علاج بالدلک Massage

ہندی طب یا آیورویدہ:-

- ھندی طب بھت قدیم طب ہے جسکو وادیٔ سند کی تھذیب کے نام سے جانا جاتا تھا
- 2500BC
- یھاں آرین نامی باشندے آباد تھے۔
- ھندی طب کی ابتداء ھندو دھرم کے عقائد پر مشتمل ہے
- ان کا ماننا تھا کہ بھگوان برھما طب کے موجد ہے
- ان ھونے یہ فن بالترتیب دکھشن پرجاپتی اور اشونی کمار اور اندر تک پھنچادیا۔ دیوتا اندر نے اس فن کو دو حصوں میں تقسیم کیا۔
- فن جراحت کی تعلیم دیوتا دھنونتری اور فن طبابت دیوتا بھاردواج کو سکھایا۔
- دھنتری دیوتا نے فن جراحت اپنے شاگرد ششرت کو سکھایا اور دیوتا بھاردواج نے فن طبابت کی تعلیم اپنے شاگرد اتری کو دی ہے۔

آیورویک کی بنیادی نظریات : -

- **پنچ مھابھوت** : - آکاش(sky)، وایو(Air)، تیجا(fire)، آب(water)، مٹی(earth).
- آکاش اور وایو سے واتا بنتا ہے جو بدن میں حرکت پیداء کرتے ہیں۔
- تیجا سے پتا بنتا ہے جو بدن میں گرمی پیداء کرتا ہے یہ استحالہ اور توانائی کیلئے ضروری ہے
- آب اور پرتھوی سے کفا بنتا ہے اور یہ بدن کے مادوں کا تحفظ کرتا ہے
- اگر ان میں کسی ایک میں دوش ہو تو مرض کا سبب بنتا ہے۔
- آیوردیک کے مطابق شریر یعنی بدن کی ساخت اور افعال میں 7 چیزیں حصہ لیتی ہے۔
- رس(chyme)
- رکت(blood)
- ھاڑ(bone)
- مانسا(flesh)

- میدہ(fat)
- منجہ(bone marrow)
- دھات(semen)

ھندی طب میں تشخیص کے ذرائع : - آٹھ طریقہ سے تشخیص کی جاتی ہے

- ناڑی(pulse)
- سپرش(touch)
- روپ(look)
- شبد(quairy)
- یوریشا(stool)
- موترا(urine)
- نیترا(eye)
- جیبھ(toungue)

ھندی طب میں طریقہ علاج : -

- پانچ طریقہ علاج ھیں
- پنچ کرم(Five regimen)
- اوشدھی چکتسا(Pharmacotheraphy)
- شلیہ چکتسا(Surgery)

چرک : -

- کتاب : -چرک سمھتا
- یہ کتاب آٹھ حصوں پر مشتمل ہے

ششرت : -بابائے جراحت(Father of surgery)

- کتاب : -ششرت سمھتا
- ناگ ارجن : -
- بھکشو ناگ ارجن : -علم کیمیا اور دھاتوں کے ماھر تھے
- سدھاناگ ارجن : -علم کیمیا کا ماھر ہے پر کتابیں بھی لکھی ہے

بھدنتاناگ ارجن : -

- کتاب : -رس وشیشکا سوترا
- یہ کتاب چار مقالات پر مشتمل ہے اور چھ مزوں کا اس میں ذکر ہے
- پھلا مقالہ : -اس میں 171 ابواب ہیں جھاں صحت و مرض کا بیان ہے۔اسی تعلق سے غذاء، ریاضت، اور ماحول بدن پر کس طرح اثر انداز ہوتے ہیں بتایا گیا ہے
- دوسرا مقالہ : -میں 123 ابواب ھے جھاں دواؤں کے وجود اور انکے افعال وخواص سے بحث کی گئی ہے
- تیسرا مقالہ : -اس میں 119 ابواب ھے جھاں آیورویدکے نظریہ رس سے مطعلق تفصیلی معلومات درج ہے
- چھتا مقالہ : -اس میں 73 ابواب ھے جھاں استفراغ اور ذرائع استفراغ جیسے قئے واسھال کی افادیت بیان کی گئی ہیں۔
- یہ کتاب بہت مقبول ہوئی اور اس کتاب کے شرح نر سمھانے لکھی جو دسویں صدی عیسوں کے درمیان گزرے ہیں۔

Unani Medicine in Pre- Hippocratic Period

تعارف

طب یونانی کی پوری تاریہ کو با آسانی دو حصوں میں تقسیم کیا جاسکتا ہے۔ طب یونانی ما قبل بقراط اور طب یونانی مابعد بقراط۔

یونان میں طب کی ابتداء:

- ✓ یونان میں طب کی ابتداء کس نے کیس کے متعلق دو رائے ہیں۔
- ✓ اہل یونان کا عقیدہ ہے کہ اسقلی بیوک (Asclepius) طب کا بانی ہے۔ اس کو یہ علم بذریہ الہام عطا ہوا۔
- ✓ لیکن اس بات کے حوالے بھی موجود ہیں کہ حضرت ادرین کو یہ علم منجانب اللہ عطا کیا گیا اور اسقلی بیوس آپ کا شاگرد تھے۔ حضرت ادریس کو یونانی زبان میں ہر مس" (Hermes) کے نام سے جانا جاتا ہے اور عبرانی زبان میں آپ کو اخنوخ (Akhnukh) کہتے ہیں۔
- ✓ عربی میں آپ کو ادریس" کے نام سے یاد کرتے ہیں۔ لہاذا قرآن پاک میں بھی آپ کا تذکرہ ادریس کے نام سے ہی ہے۔
- ✓ اسقلیبوس نے اپنے خاندان والوں کو بھی علم طب سکھایا۔ اس کی بیوی اپیون بیٹا ٹیلسفورس اور دو بیٹیاں ہائی جیا اور پناسیا سب کے سب حفظ صحت اور علاج و معالم میں اقلیوں کا ہاتھ بٹاتے تھے۔
- ✓ نوّے سال کی عمر میں اسقلی بیوی کی موت ہو گئی تب یونانیوں نے اس کو میت کا دیر تامان کر اس کا مجسمہ بنایا اور اس کی پوجا رچنا شروع کر دی۔
- ✓ اس کے خاندان والوں کے بھی مجھے تیار کیے گئے اور ان کو پوجا گیا۔ اس کی بیٹی ہائی جی صحت کی دیوی کے طور پر بہت مشہور ہوئی۔

- ✓ پھر اسقلی بیوی کے وقت سے لے کر عہد بقراطیہ تک طب یونانی اسقلی بیوی کے خاندان (Asclepian Medical Family) میں ہی رہی اور نسل در نسل منتقل ہوتی گئی کسی غیر شخص کو طب کی تعلیم حاصل کرنے کی اجازت نہیں تھی

ماقبل بقراط طب یونانی کی حیثیت:

عہد بقراطیہ سے قبل طب یونانی مذہبی عقائد اور توہمات میں گھری ہوئی تھی۔ اہل یونان مرض اور موت کو بدروحوں (Evil demons) کا اثر اور دیوتاؤں کی ناراضگی سے تعبیر کرتے تھے۔ ان کے مطابق مختلف امراض کے لیے مختلف درتازمہ دار تھے اور علاج کی غرض سے ان کی عبادت کی جاتی اور ان سے پناہ مانگی جاتی تھی۔ صحت کے بھی دیوی اور دیوتا ہوا کرتے تھے جن کی تعداد تقریباً 30 کے قریب تھی جن میں سب سے زیادہ مقدس اور اہم اسقلی بیوس اوَل ہی تھا۔ دیگر اہم دیوی دیوتاؤں میں اپولو، ہرامکس، ہرامکس دوم، ہائی جیا، اور ذیوس وغیرہ شامل ہے۔

طریقہ علاج

قدیم یونان میں مریضوں کا علاج عبادت گاہوں میں ہی ہوتا تھا۔ اسقلی بیوی کے مندر (Asclepieian Temples) علاج کے مشہور مراکز تھے۔

کبھی تو مریض صحت کے دیوتا کے سامنے دایاں ہاتھ مخصوص طریقے سے پھیلا کر لیٹ جاتا تھا اور دیوتا اس کی تکلیف دور کر دیتا یا کبھی مریض کو رات کے وقت کمرے میں تنہا چھوڑ دیا جاتا اور مریض کو خواب میں دیوتا نظر آتے جو اس کے مرض کا علاج بتاتے تھے۔ دیوتاؤں کی تجویز کردہ دواؤں کی تفصیل تو نہیں ملتی لیکن جڑ (root) اور مرہم (ointment) جیسے الفاظ ملتے ہیں۔ علاج کے لیے مختلف چشموں (Sprigs) اور تالابوں (ponds) کا پانی مقدس سمجھا جاتا تھا۔

ماقبل بقراط کے مشہور اطباء

Ghoras غورث:-

یہ اسقلی بیوی کے بعد دوسرا اہم طبیب تھا، بہت ذہین اور کی سوجھ بوجھ کا مالک تھا۔

بہت ذہین اور کی سوجھ بوجھ کا مالک تھا۔ قیاس تجربے میں بے جوڑ مہارت رکھتا تھا اس کے شاگردوں نے بھی طب میں بہت نام کمایا۔

Menes مینس

غورث کے 856 برس کے بعد پیدا ہوا۔ یہ اپنے دور کا مستند طبیب تھا۔ اسنے 84 سالہ زندگی میں زیادہ تر وقت حصول علم کی خاطر سفر میں گزار اور بعد میں طبی درس و تدریس بھی انجام دی۔ اس کے بھی بہت سے شاگرد ہوئے جن کا طریقہ کار قیاس و تجربے پر مشتمل تھا

(Bermanedes) برمانیدک

یہ میں سے 75 برس کے بعد ہوا۔ اس کا نظریہ قدما کے نظریے سے قدرے مختلف تھا وہ کہتا تھا کہ قیاس پر مبنی تجربے پر احتیاط ضروری ہے۔ اس نے بھی طبی درس و تدریس انجام دی۔

(Plato The Physician) افلاطن الطبیب

یہ برمانیدکس کے 735 برس کے بعد ہوا۔ اس طبیب نے نئے سرے سے تیاس و تجربہ پر کام کیا۔ اور قیاس و تجربے کو برابر کی اہمیت دی

اسقلی بیوس دوم (Asclepius-II)

یہ افلاطن الطبیب کے 420 برس کے بعد ہولی طبیب باعث فخر اس لیے ہے کہ مشہور زمانہ قلفی وطبیب بقراط کا استاد تھا۔ اس نے 110 سال کی عمر پائی۔ ابتدائی 15 بریں حصول علم میں اور بقیہ 95 برس مسلسل طب کی تحقیق و تبلیغ میں گزرے۔

پھر بقراط کا زمانہ آگیا۔ بقراط نے علم طب کو مذہبی نظریات اور توہمات سے آزاد کیا اور باقاعدہ ایک علم و فن کی بنیاد ڈالی۔

Asclepius اسقلیبوس

اسقلی بیوی بحیثیت طبیب

بقراط، افلاطون اور جالینوس کے خیال میں اسقلی بیوی ایک الہامی طبیب تھا چنانچہ مریض کا چہرہ دیکھتے ہی وہ سمجھا جاتا کہ اس کا مرض قابل علاج ہے یا نہیں، قابل علاج مریضوں کا علاج کرتا اور لاعلاج مریضوں کو واپس کر دیتا تھا۔

اسقلی بیوی اپنے پاس درخت خطمی کی لکڑی رکھتا تھا جس پر سانپ لپٹا رہتا تھا۔ جالینوس کے خیال میں ایسا اس لیے تھا کہ خطمی کی تاثیر معتدل ہے جس سے ظاہر ہے کہ طبیب کو معتدل مزاج ہونا۔ چاہئے اور سانپ کی عمر طویل ہوتی ہے جو اس بات کی علامت ہے کہ علم و فن لازوال ہوتے ہیں۔

مذکورہ بالا تمام باتیں دلالت کرتی ہیں کہ اسقلی بیوی کوئی معمولی انسان نہیں تھا بلکہ ایک طبیب اور غیر معمولی صفات کا حامل تھا۔

اسقلی بیوس کی وفات

ان کی وفات کے متعلق بھی مختلف قسم کی روایتیں ملتی ہیں۔بقول بقراط وہ ٹور کے ستون میں بیٹھ کر آسمان کی طرف اڑ گیا تھا۔

اسقلی بیوی کے اقوال

اپنے موجودہ زمانے کی برائیاں کرنے والے لوگ اس کے گزرنے کے بعد ماضی کی تعریف کرتے ہیں اور " مستقبل کا رونا روتے ہیں۔

بے علم ان پڑھ کی مثال کولہو کے بیل کی کیا ہے جو دن بھر ایک ہی دائرے کا چکر لگاتا ہے اور اس کی کوئی منزل " نہیں ہوتی۔

مشہور ہے کہ کسی شخص نے اسقلی بیوی سے سوال کیا کہ دنیا کیا ہے؟اس نے جواب میں کہا گزرا ہوا کل فرصت کا دن تھا، آج کام کرنے کا دن ہے اور آنے والا دن امید اور آرزوؤں کے لیے ہوتا ہے۔

مذکورہ بالا نصیحتوں سے اسقلی بیوی کی عقل ودانش کا پتہ چلتا ہے۔یقیناوہ اپنے زمانے کا بے مثل عالم اور طبیب کامل رہا ہو گا۔

اسقلیبوس موجد ہیں

حب، بنادق

بقراط

Buqrat, or Hippocrates

تعارف:-

460BC

بحیرہ خط(Aegean Sea) کے جزیرہ قاس(Island of Cos) میں پیدا ہوا تھا۔ اسقلی بیوس جو طب یونانی کا طبیب اوّل کہلاتا ہے اس کی سولہویں پشت (generation16) میں بقراط پیدا ہوا اپنائے علم طب بقراط کو وراثت میں ملا تھا۔

لیکن بقراط نے طب کو بطور ورثہ نہیں اپنایا کہ اپنی غیر معمولی فکر تحقیق اور تلاش جتھے اس میں وہ غیر معمولی تبدیلیاں پیدا کیں کہ طب کی ابتداء بطور ایک علم اور فن کے بقرار کی حثیت سے جانا۔ طب کی یہ بلند مرتبہ شخصیت اس دنیا سے 83 برس کی عمر بمقام تھیسلے میں (Father of Medicine) سے ہی منسوب ہو گئی اور بقراط کو دنیا نے ابو طب رخصت ہوئے۔

تعلیم و تربیت:-

علم طب بقراط کی خاندانی وراثت تھا اس لئے اس نے طب کی تعلیم اپنے باپ ہراقلید اور دادا بقراط (بقراط کے دار کا نام بھی بقراطی تھا) سے حاصل کیا۔ باپ اور دوا کے علاوہ ہر وڈیوس، اور اسقلیبوس دوم بھی اسقلیبوس کے استاذ رہے۔

فلسفہ کی تعلیم جارجیاس اور مقراط سے حاصل کی۔

فضل و کمال:

اعلی شخصیّت فضل و کمال کا مصوعہ تھے۔ بیک وقت فلسفی، مایہ ناز طبیب، بہترین استاذ، محقق، مفکر، مصنّف تھے۔

بقراط کا طبی فلسفہ و تحقیق:-

بقراط نے مانا کہ تمام کائنات میں تین طرح کے مادّے پائے جاتے ہیں۔ بدن انسان بھی ان تین باتوں سے مرکب ہے جس میں جامد، سیال اور ریحی

ان تین باتوں سے مرکب ہے جس میں سیال مادے کا تناسب سب سے زیادہ ہے۔ بقراط نے اسکو اخلاط کے نام سے موسوم کیا۔

بقراط بحیثیت طبیب:-

طابت تو بقراط کے خون میں حال تھی اس لیے لان مالی میں قدرت رکھنا اس کے لیے کوئی بری بات نہ تھی۔ لیکن ایک طبیب کے بہترین اوصاف بقراط میں بدرجات موجود تھے ۔ وباغرور تشخیص و تجویز کرتا تھا۔ کم سے کم اور سستی دواؤں سے علاج کیا کرتا۔ اس کو کم از 300 منفرد ادویہ کا علم تھا لیکن وہ عام اور معمولی دواؤں سے علاج کو ہی ترجیح دیتا تھا۔ سمی ادعیہ کا استعمال بہ حالت مجبوری کارتا۔ مریض کیلئے ہسپٹل کے قیام کا تصوّر بقراط نے کیا تھا۔

بقراط بحیثیت استاذ:-

بے پناہ مصروفیت کے باوجود بقراط درس وتدریس کے فرائض بھی انجام دیتا تھا۔

بقراط بحیثیت مفکر:-

بقراط ہمیشہ طب کی ترقی اور فروغ کے لیے فکر مند رہتا۔اس کے زمانہ میں طب کی تعلیم عام نہیں تھی بلکہ صرف اس کے خاندان کے لوگ ہی طبیب بن سکتے تھے۔اس پابندی کے سبب اس کے زمانے میں طبیب بہت کم رہ گئے تھے اور یہ خطرہ پیدا ہو گیا تھا کہ ایک دن علم طب ختم بھی ہو سکتا ہے۔بقراط نے اس کی فکر کی اور فیصلہ کیا کہ وہ علم طب کو سب کے لیے عام کر دے گا۔

چنانچہ اس نے ایسا ہی کیا علم طب جو کہ سینہ بہ سینہ چلا آرہا تھا۔اس کو علم سفینہ بنادیا اور ہر خاص وعام پر طلب کے دروازے کھول دیئے۔لیکن طب کو عام کرنے میں اس کو یہ ڈر بھی تھا کہ ایسا نہ ہو کہ اس فن شریف کو کوئی نااہل سیکھ لے اور ان کی رسوائی کا سبب بنے۔

چنانچہ بقراط نے معلمین طب کے اوصاف وضع کئے اور جس شخص میں وہ اوصاف ہوتے اسی کو علم طب کی تعلیم حاصل کرنے کا حق ہوا تھا۔اس نے ایک عہد نامہ بھی تیار کیا تھا جو معاہدہ بقراطیہ کے نام سے مشہور ہوا۔طب کی تعلیم حاصل کرنے کے بعد اس کے شاگرد اس عہد نامہ کی پابندی کیا کرتے تھے

بقراط بحیثیت مصنف:-

بقراط کی کتابوں کی فہرست کافی طویل ہے لیکن کچھ خاص کتابیں اس طرح ہیں۔

کتاب طبیعۃ الانسان:-اس میں دو مقالات ہیں جن میں اجسام کی ترکیب وطبیعت سے بحث کی گئی ہے۔

کتاب الاجنہ:اس میں تین مقالات ہیں جن میں تخلیق انسان سے بحث کی گئی ہے۔

کتاب الاہویۃ والمیاہ والبلدان:اس میں تین مقالات ہیں جن میں جگہ اور ماحول کے مزاج کے اعتبار سے اسباب صحت ومرض سے بحث کی گئی ہے۔

کتاب الفصول:-بقراط کی سب سے زیادہ مشہور ومعروف کتاب ہے جس میں فن طب کا مجموعی تعارف کروایا گیا ہے۔

کتاب مقدمہ المعرفۃ:اس میں تین مقالات ہیں جن میں تشخیص مرض بہ لحاظ درجات مرض سے بحث کی گئی ہے۔

کتاب الامراض الحادہ:اس میں تین مقالات ہیں جن میں حاد امراض کے اصول علاج اور تدابیر علاج سے بحث کی گئی ہے۔

کتاب اوجاع النساء:اس میں دو مقالات ہیں جن میں احتباس طمث اور بوقت حمل ووضع حمل عورتوں کو لاحق ہونے والی تکالیف کا بیان ہے۔

کتاب الامراض الوافدہ:اس میں سات مقالات ہیں، جن میں مختلف امراض کی تراکیب وعلاج سے بحث کی گئی ہے۔

کتاب الاخلاط:اس میں تین مقالات ہیں جن میں اخلاط سے بحث کی گئی ہے۔

کتاب الغذا:اس میں چار مقالات ہیں جن میں غذا اور بدن کے تعلق سے بحث کی گئی ہے۔

کتاب قاطیطریون:اس میں تین مقالات ہیں، جن میں مطب اور علاج کے دوران مطب میں انجام پانے والے عوامل کا بیان ہے

کتاب الکر دالبر:اس میں تین مقالات ہیں جن میں ہڈیوں کے کسر وخلع سے بحث کی گئی ہے۔

اسکے علاوہ اور بھی کتابیں بقراط نے تصنیف کی ہیں جو نیچے درج ہیں۔

کتاب الاجنہ، کتاب الفصول، کتاب الاخلاط، کتاب الاغذیہ، کتاب الکسر والجبر،

کتاب القلب، کتاب العین، کتاب فی الحمیات محرقہ وغیرہ۔

بقراط کے لکھے ہوئے مخطوطات(manuscripts)اس وقت کی مروجہ یونانی زبانIonic diale" میں تحریر ہیں۔

اس وقت یہ مخطوطات جن ممالک کے کتب خانوں یا عجائب گھروں میں محفوظ ہیں ان میں وینس(Venice)، پیرس(Paris)، فلورینس(Florence)اور روم(Rome) خاص ہیں۔

بقراط کے چند اقوال زریں:-

درندوں کی طرح کھانا مرض کا سبب ہے، اور پرندوں کی طرح کھانا صحت کا سبب ہے۔

"زندہ رہنے کے لیے کھاؤ نہ کہ کھانے کے لیے زندہ رہو"۔

اتنا نہ کھاؤ کہ غذائم کو کھا جائے

مرض کا علاج آپکے پاس پیدا ہونے والی جڑی بوٹیوں سے ہی کرنا چاہے

بغیر ضرورت دوا بھی نہ استعمال کرو

تندرستی کی قدر کرو قبل اس کے کہ یہ کھو جائے

حب طحال بڑا ہوتی ہے تو بدن لاغر ہوتا ہے اور جب چھوٹی ہوتی ہے تو بدن موٹا ہوتا ہے۔

تمام اعضاء میں اشرف و اعلیٰ سردار دماغ ہے جو نفس ناطقہ کا محل ہے۔

مدرسہ اسکندریہ کے نامور اطباء

نام طبیب	عہد	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
ہیروفیلوس	اسکندریہ	300BC کیلسیڈان	مدرسہ اسکندریہ	علم تشریح البدن	آنکھ کی تشریح		ابوالتشریح	
ایراسسطراطوس	اسکندریہ	بولس	مدرسہ اسکندریہ	منافع الاعضاء	لغت ادویہ ماہیت الامراض حمیات حفظان صحت More than 60		منافع الاعضاء کے بانی	
یحیٰ نحومی	مصر			علم نحو بحیثیت فلسفہ بحیثیت طبیب	تاریخ الاطباء القدماء			

اطباء عہد روم

نام طبیب	عہد	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
دسقریدوس	عہد روم	پہلی سنچری (ٹارس)		بحیثیت طبیب بحیثیت محقق بحیثیت مصنف	کتاب الحشائش (پانچ مقالات) کتاب السموم کتاب فی الحیوان ذات السموم			
جالینوس	عہد روم	129 AD پرگامون		بحیثیت طبیب بحیثیت محقق بحیثیت مصنف	ابن ندیم کے مطابق 60 کتابیں قطفی کے مطابق 68 کتابیں ابن ابی اصیبہ کے مطابق 3 کتابیں	200 AD		حقنہ (عمل طائر) کے بانی

اطباء عہد بازنطین

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
فولس الاجانیطی	615 AD		امراض نسواں کے ماہر	کتاب الکناش فی الطب کتاب علل النشاء	690AD		

عربی طب

Arabian Medicine

تعارف:-

دنیا میں عرب کی شناخت، شہرت، عزت اور عظمت کا واحد سبب ظہور اسلام ہے

اہل اسلام نے اپنے نبی کی ہدایت-مان کرتے ہوئے حصول علم پر بہت زیادہ زور دیا اور بلا تفریق مذہب و ملت جہاں سے بھی جیسے کبھی ہوا علم حاصل کیا۔ حصول علم کی زبردست خواہش کے تحت مسلمانوں نے بہت کم مدت میں دنیا بھر میں پھیلے ہوئے علوم و فنون کو حاصل بھی کر لیا اور ان میں معرکتہ الآراء تحقیق و ایجادات بھی انجام دیں۔ عربوں لیکن مسلمانوں کی اس علمی کاوش سے علم طب کو بھی بے انتہا فروغ ملا۔ مسلمانوں نے طب نبوی کی شکل میں علم طب کو شکل بنا کر اپنایا اس کے علاوہ دنیا کے مختلف ممالک جیسے یونان، روم، چین، ایران اور ہندوستان وغیرہ میں رائج طبی فنون سے بھی استفادہ کیا۔ بعد میں مسلم اطباء، کیمیاداں اور ماہر طبیعیات کی باہمی کوششوں پر ستل تحقیق و ایجادات کے نتیجے میں ایک اعلی درجہ کا فن طب وجود میں آیا جس کو عربی طب کے نام سے جانا جاتا ہے۔

عربی طب ما قبل اسلام:-

عہد جاہلیّت میں علاج اور معالج کیلئے دو طریقہ اختیار کرتے تھے۔

ایک طریقہ جھاڑ پھونک عغیرہ کے ذریعہ علاج کیا جاتا تھا

دوسرا طریقہ علاج بالعقاقیر کے نام سے رائج تھا۔ جسمیں جڑی بوتیوں سے علاج کرتے ہے۔

دور جاہلیّت میں فصد حجامہ اور کئی سے علاج کا بھی تذکرہ ملتا ہے۔

عرب طب بعد از اسلام:-

ظہور اسلام کے نتیجہ میں سرزمین عرب پر نبی اکرم کی صورت میں شمع ہدایت روشن ہو چکی تھی جس کی روشنی میں عربی تہذیب و تمدن اور علوم وفنون راہ راست پر آنے لگے۔ اسلامی تعلیمات میں حصول علم اور اخلاقیات پر خاص طور سے زور دیا گیا جس کے نتیجے میں عرب قوم علم دوستی اور اخلاقیات کے جذبوں سے سرشاد ہو گئی۔ علم دین کے بعد علم بدن (طب) کو اہم قرار دیا گیا۔ علم طب پر خاص طور سے توجہ دی گئی۔

عربی طب میں تین ادوار بہت مشہور ہیں:- عہد نبوی، عہد اموی، عہد عباسی۔

عہد جاہلیت میں طریقہ علاج

1. جھاڑ پھوک
2. علاج بالعقاقیر (جڑی بوٹی) کا استعمال
3. علاج بالتدبیر:- فصد

حجامہ

عمل کئی

عہد نبوی کے مشہور طبیب:- حارث بن کلدہ ثقفی ہے۔

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
حارث بن کلدہ	طائف 551 AD	مدرسہ جندی شاہ پور علم حاصل کیا	بحیثیت طبیب		630 AD		حارث بن کلدہ کی پیدائش و موت کے بارے میں اطباء کا کافی اختلاف ہے

اطباء عہد اموی

نام طبیب	پیدائش ومقام	وابستگی	فضل وکمال	تصنیفات	موت	لقب	اضافت
تیاذوق			حفظان صحت	کناش کتاب ابدال ادویہ قصیدہ حفظ صحت فصول فی الطب	667 AD		
جابر بن حیّان	خراسان 737 AD		علم کیمیاء	کتاب الکیمیاء کتاب سبعین کتاب الزہرہ کتاب الکحل وغیرہ	813 AD		
خالد بن یزید			علم کیمیاء	کتاب الحرارہ کتاب صحیفہ الکبیر کتاب صحیفہ صغیر رسالہ فی کیمیائی فردوس الحکمت	704 AD	حکیم ابی مروان	

طب عہد عباسی میں

Medicine in Abbasid Period

عہد عباسی (750-1258) اے ڈی ہے۔

اس عہد کو خلیفت عباسیہ کہا گیا تھا، اس عہد کے حکمران کو خلیفہ عباسیہ کہا جاتا تھا۔ انکا دار الخلافہ بغداد تھا۔

عہد عباسی کی طبی خدمات:-

اس سلسلہ میں 3 عباسی خلیفہ خلیفہ انو جعفر منصور، خلیفہ ہارون رشید، خلیفہ مامون رشید کی طبی خدمات قابل ذکر ہے اور بہت مشہور ہے۔

طبی کتب کی دستیابی:-

خلیفہ منصور کے زمانے میں طب کی ترقی و توسیع سے متعلق بنیادی اور اہم کام ہی شروع ہوا کہ تمام دنیا سے طبی کتب لا کر بغداد میں جمع کی جانے لگیں۔ کوئی نادر و نایاب طبی کتاب کسی ادارے یا شخص کی تحویل میں ہوتی تو منہ مانگی قیمت دے کر حاصل کر لی جاتی اور بغداد کے شاہی کتب خانے میں جمع ہو جاتی۔

طبی کتب کے تراجم:-

مختلف ممالک سے جمع کی جانے والی طبی کتب ظاہر ہے مختلف زبانوں میں تھیں چنانچہ ان ستاروں سے فیض یاب ہونے کے لیے لازم تھا کہ ان کا عربی زبان میں ترجمہ کیا جائے۔ چنانچہ خلیفہ ہارون اور مامون کے زمانے میں اس کام کے لیے دنیا بھر سے بہترین مترجمین بھاری اُجرت کے عرض سے بغداد میں جمع کیے گئے اور یونانی، سریانی، نصرانی، کلدانی، سنسکرت، فارسی، زبان میں دستیاب طبی کتابوں کا عربی میں ترجمہ کیا ھیا تھا۔

شفاخانوں کا قیام:-

عہد عباس میں مریضوں کی دیکھ بھال اور علاج و معالجہ کے لیے شفاخانے بھی قائم کیے گئے-ایک شفاخانہ بیمارستان بغداد کے نام سے خلیفہ ہارون الرشید نے قائم کیا تھا۔ یارون رشید کے وزیر یحیی برمکی نے بھی شفاء خانہ قائم کیا تھا جس کا معیار بھی شاہی شفاخانے سے کسی طرح کم نہ تھا۔ اس کے علاوہ بھی کئی شفاخانے اس عہد میں قائم کیا جس میں ترقی اور توسیع کا عمل انجام پایا۔

عہد عباسی کے مشہور اطباء:-

خلیفہ المنصور کے دربار میں ایک ماہر طبیب جورجس بن جبریل تھا جو طب یونانی میں ماہر تھا۔ اور یہ خلیفہ المنصور کا طبیب خاص تھے۔ ہارون الرشید کے عہد میں طبیب جبریل بن کمیشوع طبیب خاص تھے اور جبرائل بن بختیشوع کافی مشہور ہوا یہ اس دور کا جالینوس تصور کیا جاتا تھا۔ خلیفہ مامون رشید کے زمانہ میں نامور اطباء ہیں یوحنا بن ماسویہ، حنین بن اسحاق اور ثابت بن قرہ کے نام شامل ہیں.

عہد عباسی کی طبی ایجادات:-

عبد عباس میں مختلف طبی تحقیقات وایجادات بھی عمل میں آئیں۔ حکیم رضی الدین نے کثرت غذاء سے بھی علاج کیا، جنون کا علاج اگیون سے پہلی بار انجام دیا، نکسیر کو روکنے کیلئے سرد پانی کا استعمال فائدہ مند بتایا ہے۔

بیت الحکمت

تعارف:-

عہد عباسی میں طب کی ترقی اور فروغ کے واسطہ وبہ سب سے اہم کارنامہ بغداد میں بیت الحکمت کا قیام ہے۔ بیت الحکمت ایک علمی ادارہ تھا ہای مختلف علوم وفنون سے متعلق یونی خدمات انجام دی جاتی تھیں۔

بیت الحکمت کا قیام:-

اطباء کی تحقیق سے پتہ چلتا ہیکہ ہارون رشید کے زمانے میں بیت الحکمت کی بنیاد پڑ چکی تھی۔ اس ادارے کے قیام کے پیچھے خلیفہ ہارون کے وزیر یحیی برمکی کا ذہن کار فرما تھا۔ لیکن خلیفہ مامون کے دور میں بیت الحکمت کی سرگرمیاں عروج کو پہنچیں تھیں۔

بیت الحکمت کی طبی خدمات :-

اس عظیم علمی ادارے میں طب سے متعلق علیدہ علیدہ شعبے قائم کیے تھے اور مختلف خدمات انجام دیتے تھے جو مندرجہ ذیل ہیں.

طبی کتب کی فراہی

طبی کتب کے تراجم

طبی کتب کی جلد سازی وتحفظ

طبی کتب کی طباعت واشاعت

شعبہ زینۃ الکتب:-

اس میں کتابوں کی زخیر اندوزی کی جاتی تھی۔

شعبہ ترجمہ و تالیف:-

اس میں مختلف زبانوں میں دستیاب طبی کتب کے عربی تراجم کیے جاتے تھے۔

نیز نئی تصنیف و تالیف کی جلد سازی کالیاجاتا تھا تاکہ کتابیں محفوظ ہو جائیں۔ بیت الحکمت میں یہ تمام امور کی طرح انجام پاتے تھے.

طبی کتب کی فراہمی:-

بیت الحکمت میں کتابوں کی فراہمی عباسیوں کی علم دوستی کا منتھی کی کتابوں کی فراہمی کے دوبڑے ذرائع تھے۔

1. ایک تو یہ کہ اس دور میں جب کوئی ملک کو فتح کر لیاجاتا تو مفتح ملک کے علمی مراکز اور کتابی ذخیروں کی پوری حفاظت کی جاتی تھی اور وہاں کی تمام کتابوں کو بغداد روانہ کر دیاجاتا تھا جہاں ان کتابوں کو شاہی کتب خانے میں محفوظ کر دیاجاتا۔

2. دوسرا بڑا زریعہ کتابوں کی خریداری کا یہ تھا کہ اگر کوئی نادر اور اہم کتاب کسی ادارے یا فرد کی ذاتی ملکیت میں ہو تو اس کو منہ مانگی قیمت کے بدلے خرید لیاجاتا تھا۔

طبی کتب کے تراجم و تصنیف و تالیف:-

یت الحکمت میں مختلف جگہوں سے لاکر جو طبی کتابیں جمع کی گئی تھیں وہ مختلف زبانوں میں تھی جسمیں یونانی، سریانی، کلدانی، نصرانی، فارسی، سنسکرت زبانوں میں تھی۔

بلا تفریق مذہب وملت دنیا بھر سے بلند پایہ مترجمین کو بیتالحکمت میں بلایا گیااور بھاری اجرتوں پر ان کی خدمات حاصل کی گئی عباسیوں کی علمی سخاوت کے چرچے دور دراز ممالک تک پہنچے۔ چنانچہ ایسا بھی ہوا کہ ان زبانوں کے ماہر مترجمین نے خود بھی بغداد کی راہ لی اور بیت الحکمت کی خدمت میں حصہ لیا۔

یہی وجہ تھی کہ بیت الحکمت کے مترجمین میں مسلمان، یہودی، عیسائی اور ہندو بھی نذاہب سے تعلق رکھنے والے لوگ شامل تھے۔

یوحنابن ماسویہ بیت الحکمت کے افسر اعلیٰ تھے، حسین ابن اسحاق شعبہ ترجمہ کے افسر اعلیٰ تھے۔

ان اگسران کی نگرانی میں تھوڑے سے ورصہ میں بیشمار کتابوں کے ترجمہ مکمل ہوئے۔

ترجمہ کے ساتے نئی کتابوں کی تصنیگ و تالیف کا کام بھی کیا گیا۔

یوحنابن ماسویہ نے کتاب المشجر

حنین ابن اسحاق نے کتاب المسائل لکھی

بیت الحکمت میں ترجمہ و تالیف کے علاوہ کتابوں کی جلد سازی اور تحفظ کا بھی معقول انتظام تھااس تعلق سے علان شعوبی اور ازرق کی خدمات اہم ہیں۔

بیت الحکمت کی مثالی طبی خدمات کو دیکھتے ہوئے کہا جاسکتا ہے کہ اگر عباسیوں نے یہ علمی ادارہ قائم نہ کیا ہوتا تو بہت ممکن تھا کہ طب یونانی آج ہم تک نہ پہنچ پاتی اور بہت پہلے ہی فناہ ہو چکی ہوتی.

عہد عباسی کے نامور مترجم اطباء:

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	مہارت زبان
یوحینا بن ماسویہ	جندی شاہ پور 777AD	بغداد کے شفاء خانہ کے رئیس الاطباء	بحیثیت طبیب بحیثیت استاذ بحیثیت محقق بحیثیت مترجم بحیثیت مصنف	تقریبا44 کتابیں کتاب المشجر کتاب فی الفصد و الحجامہ کتاب مرّہ السوداء کتاب فی التلغم	857 AD		سریانی عربی
حنین بن اسحاق	حیرہ (عراق) 809 AD	بیت الحکمت کے شعبہ ترجمہ و تالیف کے نگران ہے	بحیثیت طبیب بحیثیت مترجم بحیثیت مصنف	کتاب المسائل عشرہ مقالات فی العین	879 AD		
ثابت بن قرعہ	836AD حران		علم النجوم بحیثیت فلسفی بحیثیت طبیب	46 کتابیں تصنیفات	903 AD		سریانی عربی

		بحیثیت مترجم بحیثیت مصنف					
قسطبن لوقہ	البعلبکی	بحیثیت مصنف بحیثیت مترجم		812AD		یونانی رومی عربی	
یعقوب بن اسحاق	بصرہ	بحیثیت فلسفی بحیثیت طبیب علم طبعیات علم منطق علم نجوم	تقریبا33 کتابیں	873 AD	فیلسوف العرب		
منکہ ہندی	ہندی اطباء	بحیثیت طبیب بحیثیت مترجم	کتاب السموم تفسیر اسماء عقاقیر الہند چرک سمہتا کتاب ششرت			عربی فارسی سنسکرت	
کنکہ ہندی	ہندی اطباء	ادویہ کی شناخت علم النجوم علم فلسفی	کتاب القرانات کتاب فی الطب				

قرن اوسط کے اطباء

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
ربن طبری	مرو (ایران)		علم ہندسیہ بحیثیت طبیب بحیثیت مصنف	فردوس الحکمت	850 AD		
احمد بن محمد طبری	طبرستان (ایران)		بحیثیت مصنف بحیثیت طبیب	معالجات بقراطیہ رسالہ فی قارورہ علاج الاطفال	985 AD		
علی بن عباس مجوسی	ہواز (ایران) 930AD		بحیثیت طبیب بحیثیت مصنف	کلمل الصناعہ	994 AD		مغرب میں ہلی عباس کے نام سے مشہور ہے
زکریہ رازی	رے (ایران) 850 AD		بحیثیت محقق بحیثیت طبیب موجد بحیثیت مصنف	کتاب الحاوی	923AD	امام طب جالینوس العرب	

ابو سہل مسیحی	جرجان (ایران)		بحیثیت طبیب بحیثیت محقق بحیثیت مصنف	کتاب الماۃ فی الطب	1010AD		
ابن سینا	افشنہ (ایران) 980AD		فلسفی بحیثیت طبیب بحیثیت مصنف	القانون فی الطب	ہمدان 1037 AD	شیخ الئیس	
اسماعیل جرجانی	جرجان (ایران)	سلطان خوارزم شاہ کے درباری طبیب تھے بہاؤالدین کے ہسپتال کے منتظم تھے	بحیثیت طبیب بحیثیت مصنف	ذخیرہ خوارزم شاہی		شرف الدین	
ابن جزلہ	بغداد 1054 AD		بحیثیت طبیب بحیثیت خطاط بحیثیت مصنف	کتاب المنہاج کتاب التقویم البدن	1100 AD		
ابوریحان بیرونی	خوارزم شاہ (ایران)		بحیثیت طبیب	کتاب الانسان	1047AD		

	973AD		بحیثیت مصنف				
ابن بطلان	بغداد		بحیثیت فلسفی بحیثیت طبیب	تقویم الصحیہ	1063AD		
عبد الطیف بغدادی	بغداد 1167AD		بحیثیت طبیب بحیثیت فلسفی عالم بحیثیت محقق (علم التشریح)	مقالہ فی صناعہ الطب مقالہ فی المزاج مقالہ فی ادویہ مفردہ	بغداد 1231AD		عظم (ہڈی کا مجموعہ بنایا)
نجیب الدین سمرقندی	سمرقند		بحیثیت طبیب بحیثیت مصنف	کتاب الاسباب و العلامات	ہرات 1222AD		
نفیس بن عوص کرمانی	کرمان (ایران)	سلاطن البلغ کے طبیب	بحیثیت طبیب بحیثیت مصنف	شرح السباب و العلامات شرح نفیسی (موجز القانون کی شرح) کتاب شرح فصول			

					کتاب معالجات نفیسی		
علی بن عیسا کحل	بغداد		بحیثیت طبیب امراض چشم میں ماہر	کتاب تذکرہ الکحالین	بغداد 1039AD	مغرب میں (یسوع حالی) کے نام سے جانے جاتی ہے	

اطباء اندلس

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تضنیفات	موت	لقب	اضافت
ابن رشد	قرطبہ 1126AD		بحیثیت فلسفی بحیثیت طبیب	کتاب کلیات	1198AD مراقش		
ابوالقاسم زہراوی	زہرہ (قرطبہ کے قریب) 936AD		بحیثیت طبیب سرجن بحیثیت مصنف	کتاب التصریف	1036AD		
ابن وافد	طلیطلہ 997AD		علم الادویہ بحیثیت طبیب مفردات میں مہارت بحیثیت مصنف	جامع المفردات الادویہ والاغذیہ کتاب المغیث	1070AD		
ابن زہر	شبیلہ 1091AD	درباری طبیب خاص	بحیثیت طبیب جراح	کتاب التیسیر	شبیلہ 1162AD		

			بحیثیت استاذ				
ابن بیطار	ملاغا 1197AD		علم الادویہ دواسازی ماہر نباتات	کتاب جامع المفردات	دمشق 1248AD		
ابن خطیب	لوجا(غرناطہ کے قریب) 1313AD		عالم بحیثیت طبیب شاعر بحیثیت مؤرخ بحیثیت مصنف ماہر لسان علم الادویہ	کتاب الادویہ خطرہ اللطیف فی رحلہ عمل الطب			طاعون پر تحقیق کیا
موسی بن میمون	قرطبہ 1135AD	درباری طبیب	بحیثیت طبیب بحیثیت مصنف	فصول موسی(مقالہ فی الجماع)	فلسطین 1214AD		حفظان صحت پر کام کیا تھا

آطباء مصر و شام

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
داؤد انطاکی	انطاکیہ 1541AD	قاہرہ کے مدرسہ ظاہر کے مدرس اعلیٰ شفاء خانہ میں افسر الاطباء مقرر ہوئے	بحیثیت طبیب بحیثیت مصنف علم الادویہ میں مہارت	کتاب تذکرہ مختصر القانون	مکہ مکرمہ 1509AD	الضریر(نابینا ہونے کی وجہ سے)	

علی بن رضوان	حیرہ 998AD		علم نجوم بحیثیت طبیب بحیثیت مصنف نقاد	شرح کتاب الصناعہ جالینوس شرح کتاب المزاج جالینوس کتاب اصول الطب مقالہ فی حفظان صحت	1067AD		
ابن ہیثم	بصرہ 965AD		ماہر طبعیات بحیثیت طبیب بحیثیت فلسفی	کتاب المناظر	1039AD		علم المناظر کا بانی
اسحاق بن سلیمان اسراءیلی	مصر 884AD	تونس کے درباری طبیب	بحیثیت طبیب بحیثیت مصنف	کتاب الحمیات ادویہ مفردہ کتاب البول	932AD		
ابن ابی اصیبعہ	دمش 1127AD	امیر عزیز الدین کے طبیب خاص	بحیثیت طبیب (امراض چشم میں ماہر) بحیثیت مصنف بحیثیت مؤرخ عالم	عیون الابناء فی طبقات الاطباء	1203AD		600 سے زائد اطباء پر تاریخ لکھی

جمال الدین قفطی	قفط (مصر) 1192AD		بحیثیت مؤرخ بحیثیت مصنف	تاریخ الحکماء	مصر 1248AD		
ابن القف مسیحی	1233AD	دمشق کے قلعہ شاہی میں شاہی طبیب مقرر ہوئے	بحیثیت طبیب بحیثیت مصنف	کتاب العمدہ	1286AD		

طب یونانی ہندوستان میں عہد تغلق کے نامور طبیب

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
ضیاء محمد مسعود رشیدی			بحیثیت طبیب مصنف	مجموعہ ضیائی			
بہواء بن خواص خان		سلطان سکندر لودھی کا درباری طبیب تھے	بحیثیت طبیب بحیثیت مصنف	کتاب مودن الشفاء سکندر شاہی			

اطباء گجرات علاقہ والے

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
شہاب عبدالکریم ناگوری			بحیثیت طبیب بحیثیت مصنف	طب شہابی طب شفاء الخانی فرہنگ شہابی			

اطباء عہد مغلیہ

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
علی گیلانی	گیلان 1554AD	شہنشاہ اکبر کے طبیب خاص	بحیثیت طبیب ریاصیات علم طبعیات بحیثیت مصنف	شرح القانون بیاض گیلانی	1606AD		
حکیم صدرا		درباری طبیب	بحیثیت طبیب		کشمیر 1656AD	مسیح الزماں کا لقب جہانگیر نے دیا تھا	
حکیم یوسفی		بابر کا شاہی طبیب	بحیثیت طبیب بحیثیت مصنف	عین الحیات شفاء الناس ستہ ضروریہ ریاضت ادویہ دلائل بول دلائل نبض			

اکبر ارزنی	شیراز (ایران)		بحیثیت طبیب بحیثیت مصنف	تلخیص طب نبوی طب اکبر مفرح القلوب مجربات اکبری میزان الطب حدود الامراض قرابادین قادری	دہلی 1722AD		مہارت زبان عربی فارسی
سید محمد ہاشم بن قلندر	شیراز (ایران) 1669AD	شہنشاہ شاہ عالم کے درباری طبیب شہنشاہ محمد شاہ رنگیلا کے درباری طبیب	بحیثیت طبیب بحیثیت مصنف	تقریبا16 کتابیں اسمیں4 کتابیں نمایاں ہے حاشیہ شرح الاسباب و العلامات شرح موجز القانون جامع الجوامع قرابادین علوی خان	1749AD	شاہ عالم نے علوی خان کا لقب دیا محمد شاہ رنگیلا نے معتمد الملوک کا خطاب دیا	
امان اللہ خان		مغلیہ دور کا شاہی طبیب	بحیثیت طبیب بحیثیت مصنف	قرابادین خان زمانی ام علاج	1637AD		

شریف خان	دہلی 1725AD	شاہ عالم ثانی کا درباری طبیب تھے	بحیثیت طبیب بحیثیت مصنف	علاج الامراض تالیف شریفی حاشیہ شرح الاسباب مدارک الحکم حاشیہ القانون شرح موجز تحفہ شاہی	دہلی 1807AD	اشرف الحکماء	

قطب شاہی دور کے اطباء

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
میر مومن		قطب شاہی دربار کے طبیب خاص مشہور شفاء خانہ الشفاء میں بطور معالج خدمت انجام دیتے تھے	علم طب فن تعمیر بحیثیت مصنف	اختیارات قطب شاہی رسالہ مقداریہ			
نظام الدین احمد گیلانی	گیلان (ایران) 1586AD	بادشہ عبداللہ قطب شاہ کے درباری طبیب دور شاہ جہاں میں سپہ سلار مہابت خان کے درباری ملازم بھی تھی	بحیثیت طبیب بحیثیت مصنف	مجموعہ حکیم الملک شجرۃ دانش	1669AD	عبداللہ قب شاہ سے حکیم الملک کا خطاب ملا	

نظام شاہی دور کے اطباء

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
رستم جرجانی	جرجان (ایران) 1544AD	احمد نگر کے حاکم برہان نظام شاہ کے طبیب خاص	بحیثیت طبیب بحیثیت مصنف	کتاب اسرار النساء کتاب حمیات مرکب ذخیرہ خوارزم شاہی			
حکیم ولی گیلانی		برہان نظام شاہ کے دربار میں رستم جرجانی کے بعد سب سے قابل طبیب تھے	بحیثیت طبیب بحیثیت مصنف	تقویم الابدان (ابن جزلہ کی کتاب کا ترجمہ) تقویم الامراض رسالہ حفظ صحت			

عادل شاہ دور کے اطباء

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
ابو القاسم فرشتہ	استر آباد (ایران) 1525AD	بادشاہ ابراہیم عادل کے درباری طبیب تھے	بحیثیت طبیب بحیثیت مصنف	اختیارات قاسمی دستور الاطباء	1623AD		

آصف جاہی دور کے اطباء

نام طبیب	پیدائش و مقام	وابستگی	فضل و کمال	تصنیفات	موت	لقب	اضافت
رضاء علی خان			علم الادویہ بحیثیت مصنف	معرکۃ الآراء یادگار رضائی (ادویہ مفردہ) تذکرہ الہند			
شفائی خان		حیدرآباد میں مہاراجا چندو لعل کے یہاں ملازمت اختیار کی	بحیثیت طبیب بحیثیت مصنف	علاج الاطفال میزان المزاج معالجات چندو لعل کتاب شفائی خان		معتمد الملوک	

عہد برطانوی کے اطباء

نام طبیب	پیدائش و مقام	فضل و کمال	تصنیفات	موت	لقب	اضافت
حکیم اجمل خان	دہلی 1868AD	بحیثیت طبیب مجدد بانی ادارہ مجاہد ازادی بحیثیت محقق	بے حساب کتابیں انک تصنیف ہے کچھ کتابیں درج ذیل ہیں الطاعون التحفۃ الحامدیہ فی الصناعہ القول المرغوب فی الماء المشروب	رامپور 1927AD	مسیح الملک	اسرول سے اجملن کو اکسٹرا کٹ کیا 1906AD میں All India Ayurveda & Unani Tibbia conference کا قیام ہوا 1903AD میں ہندوستانی دواخانہ دہلی قائم کیا 1916AD میں محکمہ تالیف کا قیام کیا

			مقدمہ اللغات الطبیہ			1921AD میں Ayurvade & Unani Tibbiya college, قرول باغ کا قیام کیا
حکیم عبدالعزیز لکھناوی	لکھناؤ 1855AD	بحیثیت طبیب بحیثیت استاذ بانی ادارہ بحیثیت مصنف	رسالہ تحفہ عزیزی رسالہ فی ابطال بیاض مجربات	لکھناؤ 1911AD		مدرسہ تکمیل الطب کی بنیاد AD1902
حکیم عبدالحمید	دہلی 1908AD	بحیثیت طبیب بحیثیت استاذ بانی ادارہ بحیثیت مصنف موجد بحیثیت محقق مفکر صنعت کار بانی ادارہ		1999AD		جامعہ ہمدرد کے بانی Institute of history of medicine & medical research = 1962AD
حکیم عبدالطیف فلسفی	لکھناؤ 1900AD	بحیثیت طبیب بحیثیت استاذ	کتاب النبض ادویہ قلبیہ (اردو ترجمہ)	لکھناؤ 1970AD		اجمل خان طبیہ کالج کے پرنسپل مدرسہ تکمیل الطب کے استاذ جامعہ طبیہ کے استاذ

		بحیثیت مصنف				
حکیم کبیر الدین	بہار 1894AD	بحیثیت طبیب بحیثیت استاذ بحیثیت مصنف بحیثیت مترجم	بے حساب کتابیں انک تصنیف ہے کچھ کتابیں درج ذیل ہیں کلیات قانون اول و دوم ترجمہ کبیر اول، دوم، سوم، چہارم افادہ کبیر اول و دوم بیاض کبیر اول دوم تشریح کبیر اول دوم کتاب الادویہ کتاب الصیدلہ و تکلیس	1976AD	مجاہد طب	ایورویدانڈیونانی طبیہ کالج قرول باغ کے استاذ جامعہ طبیہ کے استاذ نظامیہ طبیہ کالج کے استاذ اجمل خان طبیہ کالج کے استاذ
حکیم غلام حسین کنتوری	کنتور (بارہ بنکی) 1829AD	مہاراجا کشمیر کے خاص طبیب	بحیثیت طبیب بحیثیت مترجم بحیثیت مصنف	1918AD		All India Unani Tibbi Conference ke member

اہم ادارے اور انکے قیام کے سال

ادارہ	سال قیام
آیورویدآنڈ یونانی طبیہ کالج ﷺ رول باغ	1921AD
اسٹیٹ تکمیل الطب کالج لکھنؤ	1902AD
اجمل خان طبیہ کالج علی کھڑ	1927AD
گورنمنٹ نظامیہ طبیہ کالج حیدراباد	1938AD
جامعہ ہمدرد دہلی	1989AD
CCRUM	**1979AD**
CCRIMH	**1969AD**
NCISM	**2020AD**

کونسل کے دفاتر

CRIUM- 2
1. **Lucknow**
2. **Hyderabad**

RRIUM- 8
1. **New Delhi**
2. **Chennai**
3. **Orissa**
4. **Patna**
5. **Aligarh**
6. **Mumbai**
7. **Srinagar**
8. **Kolkatta**

Clinical Research Unit- 7
1. **Allahabad**
2. **Assam**
3. **Bangalore**
4. **Bhopal**

5. Kerala
6. Meerut
7. Burhanpur

Drug Standardisation Research Unit- 4

1. New Delhi
2. Chennai
3. Banglore
4. Lukhnow

Note:-

- پوست گراجویٹ پہلے اجمل خان طبیہ کالج میں شروع کیا شعبہ علم الادویہ میں۔

اقوال اطباء:-

زکریہ رازی

- صراع خفہ اکثر عورتوں میں ہوتا ہے
- غشی جب زیادہ ہوتی ہے تو مریض کا معدہ بوڑھوں کے معید کی طرح ہو جاتا ہے اور غذاء اچھی طرح ہضم نہی کر سکتی جس سے برن لاغر ہوتا ہے۔
- جس معدہ مس غذ آء سے اذیت پہنچتی ہے وہ معدہ نھایت ضعیف ہوتا ہے۔
- سدر دعار کے بود پیداء ہوتا ہے۔
- جو لقرہ 6 ماہ سے تجاوز کر جائے وہ صحت پذیر نہی ہوتا ہے۔
- فالج زدہ عضو نہایت لاغر اور چھوٹا ہوتا لا علاج ہے۔
- اور اگر فربہ ہو اور بدن کے رنگ پر ہو تو قابل علاج ہے۔

شیخ الرئیس

- خلط وہ مادہ رطب وسیال سے جس کی طرف غذا اوّلا مستحیل ہوتی ہے۔
- سدر دوار کا مقدمہ ہے۔
- نقرس انگلیوں سے خصوصا انگھوٹے سے شروع ہوتا ہے، بعض اوقات ایڑھی سے شروع ہو کر پھیل جاتا ہے۔
- حرارت کی طبعیت سے زیادہ موافقت و مناسبت ہوتی ہے۔
- ہر عضو کی ذات میں ایک طبعی قوّت ہوا کرتی ہے (قوّت غریزیہ) جس سے اسکے تغذیہ کا عمل جاری رہتا ہے۔

- قوت نامیہ وہ قوت ہے جو جسم کو تینوں قطاروں میں طبعی تناسب کے مطابق بڑھنے کا کام انجام دیتی ہے۔
- اعضاء کے بڑھنے کی ایک حد ہے جو ایک خاص تناسب رکھتا ہے۔
- درد تمام اعضاء کو اپنے خاص افعال سے روک دیتا ہے۔
- گردہ کے اورام و قروح کیلئے سکون و راحت سے بہترین کوئی چیز نہی۔

علامہ نفیسی

- خون میں عصارہ انگور جیسی میٹھی شیز پائی جاتی ہے۔

جالینوس

- روح ہوائے مستنشق سے پیداء ہوتی ہے۔
- سدر اور دوار میں کوئی فرق نہی۔
- فالج میں جب دماغ کی رطوبتیں اعصاب کی طرف بہ جاتی ہے تو اپنے پیچھے دماغ میں گرمی چھوڑ جاتی ہے۔
- لقوہ کبھی تشنج اور استرخاء دونوں سے پیداء ہوتا ہے۔ جس سے چہرے کی ایک طرف کا حصہ ڈھیلا ہو جاتا ہے اور دوسری طرف تشنج ہوتا ہے۔
- طحال کا بڑ آہونا اس امر کی راشنی کی دلیل ھیکہ بدن میں ردی اخلاط موجود ہے اور اس کا لاغر ہونا اس امر کو بتاتا ہیکہ اخلاط ٹھیک ہے،
- ترش اشیاء جب کشادہ اور فراغ جگہ میں ہوتے ہوئے انکی حرکت کا فوراداخل ہونا اور خارج ہونا اور خارج ہونا آسان اور جلد ہو سکتا ہے۔
- روح حیوانی ہوا میں سے تنفس کے ذریعہ شش میں داخل ہوتی ہے، اور وہاں سے قلب میں پہنچتی ہے جو مانع حرارت بنتی ہے۔

علی بن عباس مجوسی (صاحب کامل)

- سر کر علاوہ بدن کا ایک طرف کا ڈھیلا ہانا فالج ہے۔

یوحینا بن ماسویہ

- لقوہ یں طرف نہی ہوتا جو ٹیڑی ہوتی ہے بلکہ دوسری طرف ہوتا۔

بقراط

- جب طحال بڑی ہوتی ہے تو بدن لاغر ہوتا ہے اور جب چھوتی ہوتی ہے تو بدن موٹا ہے
- تمام اعضاء میں اشرف و اعلیٰ سردار دماغ ہے "جو نفس ناطقہ کا محل ہے"

ارسطو

- صرع غلیظ ریاح سے پیداء ہوتا ہے، جو دماغی بطون کو بدن کر کر دیتا ہے۔
- تمام اعضاء میں رئیس مطلق قلب ہے

ابو سہل مسیحی

- سارے اخلاط خون کے ساتھ مخلوط اور متحد ہوتے ہیں۔
- وہ جسم جو حروف کے تجاویف میں گھر ہو اور چاروں اخلاط جس میں ملے جلے ہوتے ہیں خون کہلاتا ہے۔
- جن اعضاء میں خون کی مقدار زیادہ ہے وہ حار ہے، اور جن میں خون کی مقدار کم ہے وہ بارد ہے۔
- عام روح کا مادہ یہی ہوا ہے جو باہر سے سانس کے ذریعہ کھینچی جاتی ہے۔
- علامہ گیلانی
- تولید روح کی ابتداء پھیپھڑوں سے ہوتی ہے۔
- اخلاط کی چار ہونے کی جو دلیل پیش کی جاتی ہے ان میں سب سے بہتر دلیل مشاہدہ ہے۔

علامہ قرشی

- روح سے مراد لطیف و بخاری جسم ہے جو جسم کے لطیف اخلاط سے ہوتا ہے۔
- قلب کے انبساط کے وقت شریان منقبض ہوتی ہے۔
- تمام مزاجون میں سب سے معتدل مزاج انسان کا ہے۔
- تمام اعضاء میں سب سے معتدل مزاج شہادت کی انگلی کے اگلے پورے کا اور اسکی جلد ہے۔
- ارواح کے اقسام بعینہی قوی کے اقسام کے مانند ہے۔

علامہ سمرقندی

- بدن لمبائی میں سر سے پیر تک اعضاء ڈھیلے ہونا فالج ہے
- مرض فالج مزاج کے اندر گرمی پیداء ہونے کی وجہ سے ہوتی ہے۔
- بچوں میں مرگی، بخار اور حرارت مزاج کے بغیر پیداء ہی نہیں ہوتی نیز بچوں کی مرگی سر دوداؤں سے زائل ہوتی ہے۔
- عشق ایک عسعسی مرض ہے۔

- کمر میں کولہے کے قریب بغیر سوزش اور بغیر سخت درد کے بوجھ ہوتا ہے اور یہ درد قولنج سے مشابہ ہوتا ہے (ورم بارد کلیہ)۔
- جس طرح زہر کے مریضوں میں فصد ممنوع ہے اسی طرح طاعون کے مریضوں میں بھی ممنوع ہے۔

Note:- As usual we"ll made more edit and add more points in next editions.

PREVENTIVE AND SOCIAL MEDICINE

تحفظی و سماجی طب

ENVIRONMENT

Instrument for Environment measurements:-

Kew Pattern (Koepfer) station barometer	Atmospheric pressure
Anemometer	Assess air/wind velocity
Kata thermometer	For low velocity air currents, cooling power of air
Dial Thermometer	Cold Chain temperature
Symon's rain gauge	Precipitation (rain,snow,dew,frost)
Glove Thermometer	Mean radient tempreture

AIR POLLUTION

Air Quality Index (AQI)

Dark green	Good air quality
Maroon	Severe pollution

National air monitoring program is based on 8 parameters:-PM10,PM2.5,NO2,SO2,CO,NH3,Pb.

Air quality in India is control by Central pollution control board (Ministry of environment & forest)

Best biological indicator of air pollution is Lichens (Parmelia caperata)

NOISE /SOUND POLLUTION

- **Normal whispering produces noise level of: 10-20 dB.**
- **Permissible sound level for hospital wards: 20-35 dB.**
- **Accepted noise level in classroom: 30 —40 dB**
- **Acceptable / Tolerable (daily maximum) noise limits: 85 dB**
- **Noise limit for industrial worker is: 90 dB.**
- **Auditory fatigue occurs with exposure of 90 dB / 4000 Hz**
- **Permanent hearing Joss occurs on repeated exposure of >- 100 dB**
- **Tympanic membrane rupture and permanent hearing loss occurs with Sudden single exposure of noise > 160 dB**

WATER

Drinking water source point should be:-

- **Within the reach**

1. **1.6 km in plains or**
2. **1OO m in elevation,**

- **Not covered/Safe source**

Rain water is purest/softest water,

Water Pollution

Drinking water class according to bacterial count

Class	Termed as	Presumption coliform count
I	Exellent	0
II	Satisfactory	1-3
III	Suspicious	4-10
IV	Unsatisfactory	+10

Phosphatase test and standard plate count; coliform count are used for quality of pasteurization.

Chemical indicators of contamination

- **Nitrite, ammonia indicate recent pollution of water.**
- **Nitrates indicate old contamination.**

Drinking water acceptability parameters & level of some minerals in drinking water:-

Chemicals	Levels
Chloride	200-600 mg/L
Nitrates	<50mg/L
Nitrites	<3 mg/L
Florides	<0.01 mg/L
Mercury	<0.001mg/L
Lead	<0.01 mg/L

PURIFICATION OF WATER

Small Scale Purificcfion of Water:-

1. **Boiling**
2. **Chemical Disinfection**
3. **Filtration**
4. **Well Purifation**

Large Scale Purification of Water:-

1. **Rapid sand filer:- Rate of filtration is (4000-7500L/m^2/hr) it removes 98.99% bacteria**
2. **Slow sand filter:- Rate of filtration is (100-400L/m^2/hr) it removes 99.9% bacteria**

For disinfecting large water bodies, clorine gas is first choice. It is cheap, quick, efficient and easy to apply.

Important Apparatus to measure chlorination of water

Apparatus	Used for estimation
Horrock's Apparatus	Clorine demand of water
Chlorinator	Mixing/regulation the dose of chlorine in water
Chloronome	Clorine disfection using chlorine gas
Chloroscope	Level of residual cl_2 in drinking water
Symon's rain gauge	Precipitation (rain,snow,dew,frost) of water

Break Piont Chorination:- The point at which chlorine demand of water is met is called "Break point" (residual chlorine appears and when all combined chlorines have been disappeared.)
Residual chlorine levels:-

For	Residual chlorine level
Driking water	0.5 ppm
Water bodies, Post disaster	>0.7 ppm
Swimming pool sanitation	1 ppm
To prevent Guinea worm infection	5 ppm

Superchlorination:

Adding large doses of C12 followed by removal of its excess (dechlorination) is called superchlorination.

Done for heavily polluted water whose quality fluctuates greatly.

Chlorine compounds

1. **Bleaching powder (CaOC12)**
2. **Chlorine tabs**
3. **Chlorine gas**
4. **Perchloron**

Hardness of water

Hardness of water is defined as the 'soap destroying capacity of water
Hardness of water is of two types

1. **Temporary hardness**
2. **Permanent hardness**

Features	Temporary hardness	Permenent hardness
Also known as	Carbonate hardness	Non-Carbonate hardness
Due to	Bicarbonates of Calcium & Magnesium	Sulphates of Calcium & Magnesium

The term soft and hard water are used when the levels of hardness are as given below:

Classification	Level mEq/L	mg/L
Soft	<1	50
Moderately hard water	1-3	50-150
Hard water	3-6	150-300
Very hard water	>6	>300

- **Drinking water should be moderately hard.**
- **Hardness of water appears to have beneficial effect against cardio vascular disease.**
- **Defluorination is done by Nalgonda technique (Lime followed by → alum).**
- **Presence of 1 mg/dl of fluoride in drinking water protect against dental Carries.**
- **High nitrate content of water is associated with → methemoglobinemia.**

WASTE MANAGEMENT

Biomedical Waste (BMW) Disposal

Biomedical waste management (BMW) is under ministry of environment and forests.
NGT (National Green Tribunal) is legal body controlling BMW related issues.
Principles of solid waste Management: Reuse, Reduce and Recycle.
3"D" of hospital waste Management:

1. **Disinfection**
2. **Disposal**
3. **Drainage**

Biomedical Waste Category

Waste Category	Examples	Treatment / Disposal.
Human anatomical	**Body parts, Surg, OBG, patho.**	**Burn / Incinetor or plasma pyrolysis.**
Microbiological	**Culture plates**	**Non Chlorinated chemical disinfectant / Incinetor / Burn / On site sterilization.**
Sharp	**Used needles, syringes, scalpel, blades.**	**Autoclaved / Burn.**
Drugs	**Vaccines, drugs**	**Incinetor / Burn**
Soiled	**Cotton, Clothes**	**Non chlorinated chemical disinfectant followed by incinetor.**
Solid	**Plaster, cannula, syringes.**	**Autoclaved / Burn.**
Liquid	**Chemicals/Biochemical/ IV fluids (normal saline/ Ringer's lactate)**	**Non Toxic – Drain in water Toxic – Encapsulated and deep burial.**

Disaster management act

- The Disaster Management Act (DMA) is an Indian law that was enacted in 2005 to ensure that the country is better equipped to manage disasters, whether natural or man-made.
- The act provides for the effective management of disasters by establishing a comprehensive institutional framework and laying down guidelines for the preparation of disaster management plans at various levels.
- The Disaster Management Act empowers the central and state governments to take measures to mitigate the effects of disasters, including measures related to prevention, preparedness, response, and recovery.
- The act also provides for the establishment of National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA), and District Disaster Management Authority (DDMA) to coordinate and implement these measures.
- The Disaster management act also provides for the establishment of a National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) to provide financial assistance to those affected by disasters. The act makes it mandatory for all stakeholders, including government agencies, non-governmental organizations, and individuals, to participate in disaster management activities.
- Overall, the Disaster Management Act is a crucial law that enables the government to respond effectively to disasters and to minimize their impact on the population and infrastructure.

Functions of this act

1. **Institutional framework**: The DMA provides for the establishment of institutional frameworks such as the National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA), and District Disaster Management Authority (DDMA). These institutions are responsible for planning, coordinating, and implementing disaster management activities at various levels.
2. **Disaster management planning**: The act lays down guidelines for the preparation of disaster management plans at various levels, including national, state, district, and local levels. These plans include measures for prevention, mitigation, preparedness, response, and recovery.
3. **Prevention and mitigation**: The DMA provides for measures to prevent or mitigate the effects of disasters, such as risk assessment, early warning systems, and vulnerability reduction.
4. **Preparedness**: The act mandates various stakeholders, including government agencies, non-governmental organizations, and individuals, to participate in disaster management activities such as mock drills, training, and capacity building.
5. **Response**: The DMA empowers the central and state governments to take immediate measures to respond to disasters and to provide relief to affected persons. It also provides for the establishment of emergency response teams and the mobilization of resources for response operations.
6. **Recovery**: The act provides for measures for the recovery and rehabilitation of affected persons and the restoration of infrastructure and services.

Overall, the Disaster Management Act plays a critical role in enabling the government to effectively manage disasters and to minimize their impact on the population and infrastructure.

PERSONAL HYGIENE:-

It is equal importance in regarding personal hygiene

Following facts are important in regards personal hygiene:-

1. Personal cleanliness

You should bath daily and to wear clean clothes the hair should also be kept clean & tidy.

i. Oral hygiene :- Indians are very particular about oral twigs of neem tree as a toothbrush some use ashes; and some use charcoal. The educated and those who have come in contact with urban life use toothbrushes. Eating pan leaves smeared with lime with or without tobacco is a common social custom.

ii. Bathing : Bathing naked is a taboo. Apart from regular baths of which Indians are very fond, there are baths fixed on special occasions. The women after menstruation must have a purifying bath; after childbirth, there may be two or three ceremonial baths, the time for which is fixed upon the advice of the priest. The practice of an oil bath is a good Indian custom. Womenfolk in the countryside use a paste consisting of gram, mustard oil and turmeric powder and rub it on the body before a bath. Thus, bathing is a ritual in India.

Shaving : This is done by the traditional barber (nai) in the countryside. He does not sterilize the instruments used, as he does not have any idea of micro-organisms.

Wearing shoes : The transmission of hook-worm disease is associated with bare feet. Many villagers in South India do not wear shoes.

Rest and sleep

8hours sleep, and 2 hours after mid-day meals should be advised. Many people in the villages sleep on the ground for reasons of poverty, and they are exposed to insect bites.

3 Bowels:

Constipation should be avoided by regular intake of leafy vegetables, fruits and extra fluids. Purgatives like castor oil should be avoided to relieve constipation.

4 Exersice:-

Light household work is advised, but manual physical labour during late pregnancy may adversely affect the foetus.

5 Smoking:-

Smoking should be cut down to a minimum. Expectant mothers who smoke heavily Produce babies much smaller than age — it is because nicotine has a vasoconstrictor influence in the uterus and induces a degree of placental insufficiency. It can spread tuberculosis. Smoking with the burning end of the cigar in the mouth, which is a common custom among villagers in is associated with oral cancer. the effects of smoking and health provides useful summary of information on the diseases now known to be associated with smoking — cancer of the lung, chronic bronchitis andemphysema, coronary artery occlusion, angina pectoris, cancers of the mouth, pharynx,

larynx, and oesophagus,cancer of the bladder and pulmonary tuberculosis.

Among patients with peptic ulcer those who smoke have a higher death rate.

6. Alcohol:-

Evidence is mounting that alcohol can cause a range of fertility problems in women.

Moderate to heavy drinkers who became pregnant have greater risk of pregnancy loss, and if they do not abort, their children may have various physical and mental problems.

7. Sexual intercourse:

This should be restricted especially during the last trimester.

8. DRUGS :

The use of drugs that are not absolutely essential should be discouraged. Certain drugs taken by the mother during pregnancy may affect the foetus adversely.

FAMILY PLANNING

Definition

There are several definitions of family planning. An Expert committee (1971) of the
WHO defined family planning as "a way of thinking and living that is adopted voluntarily,
upon the basis of knowledge, attitudes and responsible decisions by individuals and
couples, in order to promote the health and welfare of the family group and thus contribute effectively to the social development of a country"

Objectives of family planning :

(a) to avoid unwanted births
(b) to bring about wanted births
(c) to regulate the intervals between pregnancies
(d) to control the time at which births occur in relation to the ages of the parent; and
(e) to determine the number of children in the family.

Health aspects of family planning:-

Family planning and health have a two-way relationship. The principal health outcomes of family
planning were listed and discussed by a WHO Scientific Group on the Health Aspects of Family
Planning. These can be summarized under the following headings.

Women's health:-

Maternal mortality, morbidity of women of child— bearing age, nutritional status (weight
changes, haemoglobin level, etc.) preventable complications of pregnancy and abortion.

Feotal health:-

Foetal mortality (early and late foetal death); abnormal development.

Infant and child health:-

Neonatal, infant and pre-school mortality, health of the infant at birth (birth weight), vulnerability to diseases.

Scope of family planning services

Family planning is not synonymous with birth control. A WHO Expert Committee (1970)
has stated that family planning includes in its purview:-
(1) The proper spacing and limitation of births.
(2) Advice on sterility.
(3) Education for parenthood.
(4) Sex education.
(5) Screening for pathological conditions related to the reproductive system (e.g., cervical cancer).
(6) genetic counselling.
(7) premarital consultation and examination.
(8) carrying out pregnancy tests.
(9) marriage counselling.
(10) the preparation of couples for the arrival of their first child.
(11) providing services for unmarried mothers.
(12) Teaching home economics and nutrition.
(13) Providing adoption services.
These activities vary from country to country according to national objectives and
policies with regard to family planning. This is the
modern concept of family planning.

CONTRACEPTIVE METHODS:-

Contraceptive methods are, by definition, preventive methods to help women avoid unwanted pregnancies. They include all temporary and permanent measures to prevent pregnancy resulting from coitus.
Permanent method are :-
1. Tubectomy
2. Vasectomy
Temporary method are
1. Physical method
2. Chemical method
3. Combined method
4. Intra-uterine devices
5. Hormonal method
6. Post-conceptional method

7. Miscellaneous

The last few years have witnessed a contraceptive revolution, that is, man trying to interfere with the ovulation cycle.

Infection :-

Defination

The entry and development or multiplication of an infectious agent in the body of man or animals. It also implies that the body responds in some way to defend itself against the invader either in the form of an immune response or disease. An infection does not always cause illness.

MODE OF TRANSMISSION

Airborne transmission via droplet nuclei

Transmission occurs by dissemination of airborne droplet nuclei (<5 μm).

Examples: Measles (Rubeola) virus, chicken pox, TB.

Contact transmission

Direct contact transmission: Whooping cough, staphylococcal infection

Feco-oral Route

HAV, Enterovirus, Enteric fever (typhoid), cholera, poliomyelitis.

Other Route

Q-fever is transmitted by - Inhalation of C. burnetii in aerosols.

Dracunculiasis is transmitted by — Consumption of water containing cyclops harbouring Guinea worm.

Hookworm is transmitted by - Direct skin penetration.

Quarantine

1. Absolute Quarantine:-

The limitation of freedom of movement of such well persons or domestic animals exposed to communicable disease for a period of for a period of time not longer than the longest usual incubation period of the disease, in such manner as to prevent effective contact with those not so exposed.

2. Modified Quarantine:-

A selective partial limitation of freedom of movement such as exclusion of children from school.

3. Segregation :-

The separation for special consideration, control of some part of a group of persons from orthers to facilitate control of a communicable disease.

In contrast to isolation, quarantine applies to restrictions on the healthy contacts of an infectious disease. Quarantine is popular method of disease control has now declined in population.

It is replaced by active surveillance.

Incubation Period

The time interval between invasion by an infectious agent and appearance of the first sign or symptom of the disease is incubation period.

The median incubation period, defined as the time required for 50 percent of cases to occur following exposure.

Non-infectious disease such as cancer, hart disease & mental illness also have an incubation period which may be months or years.

The term Latent Period is used in non infectious diseases as the equivalent of incubation period in infectious disease.

Fundamental importance of incubation period

1. **Tracing the source of infection and contact.**
2. **Period of surveillance.**
3. **Immunization.**
4. **Estimate the prognosis of disease.**

ISOLATION

Isolation is the oldest communicable disease control measure.

It is defined as "separation, for the period of communicability of infected persons or animals from others in such places and under such conditions, as to prevent or limit the direct or indirect transmission of the infection agent from those infected to those who are susceptible, or who may spread the agent to others".

The purpose of isolation is to protect the community by preventing transfer of infection from the reservoir to the possible susceptible hosts.

The type of isolation varies with the mode of spread and severity of the disease.
There are several types of isolation

1. **Standard isolation,**
2. **Strict isolation**
3. **Protective isolation**
4. **High security isolation**

Hospital isolation, wherever possible is better then home isolation.

Incubation Period of Infective Diseases

Disease	Causative organism	Incubation Period (IP)
Chicken pox	Human (alpha) herpes virus 3	14 – 16 days
Measles (Rubeonella)	RNA paramyxovirus	10 – 14 days
Rubella (German Measles)	RNA Togavirus	14 – 21 days
Mumps	RNA Myxovirus	14 – 21 days
Influenza	Orthomyxovirus	18 – 72 hours
Diphtheria	Corynebacterium diphtheriae	2 – 6 days
Pertussis (Whooping cough)	Bordetella pertussis	7 – 14 days
Meningococcal meningitis	Neisseria meningitis	3 – 4 days
SARS	Corona virus	3 – 5 days
Tuberculosis	Mycobacterium tuberculosis	Weeks – years
Poliomyelitis	Poliovirus	7 – 14 days
Hepatitis A	Enterovirus 72 (Picornavirus)	15 – 45 days
Hepatitis B	Hepadna virus	45 – 180 days
Hepatitis C	Hepacivirus	30 – 120 days
Cholera	Vibrio cholerae	1 – 2 days
Typhoid fever	Salmonella typhi	10 – 14 days
Staphylococcal food poisoning	Staphylococcus aureus	1 – 6 hours
Ascariasis	Ascaris lumbricoides	2 months
Ancylostomiasis (Hookworm)	A. duodenale	5 weeks – 9 months
Malaria	Plasmodium vivax	8 – 17 days
Plasmodium falciparum	9 – 14 days	
Plasmodium malariae	18 – 40 days	
Plasmodium ovale	16 – 18 days	
Lymphatic filariasis	Wuchereria bancrofti	8 – 16 months
Rabies	Lyssavirus type 1 (Rhabdovirus)	3 – 8 weeks
Yellow fever	Flavivirus fibricus	2 – 6 days
Japanese encephalitis	Group B arbovirus (Flavivirus)	5 – 15 days
KFD	Arbovirus (Flavivirus)	3 – 8 days
Chikungunya fever	Chikungunyavirus (Arbovirus A)	4 – 7 days
Leptospirosis	Leptospira interrogans	4 – 20 days
Bubonic plague	Yersinia pestis	2 – 7 days
Pneumonic plague	Yersinia pestis	1 – 3 days
Septicemic plague	Yersinia pestis	2 – 7 days
Scrub typhus	Rickettsia tsutsugamushi	10 – 12 days
Q fever	Coxiella burnetti	2 – 3 weeks
Taeniasis (Tapeworms)	T. solium, T. saginata	8 – 14 weeks
Leishmaniasis (Kala azar)	L. donovani	1 – 4 months
Trachoma	Chlamydia trachomatis	5 – 12 days
Tetanus	Clostridium tetani	6 – 10 days
Yaws	Treponema pertenue	3 – 5 weeks
HIV/ AIDS	HIV/ HTLV – III/ LAV	Months – 10 years
Swine Flu	H1N1 Type A Influenza	1–4 days
Crimean Congo Fever	Nairovirus (Bunyavirus)	1–9 days
H7N9 Influenza	H7N9 Type A Influenza	1–10 days (3.3 days)
MERS	Betacoronavirus	12 days
Ebola disease	Ebolavirus	2-21 days
Anthrax	Bacillus anthracis	1-7 days
Brucellosis	Brucella melitensis	5-60 days
Chickenpox	Vericella-zoster	14-16 days

Mode's of Transmission of Diseases

Disease	Mode(s) of transmission	Route
Chicken Pox	Droplet infection, droplet nuclei.	Face to face transmission
Measles	Droplet infection, droplet nuclei, through conjunctiva	4 days before rash to 5 days later
Rubella	Droplet infection, droplet nuclei, vertical	1 week before rash to 1 week later
Mumps	Droplet infection, direct contact	
Influenza	Droplet infection, droplet nuclei	
Diphtheria	Droplet infection, direct contact, fomite borne	95% transmission from carriers
Whooping Cough	Droplet infection, direct contact, fomite	
Meningococcal	Droplet infection	Carriers most important source of infection
TB	Droplet infection, droplet nuclei.	Not Fomite borne
Poliomyelitis	Faeco-oral, droplet infection	
Hepatitis A	Faeco-oral, parenteral, sexual	
Hepatitis B	Perinatal, parenteral, sexual, horizontal	
Hepatitis C	Perinatal, parenteral, sexual	
Hepatitis D	Perinatal, parenteral, sexual	Super-infection/co-infection to HBV
Hepatitis E	Feco-oral	
Cholera	Feco-oral, contaminated foods/drinks, direct contact	
Typhoid	Feco-oral, urine-oral	
Amoebiasis	Feco-oral	
Ascariasis	Feco-oral	
Ancylostomiasis	Direct penetration(skin), oral	Transmission may be perennial
Dracunculiasis	Consumption of water containing cyclops	Water based disease
Dengue	Aedes bite	Water breeding disease
Leptospirosis	Urine, feces, tissues of rats	Direct skin contact
Nipah virus	Consumption of bats-eaten fruits	Person-to-person in India
Ebola virus	Body fluids (blood, semen, urine, feces, vomit, tears, sweat, saliva)	–
Brucellosis	Direct contact, food borne, air borne	Aborted of foetus, placenta can transmit

Vectors And Diseases Transmitted

Vector	Disease(s) transmitted
Housefly (Musca domestica)	Diarrhoeal and dysentrical diseases, Poliomyelitis, Yaws, Anthrax, Trachoma
Sandfly (Phlebotamus argentipes)	Kala azar (Visceral Leishmaniasis), Oriental sore (Cutaneous Leishmaniasis), Sandfly fever, Oroya fever
Tse-Tse fly (Glossina palpalis)	Sleeping sickness of Africa (African Trypanosomiasis)
Reduviid bug (Triatominae)	Chagas Disease (Sleeping sickness of America- American Trypanosomiasis)
Black fly (Simulum)	Onchocerciasis (River Blindness)
Soft tick	Relapsing fever, Q fever, KFD (outside India)
Hard tick	Tularemia, Babesiosis, KFD (India), Tick paralysis, Tick encephalitis, Tick hemorrhagic fever, Indian Tick Typhus, RMSF
Louse	Epidemic typhus, Trench fever, Relapsing fever
Mite	Scrub typhus, Rickettsial pox
Flea	Plague, Murine typhus
Anopheles mosquito	Malaria, Filaria (outside India)
Culex mosquito	Bancroftian Filariasis, Japanese Encephalitis, West Nile fever, Viral arthritis
Aedes mosquito	Yellow fever, Dengue, DHF, Chikungunya, Rift Valley fever, Filariasis (Outside India)
Mansonoides mosquito	Malayan (Brugian) filariasis, Chikunguny

VACCINES:-

Discoveries of Vaccines

Small pox vaccine → Jenner.

Anthrax vaccine → Pasteur.

Chicken cholera vaccine → Pasture.

Multiple pathogen based combination vaccine:-

DTwP (Diphtheria + Tetanus + whole cell pertussis)

DTaP (Diphtheria + Tetanus + acellular pertussis)

DPT + Hib + IPV (Pentaxim)

DTaP+ Hib + HBV (Hexaxim)

DPT + Hep B + Hib (Easy five)

MMR : Measles + mumps + rubella

MMRV . Measles + mumps + rubella + varicella (Priorex-Tetra)

Single pathogen based combination vaccines:-

OPV, IPV, Flu, Rota, HPV

Pneumo, Meningo,

Vaccines

Vaccine	Class	Schedule	Route	Contraindication	Adverse effects
BCG	Live attenuated vaccine	Single dose at birth/ first contact	Left deltoid	Immunodeficiency, AIDS	Axillary lymphadenitis
DTwP DTaP	Toxoid	3 doses 6,10,14 week. Booster at 18 months	Deep i/m Anterolateral aspect of thigh	Progressive Neurological disease Severe reaction to first dose.	Fever, Local pain, induration Incessant cry, Encephalopathy is rare
Pnemococcal	Subunit	3 doses 6.10.14 weeks.	I/M Anterolateral thigh	Local reaction	
OPV	Live attenuated vaccine	At birth, 6,10,14 week Booster at 18 months.	Oral	Immunodeficiency HIV disease Contacts of immunodeficient	
IPV	Killed	6,0,14 weeks	I/M Anterolateral thigh	Immunodeficiency HIV disease Contacts of immunodeficient	
Hepatitis B	Protein	0,1,6 weeks	I/M Anterolateral thigh		Local pain and erythema

Measles	Live attenuated vaccine	Single dose at 9 months	I/M Deltoid/Thigh		Local pain and erythema, mild fewer
MMR	Live attenuated vaccine	Single dose at 15 months	I/M Deltoid/Thigh	Systemic hypersensitivity to neomycin	Mild fever mild rash after 7 days
Hepatitis A	Killed	2 doses 6 month, 1 year		Local pain and erythema	
Thyphoid	Inactivated capsulr polysaccharide	2years 3years	I/M Deltoid/Thigh	Mild local reaction	
Influenza	Killed inactivated		I/M Deltoid/Thigh/ Nasal drop		
Vericella	Live attenuated vaccine	15 months		Systemic hypersensitivity to neomycin	
Japanese encephalitis	Killed	1-3 years	I/M Deltoid	Hypersensitivity to first dose	Local reaction allergy, encephalitis
Yellow fewer	Live attenuated vaccine				Headaches, myalgia
Rabies	Killed Inactivated				Local reaction

Vaccines in pregnancy

Safe	**Polio** **Yellow fever** **Rabies may be given during 2nd & 3rd trimester, if needed.** **Diphtheria toxoid, Tetanus toxoid**
Contraindicated	**Most of the live viral vaccines** • **Measles, Mumps, Rubella, MMR, Varicella,** • **BCG / Tuberculin** **Meningococcal (killed) vaccine.**

Vaccine classes

Freeze dried vaccine is BCG
Lyophilised vaccines are:- Measles, MMR, Varicella, Meningococcal, Japanese Enchephalitis, rabies.
An example of split genome vaccine:- Influenza vaccine, Rotavirus vaccine.

Category	Example
Live attenuated	**BCG, Thypus, OPV, MMR, Vericella, Yellow fever**
Killed inactivated	**Pertussis, Thphoid, Plague, IPV, Rabies, Tetanus, Influenza, Japanese encephalitis, Diphtheria.**
Capsular polysaccharide	**Meningococcal, Pneumococcal.**

Contraindications to Vaccines:-

In fever : DTwP/DTaP, Typhoid.
In < 2 yr : Typhoid, Meningococcal, Pneumococcal
In < 1 yr : Yellow fever
In pregnancy : Live vaccines (except YF, polio)
In progressive neurological illness: DPT

Immunization Schedule:-

AGE	VACCINE	DOSE
Birth	BCG OPV Hep B	Single Dose Zero Dose Birth Dose
6 weeks	(DTaP + Hib + IPV)+Hep B or (DTwP + Hib + Hep B) + OPV PCV (Pneumococcal Conjugate) Rotavirus (Rotarix)	1st 1st 1st 1st
10 weeks	(DTaP + Hib +IPV)+Hep B or (DTwP + Hib +Hep B) OPV PCV (Pneumococcal Conjugate) Rotavirus (Rotorix)	2nd 2nd 2nd 2nd
14 weeks	(DTaP + Hib +IPV)+Hep B or (DTwP + Hib +Hep B) OPV PCV (Pneumococcal Conjugate)	3rd 3rd 3rd
9 months	Measles, OPV	
12 months	Hep A	1st
15 months	MMR (Measles + Mumps + Rubella) Varicella (Chicken pox) PCV (Pneumococcal Conjugate)	1st 1st Booster
16-18 months	DTaP +Hib + IVP or DTwP +Hib +OPV	1st Booster 1st Booster
18 months	Hep A	2nd
2 years	Typhoid	1st
4 ½- 5 years	DTaP +Hib + IVP MMR Varicella Typhoid	2nd Booster 2nd Booster 2nd Booster 2nd Booster
10-12 years	HPV	3 Doses

Disinfectents: Usually a chemical agent (some time physical agent) that destroys disease causing pathogens or other harmful microorganisms, but might not kill bacterial spores. It refers to substances applied to inanimate objects.

Sterilization: Validated process used to render a product free of all forms of viable microorganisms including bacterial spores. Sterilizer is the apparatus used to sterilize medical devices, equipment or supplies by direct exposure to the sterilizing agent.

Antiseptic : Substance that prevents or arrests the growth or action of micro-organisms by inhibiting their activity or by destroying them. The term is used especially for preparations applied topically to living tissue.

Asepsis : Prevention of contact with micro-organism.

Sanitizer : Agent that reduces the number of bacterial contaminants to safe levels as judged by public health requirements. Commonly used with substances applied to inanimate objects.

Sterile : State of being free from all living micro organisms.
Pasteurization by flash method: 72 deg C, 15-20 sec

Bacteriostatic agent: Agent, added to colony, inhibits growth & vice versa

Hot air oven is used for:
Glass ware,
Liquid paraffin,
Forceps,
scissors,
scalpel.
Endoscopes are sterilized by: Glutaraldehyde (Cidex is 2% glutaraldehyde)
Disposable syringes are sterilized by: Gamma rays
Cold sterilization is by: Gamma rays
Vaccines are sterilized by: Heat inactivation
Hospital dressings are best disinfected by: Incinerator (not done for sharp)
Reidel walker coefficient: Determines germicidal efficiency of disinfectants (as compared to phenol)
Tyndalization: Intermittent sterilization Bacterial spores are destroyed by: Autoclaving
Germicides : Agent that destroys micro-organism, especially pathogenic organism.

Deodorant : Agent which suppresses or neutralizes bad odurs, eg. Lime and Bleeching powder.

Detergents : Surface cleaning agent that makes no antimicrobial claim on the label. They comprise a hydrophilic component and a lipohilic component. It acts by lowering surface tension, eg. Soap which removes bacteria along with dirt.

Occupation Health

Important Occupational Desease

Disease	Cause
Silicosis	Silica & SiO_2 (Mica mines)
Anthracosis	Coal dust (Coal workers)
Byssinosis	Cotton fibres (Textile industry)/ Spinners
Bagassosis	Sugar cane dust
Asbestosis	Asbestos (Cement)
Farmer's lung	Mouldy hay / Grain dust
Siderosis	Iron dust

Effects of atmosphere

- **Extreme cold - Chilblains, Immersion foot, Froastbite , White finger**
- **UV radiations Welder's Flash (reversible conjunctivitis & Keratitis)**
- **Light Coal worker - Miner's Nystagmus**
- **Pressure - Decompression Sickness**
- **Heat cramps - Painful contractions of skeletal muscles**
- **Heat syncope — No rise in temperature but fall in BP due to pooling of blood in legs as a result of prolonged standing.**

Latent Period of following disease

Disease	Latent period
Anthracosis	15-20 years
Asbestosis	10 years
Silicosis	14 years

Note:-

Ergonomics:- deals with fitting job to worker.

Dust particle of the size of 20μ or more are trapped in oropharynx
Dust particle within the size range 0.5 — 3μ are health hazard for pneumoconiosis.
Size of Aerosol is 2 — 5 microns.

Employment of any person <14 years is prohibited.Employment of 15-18 years old child/ Adolescents — Should be duly certified regarding their fitness for work by a certifying surgeon and allowed to work only between 6 am to 7 pm.

The Factories act established in 1948.
The act applies to whole India except J & K.

INTERNATIONAL HEALTH ORGANIZATIONS

WORLD HEALTH ORGANIZATION (WHO)

The World Health Organizqtion is a specialized, non-political, health agency of the United Nations, with headquarters at Geneva. In 1946, the Constitution was drafted by the "Technical Preparatory Committee" under the chairmanship of Rene Sand, and was approved in the same year by an International Health Conference of 51 nations in New York. The constitution came into force on 7th April, 1948 which is celebrated every year as "World Health Day"
A World Health day theme is chosen each year to focus attention on a specific aspect of public health.

Objectives of World Health Organization (WHO)

1. **Prevention and control of specific disease**
2. **Development of comprehensive health services**
3. **Family health**
4. **Environmental health**
5. **Health statics**
6. **Biomedical research**
7. **Health literature and information**
8. **Co-operation with other organization**

Food and Agriculture Organization (FAO)

It is formed in 1945 with headquarters in Rome. It was the first United Nations Organization specialized agency created to look after several areas of world cooperation.
Objectives of Food and Agriculture Organization (FAO)

1. **To help nations raise living standards.**
2. **To improve nutrition of the people of all countries.**
3. **To increase the efficiency of farming, forestry and fisheries.**
4. **To better the condition of rural people through all these means.**
5. **To widen the opportunity of all people for productive work.**
6. **It's prime concern is the increased production of food to keep pace with the ever—growing world population.**

The most important aspect of FAO's work is towards ensuring that the food is consumed by the people who need it, in sufficient quantities and in right proportions, to develop and maintain a better state of nutrition throughout the world.
→ FAO has also organized world Freedom from Hunger Campaign (FFHC) in 1960.
The main object of this Campaign is to malnutrition and to disseminate information education.
→ The FAO is also collaborating with other agencies in the Applied Nutrition.
→ The WHO/FAO expert committees have the many cooperative activities — nutritional surveys, training courses, seminars and the coordination of research programmes on brucellosis and other zoonoses.

United Nation International Children Emergency Fund (UNICEF)

It is one of the specialized agencies of the United Nations.

It established in 1946 by the United Nations Assembly to deal with rehabilitation of in ravaged countries.

In 1953 when the emergency functions were over, the General Assembly gave it a new name "U.N. Children's Fund" but retained the initials, UNICEF

UNICEF's regional office is in New Delhi; the region is known as the South Central Asian Region which covers Afghanistan, Sri Lanka, India, the Maldives, Mongolia and Nepal.

UNICEF is governed by a thirty six nation Executive Board as in 2010.

The headquarters of the UNICEF is at United Nations, New York.

UNICEF works in close collaboration with WHO, and the other specialized agencies of the United Nations like FAO and UNESCO.
In the early years, UNICEF and WHO worked together on urgent problems such as malaria,
tuberculosis and venereal diseases.
Later, its assistance to countries covered such fields as maternal and child health, nutrition, environmental sanitation (especially the provision of water supplies to rural communities), health centres and health education and programmes which would directly or indirectly, benefit child health.

Objectives of United Nation International Children Emergency Fund (UNICEF)

1. **Child health.**
2. **Child nutrition.**
3. **Family and child welfare.**
4. **Child Education.**

GOBI organized by UNICEF 4 strategies for child health revolution.

G- Growth charts to better monitor child developed.

O- Oral rehydration to treat all mild and moderate dehydration.

B- Breast feeding.

I– Immunization against measles, diphtheria, polio, pertussis, tetanus & tuberculosis.

Note:-

Alma ata conference gave the concept of primary health care.
Primary health care as a principle of WHO was founded at Alma ata (Russia) conference in 1978.
The goal "Health for All" was announced by WHO in Geneva.
South East Asian countries regional office is in -New Delhi.
Health and immunization are primary responsibilities of State.

Headquarters of organizations:

- **UNESCO — Paris**
- **UNICEF — New York**
- **WHO — Geneva**
- **FAO — Rome**

Assisting agencies in India

SIDA — in TB + Leprosy
DANIDA — in Blindness control + Leprosy
CARE — in Midday meal program.
UNICEF — in GOBI campaign for breast-feeding, GOBI.
FFF : focus on female education, family planning, food supplementation.
Ford foundation — in Rural health & family planning.

International Protocol

Protocol	Related to
Kyoto protocol	To fight Global Warming (11 dec 1997, Kyoto Japan).
Geneva protocol	Stopping use of Biological and Chemical warfare.
Ottawa protocol	Related to Health promotion.
Montreal protocol	Protection of Ozone layer.

Senile Care (تدابیر مشائخ)

Ageing is a natural process. Old age should be regarded as a normal, inevitable biological phenomenon. The study of the physical and psychological changes which are incident to old age is called gerontology.
The care of the aged is called clinical gerontology or geriatrics.

Size of the problem

Discoveries in medical science and improved social conditions during past few decades have increased the life span of man. The expectation of life at birth in developed countries is over 70 years. The age structure of the population in the developed countries has so evolved that the numbers of old people is continually on the increase. These trends are appearing in all countries where medical and social services are well developed and the standard of living is high.
In India, although the percentage of aged persons to the total population is low in comparison to the developed countries, nevertheless, the absolute size of aged population is considerable.
For the year 2010 the estimates are 8 per cent of total population were above the age of

60 years, and is likely to rise to 19% by 2050.
This profound shift in the share of older Indians, brings with it a variety of social, economic and healthcare policy challenges.

Lifestyle and healthy ageing

By adopting a healthier lifestyle, the risk of a whole range of diseases can be reduced.

These factors are

1. DIET AND NUTRITION

A good diet reduces the chances of developing the diseases of old age. As countries rapidly develop economically. diets and lifestyles change considerably and overnutrition replaces undernutrition. One of the problem is excessive fat intake. Saturated fats and trans-fatty acids, have been linked to raised cholesterol levels in the blood, leading to increased risk of cardiovascular diseaes.
People should eat healthy diet since very early age to avoid or delay diseases.

- **The diet should be balanced with less saturated fats and oils:**
- **should contain lots of fruits and vegetables:**
- **salt and sugar should be less:**
- **include plenty of calcium rich food:**
- **eat high fibre diet**

Food shoud not be given at a time, it should be given with time gap so it can be digest easily.

Diet should be contains

Protein,

Fat,

Carbohydrates,

Vitamins & Minerals.

2. EXERCISE

Exercise helps maintain good health. as it helps to control weight, improves emotional well-being and relieves stress, improves blood circulation. increases flexibility. Lowers blood pressure, increases energy levels, improves balance and thus reduces the dangers of falls, lowers blood sugar thus helps in diabetes, improves bone density and thus helps prevent osteoporosis.

3. WEIGHT

Overweight and obesity have become major problem worldwide and it contributes to many diseases of later life. Obesity is an important factor in heart disease. stroke, hypertension, diabetes. arthritis (especially in the knees), and breast cancer.

4. MASSAGE

It is benefit for muscles, and help to remove morbit matter.

5. **SMOKING**

It is estimated that 22 per cent of men and 18 per cent of women aged 65 to 74 years in developed countries are smokers.

Though this figure is lower than among younger adults. older people have usually smoked for longer, have been and continue to be heavy smokers, and are likely to have chronic diseases,

with smoking causing further deterioration.
Former smokers live longer than continuing smokers: smoking cessation at the age of 50 years reduces the risk of dying within the next 15 years by 50 per cent.
For some, but not for all former smokers. the risk of developing smoking-related diseases reverts to that of lifelong non-smokers.

6. **ALCOHOL**

Older people achieve a higher blood alcohol concentration, than younger people after consuming an equal amount of alcohol. This is largely as a result of the age-related
decrease in the amount of body water which dilutes alcohol. While younger people are likely to develop this tolerance.
Drinking is linked to liver heart stomach ulcers, gout, depression, osteoporosis, hypertension, heart disease, breast cancer, diabetes & hypertension.

7. **SOCIAL ACTIVITIES**

People who become socially isolated who rarely go out, do not join in the community activities, have few friends or do not see much of their family - are less healthy. Getting out and keeping involved people of similar age, at similar stage of life or perhaps it will help people to realize that they are not alone.
The support gained from others can important in recovering from illness.

Health Problem of the aged

Problems due to ageing process

1. **Senile cataract**
2. **Glucoma**
3. **Nerve Deafness**
4. **Osteoporosis effecting mobility**
5. **Emphysema**
6. **Failure of special senses**
7. **Chances in mental outlook.**

Problem associated with long term illness

1. **DEGENERATIVE DISEASES OF HEART AND BLOOD VESSELS**
2. **CANCER**
3. **ACCIDENTS**
4. **DIABETES**
5. **DISEASES OF LOCOMOTOR SYSTEM**
6. **RESPIRATORY ILLNESSES**
7. **GENITOURINARY SYSTEM**

Psycological problems

1. **MENTAL CHANGES**

Impaired memory, rigidity of outlook and dislike of change are some Of the mental changes in the aged. Reduced income leads in the living standards of the elderly: it does have and consequences.

2. **SEXUAL ADJUSTMENT**

Between 40 and 50. there is cessation Of reproduction by women and diminution of sexual on the part of disturbances may occur. Irritability, jealousy and despondency are very frequent.

3. **EMOTIONAL DISORDERS**

Emotional disorders result from social maladjustment. The degree of adaptation to the fact Of ageing is crucial to a man's happiness in this Phase of life Failure to adapt can result in bitterness, inner withdrawal, depression. weariness of life, and even suicide.

PUBLIC HEALTH

The term "public health" came into general use around 1840. It arose from the need to protect "the public" from the spread of communicable diseases. Public health, in its present foam, is a combination of scientific disciplines (e.g., epidemiology, biostatistics, laboratory sciences, social sciences, demography) and skills and strategies (e.g., epidemiological investigations, planning and management, interventions, surveillance, evaluation) that are directed to the maintenance and improvement of the health of the people With the adoption of the goal of "Health for All".

Although the term "public health has lost its meaning, the term is still widely used, Terms like preventive medicine, social medicine and community medicine are used as synonyms for public health, Public health is not a discipline but has become a "social institution" created and maintained by Society to do something about the death rate and sanitary conditions and many other matters relating to life and death (124). In this sense Public is both a body of knowledge and also a means to apply that knowledge.

SCHOOL HEALTH SERVICE

(School health is an important branch of community health. According to modern concepts, school health service is an economical and powerful means of raising community health, and more important, in future generation)

Health problems of school children

Any discussion of a school health service must be based on the local health problems of the school child, the culture of the community and the available resources in terms of money, material and manpower. While the health problems of school children vary from one place to another, surveys carried out in India indicate that the main emphasis will fall in the following categories

1. **Malnutrition**
2. **Infectious diseases**
3. **Intestinal parasites**
4. **Diseases of skin, eye and ear**
5. **Dental carries.**

OBJECTIVES OF SCHOOL HEALTH SERVICE

The objectives of the programme of a school health service are as follows.

1. **The promotion of positive health**
2. **The prevention of diseases**
3. **Early diagnosis, treatment and follow-up of defects**
4. **Awakening health consciousness in children.**
5. **The provision of healthful environment.**

Aspects of School Health Service

The tasks of a school health service are manifold, and vary according to local priorities. Where resources are plentiful, special school health services may be developed. Some aspects of a school health service are as follows :-

1. **Health appraisal of school children and school personnel.**
2. **Remedial measures and follow-up**
3. **Prevention of communicable diseases**
4. **Healthful school environment**
5. **Nutritional services**
6. **First-aid and emergency care**
7. **Mental health**
8. **Dental health**
9. **Eye health**
10. **Health education**
11. **Education of handicapped children**
12. **Proper maintenance and use of school health records.**

HEALTH CARE AT VILLAGE LEVEL

One of the basic tenets of primary health care is universal coverage and equitable distribution of health resources. That is, health care must penetrate into the farthest reaches of rural areas, and that everyone should have access to it. To implement this policy at the village level, the following schemes are in operation:-

1. **Village Health Guides Scheme**
2. **Training of Local Dais**
3. **ICDS Scheme (International Child Development Services)**
4. **ASHA Scheme**

NOTE:-

1. **AIDS is also termed as White disease, Slim disease.**
2. **TB is called — Barometer of Social Welfare, the Captain of all the men of death, white plague.**
3. **Leprosy — Social disease , Oldest disease of mankind.**
4. **Plague — Black death, the great death and Mahamaari term were used for plague.**
5. **Kala-azar — Black sickness, Visceral Leishmaniasis**
6. **Cholera was termed as Father of public health.**
7. **Typhoid — Index of general sanitation of country.**

Russia - First country to socialise medicine. Concept of social medicine was introduced by Jules Guerin.
Germany — First country to introduce compulsory sickness insurance.
India — First country to start :-

- **Family planning programme**
- **Blindness control programme**
- **Finger print Bureau**

Rome — First country to start bath, sewer and aqueduct for sanitation.
England — First country to start concept of health care and pubic health.
France — First country to start pasteurization.

ALTERNATE SYSTEM OF MEDICINE IN INDIA

Ayurveda, Siddha, Unani, Yoga, Homeopathy and Naturopathy are being practised for years in India.
Ayurveda based on Tridosha theory. Ayurvedic concept appeared and developed between 2500 and 500 BC in India.
Unani system is based on "humoral theory". Originated in Greece.
Siddha means " To achieve". It was practiced in South India (Tamil region).
Homeopathy was introduced by a German Physician. Based on Law of Similars". Minimum dose and single medicine are other principles.

AYUSH: The Department of ISM&H (Indian Systems of Medicine and Homoeopathy) was
re-named as the Department of AYUSH (an acronym for - Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homoeopathy) in November 2003. On 9th November, 2014, first time the Department of AYUSH is formed as a separate Ministry.

HEALTH COMMITTEES

Chadah committee: 1963
Concept of basic health worker
Kartar singh committee: 1973
MPHW (Multi purpose health worker)
Bhore committee: 1946
PHC/ primary health centre concept
Mudliar: 1962
Health survey & Planing committee.
Jungalwala: 1967
Integrated health service
Srivastav: 1975
Medical education & manpower support

PRIMARY HEALTH CARE SYSTEM

1 village health guide caters to a population of: 1000

Population covered by PHC in hilly area is: 20, 000

1 subcentre caters to a population of: 5,000

Recommended population for 1 PHC sub-centre for tribal area: 20,000 & 3,000 respectively

A trained birth dai caters to a population of: 1000

FORENSIC MEDICINE AND

TOXICOLOGY

طب القانون و علم السموم

LEGAL PROCEDURE

- In case of death in custody (Police, jail, psychiatric hospital) the inquest must be conducted by Judicial Magistrate.
- The best type of inquest is Medical examiner system.
- Juvenile court usually presided by first class magistrate.
- Non-compliance of court summon from a criminal court may be under section 174 IPC.
- For attending summon in criminal cases a witness may claim Convey-are charges & daily allowance.
- Dying declaration is best given to a Magistrate.
- In dying deposition Cross-examination is permitted.
- If a person survives after giving dying declaration, declaration is admitted but has corroborative value.
- The most important type of evidence in a court of law is Oral.
- A hostile witness is one who Gives false evidence or conceals part of the truth.
- Perjury is Willful utterance of falsehood under oath.
- Punishment of perjury is given in section 193 IPC.
- Age limit of taking oath in court before giving evidence is 12 years (the oaths act 1969)
- In case of a prosecution witness, examination-in-chief is conducted by Public prosecutor.
- Leading questions are permitted in Cross-examination.
- In case of a defense witness cross examination will be done by public prosecutor.
- If a witness is declared hostile, leading questions are allowed also in: Examination—in-chief.
- There is no Time limit for cross-examination.
- Leading questions are permitted only in cross examination.
- Re-examinations of witness is conducted by Public prosecutor.
- Medicolegal autopsy requires the permission of magistrate & police both.
- In India inquest is not carried out by a doctor
- Juvenile court is presided over by 1st class women magistrate.

Euthanasia

- It is a mercy killing means voluntary putting to death of a patient who is suffering from an incurable, terminal and extremely painful condition.

Exhumation

- Digging out already buried body

Courts and its power

Court	Death	Imprisonment	Fine upto
First class Magistrate	-	1st year	5000 Rs
Second class Magistrate	-	3 years	10000 Rs
Chief judicial Magistrate (Chief metropolitan magistrate in metropolitan cities)	-	7 years	Unlimited
Assistant session court	-	10 years/Life imprisonment	Unlimited
Session court	Any sentence authored by law	Life imprisonment	Unlimited
High court	Any sentence	Life imprisonment	Unlimited
Supreme court	Any sentence	Life imprisonment	Unlimited

- While giving evidence in court the Judge can question in any stage.
- Juvenile any child (whether boy or a girl) below the age of eighteen years
- A juvenile may spend a maximum of three years in institutional care (special home)but cannot be sent to an adult jail.
- However, any 16-18 old who commits a "Heinous Offence" may be tried as an adults.
- Heinous offences" includes offences for which minimum punishment is seven years or more.
- Juvenile Justice Boards will discharge its functions relating to juvenile Board consists of:-
  i. Metropolitan Magistrate or a Judicial Magistrate of First Class
  ii. Two social workers, of whom at least one shall be a woman.

Inquest (Judicial Enquiry)

It is a legal / Judicial enquiry to ascertain cause of death.

1. **Police Inquest done in case of**
   - Death by suicide
   - Death by killing another person or any animal
   - Death by accident
2. **Magistrate inquest (It is of 2 types)**
   1. Judicial magistrate
   2. Executive magistrate
      - It can be done in following condition
        - Death of a convict in prison
        - Death of a person in police custody or during interrogation
        - Death in case of police firing
        - Dowry death of women within 7 years of marriage
        - Exhumation death
        - Death in a psychiatric hospital
3. **Coroner inquest**

- It is done in Mumbai
- It is done by 1st class judicial magistrate

4. **Medical examiner system**

- Done by medically qualified person, it means he will conduct the post mortem as well as inquest, best system followed in USA.

Identification

DETERMINATION OF SEX

Indices used for Determination of SEX

1. **Medullary index (From long bones)**
2. **Ischiopubic index (Washburn index): From Hip bones**
3. **Sciatic notch index: From Hip bones**
4. **Sacral indices**

- **Alar index**
- **Corpo- basal sacral index**

5. **Cheiotic line: sacrum/pelvis**

- **Breadth of base of sacrum**

1. **Male 42**
2. **Female < 42**

Sex from chromatin can be determined by Barr body,

Barr body is better appreciated in cell of Buccal mucosa.
Davidson's body — sex chromatin in neutrophil: Drumstick appearance

Best bone for determination of sex is pelvis.
Best criteria in pelvis, for determination of sex is sciatic notch index.
Chilotic line is useful for determination of sex. In males, sacral part of it is more prominent while in females pelvic part more prominent.
Karl Pearson's formula is used to calculate stature of individual from long bones.

- **In general female pelvis is characterized by**

1. **Obtuse subpubic angle.**
2. **Larger, wider and shallower greater sciatic notch.**
3. **Presence of preauricular sulcus.**
4. **Small and triangular obturator foramen.**
5. **Ischial tuberosity is everted.**

Difference between male and female

Pelvis	Male	Female
Pre auricular sulcus	Less frequent, narrower and shallow.	More frequent, deep and broder.
Obturator foramen	Large, Oval.	Small, Triangular
Greater sciatic notch	Smaller, deeper and narrower.	Larger, shallower, wider.
Pelvic brim	Heart shaped.	Circular/elliptical
Ischiopubic index	Less	More

Krogman's table: Accuracy of sex determination is 100% by entire skeleton, 98% by pelvis + skull, 95% by pelvis alone 80% by long bones.

Indices of determination of race

- **Cephalic index**
- **Brachial index**

Age Determination can be done by

- **Dentition.**
- **Skeletal age determined by bone age/X-Ray.**

Important Points

- **The age of a 15 year old female is best determined by radiographs of upper end of radius and ulna (elbow).**
- **Forage determination of a 21 years old female, X-ray films should be taken of — clavicle and iliac crest.**
- **Skeletal age is more advanced in girls compared to boys (by 1 year in early childhood & 2 years in mid childhood).**
- **Bone age determination in children is best done by — X-Ray of wrist + hand.**
- **Most reliable suture for age determination — Saggital suture.**
- **Fusion of skull sutures earlier in male than female.**

Metopic sutures closure at age of 2-3 years.
Temporoparietal sutures fuses at last.
Anterior fontanel usually close at 18-24 months.
Posterior fontanel usually close at 6-8 months.

- **Rule of Hasse use to determine age of fetus.**

Trichology is the study of Hair.
Dactylography is the study of fingerprint.
In finger print
Most common Loops> Whorls >Arches & Composite.
Cheiloscopy is the study of Lip print.

AUTOPSY

Autopsy Techniques

Virchow's method: organs are removed separately one by one and then studied individually. Most widely used.
Cranial cavity is exposed first.
Letulle's method: All organs from tongue till prostate [oral, cervical, thoracic, abdominal, pelvic] are removed en masse and in a single block.
Rokitanskv's method: in situ dissection + en bloc removal.

AUTOPSY TYPES

1. **An autopsv is postmortem examination in reference to human deaths.**
2. **Necrophy is internal examination after any animal death.**
3. **Psvchological autopsy is Gathering information about death of patient from relatives.**
4. **Clinical/Pathological autopsy - consent of relative needed**
5. **Medicolegal autopsy - consent of relatives is not needed**
6. **Negative autopsy is one which fail to reveal the cause of death after all type of autopsies/investigations.**
7. **Obscure autopsy is an autopsy which has no clear-cut findings as to give a definitive cause.**
8. **Verbal autopsy: is a research method that helps to determine probable cause of death where there is no medical record or formal attention given.**
9. **Virtual autopsy/Virtopsy - A touch free imaging methods that are routinely used in clinical medicine e.g. combination of CT and MRI**

Organ preserved in chemical in various poisioning conditions.

THANALOGY

Thanatology is study of death in all its aspects.
Sequence of death events:- Somatic death Supravital Period [1-2 hour] Cellular/Molecular Death
"Somatic death" term was coined by Bishop in 17th century. It is complete and irreversible stoppage of heart, lung, and brain function (Bichat's tripod of life).

Clinical criteria of brain death is :-

- **Coma**
- **Absent brainstem reflexes**
- **Apnea**

There is a gap of 2 hrs between somatic and molecular death, which is known as supravital period. This period is useful to take organs for transplantation.

"Molecular death" refers to death of all individual cells.
Signs of molecular death are:

- **Cooling of body**
- **Changes in the eye**
- **Changes in the skin**
- **Changes in the muscles**

Eye do not dilate on instillation of atropine and sperms are non-motile.

Harvard criteria were laid down in 1968 for Brain death based on neurological criteria. "Irreversible coma" was a new criterion for death. ECG is mandatory.
Minnesota criteria is for "brain stem death". It was given in 1971. ECG is not mandatory. check ECG after 4 minutes. Repeat test after 12 hrs.
According to Transplantation of Human Organs Act, Certification of Brain death is done by a board consisting of:

- **RMP in charge of hospital where brain death occurred**
- **An independent nominated RMP**
- **A neurologist or neurosurgeon**
- **RMP (including duty doctor) treating the patient**

Suspended Animation

Is a condition in which vital functions of the body are at minimum (apparent death). There is no somatic/ molecular death.

Seen in newborns, electrocution, apparent drowning, heat stroke, opiate overdose, anesthetized person, deep shock/ coma, yogis, cerebral concussion etc.

POSTMORTEM CHANGES

	Changes	Onset time from death
Immediate postmortem changes	Cessation of circulation Cessation of respiration Insensibility & loss of voluntary power.	Immediate at death
Early changes	Changes in the skin Pallor of skin (first early sign) Changes in the eye (Tache Noire, Kevorkian sign) Cooling of body (Algor mortis)	With in 2-24 hrs
	Livor mortis	20-30 min
	Rigor mortis	1-2 hrs
Late changes	Putrefaction	24-48 hrs
	Saponification	3-6 months
	Mummification	3 months – 3 years

- Algor mortis is cooling of body
- Rigor mortis is Stiffness of muscles
- Livor mortis (Postmortem lividity)is discoloration of body (Postmortem staining)

Types of Asphyxial Death

1. **HANGING**

- In hanging, asphyxia is caused by suspension of the body by a ligature, the constricting force being by the weight.
- Most important and specific sign of death from hanging is Ligature mark and should below thyroid cartilage.
- In typical hanging knot is place at nape of the neck and point) of suspension is occiput and it should above thyroid cartilage.
- In judicial handing knot is place at side of neck and fracture (Hangman fracture) occurs at level of C2-C3.
- Sure sing for antemortem hanging is saliva dribbling at angle of mouth
- Lynching in homicidal hanging
- Death in judicial hanging is due to damage to spinal cord and medulla after fracture dislocation of 2nd cervical vertebrae.

- **Constriction force required to block various neck structures:**

a. **Jugular vein: 2 kg**
b. **Carotid artery: 3-5 kg**
c. **Trachea: 15 kg**
d. **Vertebral artery: 20 kg**

2. STRANGULATION

- **Strangulation is a form of asphyxia which is caused constriction of the neck by a ligature without suspending the body.**
- **Common methods of homicidal strangulation**
- **Garroting (Victim is attacked from behind by an iron collar around neck)**
- **Ligature strangulation; horizontal ligature mark is seen.**
- **Throttling or manual strangulation: death is duc to reflex cardiac arrest. Characterized by inward compression fracture of hyoid bone & cricoid cartilage.**
- **Bansdola (using strong bamboo or stick) around neck**
- **Mugging: Strangulation by holding the neck of the victim in bend of elbow**
- **Smothering is covering of nose and mouth by hands mechanical obstruction of external air passage.**
- **Chances of hyoid bone fracture are maximum in throttling (manual strangulation) > strangulation > hanging.**
- **Anteroposterior compression fracture (or abduction fracture) is seen in case of hanging.**
- **Avulsion fracture or tug/traction fracture of hyoid seen due to muscular overactivity.**
- **Face is pale in hanging**
- **Face is congested in strangulation.**
- **Method which leads to death by suffocation are — Gagging, choking, smothering, etc.**
- **Tardive spots are echymoses under pleura due to death by suffocation.**

3. Drowning

➢ **In antimortal drowning**

- **White, fine, leathery froth which is copious and persistent, is seen at mouth and nostrils, and it is most characteristic and diagnostic external sign of drowning.**

4. Hydrocution

- **Also known as submersion inhibition or immersion syndrome.**

Death results from cardiac arrest due to vagal inhibition as a result of cold water striking epigastrium, stimulating the nerve endings of the surface of the body,
Cold water entering ear drums, nasal passage, and pharynx/ larynx

Secondary drowning

- **Also known as Post immersion syndrome/ near drowning**
- **Refers to complication developed after resuscitation of a drowned person**

- **Frothing is also seen in death due to cocaine, organo- phosphorus, opioids and barbiturate poisoning.**
- **Scalds are a form of burn injury due to immersion in boiling water (>600C) or from steam.**
- **Café coronary: Stimulation of vagus nerve ending may leads to sudden cardiac arrest.**

STARVATION

• If food and water both withdrawn 10-12 days survival
• If only food is withdrawn Survival up to 60 days
• If body fat loss >40% Results in death.

Postmortem Findings:

- **Distended gall bladder**
- **Loss of perinephric, omental and periorbital fat.**
- **Brain is the only organ which do not show any changes in starvation**
- **Muscle are darker due to presence of lipochrome.**

MECHANICAL INJURIES

ABRASIONS

Abrasion is an injury involving destruction of epidermal layers of the skin and dermal papillae.

Grace abrasions (Grazes)

Most common type of abrasion.

Also known as sliding/scraping/ grinding abrasion.

Due to dragging of body by horizontal force (friction).

Gravel rash

Due to force contact body & blunt object

Types of Abrasion

Type	Cause	Example
Pressure/crushing abrasion	Vertical force	Ligature mark, teeth bite mark
Imprint/Impact/Contact abrasion	High vertical force for seconds	Patterned/pressure abrasion
Graze/Brush burn	Forceful contact between body and horizontal forces	Fall while running(carpet burn)

- **Antemortem abrasions are usually red-brown.**

- **Postmortem abrasions are yellow or transparent (due to absence of blood now, no scab, no inflammation, no microscopic changes).**
- **Road rash is an abrasion caused by the road surface; commonly seen in pedestrian-motor vehicle accidents (RTA) or bicycle accidents.**

Age of Abrasion

Age	Colour
Fresh	Bright red, No scab
12-24 hrs	Scab, dark red
1—2 days	Scab turns reddish brown
2—3 days	Scab turns dark brown
4—7 days	Heals from periphery
7—10 days	Healing complete, scab falls off

BRUISE (CONTUSION)

A bruise is an extravasation of blood into the tissues, due to rupture of blood vessels, caused by blunt trauma.

- **Bruises at different sites of body**
- **Bruising is easily produced or slight degree of violence can produce a larger bruise if tissue is vascular, soft and loose**
  e.g. Over face, breast, vulva, scrotum etc.
- **No contusion is seen over palms and soles.**
- **Love bites (hickeys): patterned bruises over tace, lips, neck, breast etc.**
- **Six penny bruises: Are due to fingertip pressure found in Neck in manual strangulation.**

In antemortem contusion:- Swelling, Damage to epithelium, Extravasation, Coagulation & Infiltration of tissue.

In postmortem contusion:- Bruises does not occur more than 2 min due to stoppage of circulation.

Age of bruise

Time	Colour
Fresh	Red
Few hrs - 3 days	Blue
4 days	Blue-black /Brown
5-6 days	Greenish
7-12 days	Yellow
2 weeks	Normal

Bruise over mastoid process (Battle sign) due to fracture of middle cranial fossa.

Black eye or panda eye is bilateral periocular bruising due to fracture of anterior cranial fossa (Racoon sign)

Lathi wound is an example of patterned bruise

Artificial bruises can produce by

Juice of marking nut (Bhilawan)

Calotropis (Madar)

Incised Wounds

It is clean cut through tissues caused by sharp edged weapon which is longer than its depth.

Margins are well defined and everted.

Blood vessels are clearly cut across, so bleeding is profuse, blood escapes freely.

Heals by primary intention.

Incised wound tend to gap due to retraction of skin especially if wound lies across the axis of limb.

LACERATIONS/LACERATED WOUNDS

Features of lacerated wound

Irregular margin

Split/tearing of skin, mucosa and underlying tissue

Tissue bridging is present

Split Lacerations

Caused *by blunt force over* bony prominences. e.g. scalp, eyebrow, cheek bones, (all except chest bone) it can be differentiated from incised wound by presence of tissue bridges in it.

Lacerated looking incised wounds where skin is loose e.g. scrotum, axilla etc.

Flaying is seen in avulsion type of laceration.

Sparrow fool marker seen on the face is bizarre shaped lacerations due to contact with shattered windshield glass.

Seen in front seat passengers in road traffic accidents.

Langer's lines are developmental cleavage lines corresponding to alignment of collagen fibres in dermis. Stab wounds/Incisions parallel to these lines appear slit like and produces a better scar whereas those which are perpendicular appear as deep gapes.

Kraiss!'s lines are anatomical skin lines corresponding to maximum line of tension. Coincide with wrinkles.

Stab Wounds:-

Caused by pointed weapon.

Depth of wound is greater than length and width

Shape of stab wound depends upon edge of weapon

In single edged knife → Wedge shaped/tear drop wound

In double edged knife/ Both edges sharp → Spindle shaped

In one edge sharp & another edge square → Fish tail appearance of margin is seen in exit wound

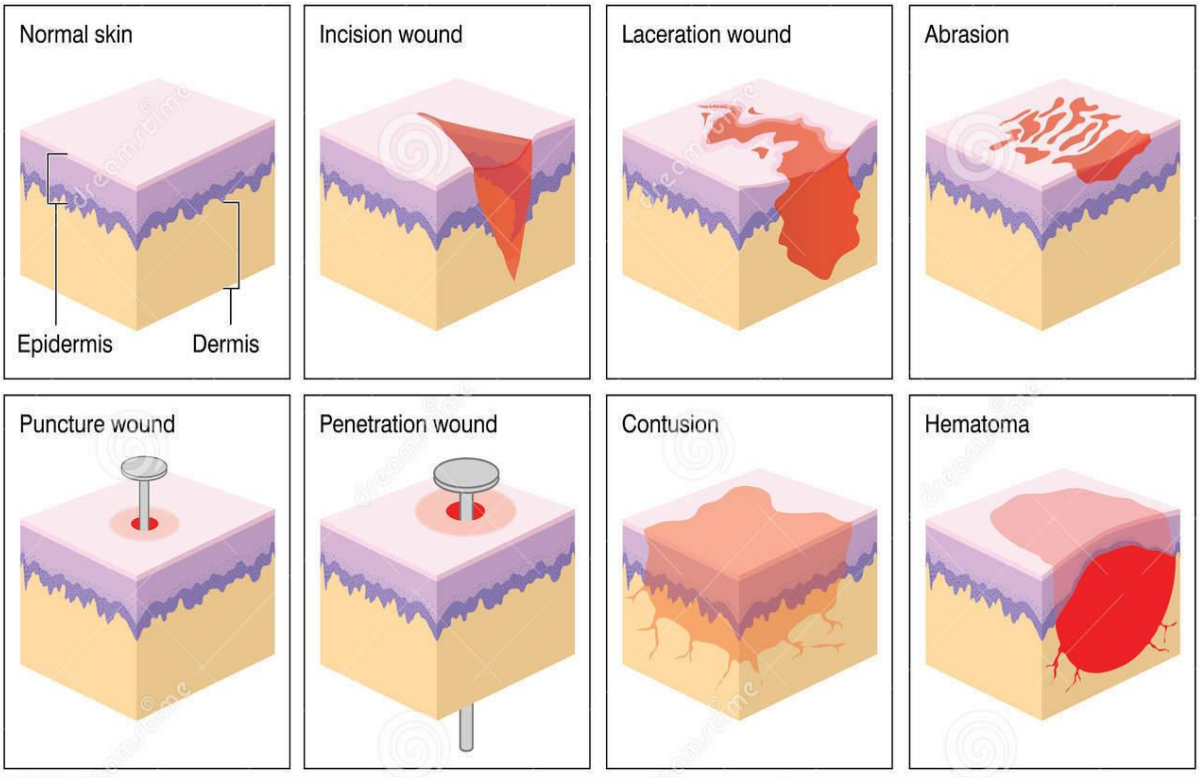
Antemortem v/s Postmortem Wounds:-

In antemortem wounds

- **It is adherent.**
- **Gaping of edges of wound.**
- **Edges are sharply defined.**
- **Vital reaction positive (wound histamine & serotonin increased).**
- **Increase enzymatic activity.**

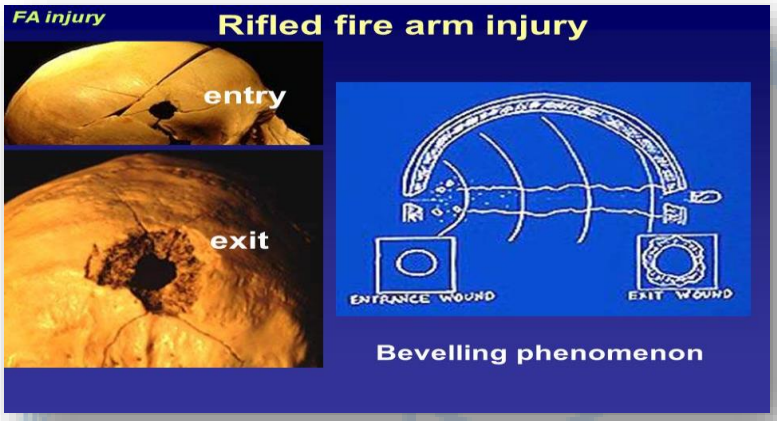
In postmortem wounds

- **Soft friable yellow chicken fat clot appearance.**
- **Staining can be washed away.**



Bullet Wounds in Skull

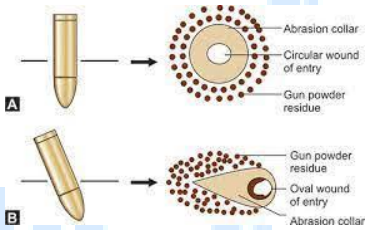
	Outer Table	Inner Table
Entry wound	Punched in/ Clean cut hole	Larger hole then outer table
Exit wound	Bevelled opening	Punched out



Puppe's rule: Used to determine sequence of shots when several bullets have struck the cranium.

Abrasion collar (Collar burn) is seen in entry wound from rifled bullet and it surrounds the gun powder residue.

Wound is funnel shaped; funnel opening up in the direction in which the bullet is travelling.



Difference between wounds of entrance and exit of a bullet wound.

	Entrance wound	Exit wound
Size	Smaller than the diameter of the bullet. In close discharge, skin is torn	Bigger than the bullet
Edges	Inverted	Everted, puckered or torn
Bruising, abrasion and grease collar	Present	Absent
Burning, blackening, tattooing	May be seen around the wound	Absent
Bleeding	Less	More

Tissues within and around the wound	May be cherry-red due to CO of explosive gases	No colour change
Approximation of edges	Retains a small central defect	Re-establishes skin's integrity
Fibres of clothing	Turned in and may be carried into the wound	Turned out
Fat	No protrusion except in contact shot	May protrude
Spectrography	More metal is found around entrance wound,if bullet has only passed through soft tissues	The exit wound may contain more metal if a bone is struck nearer to it

Range of shot and effects

Ranges	Effects
Contact	Gases smoke, unburnt powder in the wound
Near *Contact*	*Burning, singeing (flame effect)*
Intermediate	Tattooing present, Blackening (depends upon the distance)
Distant	Burning, tattooing and blackning all absent. Clubbed hair may be present.

Military weapons produce → Cloverleaf pattern of singeing.

Shape of entry wound in various shots

Distance of shot	Shape
Contact shot	Stellate or cruciate wound (Irregularly lacerated wound)
Close shot (<30 cm)	Oval wound
Near shot (30 cm - 1 m) (Intermediate range)	Rat hole shaped wound
Distant range shot (>2m)	Stellate wound
Distant range shot (>3m)	Stellate wound with Individual pellet holes
Distant range shot (>4m)	Individual pellet holes

Important points regards Gun powder:-

Most effective type of gun powder is smokeless powder.

Tests used to detect gun powder

Paraffin dermal nitrate test

Harrison and Gilroy test

BLAST INJURIES

Types of blast injuries:

Primary (1°): Caused by blast over pressure waves/ shock waves. E.g. Damage to hollow viscera.

Secondary (2°): because of projectile

Tertiary (3°): Caused by blast wind, e.g. fracture due to victim thrown in the air.
Quaternary (4°): All other injuries not included above. e.g. flask burns, crush injuries

Molotov cocktail is a crude bomb - a bottle filled with gasoline and a rag to serve as a wick.

1. **In Air blast injuries**

Most common injured organs are hollow organ, Order of organs which effects in air blast are

Tympanic membrane > Lungs> Skin.

2. **In Water blast injuries most commom organ involved is Intestine.**
3. **In solid blast injuries most common organ involved is skeletal muscles.**

Burns

More then 50% of burn deaths occur in first 48 hrs usually from secondary shock due to excess fluid loss from burnt surface.
Cause of death in first 24 hrs is Neurogenic shock.
Cause of death in 24-48 hrs is Hypovolemic shock.

Cause of death in after 48hrs is Septic shock.
Calculation of burn area:
Wallace's rule of' nine for > 15 years
Lund and Browder chart for 0-15 years
Palmer method - for patchy burns. Size of palm burn -1% BSA.
Blood is preserved in fluoride (NaF) for analysis of cyanide in burn cases.

Features	Antemortem burn	Postmortem burn
Presence of carbon particles in terminal bronchioles & trachea (Soot in respiratory tract).	Present	Absent
Blister containing serous fluid with albumin & chloride in high concentration.	Present	Absent
Elevated carboxyhemoglobin in blood	Present	Absent
Red line	Present	Absent

Curling's ulcers are sometimes produced in gastric antrum & duodenum after 72 hrs of extensive burns in the body.
Cushing's ulcers are deeper and penetrating ulcers most commen in duodenum in case of head injury, traumatic brain injury.
Blisters in body are seen in: Burns, CO poisoning, Exposure to gasoline.
Blisters are NOT seen in: Brush burn, corrosive burn.

Scalds:-

It is an injury which results from liquid above 60* or from steam.

Age of Burns

Age	Findings
Immediately	Redness appear
1hr	Vesication
12-24 hrs	Exudation begins to dry
36-72 hrs	Red inflamed zone disappear, pus formed
48-72 hrs	Exudates form dry, brown crust under slough
4-6 days	Superficial, slough off
2-4 weeks	Deep, slough falls off

Electrocution

It is an injury due to electric current.
Joule burn (electric mark) is seen in electrical injuries (electrocution) found at the entry
point of current.
Crocodile flash burns are produced due to an arc dancing over body surface.
Cause of death in electrocution is ventricular fibrillation cardiac arrest without

fibrillation.
Zenker's degeneration of muscles, zig-zag microfractures are seen.
Bone pearls or drippings is round dense melted calcium phosphate seen radiologically.

IMPOTENCY AND STERILITY:-

IMPOTENCY:- Inability to perform sexual intercourse. e.g:- injury at L4, L5.
In these cases AIH (artificial insemination of homologous/husband) is done.
Quoad:- is a male who is impotent with only one female.

Frigidity:- is lack of sexual arousal pattern in female.
Note:- Impotency cannot be placed as a defence for rape.

Sterility:- Inability to beget children. e.g. in vasectomized patient azoospermia is seen. In these cases AID (artificial insemination of donor) is done.
For artificial insemination consent of both partner is mandatory while in MT P consent of husband is not mandatory.

VIRGINITY

A virgin (Virgo intacta) is a female who has not experienced sexual intercourse. Defloration means loss of virginity. The question of virginity arises in case of (1) nullity of marriage, (2) divorce,(3) defamation, and (4) rape.

Difference between virginity and defloration

	Virginity	Defloration
Hymen	It is intact, rigid and inelastic; the edges are distinct, smooth and regular with a narrow opening hardly allowing a small finger to pass.	It may be torn or intact; in the latter case it is loose, elastic, with a wide opening allowing passage of two or more fingers.
Labia majora	They are adjacent to each other, fully developed and completely close the vaginal orifice.	They are not apposed to each other, not prominent and at the lower end vaginal orifice may be seen.

Labia minora	They are in contact and are covered by labia majora.	They are not in contact and are exposed and separated from labia majora.
Fourchette	Intact	Torn or intact
Fossa navicularis	Intact	Disappear
Vestibule	Narrow	Wide
Vagina	It is narrow, the rugae more folded, and the vault more conical.	After repeated intercourse it usually grows in length, and the rugae are less obvious.

The principal signs of virginity: (1) An intact hymen. (2) A normal condition of the fourchette and posterior commissure. (3) A narrow vagina with rugose walls. These signs taken together, may be regarded as evidence of virginity but taken singly they cannot be so regarded. In women who are used to coitus, and in those who have borne children, the hymen is destroyed and small, round, fleshy

Medicolegal Aspects : The presence of unruptured hymen is a presumption, but is not an absolute proof of virginity. The diagnosis of virginity is difficult and in many cases a physical examination of the genital organs may not be helpful. With an intact hymen, there are true virgins and false virgins. The hymen is present always in a virgin in some form or other, but very rarely may be absent congenitally. The hymen is usually ruptured at the time of the first coitus, and at first only presents a torn appearance. Hymen may not be ruptured even after repeated acts of coitus if it is loose, lax, folded and elastic, or thick, tough and fleshy, which permit displacement, distortion and stretching without rupture. Cases have been recorded of women having sexual relations, of pregnant women and even prostitutes in whom the hymen was intact.

Sexual offences

Sexual harassment :- intimidation of a sexual nature, or inappropriate promise of rewards in exchange for sexual favors.

Frotteurism Contact rubbing with another person in crowd.

Fellatio is oral stimulation of penis by a sexual partner (male/female).
Cunnilingus is oral stimulation of female genitalia.

Voyeurism is Sexual gratification is obtained by looking/peeping/seeing sexual organs, sex act of opposite sex (peeping tom). Occur in cases of sociopathic personality disorder.

Exhibitionism Willful exposure of genitalia in public places. Most of them suffer from compulsion neurosis or psychopath.

It has 3 types

1. **Just displaying transiently (Flashing)**
2. **Showing buttocks and ran away (Mooning)**
3. **Full nudity in public as usually seen in cricket, football (Streaking)**

Transvestism or Eonism

Desire to be indentified with opposite sex. Person wears clothes of opposite sex.

Necrophilia

Sexual intercourse with dead body.

RAPE

It includes sexual intercourse by man with a women against her will, or wife <15 years.

Sexual intercourse with girl <18 years is known as Statutory rape.

Rape of a woman influence of sedative/hipnotic given with drink in date parties is known as Date rape.

Incest

A Man commits intercourse with his relatives-sister, daughter etc.

Adultery

Intercourse by a man or woman with another person Other than spouse.

Sodomy (Buggery): Anal intercourse.

1. **Gerontophilia:- When passive agent in sodomy is an adult or elderly**
2. **Paedestry: When russive agent in sodomy is a child. Child is known as Catamite.**

Buccal coitus:

Penis introduced into mouth. Semen in resp. tract or stomach is diagnostic.
Buccal swabs are useful up to 9 hrs.

Tribadism/ Lesbinism / Sapphism

Female homosexuality
Active partner is known as Dyke while passive is known as femine

Bestiality:

Intercourse by human bein with lower animal

Paedophile:

Adult who repeatedly engaged in sexual activity with childrens.

Natural Sexual offence include:

1. **Rape**
2. **Incest**
3. **Adultery**

Unnatural Sexual offence include:

1. **Sodomy**
2. **Buccal coitus**
3. **Trisbadism**
4. **Bestality**
5. **Paedophile**

EXAMINATION IN CASE OF SEXUAL OFFENCE

Examination of a Habitual Sodomy Case:

Changes observed in (victim) are:
Smooth appearance of anal skin
Conclusive evidence of sodomy is sperms in the anus

Changes observed in active agent are:
Elongation and constriction of the penile Shaft.
Twisting of urethra

Examination of a Rape case:

True virgin and false virgin.

	True virgin	False Virgin
Hymen	Intact	
Fourchette	Present	Disappear
Sexual intercourse	Not experienced	Experienced

Confirmation of rape by Doctor is not possible. He can provide only evidence of intercourse. Raped or not rare will be decided by court only.

Biochemical tests:-

Lugol's iodine is used to detect vaginal epithelial cells on glans penis of accused.
10% Toluidine blue dye test is used to detect recent microinjuries in genital area.

Hymen rupture:-

May occurs during first act of coitus, trauma & foreing body insertion, it rupture posteriorly at 5,6,7 O' clock position.
Note:- 6 O' clock position is most common.

Congenital rupture occurs at anterior position.
Rupture due to mansturbation at 11, 12, 1 O' clock position.
Hymen do not ruptured by Riding, Jumping, Dancing.
Hymen is examined by: Glister- Keene rods, Gaba rods.

PREGNANCY

Pregnency is the condition of having a development embryo or foetus in female when an ovum is fertilized by a spermatozoon. It is most likely to occur between the ages of 14 and 45 years. but has been reported much earlier and later.

Medicolegal Importance

1. **When a woman pleads pregnancy to avoid attendance in Court as a wittness.**
2. **When a woman sentenced to death. pleads that she is pregnant. to avoid execution. The Court has the power to the execution of death sentence until 6 months after delivery or to commute it**
3. **When a woman feigns pregnancy soon after death of her husband to claim succession to property.**
4. **When a woman alleges that she is pregnant in order to get greater compensation her husband dies through the negligence of some person.**

5. **In cases of divorce. the woman may claim to be pregnant to receive more alimony.**
6. **To assess damages in a seduction or breach of promise of case.**
7. **When a woman blackmails a man and accuses that she is pregnant by him, to compel marriage.**
8. **In allegations that an unmarried woman, widow or a wife living apart from her husband is pregnant.**
9. **When pregnancy is alleged to be motive for suicide or murder of unmarried woman or widow.**
10. **In cases of alleged concealment of birth or pregnancy and infanticide.**

Positive signs of pregnancy

Fetal parts & movements felt on per abdomen palpation.
FHR (fetal heart sounds)
Radiological findings including ultrasonography

Pseudopregnancy

Also known as pseudocyesis (Spurious/Phantom) Pregnancy
Woman believes she is pregnant though she does not show subjective signs of enlarged breasts and abdomen.
Occurs in young women extremely desirous of pregnancy and those nearing or just achieving menopause.

Signs of remote delivery in the dead

Uterus is larger, thicker and heavier.
Uterine walls forming concave, wide and round cavity.
The ratio of length of body of uterus: cervix is more then 2.
The cervix is irregular in form and shortened.
Braxton Hick's contraction may be present even if the fetus is dead.

ABORTION (Termination of pregnancy)

Definition:- Legal definition expulsion of products of conception before full term.
Medical definition — Expulsion of products of conception before viability.
Claasification

1. **Natural (Spontaneous, Accidental)**
2. **Artificial (Therapeutics, Criminal)**
3. **Indications:**

Therapeutic:
If continuation of pregnancy endangers life of mother

1. **Social: Pregnancy due to failure of contraception**
2. **Humanitarian grounds: Pregnancy due to Rape**
3. **Eugenic:**

- **Diseases in 1st three months: Chickenpox, Smallpox,**
- **Viral infections severe toxoplasmosis, German measles**

- **Exposure to teratogey;ic drugs or X-rays or radioisotopes**
- **Insanity of parents**

INFANTICIDE

Unlawful distruction of child under age of one year.

Infanticide **does not include the death of foetus during labour, when it is destroyed by craniotomy or decapitation.**

Foeticide **is the killing of the foetus at any time prior to birth.**

Filicide **is the killing of a child by its parents.**

Neonaticide **is the deliberate killing of a child within 4 weeks of its birth.**

Still Birth: **A stillborn child is one, which is born after twentyeighth week of pregnancy, and which did not breathe or show any other signs of life, at any time after being completely born. The child was alive in utero, but dies during the process of birth.**

DEADBIRTH/INTRAUTERINE DEATH:- **A deadborn child is one which has died in utero.**

Signs of Dead birth/ Intrauterine Death

1. *Robert's sign:* **is gas bubbles in great vessels (aorta) of heart in Intra Uterine Death. Seen after 24 hrs of death (Earliest radiological sign).**
2. *Spalding sign:* **is overlapping of skull bones in case of fetal death. (seen after 5—7 days).**
3. *Ball sign:* **Rolled up fetus due to hyperflexibility of spine.**
4. *Deuel's halo sign:* **Increased pericranial fat.**
5. *Wredin's Test:* **It denotes changes in the sign of live birth. It is not at all a reliable tests.**
6. *Fodere's (static) test:* **Wt. of lungs is 30 g (before respiration), while it is 60 g in live as a born.**
7. *Ploquet's test:* **Weight of lungs to body is measured before respiration 1:70, while it is 1:35 in respired lung.**
8. *Hydrostatic test (Raygat's / First life test)* **is a old test based on specific gravity of lungs, which is in stillborn is 1.04-1.05 and decreases upto 0.94 in live born (lung floats in water). Test is of no value if the liver floats.**

9. *Breslau's 2nd life test (Stomach bowel test)* **based on the fact that air is swallowed into the stomach during respiration. If the stomach and intestine floats in water, it indicates livebirth.**

TOXICOLOGY

Corrosive Poison

SULPHURIC ACID

Also known as **Battery acid/oil of vitriol**

Strongest corrosive poison
Used for vitriolage (throwing of strong H_2SO_4 over body/face (grievous hurt) of someone which cause disfigurement.

Signs and Symptoms:

- **Skin and mucous membrane shows blackening and excoriation**
- **Teeth — chalky white and brittle**
- **In the tongue, necrotic areas are greyish white (lips, tongue, mouth) but soon become brown/black.**
- **Severe constipation**
- **Perforation of stomach (Highest risk among acids)**

Fatal Dose: 5 to 10 ml.
Fatal Period: 12 to 24 hours.

Postmortem Appearances:

Gastric mucosa gives:-

a) **Blotting paper appearance**
b) **Scalded appearance**
c) **Brownish discoloration**

Treatment:

Wash the effected area with plenty of water and soap, potassium carbonate.

Paste of magnesium oxide or carbonate is applied.

Eyes are washed with water and weak solution of non-carbonated alkalies and instilled few drops of olive oil or castor oil into eyes.

Carbolic acid (phenol)

Also known as Phenol

Converts in body to hydroquinone and pyrocatechol and are excreted in urine leading to smoky green urine carboluria
Dettol = Chlorinated phenol

TEST:

In case of phenol poisoning viscera are stored in saturated salt solution FeC13 used for diagnosis.

Signs and Symptoms:

Pupils contracted/Miosis Cartilage/ corneal pigmentation seen.
Green colour urine Also know as carbaluria
PCT necrosis
Ochronosis=Pigmentation of cornea and cartilage
Methemoglobinemia—severe cases
GIT: Burning pain, salivation, vomiting, mucosal ulceration, corrosion.

Blood: Heamolysis

Skin: Blister

Respiratory system: Accute respiratory distress syndrome.

CVS: Tachycardia, Bradycardia, Hypertension, hypotension.

Fatal Dose: 10 to 15 gm.
Fatal Period: 3 to 4 hours

Postmortem Appearances:

Delays putrefaction
Stomach mucosa got brownish leathery appearance

Treatment:

For methemoglobinemia — Methylene blue
Folic acid 1mg/kg

Dialysis & exchange transfusion

NITRIC ACID (HNO_3)

Also known as Aqua fortis, Red spirit of nitre.
It is a clear, colourless, fuming, heavy liquid, and has a peculiar and choking odour.
Signs and Symptoms:
It causes yellow discolouration of the tissues, including the crowns of the teeth and
yellow stains on the clothing. Inhalation of fumes causes lachrymation, photophobia,
irritation of air-passages and lungs producing sneezing, coughing, dyspnoea and asphyxia.
Colour of urine is brown.
Fatal Dose: 10 to 15 ml.
Fatal Period: 12 to 24 hours.
Postmortem Appearances:
In oesophagus and stomach, corrosion of mucous membrane may not be accompanied
by yellow discolouration, which may appear brown or black stomach wall becomes
friable and ulcerated.
In death from inhalation of fumes, the larynx, trachea, and bronchial tubes are congested and lungs are oedematous.

Treatment:

Wash the effected area with plenty of water and soap,
Paste of magnesium oxide or carbonate is applied.

Hydrochloric acid (HCL)

Also known as Muriatic acid.

It is a natural constituent of the fluid of the stomach and bowels.
Signs and Symptoms:
It destroys mucous membrane,
The mucous membrane is at first grey or grey-white, and later becomes brown or black.
Inhalation of fumes causes intense irritation of throat and lungs with symptoms of
suffocation. coughing, dyspnoea and cyanosis.
Contact expose cause Conjunctivitis, corneal ulcer, pharyngitis. bronchitis, inflammation
of gums and loosening of teeth.
TEST: A solution of silver nitrate produces a heavy,curdy, white precipitate of

silver
chloride.
Fatal Dose: 15 to 20 ml.
Fatal Period: 18 to 36 hours.

Postmortem Appearances:

The stomach contains brownish fluid.
The folds of the whole stomach mucosa are brownish. Perforation of the stomach is
rare. Acute inflammation and oedema of respiratory passages and lung tissue are common.

Treatment:

Wash the effected area with plenty of water and soap,
Paste of magnesium oxide or carbonate is applied.

OXALIC ACID

Oxalic acid (acid of sugar, salt of sorrel, $C_2H_2O_4$) occurs in the form of colourless, transparent, prismatic crystals, and resembles in appearance the crystals of magnesium sulphate and zinc sulphate. In the form of oxalate, it exists as a natural constituent of many plants, e.g. spinach, rhubarb, cabbage, etc. About 20 mg. is excreted in urine daily.

Action:- Local: Crystals of the acid and concentrated solution of more than 10% of oxalates are corrosive poisons. They rarely damage the skin, but readily corrode the mucous membrane of the digestive tract.
Systemic: (a) Shock: Large doses cause rapid death from shock.
(b) Hypocalcaemia: Those who survive for a few hours develop hypocalcaemia because it readily combines with the calcium ion in the body tissues and causes its withdrawal from them. Death usually occurs within 21 hours.
(c) Renal Damage: Oxalates produce tubular nephrosis or necrosis cause death uraemia in two to fourteen days.

Sign & symptoms: Fulminating poisoning: Vomit usually contains altered blood and mucus and has a "coffee-ground" appearance. Thirst may be present.
Acute Poisoning: Symptoms of hypocalcaemia, muscle irritability and tenderness, numbness and tingling of the fingertips and legs. Usually, signs of cardiovascular collapse appear. In some patients stupor and coma occur.
Delayed Poisoning : It is characterised by the symptoms of uraemia, There may be metabolic acidosis and ventricular fibrillation.
Numerous dark-brown or black straek run along length of stomach over mucous membrane.

TEST: Solution of barium nitrate gives white precipitate of barium oxalate, which is soluble in hydrochloric acid & nitric acid.

Fatal Dose: 15-20 gm
Fatal Period: 1-2 hours

Treatment:
1. The stomach is washed out carefully using calcium lactate or gluconate, two teaspoonfuls in each lavage.
2. The antidote for oxalate poisoning is any preparation of calcium which converts the poison into insoluble calcium oxalate, e.g. lime water, calcium lactate, calcium gluconate, calcium chloride, a suspension of chalk in water or milk. One-and-half g. of chalk will neutralise about one gram of oxalic acid.
3. Calcium gluconate 10%, 10 ml. i.v. at frequent intervals.
4. Dialysis or exchange transfusion for renal failure.
5. Parathyroid extract
6. Demulcent drinks.
7. The bowels may be evacuated by an enema or by castor oil.
8. Symptomatic.

Hydrocyanic acid

Also known as: Prussic acid, Cyanogen, Scheele's acid.

Signs and Symptoms : C.N.S.: Headache, vertigo, faintness, perspiration, anxiety, excitement, confusion, drowsiness, prostration, opisthotonus and trismus, cramps, twitchings, hyperthermia, convulsions epileptiform or tonic, which are sometimes localized but usually generalised, paralysis, stupor, coma, and death.
G.I.T.: Bitter, acid, burning taste, constriction or numbness of throat, salivation, nausea, rarely vomiting.
Respiratory system : Odour of bitter almonds in breath. Initially tachyapnoea and dyspnoea due to cyanide stimulation of chemoreceptors and the respiratory centre. Later rapid slowing of respiratory rate with severe respiratory depression and cyanosis.
C.V.S.: Initially hypertension with reflex bradycardia, sinus arrhythmia. Later tachycardia with hypotension and cardiovascular collapse. The heart continues to beat for several minutes after stoppage of respiration.
Skin: Perspiration, bullae.
Eyes: Glassy and prominent, pupils dilated, unreactive.
Renal Acidosis: Death occurs from respiratory failure. In fatal cases more than one mg. of cyanide is found in blood.
TEST: Lee-Jones Test.

Fatal Dose : 50-60 mg of pure acid. 200-300 mg of sodium or potassium cyanide

Fatal period: 2-10 min.

Strong Alkali, (Caustic alkalis)

Nutrun Qalvi (Caustic Soda) NaOH

Qalmi Qalvi (Caustic Potash) KOH

The chief poisons in this group are ammonia, potassium hydroxide, sodium hydroxide, calcium hydroxide, ammonium corbonate, potassium corbonate, and sodium corbonate.

They are extensively used in commerce. Most of these occur as white powders.
Ammonia is a colourless gas with a very pungent; choking odour.
Ammonium hydroxide is a liquid containing about 30 % ammonia.

Action:

Strong alkali absorbed water from the tissues and precipitates protein. Alkalis produce liquefaction necrosis saponification of fats.
Ingestion of an alkali produces severe effects mainly on lining of oesophagus, while involvement is less common with alkalis than with acids.

Sign and symptoms:

In general the lesions caused by caustic alkalis have about the same,extent and distribution as those due to acid corrosives.
There is an acid caustic taste and a sensation of burning heat extending from the throat to the stomach. Vomiting matters are alkaline and do not affervesce on contact with the ground.
It is at first thick and slimy, but later contains dark altered blood and shreds of mucosa.
Purging is a frequent symptom accompanied by severe pain and straining.
The motion consists of mucous and blood.

Contact with skin causes grayish, soapy, necrotic areas. When strong alkali is ingested, abrasions, blisters and brownish discolouration are seen on the lips and skin about the mouth
The mucosa of the digestive tract is swollen, soft and a grey slough readily detached, lies over the inflamed tissues.
Haemorrhage into the tissue is also seen.
Oesophageal stricture formation is a major long term complication.

Nutrun Qalvi (Caustic Soda) NaOH: **it can produce transmural necrosis of the oesophagus after only one' second of contact.**
Oesophageal stricture is common with occasional perforation.

Fatal Dose

Potassium or sodium hydroxide: 5gm

Potassium carbonates: 18gm
Sodium carbonates: 30gm
Ammonia: 5-10gm

Fatal Period: Usually 24 hours

Treatment:

1) Demulcent, e.g. White of egg or milk or water 1-2 glass may be given if the patient is seen within -10 minutes of ingestion
2) In mild cases the stomach can be washed carefully
3) In poisoning by ammonia vapours, oxygen inhalation should be given or the patient should be kept in an atmosphere made moist with steam
4) Keep the air way patent- Tracheostomy may be necessary
5) Give adequate parenteral analgesic
6) Steroid are useful in decreasing laryngeal inflammation
7) Antibiotics to prevent infections

Post mortem appearance:

The mark about the mouth becomes dark in colour and parchment like after death. a strong alkali is ingested, lips, mouth and throat shows corrosion, Inflammatory oedema with corrosion and slimness of the tissues of the oesophagus and stomach are prominent features.
Alkali most severely affects the squamous epithelium of the oesophagus although stomach is involved in 20% cases.
Mucosa may be brownish due to formation of alkali haematin.
The duodenum and jejunum may show similar changes but of lesser intensity.
In some cases the alkali may be regurgitated and inhaled causing oedema of glottis, pseudo membranous inflammation of the air passages and peribronchial pneumonia. Perforation of the oesophagus or stomach is rare but may occur in ammonia poisoning. Oesophageal stricture formation is common with alkalis than acids.

Metallic poisons

Arsenic / Sankhya

Arsenic trioxide (AS, O,) also known as Sankhya or Somalkar

Clinical Features:-

Acute condition
Poisoning resembles cholera
Diarrhoea
Chronic condition

Rain drop hyper pigmentation known as milk —Rose complexion (Measles like fading)
Anemia
White transverse band on nail (Aldrich-Mee's lines)
Mixed polyneuropathy lateral foot and wrist drop
Bowen's disease (can lead to squamous cell carcinoma in situ)

- **Rapidly absorbed from skin and GIT.**
- **Maximum amount is seen in liver > skin.**
- **Poison mostly excreted in hair also in nails, bones**
- **Arsenic causes Black foot disease.**

Most popular homicidal poison

Fatal dose:- 100—200 mg
Fatal period:- 1-2 days.

Treatment:-

Antidote:- Freshly precipitated hydrated Fe_2O_3

Antidote:- BAL

Seemaab / Mercury

Most poisonous salt: HgC12 (mercuric chloride, corrosive sublimate)

Mercurous chloride is known as calomel.
Clinical features:-

Acute condition:-

Poisoning resembles "Diphtheric colitis". Slate gray colored pseudomembrane in ascending
and transverse colon.
Constipation is present
Triad of symptoms: Excessive salivation + tremors + neuropsychiatric changes.

Chronic Hg Poisoning (Hydragyrism)
Blue black line on gums
Acute tubular necrosis (ATN) (damage to PCT of renal tubules)

Minamata disease (Hunter Russell syndrome): Due to eating of fish poisoned by methyl mercury.
Tunnel vision is seen. Mothers asymptomatic but babies born with microcephaly.

Mercuria lentis: Deposits of Hg on anterior lens capsules (Brown malt reflex) due to fumes. It is a bilateral condition and has no effect on vision.

Fatal dose:- 1-2 gm

Fatal period:- 3-5 days

Treatment:-

Penicillamine

BAL

Sisa / Lead

PbO_4 - Sindoor, Vermillion, Red
PbS - least toxic (Surma)

Mechanism of action:

Combines with sulphhvdril groups — Interferes cellular respiration.
Clinical features:-

Anemia With punctuate basophilic stippling of RBCs,
Cabot ring are red-purple staining thread like filaments in the shape of a ring or figure 8
(Cabot ring are seen in lead poisoning, pernicious anemia, thalassemia and ocher severe anemias.)
Burtonian/stippled 'blue' lead line in upper jaw due to lead sulphide
Colic and constipation Known as dry belly ache
Wrist drop and foot drop due to neuropathy
Eosinophilia
Encephalopathy in children
Facial Pallor. (earliest and most consistent sign)

Line similar to burtonian line may be seen in poisoning of—Ag, Bi, Cu, Hg, Fe.
Fatal Dose:- 20gm – Lead Acetate, 40gm – Lead Carbonate.

Fatal Period:- 1-2 days.

Treatment:-

EDTA / Calcium disodium versenate

Antimony / Surma

Metallic antimony is not poisonous.
Antimony potassium tartrate (tartar emetic), occurs in the form of whitish or whitish-yellow powder.
Antimony trichloride (butter of antimony) are poisonous.

Clinical Features:-

Acute condition

Poisoning resembles cholera
Diarrhoea

Chronic condition

Rain drop hyper pigmentation known as milk —Rose complexion (Measles like fading)
Anemia
White transverse band on nail (Aldrich-Mee's lines)
Mixed polyneuropathy lateral foot and wrist drop
Bowen's disease (can lead to squamous cell carcinoma in situ)

- **Rapidly absorbed from skin and GIT.**
- **Maximum amount is seen in liver > skin.**
- **Poison mostly excreted in hair also in nails, bones**
- **Arsenic causes Black foot disease.**

FATAL DOSE: Tartar emetic 0.2 to 0.5g, antimony trichloride 0.1 to 0.2 g.
FATAL PERIOD: Usually within 24 hours.

TREATMENT:
Stomach wash.
Tannic acid 4 g. by mouth forms an insoluble antimony tannate.
B.A.L.

Non Metallic poisons

PHOSPHORUS(P_4)

There are two varieties: White or crystalline.
It is used in fertilisers, insecticides, rodenticides, incendiary bombs, smoke screens,
fireworks, etc.
Red or amorphous.
Action:
It is protoplasmic poison, Which affects cellular oxidation.
Signs and Symptoms:
(1) Fulminating Poisoning: This is seen when more than one gram is taken. These patients
usually die within twelve hours due to shock and cardiovascular collapse because
phosphorus has a direct action on the heart and blood vessels.
Those who survive more than twelve hours are restless, delirious and some maniacal
before death. Thirst, Every nausea, vomiting and retching occur.
(2) Acute Poisoning:
(A) First Stage: Due to local irritation, symptoms occur within a few minutes to few hours
after exposure and last from 8 hours to three days.
Ingestion produces burning pain in the throat and abdomen, with intense thirst, nausea,
vomiting, diarrhoea and severe abdominal pain.
Breath and excreta have gralic-like odour. Luminescent vomit and faeces are diagnostic. Skin
contact produces painful penetrating second and third degree burns which heal slowly.
(b) Second Stage: This is a symptom-free period lasting for two to three days.
(3) Third Stage: Symptoms of systemic toxicity occur from absorbed poison. There is
nausea,
vomiting, diarrhoea, haematemesis, liver tenderness and enlargement, jaundice, and
pruritus. Haemorrhages occurs into skin, mucous membrane and viscera, due to injury
of blood vessels and inhibition of blood clotting. Renal damage results in oliguria,
heamaturia, casts, albuminuria and sometimes anuria.
Death may result from hepatic failure. central nervous system damage.

Haematemesis or renal insufficiency.
Fatal Dose: 60 to 120 mg.
Fatal Period: 2 to 8 days.
Treatment:
(1) Gastric lavage using solution of potassium permanganate oxidises phosphorus into phosphoric acid and phosphates, which are harmless.
(2) Activated charcoal adsorbs the poison.
(3) Stomach can be washed with 0.2% sulphate solution or 0.2 g. of copper sulphate may be given every 5 minutes until vomiting occurs.

It coats the particles of phosphorus with a film of phosphide which is relatively harmless.
As has caustic properties and can cause acute copper Poisoning adequate care should be taken
(4) Vitamin K. twenty mg. i.v. in repeated doses to combat hypoptothrombinaemia or blood transfusion.
(5) The be evacuated with magnesium sulphate.
(6) Wash out the bowel and repeat at intervals for days.
(7) Oil and fats should be avoided as they dissolve phosphorus and promote absorption.
(8) Transfusion of glucose-saline and plasma with vitamins and noradrenaline is useful to protect the liver and to correct shock and dehydration.
(9) If renal failure is severe, peritoneal or haemodialysis may be required.
(10) Burns should be thoroughly washed one percent copper sulphatic solution in water.
Postmortem Appearances:
There may be no Changes in fulminating poisoning. However oesophagus. stomach and Intestine may shows signs of irritation and luminous material may be found in the stomach.
In acute poisoning, the body usually shows signs of jaundice. The gastric and intestinal contents may smell of garlic and be luminous. The mucous membranes of the stomach and intestine are yellowish or greyish-white in colour, and are softened, thickened, inflamed and corroded or destroyed in patches.

**Multiple smaller or larger haemorrhages are seen in the skin, subcutaneous tissues,
muscles, and serosal and mucosal membranes of gastrointestinal and respiratory tract,
under endocardium, pericardium, epicardium, peritoneum, in lungs, brain, leptomeninges and uterus. The liver becomes swollen, yellow, soft, fatty and is easily
ruptured.
Small haemorrhages may seen on the surface and in the substance.
Kidneys are large, greasy, yellow & show heamorrage in surface. Fat emboli maybe
found in pulmonary arterioles and capillaries. Blood may appear tarry and its coagulability is diminished.**

IODINE

**It occurs as bluish-black, soft and scaly crystals and has a metallic and unpleasant
taste.
It gives off a violet-coloured vapour at all tempretures, which has a characteristic odour.
ACTION:
It is a protoplasmic poison fixing protein and causing necrosis. Vapours irritate respiratory passage.
SIGNS AND SYMPTOMS:
Inhalation produces glottic and pulmonary oedema. Swallowed in the solid form, it acts
as an acid corrosive poison. There is burning pain extending from the mouth to the
stomach, intense
thirst, salivation, vomiting, purging, giddiness, cramps or convulsive movements of the
limbs and fainting.
The the angles of the mouth are stained brown. The vomited matter and excreta are
dark-yellow or blue in colour, contain blood and have the peculiar odour of iodine. The
urine is scanty or suppressed, red-brown in colour, contains albumen, metabolic acidosis, nephritis, renal failure occur.
Pulse is slow and weak, skin cold and clammy and there may be skin rashes.
FATAL DOSE: 2 to 4 g. (30 to 60 ml. of tincture).
FATAL PERIOD: 24 hours.**

TREATMENT:
(1) Evacuate the stomach by emetics or wash it out with warm water containing soluble starch and albumen.
(2) One to five percent solution of sodium thiosulphate will convert tincture or iodine to
harmless
iodide.
(3) Sodium chloride will promote excretion of iodide, as chlorides compete with iodide at
the level of the tubules, thereby reducing the effects of iodism.
(4) Give alkalies, arrow root, and barley water and treat symptomatically.
(5) Activated charcoal binds iodine.
(6) Skin lesion can be treated with 20% alcohol.
Postmortem Appearance
The mucosa of the stomach and intestines is inflamed, excoriated and maybe brown.
The heart, liver and kidney may show fatty degeneration. There may be edema in brain.

Aluminium phosphide

Also known as Celphos

Action:-

Produces phosphine gas on contact with moisture/water.
Acute cardiotoxicity due to PH
Al—P inhibits cytochrome C oxidase.

Sign And Symptoms:-

Garlic/ decaying fishy odour
Arrhythmias, MI (Sub endocardial infarction) cardiogenic shock MC cause of death.
Esophageal stricture
Centrizonal necrosis of liver

Fatal Dose:-

0.5gm; 1-3 tablets.

Fatal Period:-

1-4 hours.
Majority within 24 hours.

Postmortem Appearance & Tests:-

- AgNO test gives black colour due to reaction with PH3 (AgN03 test)
- Gas chromatography is most sensitive and specific for detection of phosphine (PH)
- To reduce the absorption gastric lavage is done by saline followed by KMN04.

Vegetable Poison

SEMECARPUS ANACARDIUM

Marking nuts (bhilawa) are balck, heart-shape with rough projection at the base. They have a thick cellular pericarp, which contains an irritant juice which is brownish, oily and acrid but turns black exposure to air.
The active principles are semecarpol (0.1%) and bhilawanol (15 to 17%).

SIGNS & SYMPTOMS:-

Applied externally, the juice irritation and a painful blister which contains acid serum, which produces eczematous eruptions of the neighbouring skin with which it comes into contact, and there is itching.
The lesion resembles a bruise.
Later an ulcer is produced, and there may be sloughing.

Taken by mouth, the juice causes less irritant action in large dose, it produces blisters on throat and severe gastrointestinal irritation, dyspnoea, tachycardia, hypotension, cyanosis, absence of reflexes, delirium, coma and death.

Fatal Dose: 5-10 gm.

Fatal period: 12 to 24 hours.

Treatment:

1. Gastric lavage.
2. Demulcent drinks.
3. When applied externally wash with lukewarm water containing antiseptic.

Postmortem Appearances:

Blisters are seen in the mouth, throat and stomach which are congested and inflamed.

CALOTROPIS

Calotropis gigantea (akdo, madar) has purple flowers and calotropis procera has white flowers. They grow wild throughout India. The active principles are uscharin, calotoxin, calactin and calotropin (glycoside).
The milky juice in addition contains trypsin. The leaves and stem when incised yield thick acrid, milky juice.

Signs and Symptoms:

Applied to the skin, it causes redness and vesication. When taken by mouth, the juice produces an acrid bitter taste, and burning pain in throat and stomach, salivation, stomatitis, vomiting, diarrhoea, dilated pupils, tetanic convulsions, collapse and death.

Fatal Dose: Uncertain.

Fatal Period: 6 to 12 hours.

Treatment:

Stomach wash, demulcents and symptomatic.

Postmortem Appearances:

Dilated pupils, froth at the nostrils, stomatitis, and inflammation of gastrointestinal tract are seen. The abdominal viscera and brain are congested.

CROTON TIGLIUM

The seeds of croton (jamalgota or naepala) contain crotin, a toxalbumen. Seeds are oval, dark-brown with longitudinal lines. They have no smell.
Crotonoside, a glycoside, which is less poisonous is also present. The oil is brown, viscid, has unpleasant odour and acrid, burning taste bilt does not contain toxalbumen.
The oil contains a powerful vesicating resin composed of crotonoleic acid, methyl crotonic acid and several other fatty acids.

Signs and Symptoms:

There is hot burning pain from mouth to stomach, salivation,, vomiting, purging, vertigo, prostration, collapse and death.
Applied to the skin, the oil produces burning, redness and vesication.

Fatal Dose: 4 to 5 seeds; 1-2 ml. oil.
Fatal Period: Six hours to three days.

Treatment:

Stomach wash, demulcent drink, and symptomatic.

Postmortem Appearances:

There is congestion, inflammation and erosion of the mucosa of stomach and intestines, and congestion of internal organs.

Abrus Precatorius (Ghoonghchi)

It is also known as Jequirity, Indian liquorice, Rosary bead, Gunja, Rati.

Sign And Symptoms:-

Symptoms may be delayed from a few hours to two or three days when taken by mouth.
They include severe irritation of upper G.I. tract, abdominal pain. nausea, vomiting.
Bloody diarrhoea, weakness, cold perspiration, trembling of the hands, weak rapid pulse, miosis and rectal bleeding.
Delayed cytotoxic effects occur in the CNS, liver, kidneys and adrenal glands 2 to 5 days after
exposure.
In man. at the site of injection, painful swelling and ecchymosis develops, with inflammation and necrosis.
Ingestion of seeds or extract can cause haemorrhagic gastritis.
There is faintness, vertigo, vomiting, dyspnoea, and general prostration.
Convulsions may precede death from cardiac failure.

Fatal Dose:-

90 to 120 mg. (one to 2 seeds) by injection.
Subcutaneously abrin is 100 times as toxic as by the oral route.

Fatal Period:-

Three to five days.

Treatment:-

1. **Gastric lavage.**
2. **Activated charcoal.**
3. **Purgative.**
4. **Injection of antiabrin.**
5. **The needle should be dissected out.**

6. **Sodium bicarbonate 10 g. orally per day helps in maintaining alkalinity of urine and prevents agglutination of red cells and blocking of renal tubules with haemoglobin G.**

Postmortem Appearances:-

Fragments of the needle may be found.
There is oedema at the site of injection, and petechial haemorrhages under the skin, pleura, pericardium and peritoneum.
The internal organs are congested and show haemorrhages.

Animal Poisons

SNAKE VENOM

Russels viper venom is: Hemolytic
Cobra krait venom is: Neurotoxic
Sea snake venom is: Myotoxic
Most common poisonous snake: Common Krait

	Cobra/Krait	Viper	Sea snake
Toxicity	**Neurotoxic**	**Hemolytic**	**Myotoxic (Musculotoxin)**
Clinical features	**• Ptosis is the earliest neurologic symptom.** **• Diplopia, ophtalmoplegia** **• Complete paralysis after hours, Albuminuria in Krait bite**	**• Marked local symptoms (Oozing at the site),** **• Hematuria, GI hemorrhages** **• Hemoglobinuria due to hemolysis** **[Abrus precatorius poisoning resembles viper bite]**	**• Little or no local signs** **• Myoglobinuria, Polymyositis (marked muscle weakness),Trismus**
Cause of death	**Respiratory failure**	**Shock and hemorrhage**	
Fatal dose	**Krait 6 mg** **Cobra 12 mg**	**Russel viper 15 mg**	**20mg**

Management of snake Bite

• Do it RIGHT approach in snake bite management:-

90% of deaths in cases of snake bite are due to neurogenic shock (anxiety related).

RIGHT approach includes:-

R: Reassurance

I: Immobilization as per a fractured limb

G,H: Getting to Hospital without delay

T: Telling the doctor of any symptom that develop

• 20 WBCT (20-minute whole blood clotting test):

10 ml of blood of victim in a plain vial is taken and checked for clotting after 20 minutes. if not clotted, it suggests Viper.

• Remember following "No" in management:-

No local incision

No mouth suction

No ice packs, No torniquet

Never give NSAIDs, morphine.

CANTHARIDE POISONING

Cantharides, are insects commonly known as "Spanish fly" (blister beetles/ Mylabris spp).

• Mechanism of action: Cantharidin is secreted by many species of blister beetles.

• It is an irritant and nephrotoxic poison.

• Clinical Features: Hypotension, vesicles, blister formation, strangury and priapism

(So cantharides powder can be used as aphrodisiac).

• Fatal dose: 1.5 to 3 gm of powdered cantharide or 10-30 mg of cantheridine.

SCORPIAN STINGS

Mechanism:- Scorpion sting contains neurotoxins that causes Na+ channels to remain open. Scorpion sting is toxic than snake venom.

Clinical Features: Are due to autonomic storm

- **Hypotension**
- **Pain, paraesthesia, hyperaesthesia, hyperexcitability**
- **Restlessness, blurred vision**
- **Profuse salivation, lacrimation, diaphoresis**
- **Cause of death in children: Respiratory arrest**

Treatment: Prazosin has some role.

Neurotic poison

ALCHOHOL

Formaldehyde and formic acid are associated with acidosis and ocular manifestation in methanol poisoning.

Legal limit for driving = 30 mg% blood alcohol level

Absolute alcohol contain 99.5% alcohol

Rectified spirit contain 90% alcohol

Alcohol disappears from blood at 15 mg% /hr

Clinical Features:-

3 stages, based on blood alcohol level

80 gm% Stage of excitement

>150 mg% Stage of incoordination

>400 mg% Stage of coma, Mc Evan's sign positive (pupils are contracted but stimulation

of the person by pinch/slap causes them to dilate with slow return)

400 800 mg% Death may occurs

Pathological intoxication (Mania a Potu) Excitement with senseless violence after the patient has drunk small quantity of alcohol.

• Chronic alcoholism can lead to:
a) Wernicke's encephalopathy:
Due to severe thiamine deficiency
Global confusion, opthalmoplegia Ataxia, CN Palsy
Due to involvement: of Mamillary body

b) Korsakoffs psychosis
Anterograde > retrograde amnesia
Confabulation be seen
- Involves mamillary bodies

• CAGE questionnaire is used in chronic alcoholism.

Methyl Alcohol

Toxic effects of methyl alcohol (methanol) are largely due to formic acid.

Earliest clinical presentation is abdominal cramps, Optic atrophy can be caused by methyl alcohol poisoning.

Fatel Dose:-

Absolute Alchohol = 150-250 ml
Methanol = 50-250 ml

Treatment:-

Detoxification:
BZD (chlordiazepoxide → DOC)

• Prevent relapse:

Deterrent agent — Disulfiram
Anti craving agent — Naltrexone, Topiramate, Acamprostate

• Methanol poisoning is treated by: Gastric aspiration, Antidotes are: Ethyl alcohol, 4- MP (Fomepizole).

• TOC — Hemodialysis

Opioids

Natural —Morphine, codeine
Synthetic — Heroin (Smack)
Standard opium = 10% morphine
Speed ball = Heroin + Cocaine
MC abused opioid = Diacetyl morphine

Clinical features:- Pin point pupil

Respiratory depression
Coma
Hypotension
Hallucination

Fatal Period :

Opium 2 gm

Morphine 0.2 gm

Codeine ½ gm

Methadone 100 mg

Propoxyphene 1 gm

Pentazocim 300 mg

Fatal Period:- 6-12 hours

Treatment:-

Acute intoxication

Naloxone — specific antidote
Detoxification (treatment of withdrawal)
Methadone (DOC)
Buprenorphine
Clonidine

Maintenance treatment: (Prevent relapse)
Methadone
Buprenorphine

HYDROCARBONS

Most of the hydrocarbons are derivatives of petroleum distillates. Aliphatic hydrocarbons include
gasoline, naphtha, mineral spirits, kerosene, butane, propane, turpentine, paraffin wax, petroleum jelly, tars, asphalt and mineral seal oil.
The toxic substances like gasoline, kerosene, naphtha, mineral spirit, light gas oil, and mineral seal oil are poorly absorbed from the GI tract.
Benzene, toluene and xylene are highly volatile and well absorbed from the GI tract.
Turpentine and pine oil are readily absorbed from the GIT.

Signs and Symptoms:

1. Acute or chronic contact with hydrocarbons causes chronic eczematoid dermatitis, with redness, itching and inflammation. Cutaneous exposure to gasoline and other hydrocarbons can cause second degree burns, and systemic manifestations. Fever may be present.
2. Pulmonary: Gasping, coughing and choking indicate aspiration. Nasal flaring, intercostal
retractions, dyspnoea, tachyapnoea and varying degrees of cyanosis are seen. If severe injury occurs, pulmonary symptoms progress up to 48 hours, with complete resolution in 3 to 5 days. 3. CNS: Depression, somnolence. dizziness, convulsions and coma.
4. Eye: Photophobia. redness and transient corneal irritation.
5. Cardiac involvement is rare after acute ingestion.
During solvent abuse especially with chlorinated and fluorinated hydrocarbons sudden death secondary to dysrhythmias can occur.
Methane or butane inhalation causes hypoxia.

Chronic exposure:
Benzene is considered a human carcinogen.
Aplastic anaemia, myelocytic and monocytic leukaemia have been reported.
Toluene inhalation is associated with renal tubular acidosis, and peripheral sensorimotor neuropathy.

Fatal Dose:

30 to 100 ml. of kerosene.
15 to 20 ml benzene.

Fatal Period:

Within one day.

Treatment:

1. Remove contaminated clothing, and wash the affected areas of skin with soap and water. In ocular exposure, prolonged irrigation with sterile solution is to be done.
2. Gastric evacuation is indicated for
(a) camphorated products,
(b) halogenated products (e.g. methylene chloride, carbon tetrachloride),
(c) aromatic hydrocarbons (e.g. benzene, toluene); aniline.
3. Activated charcoal has limited value.
4. A cathartic may be given.
5. Continuous positive airway pressure (CPAP) or positive end- expiratory pressure (PEEP), or high frequency jet ventilation is beneficial in severe poisoning.
6. Absorption of ingested kerosene can be slowed by giving 250 ml of liquid paraffin orally.
7. Corticosteroids.

Postmortem Appearances :

Signs of asphyxia are present. There may be acute gastroenteritis and the odour may be present in the lungs and alimentary canal. There may be atelectasis, interstitial
inflammation and necrotising bronchopneumonia.
The pleural and cut surfaces are deep-red and purple, oozing a blood-stained watery and frothy fluid.
Petechial haemorrhages, or larger haemorrhages into the mucous membranes and subserous tissues may be found in the trachea, gastrointestinal tract and elsewhere. Cloudy swelling, or fatty degeneration of the liver and kidney may be seen. In toluene poisoning red cells may show basophilic stippling.

Cocaine

Also Known as:-

1. **Rich man's drug, coke**
2. **Snow, white lady**
3. **Crack**

Fatal Dose:-
1.5 gm administered by mouth
1 gm administered by injection
Fatal Period:-
1-5 hours

Signs & Symptoms

1. **Paranoid delusions**
2. **Auditory hallucination**
3. **Tongue and teeth of habitual cocaine eaters are jet black**

4. **Magnan symptom/cocaine bugs – Tactile hallucination/ formication.**
5. **IV use leads to + "Rush" sensation**
6. **Post intoxication depression is known as "crash".**

Treatment:-

Emetic drugs

Gastric lavage cleaning

Remove spasm

Maintain body tempreture with warm water bottle

Post mortem Appearance:-

Cyanosis of face

Cough excreate froat mouth

Dark colured blood in right side of heart

Ijtema khoon in aghshiya dimagh

Dhatura

Also known as:-
Thorn apple
Jimsonweed
Stramonium linn.
Fatal Dose:-
Seed:- 1gm (100-125 seeds)
Alkaloid:- 4-6 gm
Fatal Period:-
Within 24 hrs.

Sign & Symptoms:-

Intoxication is characterized by: 9 D

Dry and hot skin, hyperpyrexia (dry as bone and hot as hare)
Dilated pupils (blind as bat)
Dilated vessel, Flushed face (red as beet)
Delirium
• Pin rolling movement
• Muttering delirium
Dermatitis
Dysphagia
Diplopia

Delusions
Drowsiness
Dryness of mouth

Corn Picker pupil
Tachycardia, carphologia are seen.

Treatment:-
Antidote: Physiostigmine

Postmortem Appearance:-

Asphyxia

Dilated pupil

Inflamaton in stomach & intestinal mucosa

Oedema in lungs

Haemorrhagic paches and blood clot in brain

Azaraaqi

Also known as:-
Kuchla
Habb ul garab
Joz ul muqi

Fatal Dose:-
60-100 mg of strychnine in adult
2 gm of powdered nux vomica
1 crushed seed

Fatal Period:-
6-18 hrs.

Clinical feature:-
Increases acquity of perception
Rigidity of muscle and twitching
Convulsion affects all muscle at a same time
In between convulsion, muscle are completely relaxed

Treatment:-

Acidification of urine

On Postmortem:-
Brain is preserved
Postmortem caloricity seen

Postmortum appearance:-

Muscles get extremely rigid
Mucosa of stomach & duodenum shows patches and echymosis.
Heart is empty & contracted.
Lungs are congested
Brain & upper part of spinal cord gets congested.

Mechanism of action depress inhibitory post synaptic potential in spinal cord

Primarily affects anterior horn cell
Use as respiratory stimulant and cattle poison
Not destroyed by putrefaction
Rigor appears early and passes off quickly

Belladonna

Also known as

Atropa

Yabrooj

Luffaah barri

Deadly night shade

Fatal Dose:-

The root is the most poisonous, the leaves and flowers less, and the berries the least.

Leaves - 14 pieces
Berries - 15 pieces
Roots 7 gm
Tincture extract — 1 drum
Atropine -125 mg
Ointment- 4 gm

Fatal Period:-
3-6 hrs

Signs & Symptoms:-

Symptoms are just like dhatura poisoning
Dry and hot skin, hyperpyrexia (dry as bone and hot as hare)

Dilated pupils (blind as bat)
Dilated vessel, Flushed face (red as beet)
Delirium
• Pin rolling movement
• Muttering delirium
Dermatitis
Dysphagia
Diplopia
Delusions
Drowsiness
Dryness of mouth

Postmortem Appearance:-

Fragments of plants parts like, leaves, root, and berries may be found in intestine.
And other appearance is just like in of dhatura poisoning.

(BHANG) CANNABIS INDICA

Also known as:- Indian hemp, Marijuana, Hesh.
Active principle:- Tetrahydrocannabinol (THC) a CNS stimulant.
Clinical features:- Hemp insanity, Run amok, Motivation syndrome, Flash back, Uncontrolled laughter, Talkativeness.
The person develops psychiatric disturbances marked by a period of depression, followed by violent attempts to kill people. After killing, the person may commit suicide.
Fatal dose: Charas 2 g; ganja 8 g; bhang 10g/kg bodywt.
Charas is most potent form of cannabis.
Cannabis receptors are not found in Brain stem.

Cardiac Poison

Tobacco

Also known as: Tambaaku, Taamraparna.

Signs & Symptoms:

1. Burning and acid secretions in the mouth and throat, which spread down the oesophagus to stomach and is followed by salivation, nausea, headache, vomiting and severe diarrhea.
2. The breath stinks of tobacco, the person experiences faintness, numbness, muscular weakness, giddiness, tremors, cold sweat, clamy skin and P4rtial or complete unconsciousness.
3. Hearing and vision may be there may be confusion, non-co-ordination, dilated and contraction of the pupils.
4. The pulse is generally slow at first and then become very rapid, after very large doses the pulse may be accelerated and then slow and feeble.
5. Cardiac arrhythmias may occur and bloos pressure may rise.
6. The respiration is at first rapid and labored and afterwards slow and sighing.
7. Death occurs due to respiratory failure caused by paralysis of the muscles of respiration through the heart continues to beat for and sometime afterwards.
8. Some time there may be delirium, convulsion.
9. In some instance, death may occur very rapidly, the symptoms being those of sudden paralysis of the central nervous system.

Fatal dose

About 40-60 mg is considered a fatal dose for an adult
About 15-30 gm of crude tobacco taken through the mouth has proves fatal.

Fatal period

Nicotine when swallowed may cause death almost immediately or within 5-15 minutes.
In rare case death may be delayed for several hours.

Treatment:

1. Elimination by washing the stomach with warm water containing finely powdered charcoal, tannin or a solution iodine in potassium iodide is advised.
2. Gastric lavage with a 1:10,000 solution of potassium permanganate is also recommended.
3. Saline purgative and atropine injection should be given to check salivation and visual disturbance.
4. Vasodilators like nitrites and methacholine are useful for amblyopia

Postmortem appearance:

The odour of tobacco and fragments of leaves may be noticed on opening the stomach
The mucous membrane of the stomach and intestine is congested and inflamed, if death has not ensued rapidly.This is due to alkalinity of nicotine having a local caustic effect.
The brain, lung, liver are usually congested.

Beesh (Aconite)

Also known as: Bachnaak, Aconite, Wolf's bane, Monk's hood, Blue rocket & Friar's cap.

Signs & Symptoms:

1. Symptoms of poisoning include severe burning and tingling followed by numbness or anaesthesia of the lips, tongue mouth and throat.
2. Nausea, salivation difficulty in swallowing, pain in abdomen and vomiting usually occur but diarrhoea is rare.
3. The pulse is slow, feeble and irregular, blood pressure falls, and the respiration are first rapid, but soon become slow, laboured and shallow.
4. Skin becomes cold and damp with subnormal temprature.
5. Dilatation and constriction of the pupil occur alternately and but finally dilated, diplopia and impaired vision is complained of.
6. The patient complain of vertigo, restlessness, difficulty in speech, great prostration, and pain and weakness of muscles with twitching and spasm.
7. Before unconsciousness the condition of brain normal
8. Death occurs due convulsion following cessation, of respiration, shock or coma.

Fatal dose

Roots powder— 4gm root (Causes death)
Extract — 250 mg
Tincture — 25 drops

Fatal period: 20 minutes – 1 hours

Treatment

Ilaj-e-Unani:
1 Perform emesis introducing decoction of tukhm torah.
2 Other emetic drugs also can be used.
3 Powder of post baloot should be given with sharab 1 hour, it is very useful.

Modern Treatment:

1. **Gastric lavage - with a solution of 10 gm tannic acid with water 2 liters, using Ryle's tube.**
2. **Introduce powdered charcoal or hard tea or potassium permagnate solution 1/1000**

3. **Tannic acid is used as fad-e-zahz**
4. **Put the patient in lateral position.**
5. **For the maintenance of body temperature use takmeed of warm water bag or bottle.**
6. **Oxygen and artificial respiration may be restored 'to, if necessary.**
7. **Suggested, Atropine injection Img subcutaneously for bradycardia.**
8. **Glucose saline may be administered intravenously to combat collapse.**
9. **Use Digitalis .25mg subdermal as stimulant and tonic.**
10. **For cardiac arrhythmia, 50 ml of 0.1 per cent Novocain given intravenously and slowly is useful.**

Postmortem appearance

Postmortem appearances are not characteristic.
Fragments of the root may be found in the stomach contents.
The mucous membrane of the stomach and small intestine may be congested and inflamed.
The bronchial tree may show used in Indian medicine.

CARBON DIOXIDE

It is heavy, colourless gas, with fainty sweet odour. Atmospheric air contains 0.033%
CO_2
It is heavier than air, and therefore it settles When it accumulates in the absence or air
movement. Common places which may contain CO_2 in include manholes, ship holds,
old wells, silos and occsionally cellars.
ACTION :
The gas is not toxic, but acts as a simple asphyxiant by preventing the tissue from
obtaining oxygen.
SIGNS AND SYMPTOMS :
The symptoms vary with concentration of the gas. 5% concentration of CO_2 in air (i.e.
above the concentration in alveolar air) causes laboured breathing and mental confusion.
Above produces ataxia and unconsciousness. With 40% of CO_2 there is dyspnoea,
discomfort, and muscular weakness.
With 50% of CO_2 there is dyspnoea, a feeling of tightness in the chest, fullness in the
head, ringing in the ears and loss of muscular power followed by drowsiness, unconsciousness, coma and death.

60 to 80% of CO_2 causes immediate unconsciousness with or without convulsive movements and rapid death due to some vasovagal reflex causing cardiac arrest, triggered by a chemoreceptor stimulus.
CO_2 from a well can be collected by using a bottle filled with soda-lime water and putting
it inside a well.
TREATMENT :
Artificial respiration and oxygen be given freely. Cardiac stimulants are useful.
POSTMORTEM APPEARANCES :
There is marked cyanosis, congestion, suffusion of the eyes, dilatation of the pupils and
petechial haemorrhages.
Poisoning is usually accidental.

Note:- Universal Antidode is = MgO_2 + Tannic Acid + Charcoal (1:1:2)

SURGERY

علم الجراحت

Ulcer

Important Types of Ulcers

Ulcers	Description
Marjolijn's ulcer	Ulcer developed in chronic scars or malignant cells most commonly squamous cell carcinoma.
Martorell's ulcer	Hypertensive ulcers seen in leg/ calf region. They are due to hypertension and atherosclerosis. Seen in calf region.
Trophic ulcers (Neuropathic ulcers)	Painless, punched out ulcers due to impaired nutrition, defective blood supply, neurological deficit (so also known as neurogenic ulcers) Important causes are: Diaætes, peripheral neuritis, tabes dorsalis, spina bifida, leprosy (Hensen's disease,spinal injury, paraplegia, syringomyelia.
Decubitus ulcer	Also known as Bed sores. Sites: Most common Ischium (trochanter > sacrum > heel > malleolus (lateral > medial) > occiput.
Collar button/Collar stud ulcer	Seen in mucosa & submucosa of colon In Crohn's disease and Ulcerative colitis
Cortisol ulcers	Formation due to long term application of steroid creams. Callous ulcers with no healing tendency.

Edges Of Ulcers

Undetermined edge	Tubercular ulcer
Punched out margin	Diabetic ulcer, Trophic ulcer, Shyphilis
Slopping edge	Healing ulcer
Everted margin	Sqamous cell carcinoma
Rolled out margin	Basal cell carcinoma

- **Purpura – Heamorrage of 2-5mm of skin or mucus membrane**
- **Malena – Dark stool**
- **Heamatocolpos – Blood filled filled vagina**
- **Longest duration of blood preservation is**
- **Citrate phosphate dextrose adenine (CPDA)**
- **Sidine adenine glucose mannitol (SAGM)**

- **One unit of citrate phosphate dextrose (CPD) raised Hb by 10%**
- **Huntarian chancre – Shyphillis & TB of skin**

Non specific infection

Non-specific infections refer to infections that are not caused by a specific pathogen or agent, and may not have a clearly defined cause or diagnosis.

These infections are typically characterized by symptoms such as fever, inflammation, and general malaise. Some examples of non-specific infections include:

Cellulitis

- Cellulitis is a bacterial skin infection that affects the deeper layers of the skin and the tissues beneath it.
- Cellulitis can occur anywhere on the body, but it is most commonly seen on the legs and feet.
- Treatment for cellulitis typically involves antibiotics to kill the bacteria causing the infection.
- It is also important to keep the affected area clean and dry and to avoid scratching or picking at the affected skin.

Boils

- Boils, also known as furuncles, are a skin infection that occurs when bacteria infects a hair follicle or oil gland.
- They often appear as red, swollen, painful lumps on the skin, usually filled with pus.
- Boils can occur anywhere on the body but are most commonly found on the face, neck, armpits, buttocks, and thighs.
- Treatment for boils usually involves applying warm compresses to the affected area to help draw out the pus and promote healing.
- In some cases, incision and drainage of the boil may be necessary to help it heal more quickly.

Carbuncle

- A carbuncle is a type of skin infection that affects multiple hair follicles and the surrounding tissue.
- It is a deeper and more severe form of a boil or furuncle, and it is usually larger and more painful than a single boil.
- Carbuncles often occur on the back of the neck, shoulders, or thighs, and they appear as a cluster of red, swollen, and tender bumps.
- As the infection progresses, the carbuncle may fill with pus and drain.
- Warm compresses may also be applied to the affected area to help ease pain and promote healing.

Erysipelas

- Erysipelas is a type of bacterial skin infection that affects the upper layers of the skin, and often occurs on the face or legs.
- It including the dermis and subcutaneous tissues.

Specific Infections

Specific infections are caused by a specific pathogen or agent, such as a virus, bacteria, fungi, or parasite.

These infections are usually diagnosed based on the symptoms, clinical findings, and laboratory tests that identify the specific causative agent.

Some examples of specific infections include:

- Tuberculosis - caused by the bacterium Mycobacterium tuberculosis, which can affect the lungs and other parts of the body and cause symptoms such as cough, fever, and weight loss.
- HIV/AIDS - caused by the human immunodeficiency virus (HIV), which attacks the immune system and can lead to acquired immunodeficiency syndrome (AIDS).
- Gonorrhea, also known as "the clap," is a sexually transmitted infection (STI) caused by the bacterium Neisseria gonorrhoeae. It is one of the most common STIs, especially among sexually active

young adults.It is usually transmitted through sexual contact with an infected person.

- Tetanus, also known as lockjaw, is a serious bacterial infection caused by the bacterium Clostridium tetani, which produces a toxin that affects the nervous system. The toxin can enter the body through a cut, wound, or puncture, particularly if the wound is deep, dirty, or not properly cleaned.Symptom mostly: Lockjaw
- Leprosy, also known as Hansen's disease, is a chronic bacterial infection caused by the bacterium Mycobacterium leprae. The disease primarily affects the skin, nerves, and mucous membranes of the nose and throat.
- Poliomyelitis, commonly known as polio, is a highly infectious viral disease caused by the poliovirus. The virus spreads through contaminated food and water, and can also be transmitted through direct contact with infected fecal matter.

Syphilis

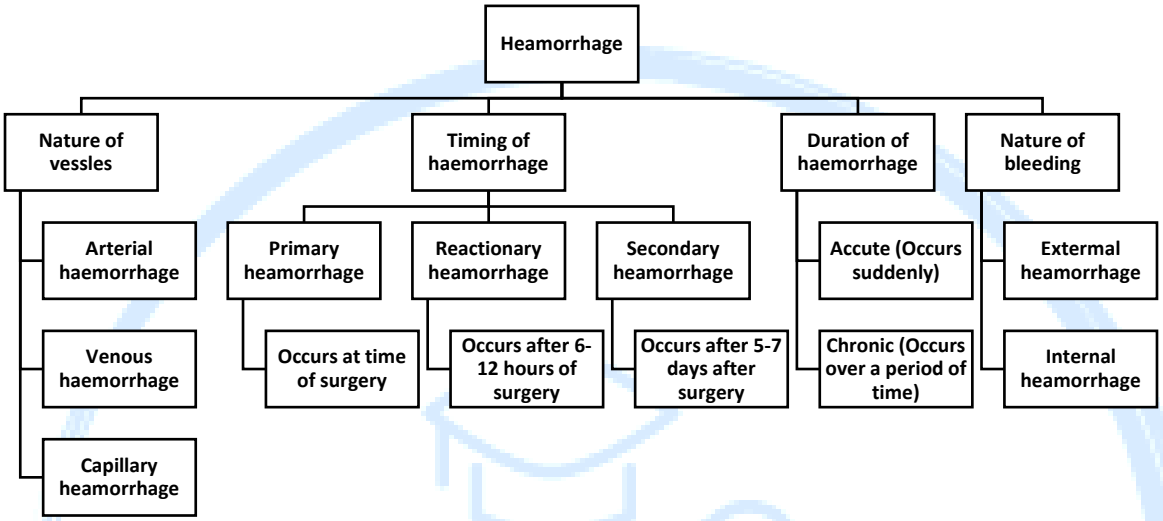
- Syphilis is a sexually transmitted infection caused by the bacterium Treponema pallidum.
- It can be transmitted through sexual contact with an infected person, including vaginal, anal, or oral sex, as well as through non-sexual contact such as from mother to baby during childbirth or through blood transfusions.
- Syphilis can occur in several stages, each with different symptoms:
  i. Primary syphilis - A painless sore or ulcer called a chancre appears at the site of infection, usually the genitals, anus, or mouth.
  ii. Secondary syphilis - A rash develops on the skin, often on the palms of the hands and soles of the feet. Other symptoms may include fever, swollen lymph nodes, sore throat, and hair loss.
  iii. Latent syphilis - The infection remains in the body but does not cause any symptoms.
  iv. Tertiary syphilis - This stage occurs in about 15% of untreated cases and can lead to serious complications such as heart disease, brain damage, blindness, and even death.
- Syphilis is diagnosed through blood tests and examination of bodily fluids from a sore or ulcer.

- ✓ **Specific infections are treated based on the causative agent and can involve antiviral, antibacterial, antifungal, or antiparasitic medications, as well as supportive care to manage symptoms and prevent complications.**
- ✓ **It is important to seek prompt medical attention if you suspect you have a specific infection, as early diagnosis and treatment can help prevent serious complications and promote healing.**

Fungal ring worm

- **Tinea corporis = Neck, Back**
- **Tinea capitis = Head/ hair**
- **Tinea barbae = Hair / hair follicle, beard**
- **Tinea crusis = Ginital inner thick, Buttocks.**

Hemorrhage



According to chronicity of Hemorrhages

Class I

- Blood loss is less then 750 ml
- Mild tachycardia, Thirst occurs.

Class II

- Loss of 800-1500 ml
- HR 100-102 beats / minutes
- Elevate diastolic pressure
- Normal systolic pressure
- Urine output is reduced

Class III

- Loss of 1500-2000 ml
- Fall of systolic & diastolic pressure
- HR 120 beats / minutes

Class IV

- More than 2000 ml
- Peripheries are cold
- Pulse rate more than 120 beats / minutes
- Fall of blood pressure

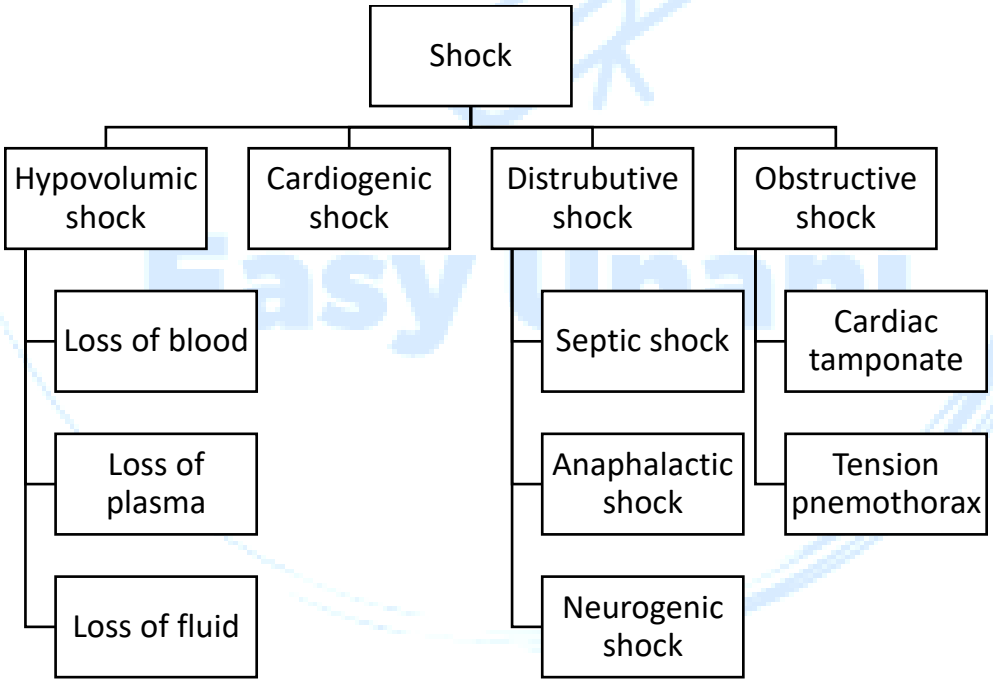
Management

A= Airway

B= Breathing

C= Circulation

Shock



Blood transfusion

- A blood transfusion is a medical procedure that involves the transfer of blood or blood components from one person (the donor) to another person (the recipient).
- Blood transfusions can be used to replace blood lost due to injury or surgery, to treat certain medical conditions such as anemia or bleeding disorders, or to provide support during cancer treatment.
- Before a blood transfusion, the recipient's blood type and Rh factor are determined to ensure compatibility with the donor's blood.
- During a blood transfusion, the donor blood is typically administered through an intravenous (IV) line inserted into a vein in the recipient's arm.
- The procedure is closely monitored to ensure that the transfusion is proceeding safely and that the recipient does not experience any adverse reactions.
- Although blood transfusions can be life-saving in some situations, they also carry some risks.
- Transfusion reactions can occur if the recipient's immune system reacts to the donor blood, causing symptoms such as fever, chills, hives, and shortness of breath.
- To minimize the risks associated with blood transfusions, blood banks carefully screen and test all donated blood, and follow strict protocols for blood collection, storage, and transfusion.
- Blood transfusions are also carefully monitored and administered by trained medical professionals to ensure the safety and effectiveness of the procedure.

Transfusion of fractions of blood)

- In addition to whole blood transfusions, it is also possible to transfuse specific components or fractions of blood, depending on the needs of the recipient.
- Some examples of blood components that can be transfused include:

1. **Red blood cells (RBCs):** These are the most commonly transfused blood component, and are used to treat anemia and other conditions that result in low levels of red blood cells. RBCs can be transfused as whole blood or as a concentrated solution of red blood cells.
2. **Platelets:** These are small cells in the blood that help with blood clotting, and are used to treat conditions such as bleeding disorders and low platelet counts. Platelets can be transfused as whole platelets or as a concentrated solution of platelets.
3. **Plasma:** This is the liquid component of blood that contains proteins, clotting factors, and other substances. Plasma can be transfused to treat conditions such as bleeding disorders or severe burns, or to replace blood volume in patients who have lost a lot of blood.
4. **Cryoprecipitate:** This is a component of plasma that contains high levels of clotting factors, and is used to treat bleeding disorders such as hemophilia.

BURNS AND SCALDS

- Burns and scalds are injuries that are caused by exposure to heat, hot liquids, steam, chemicals.
- Full thickness (3rd degree. burn is usually pale, bloodless and insensitive
  to the firm touch of a sterile needle).
- 'Rule of nines' -preferred method of assessment of the extent of the burn.
- Wallace's rule of nines is not applicable to children under the age of 14
- Years.
- Superficial partial is thickness burn injury Blisters or bullae may be present.
- Fluid resuscitation is instituted as soon as possible.
  Most commonly parkland formula is used:
- Parklands: Crystalloid resuscitation with Hartmann's Solution / RL 24-hour
- fluid requirement = 4 x %BSA x Wt (Kg).
- Laryngeal oedema develops from direct thermal injury leading to early loss of the airway.
  For topical treatment of deep burns is 1% silver sulphadiazine cream
- Take pain relievers
- Curling's ulcers are associated with severe burns

- In addition to these general guidelines, the treatment of burns and scalds may vary depending on the severity of the injury.

- For example, first-degree burns (which only affect the top layer of skin) may be treated with over-the-counter medications and home remedies, while more severe burns may require hospitalization, surgery, and specialized wound care.

Skin Grafting

- Full-thickness skin grafts (FTSGs) and split-partial thickness skin grafts.
- STSGs are most commonly used when Cosmesis is not a primary concern or when the defect to be corrected is of a substantial size.
- Specific locations for FTSGs include the nasal tip, helical rim, forehead eyelids, medial canthus, concha, and digits.
- Split-thickness skin grafts- donor sites are anterior, lateral, or medial part of the thigh; the buttock; or the medial aspect of the arm.

Graft Take

- Graft survives up to first 48 Hours because of plasma Imbibition.
- Partial Thickness is also known as Thiersch or Split Skin Graft.
- Most Common cause of skin graft failure hematoma (or seroma).
- The Z-plasty is an ingenious principle to revise and redirect existing scars or to provide additional length in the setting of scar contractor.

Skin Flaps

- Unlike a graft, a flap has its own blood supply.
- Random-flaps rely on the low Perfusion pressures found in Subdermal plexus to sustain the flap.
- Axial based on a named blood vessel.
- Free Autogenous transplantation of vascularized tissue.

Classification of tumors

- Tumors can be classified based on several factors, including the type of cells that make up the tumor, the location of the tumor, and the behavior of the tumor.
- Here are some common ways in which tumors are classified:

1. By cell type: Tumors can be classified based on the type of cells that make up the tumor. For example, tumors that arise from epithelial cells are called carcinomas, while tumors that arise from connective tissue cells (such as bone, cartilage, or muscle cells) are called sarcomas.
2. By location: Tumors can be classified based on their location in the body. For example, tumors that arise in the brain are called brain tumors, while tumors that arise in the breast are called breast tumors.
3. By behavior: Tumors can be classified based on their behavior, which includes whether they are benign (non-cancerous) or malignant (cancerous). Benign tumors do not spread to other parts of the body and are usually not life-threatening, while malignant tumors can invade nearby tissues and organs, and may spread to other parts of the body (a process known as metastasis).
4. By grade: Malignant tumors can also be classified based on their grade, which refers to how abnormal the cells in the tumor appear when examined under a microscope. The grading system varies depending on the type of cancer, but generally involves assigning a score (usually on a scale of 1 to 4) based on the appearance of the cells.
5. By stage: Malignant tumors can also be classified based on their stage, which refers to how advanced the cancer is and whether it has spread to other parts of the body. The staging system varies depending on the type of cancer, but generally involves assigning a stage (usually on a scale of 0 to IV) based on factors such as the size and location of the tumor, as well as the presence of metastasis.

Conservative treatment in Unani medicine for Tumors (Salaat)

1. Diet and lifestyle changes: Dietary and lifestyle changes are often the first line of treatment in Unani medicine. This includes eating a healthy diet, avoiding certain foods that may aggravate the tumor, and engaging in regular physical activity.
2. Herbal remedies: Most commonly used herbs include Habb-e-Shifa, Safoof-e-Muhazzil, and Majoon-e-Muhazzil.
3. Cupping therapy: Cupping therapy is a type of therapy in which heated cups are applied to the skin to create a vacuum. This is thought to help improve blood flow and promote healing. Cupping therapy may be used in conjunction with other treatments to help remove the tumor.
4. Massage therapy: Massage therapy may be used to help improve circulation and promote healing. It may be used in conjunction with other treatments to help remove the tumor.
5. Surgery: In some cases, surgery may be necessary to remove the tumor. However, this is typically only recommended for tumors that cannot be treated with other methods.

Line of treatment for tumors

The line of treatment for tumors depends on several factors, including the type of tumor, its location, and its stage. Here are some common treatment options for tumors:

1. **Surgery**: Surgery is often the first line of treatment for solid tumors. The goal of surgery is to remove as much of the tumor as possible while preserving as much of the healthy tissue as possible.
2. **Radiation therapy**: Radiation therapy uses high-energy radiation to kill cancer cells. It is often used in conjunction with surgery to kill any remaining cancer cells.
3. **Chemotherapy**: Chemotherapy involves using drugs to kill cancer cells. It is often used for tumors that have spread to other parts of the body or for tumors that cannot be removed by surgery.

Comparison of Dry & Wet Gangrene

	Dry Gangrene	Wet Gangrene
Cause	Slow occlusion of the arteries	Slow occlusion of the arteries
Involvement of part	Small area is gangrenous due to presence of collaterals	Large area is affected due to absence of collaterals
Line of demarcation	Usually present	Absent
Local findings	Dry, shrivelled and mummified	Wet, turgid, swollen, oedematous
Crepitus	Absent	May be present
Odour	Absent	Foul odour due to present of sulphurated hydrogen produced by bacteria.
Infection	Not present	Usually present

Anesthesia

- ✓ Father of anesthesia- John Snow

Subarachnoid block / Intrathecal block / Spinal anesthesia

- Subarachnoid block / Intrathecal block / Spinal anesthesia – Given at L_3-L_4
- Drug is deposit between arachnoid and pia matter.
- Mechanism of action – Drug act on spinal nerves and dorsal ganglia.

Drugs use in subarachnoid block

- Ropivacaine
- Xylocaine
- Levo-Bupivacaine
- Bupivacaine

Epidural block / Epidural anesthesia

- It is used for postoperative analgesia, painless labor, abdominal thoracic neck surgeries.
- Tuohy's Needle most commonly used.
- Mechanism of action – Nerve roots, Substantia gelatinosa of dorsal horn cells.

Drug use in Epidural block

- Lidocaine
- Bupivacaine
- Ropivacaine
- Mepivacaine
- Opioid's

Local anesthesia

- Sequence of blockage – Autonomic nerve – Sensory nerve – Motor nerve.

Drugs use in Local anesthesia

- Lidocaine
- Bupivacaine

Topical anesthesia

- Use on skin, urethral mucosa, nasal mucosa, cornea etc.

Drugs use in Topical anesthesia

- Amethocaine (Tetracaine)
- Cocaine

Intravenous anesthetic agents

- Used in
- Stomach pain
- Anti-dysrhythmia effect
- Minimize depression of respiration
- Sympathetic stimulation of increase Hypertension, for Hypotension.
- Burn wound dressing
- Skin debridement

Drugs use are

- Thiopentone
- Ketamine

Acid-Base Balance

1. Anion gap is mainly due to albumin.
2. The enzyme required for the generation of the ammonium ion in the kidney is Glutaminase.
3. The Henderson-Hasselbalch equation is used for measuring the acid base balance.
4. J cells are responsible for acid secretion in kidney.

Fluid therapy

o Fluid use to correction of acidosis – NS
o Fluid use to correction of dehydration in diarrhea – NS, RL
o Fluid use to improvement of microcirculation – Dextran 40
o Resuscitation during shock state – NS,RL
o In case of burn in first 24 hours & Dengue shock – RL

Total parenteral nutrition

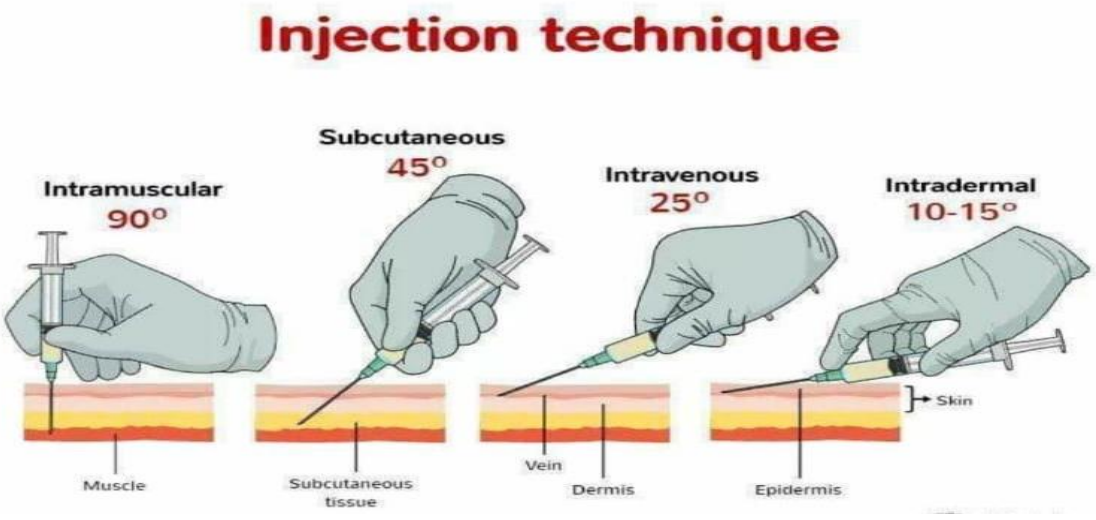
- Required nutrition therapy for less then 10 days.
- Administered through central venous catheter in superior vena cava, Internal jugular vein, Subclavian vein, Inferior vena cava, Femoral vein.

Peripheral parenteral nutrition

- Required nutrition therapy for more then 10 days.

Parenteral route of Drug administration (Injection)

Parenteral therapy is a route of administration for drugs which are directly injected into tissue fluid or blood without having to cross the enteral mucosa.



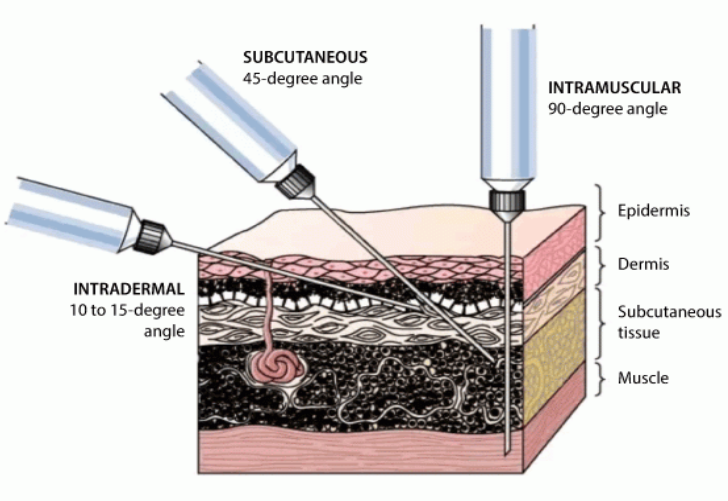
Advantages:-

- **Rapid and uniform absorption of the drug, especially those of the aqueous solutions**
- **Rapid onset of the action compared to that of the oral and the subcutaneous routes**
- **IM injection bypasses the first-pass metabolism**
- **It also avoids the gastric factors governing the drug absorption**
- **Has efficacy and potency comparable to that of the intravenous drug delivery system.**
- **Highly efficacious in emergency scenarios such as acute psychosis and status epilepticus**
- **Depot injections allow slow, sustained, and prolonged action**
- **A large volume of the drug can be administered compared to that of the subcutaneous route**

Disadvantages:-

- **Expert and a trained person is required for administrating the drug by IM route**
- **The absorption of the drug is determined by the bulk of the muscle and its vascularity**
- **The onset and duration of the action of the drug is not adjustable**
- **In case of inadvertent scenarios such as anaphylaxis or neurovascular injuries, intravenous (IV) assess needs to be secured**
- **IM injection at the appropriate landmarks may be difficult in a child as well as in patients requiring physical restrain**
- **Inadvertent injection in the subcutaneous plane of the fascia can lead to delayed action of the drug**
- **Painful procedure.**
- **Suspensions, as well as oily drugs, cannot be administered**
- **Can lead to anxiety in the patient, especially in children**
- **Self-administration of the drug can be difficult**
- **The precipitation of the drug following faster absorption of the solvent may lead to delayed and prolonged action of the drug**
- **Unintended prolonged sequelae following delayed drug release from the muscular compartment**
- **Need for temporary restraint of the patients, especially in cases with children**

Important parenteral routes are:-



(i) **Subcutaneous**
(ii) **Intramuscular**
(iii) **Intravenous**
(iv) **Intradermal**

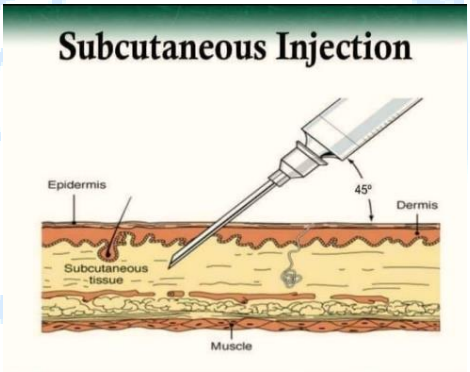
Some other parenteral routes are:-

(i) **Intraperitoneal**
(ii) **Intraosseous**
(iii) **Intracardiac**
(iv) **Intraarticular**
(v) **Intracavernous**

1. Subcutaneous

Introduction:-

The subcutaneous administration route is widely used to administer different types of drugs given its high bioavailability and rapid onset of action. However, the sensation of pain at the injection site might reduce patient adherence. Apart from a direct effect of the drug itself, several factors can influence the sensation of pain: needle features, injection site, volume injected, injection speed, osmolality, viscosity and pH of formulation, as well as the kind of excipients employed, including buffers and preservatives. Short and thin needles, conveniently lubricated and with sharp tips, are generally used to minimize pain, although the anatomic injection site (abdomen versus thigh) also affects the sensation of pain. Large subcutaneous injection volumes are associated with pain. In this sense, the maximum volume generally accepted is around 1.5 ml, although volumes of up to 3 ml are well tolerated when injected in the abdomen.

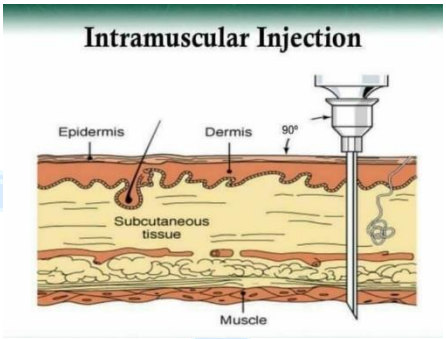


Biopharmaceuticals, such as vaccines, heparin, insulin, growth hormone, hematopoietic growth factors, interferons, monoclonal antibodies & local anesthetics are drugs which are administrated by subcutaneous route.

Needle

The needle needs to be long enough to ensure that the medication reaches the hypodermis but not so long that this is injected in the underlying muscle.

2. Intramuscular (IM)



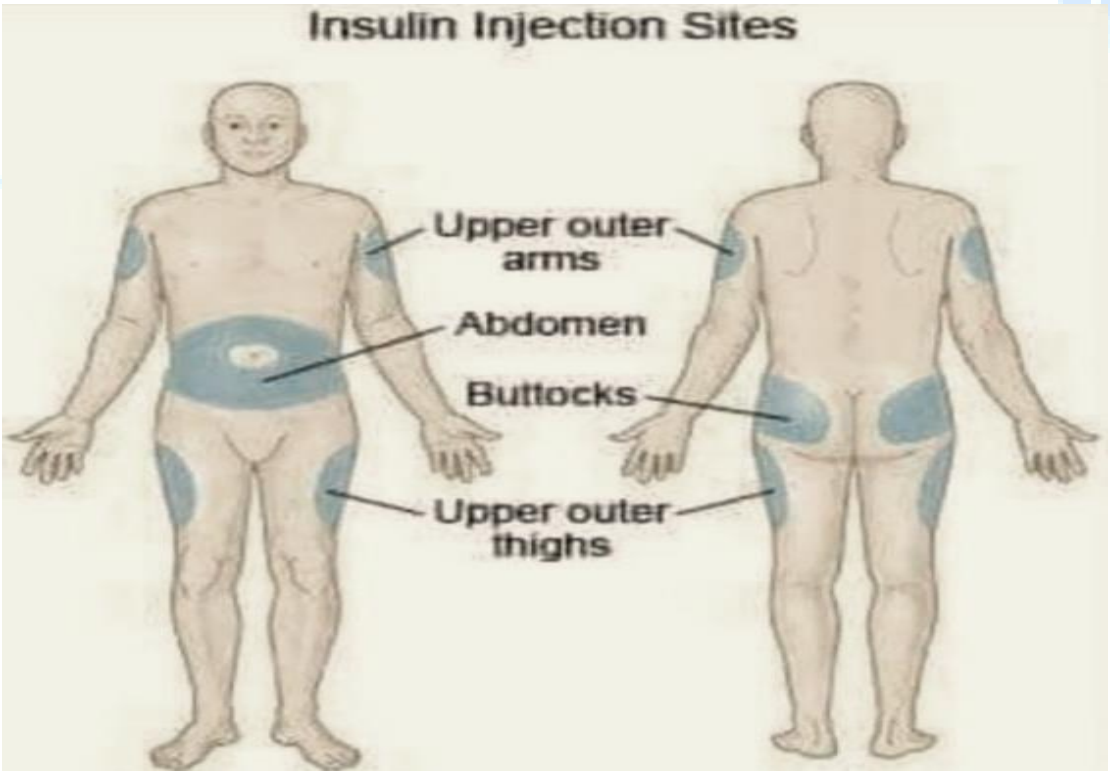
Introduction

Intramuscular injection is the method of installing medications into the depth of the bulk of specifically selected muscles. The basis of this process is that the bulky muscles have good vascularity, and therefore the injected drug quickly reaches the systemic circulation and thereafter into the specific region of action, bypassing the first-pass metabolism. It is one of the most common medical procedures to be performed on an annual basis.

Drugs may be given intramuscularly both for prophylactic as well as curative purposes, and the most common medications include

- **Antibiotics- penicillin G benzathine penicillin, streptomycin**
- **Biologicals- immunoglobins, vaccines, and toxoids**
- **Hormonal agents- testosterone, medroxyprogesterone.**

Anatomical Landmarks



There are specific landmarks to be taken into consideration while giving IM injections so as to avoid any neurovascular complications. The specific landmarks for the most commonly used sites are discussed below

Dorsogluteal Region

- **5 to 7.5 cm below the iliac crest.**
- **Upper outer quadrant of the upper outer quadrant within the buttocks**

Ventrogluteal Region

- **The heel of the opposing hand is placed in the greater trochanter, the index finger in the anterior superior iliac spine, and the middle finger below the iliac crest. The drug is injected into the triangle formed by the index, middle finger, and the iliac crest**

Deltoid

- **2.5 to 5 cm below the acromion process.**

Vastus Lateralis

- **The middle third of the line joining the greater trochanter of the femur and the lateral femoral condyle of the knee**

Indication:-

IM is commonly indicated for patients who are:

- **Noncompliant**
- **Uncooperative**
- **Reluctant**
- **Unable to receive drugs through other commonly utilized routes**

Contraindications:-

- **Active infection, cellulitis, or dermatitis at the site of administration**
- **Known allergy or hypersensitivity to the drug**
- **Acute myocardial infarction- the release of muscle enzymes may provide a confounding bias in making the diagnosis**
- **Thrombocytopenia**
- **Coagulation defects**
- **Hypovolemic shock- the absorption of the drug may be hampered owing to compromised vascularity to the muscle**

- **Myopathies**
- **Associated muscular atrophy- leads to delayed drug absorption as well as adds up the risk of neurovascular complications.**
- **Muscle fibrosis and contracture**
- **Abscess at the injection site**
- **Gangrene**
- **Nerve injury -the sciatic nerve in gluteal injection, the femoral nerve in vastus lateralis injection, the superior gluteal nerve in dorsogluteal injection, the femoral nerve in vastus lateralis injection, radial nerve in deltoid injection**
- **Skin slough**
- **Periostitis**
- **Transmission of HIV, hepatitis virus**
- **Persistent pain at the site of injection**

Equipment:-

1. **20-25 gauge syringe with a needle length of 16 to 38 mm**
2. **Filter needle**
3. **Alcohol-based antiseptic solution**
4. **The correct drug in an appropriate dose**
5. **Dry cotton swab**
6. **Self-adhesive bandage**
7. **Needle disposal unit**

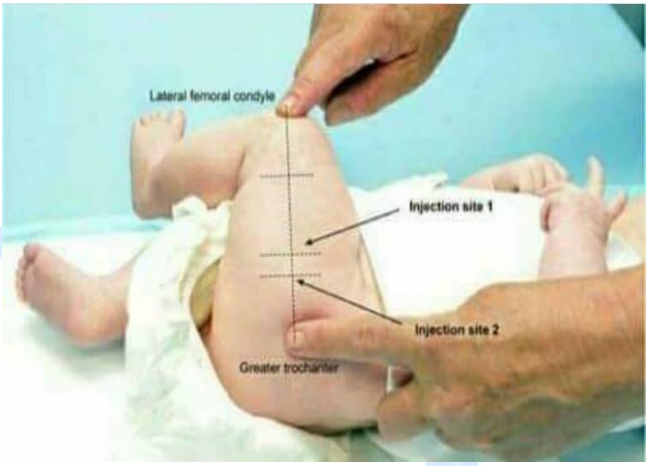
Site selection:-

- **Infants- vastus lateralis**
- **Children- vastus lateralis and deltoid**
- **Adults- ventrogluteal and deltoid**

Needle length:-

- **Vastus lateralis- 16 to 25 mm**
- **Deltoid- 16 to 32 mm (children), 25 to 38 mm(adults)**
- **Ventrogluteal- 38 mm**

Pediatrics:-



The most common serious complications of intramuscular injections in children are muscle contractures and nerve injury. Muscle contracture occurs most commonly after injections in the anterior and lateral thigh, and sciatic nerve injury is the most frequently reported serious complication of the gluteal area.

The technique of administering intramuscular injections involves attention to the appropriate site of needle insertion, needle size, and angle of injection. Suggested techniques with illustrations are included. The appropriate site of injection depends upon the age and size of the child. Multiple injection sites may be preferable in some cases. Compliance with meticulous technique may reduce the incidence of complications; however, complications can occur in spite of every appropriate precaution.

Sites:-

- Infants- vastus lateralis.
- Children- vastus lateralis and deltoid.
- Adults- ventrogluteal and deltoid.

3. Intravenous:-

Introduction:-

Intravenous (IV) push administration can provide clinical and practical advantages over longer IV infusions in multiple clinical scenarios, including in the emergency department, in fluid-restricted patients, and when supplies of diluents are limited. In these settings, conversion to IV push administration may provide a solution. This review compiles available data on IV push administration of antibiotics in adults, including preparation, stability, and administration instructions. Prescribing information, multiple tertiary drug

resources, and primary literature were consulted to compile relevant data. Several antibiotics are Food and Drug Administration–approved for IV push administration, including many beta-lactams. In addition, cefepime, ceftriaxone, ertapenem, gentamicin, and tobramycin have primary literature data to support IV push administration. While amikacin, ciprofloxacin, imipenem/cilastatin, and metronidazole have limited primary literature data on IV push administration.

Indication:-

- **Drug reaches the stream of blood immediately having full access to the entire body and hence, rapid action is produced rendering this route to be the most efficient in life-threatening situations.**
- **Irritating and non-isotonic solutions can be administered intravenously since the intima of the vein are insensitive.**
- **Drugs can be delivered at a uniform rate.**
- **Highly irritant drugs, e.g. anticancer drugs can be given because they get diluted in blood.**

Contraindication:-

- **Pain at the site of injection.**
- **Once the drug is injected, its action cannot be halted and the drug cannot be removed by various methods like forced emesis or binding of charcoal (activated) as introduction of any particulate matter or any other substance can lead to fatal embolism.**
- **Extravasation of some drugs can cause injury, necrosis, and sloughing of tissues.**
- **Severe adverse effect especially when organs such as liver, heart, brain are involved in toxicity.**
- **This route has a high probability of bacterial contamination, so strict aseptic conditions are needed.**
- **Chances of air embolism is another risk**

Sites:-

- **Some common sites for short-term IV lines include forearm locations, such as the wrist or elbow, or the back of the hand. Some situations may require using the outer surface of the foot.**

- **In very urgent situations, healthcare professionals may decide to use other injection sites, such as a vein in the neck.**

- **Central lines generally feed into the superior vena cava. However, the initial injection site will typically be in the chest or arm.**

- **A direct IV injection, or IV push, involves injecting a therapeutic dose of a medication or another substance directly into a vein**

4. Intradermal Injection:-

Indroduction:-

Most vaccines are delivered by the intramuscular or subcutaneous routes using a needle and syringe;

Intradermal (ID) vaccination induces a more potent immune response and requires lower vaccine doses as compared with standard vaccination routes.

The skin is very important as a barrier against the external environment and contains plentiful immune cells, including Langerhans cells and dermal dendritic cells in the epidermis and dermis, respectively.

These cells have crucial roles in presenting antigens and inducing immune responses. Recent research in skin immunology has established the concept of a dermal immune system, and studies indicate that antigen delivery into the epidermis and dermis better stimulates these cells. Thus, intradermal (ID) vaccination is a promising method for eliciting a potent immune response. Dose sparing refers to achieving an equivalent immune response with a dose lower than that used in intramuscular (IM) and subcutaneous (SC) vaccines. The advantages of ID vaccination may contribute to cost saving, vaccine volume reduction, easier access to vaccines in areas with limited resources, and better supply during epidemics of emerging or re-emerging infectious diseases.

Intradermal (ID) injection administers the vaccine in the topmost layer of the skin.

Fractures

- A fracture, also known as a broken bone, is a medical condition in which a bone is partially or completely cracked or broken.
- Fractures can occur in any bone in the body, and can be caused by a variety of factors including falls, accidents, sports injuries, and osteoporosis.

Types of fractures

1. Simple or closed fracture: The bone is broken, but the skin is not pierced.
2. Compound or open fracture: The bone breaks through the skin.
3. Greenstick fracture: The bone is partially broken and bent.
4. Comminuted fracture: The bone is broken into several pieces.
5. Hairline fracture: A small crack in the bone.
6. Stress fracture: A hairline fracture caused by overuse or repetitive stress on the bone

Nerve injuries

Brachial Plexus Injury

1) The root value of the long thoracic nerve is the C5, C6, C7
2) Upper trunk injury will lead to difficulty in abduction Of shoulder and flexion at elbow
3) Sural nerve serve as donors for nerve grafting procedures

Erb' Palsy

- Abduction at shoulder is lost in Erb's palsy.

Klumpke's paralysis

- Klumpke's paralysis is due to injury to C8, T1

Axillary Nerve (C5 C6)

- The nerve involved in anterior dislocation of the shoulder is Axillary

Median Nerve

1) Major causalgia develops after injury to a major mixed nerve, most commonly the Median nerve
2) APE thumb deformity is seen following injury to Median nerve
3) A "true claw-hand" of severe type results from a combined lesion of median and ulnar nerves at the elbow
4) Pointing index is because of Median nerve injury
5) Loss of sensation in lateral 3 and ½ finger, test done and Phalen test, Tinel test.
6) Compression of a nerve within the carpal tunnel inability to oppose the thumb.
7) Conservative treatment generally, surgery rarely.

Ulnar Nerve Injury

1) Froment's test is done for Ulnar nerve injury and Froment's sign is characteristic seen in Ulnar nerve injury.
2) Claw hand is caused by lesion of Ulnar nerve.
3) A patient presents with loss of sensation of ring and litter with wasting of hypothenar muscles, suspect Ulnar nerve injury before divisioninto deep and superficial branches.

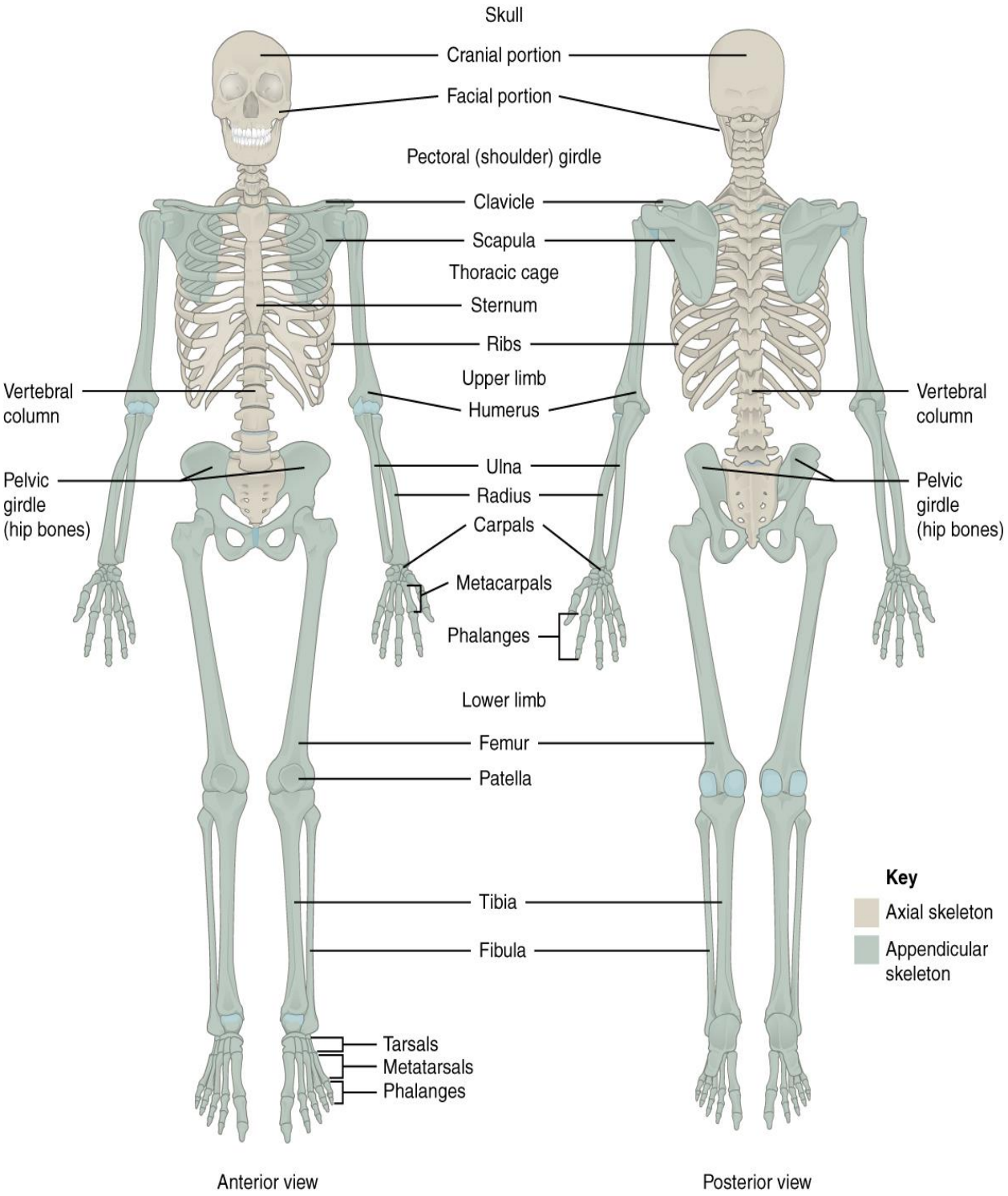
Radial Nerve Injury

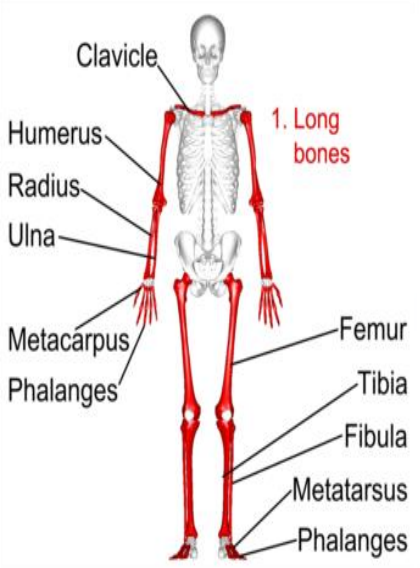
1) Damage to the radial nerve in the spinal groove spares the Long head of triceps
2) The following are affected in low radial nerve palsy; Extensor carpi radialis brevis, Finger extensors and sensations on dorsum of hand.
3) Radial Nerve Injury causes Inability to Extend Wrist and Fingers
4) Injury to radial nerve in lower part of spiral groove leaves extensions at elbow joint intact
5) Extensor carpi radialis longus is spared in low radial nerve injury.
6) Most common cause of neurological deficit in upper limb is Erb's palsy

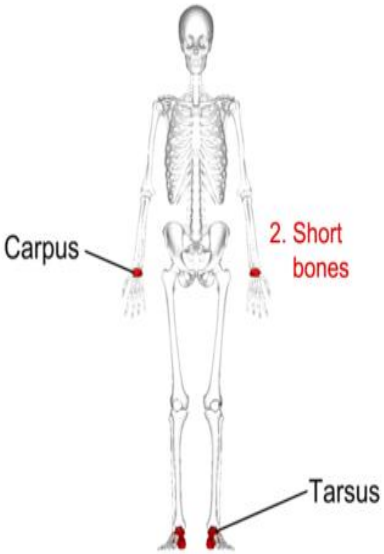
Common Peroneal Nerve Injury

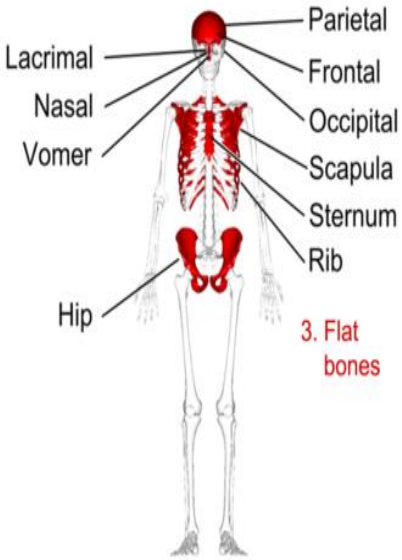
- Most common site to injure common peroneal in injury is Neck of Fibula

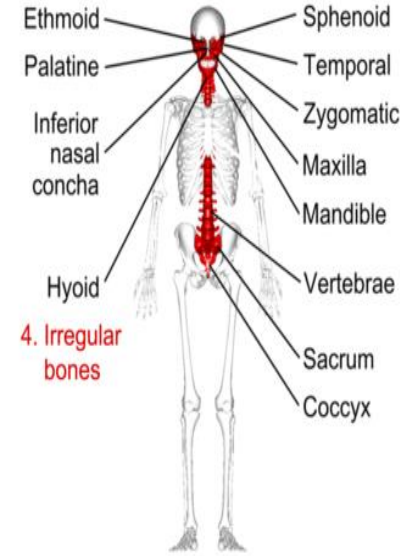
Bones of Full Body

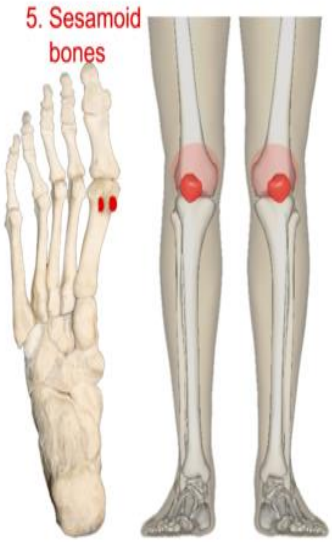


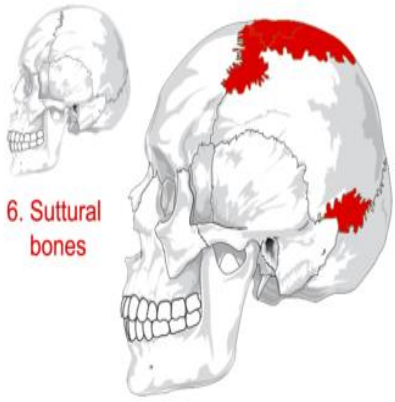

Clavicle
Humerus
Radius
Ulna
Metacarpus
Phalanges
1. Long bones
Femur
Tibia
Fibula
Metatarsus
Phalanges

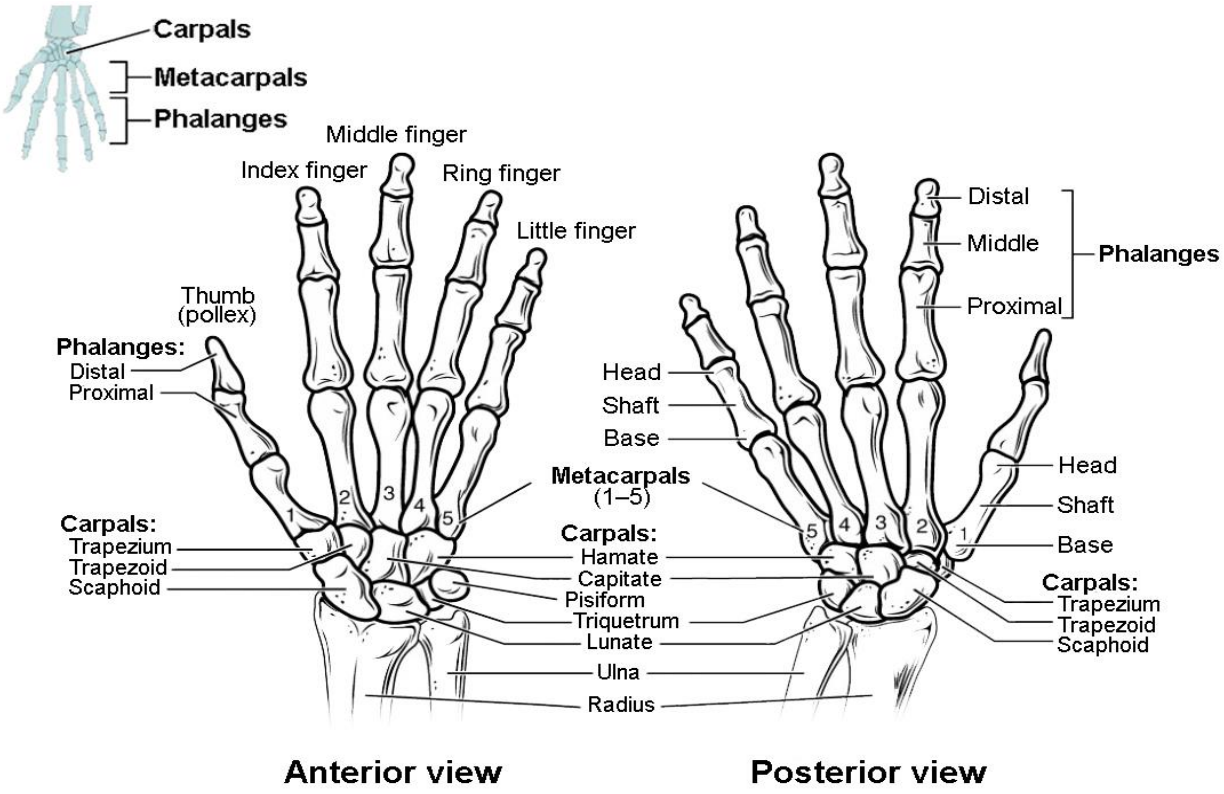

Carpus
2. Short bones
Tarsus

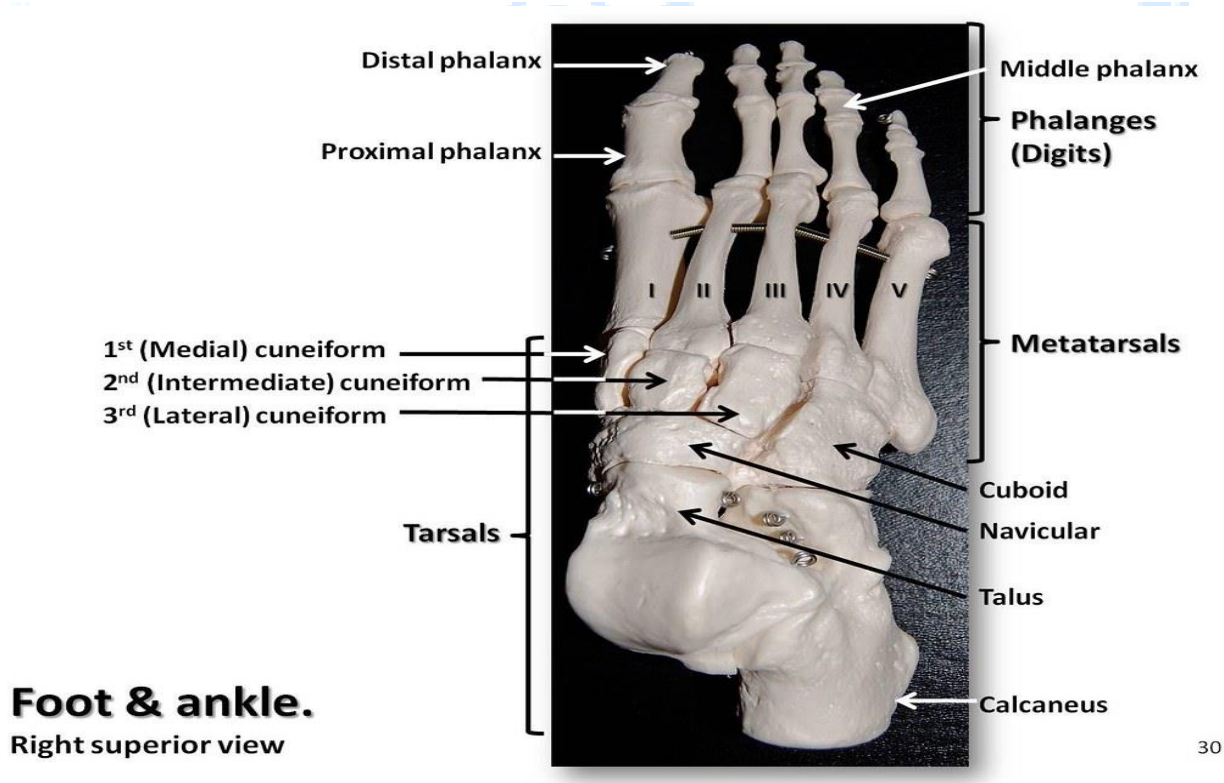

Parietal
Lacrimal
Frontal
Nasal
Occipital
Vomer
Scapula
Sternum
Rib
Hip
3. Flat bones


Ethmoid
Sphenoid
Palatine
Temporal
Zygomatic
Inferior nasal concha
Maxilla
Mandible
Vertebrae
Hyoid
4. Irregular bones
Sacrum
Coccyx


5. Sesamoid bones


6. Suttural bones


Carpals
Metacarpals
Phalanges
Middle finger
Index finger
Ring finger
Little finger
Thumb
(pollex)
Phalanges:
Distal
Proximal
Carpals:
Trapezium
Trapezoid
Scaphoid
Metacarpals
(1–5)
Carpals:
Hamate
Capitate
Pisiform
Triquetrum
Lunate
Ulna
Radius
Distal
Middle
Proximal
Phalanges
Head
Shaft
Base
Head
Shaft
Base
Carpals:
Trapezium
Trapezoid
Scaphoid
Anterior view
Posterior view


Distal phalanx
Middle phalanx
Phalanges
(Digits)
Proximal phalanx
I
II
III
IV
V
1st (Medial) cuneiform
2nd (Intermediate) cuneiform
3rd (Lateral) cuneiform
Metatarsals
Cuboid
Navicular
Tarsals
Talus
Calcaneus
Foot & ankle.
Right superior view
30

Injuries of upper limb

Name of fractures	Effect
Colles fracture	**Fracture of distal 1/3 of radius & dorsal and radial displacement (Dinnerfork deformities)**
Monteggia fracture	**Fracture of proximal 1/3 of ulna & dislocation of head of radius**
Galeazzi fracture	**Dislocation of distal 1/3 of Radius & distal Radioulnar joint or ulnar head**
Chauffer's fracture	**Intra-auricular oblique fracture of styloid process of radius**
Piedmont fracture	**Closed fracture of radius at junction of middle 1/3 & distal 1/3.**
Moore's fracture	**Fracture of distal end of radius & subluxation of distal end of ulna**
Night stick fracture	**Transfer fracture of shaft of ulna**
Green stick fracture	**Cortex is half intact & half bend**
Essex lopresti fracture	**Communited fracture of radius head fracture with dislocation of interosseous membrane**
Bennett's fracture	**Oblique intra-articular fracture of base of first meta carpal**
Barton's fracture	**Fracture dislocation of radio carpal joint**
Boxer fracture	**Vertical displacement fracture through neck of 5th metacarpal**
Baby car fracture	**Fracture of distal end of humerus with proximal radius, ulna**

Injuries of lower limb

Name of fractures	Effect
Dashboard's fracture	**Results in post, dislocation of hip**
Bumper fracture	**Depressed comminuted fracture of lateral condyle of tibia**
Pott's fracture	**Bimalleolar ankle fracture**
Cotton's fracture	**Trimalleolar ankle fracture**
Aviator's fracture	**Fracture of neck of talus (in aircraft injuries)**
Chopart fracture	**Fracture of Distal end of Tibia**
Massonaise fracture	**Fracture of neck of fibula With ankle**
Pilon fracture	**Fracture of dislocation through inter-tarsal joint**
Jumper fracture	**Fracture of pelvis**
Essex lopresti fracture	**Fracture in radial head & plus dislocation of distal radioulnar joint & interosseous membrane disruption.**
Chalkstick fracture	**Fracture of of femur may be caused by Bisphosphonates**
Tillaux fracture	**Tibial fracture of the anterolateral distal tibial epiphysis with avulsion due to the strong anterior tibiofibular ligament.**

Miscellaneous

Name of fractures	Effect
Clay-shoveler fracture	Avulsion fracture spinous process of T1>C7
Hangman's fracture	Fracture through pedicle & lamina of C2 vertebra or traumatic spondylolisthesis/subluxation of C2 over C3
Jefferson's fracture	Burst fracture of ring of atlas (Body of C1)
Guardsman fracture	Fracture of mandible

Important angle

Angle	Used for
Bohler's angle	Fracture of calcaneum
Gissane's angle	Fracture of calcaneum
Bowman angle	Supracondylar fracture of humerus
Cobb's angle	Scoliosis
Dickson angle	Pott's spine
Powel angle	Fracture of neck of femur
Garden angle	Fracture of neck of femur
Q angle	Patellar dislocation

Test done for some orthopedics cases

Condition	Test done
Testing patency of radial and ulnar arteries	Allen's test
Spinal tenderness	Anvil test
Recurrent shoulder dislocation	Apprehension test
Anterior shoulder dislocation	Biryant's test, Callaway's test, Dugas test
Inferior shoulder dislocation	Sulcus sign
Dorsolumbar TB of spine	Coin test
Tennis elbow	Cozen test, Wringing test
Valgus test	Medial collateral ligament
Varus test	Lateral collateral ligament
Gaenslen test	Sacro-illiac patology
Ludloff's sign	Lesser trochanter avulsion
Jobe's test	Supraspinatus tear
Thomas test	Fixed flexion hip deformity
Pen test	Abductor pollicis brevis
Oschenner's nerve	Medial nerve palsy
Card test Palmar interossei	
Book test	Abductor pollicis

Fractures of spine

- Fractures of the spine refer to breaks or cracks in one or more of the bones in the spinal column.
- The spinal column consists of 33 vertebrae, which are stacked on top of each other and separated by intervertebral discs.
- Fractures of the spine can occur in any of these vertebrae and can be caused by trauma, such as a car accident or a fall, or by medical conditions that weaken the bones, such as osteoporosis.
- Spinal fractures can be classified into different types based on their location and severity. For example, compression fractures occur when a vertebra collapses, while burst fractures occur when a vertebra breaks into several pieces.
- Fractures in the cervical spine (neck) or the thoracic spine (mid-back) can be particularly serious and may result in paralysis or other long-term complications
- The severity of a spinal fracture depends on several factors, including the location and type of fracture, as well as the age and overall health of the person affected.
- If you suspect that you or someone you know has sustained a spinal fracture, it is important to seek medical attention right away. Symptoms of a spinal fracture may include severe back pain, difficulty moving, numbness or tingling in the limbs, or loss of bowel or bladder control. A doctor can perform a physical examination and imaging tests, such as X-rays or an MRI, to diagnose a spinal fracture and recommend the appropriate treatment
- Some spinal fractures may only require conservative treatments, such as rest, pain medication, and physical therapy, while others may require more invasive treatments, such as surgery.

Tumors of Bone

- Bone tumors are abnormal growths of cells within the bones.
- There are two main types of bone tumors: primary and secondary.
  1. Primary bone tumors originate in the bone tissue itself
  2. Secondary bone tumors are tumors that have spread (metastasized) to the bones from another part of the body

- Primary bone tumors are relatively rare and can be either benign (non-cancerous) or malignant (cancerous).
- Some common types of primary bone tumors are given below which are

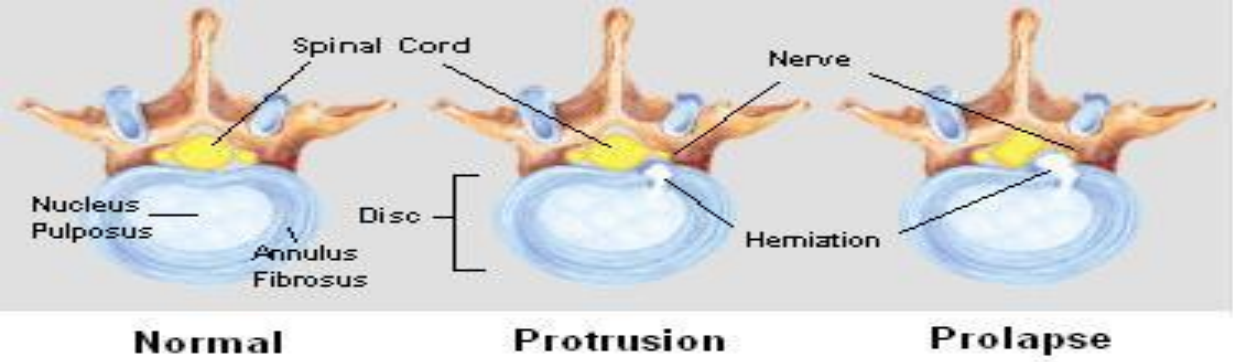
I. Osteosarcoma
II. Chondrosarcoma
III. Ewing sarcoma,
IV. Multiple myeloma.

- These tumors can develop in any part of the skeleton, including the arms, legs, spine, and skull.
- Secondary bone tumors are much more common than primary bone tumors and are almost always malignant.
- These tumors are caused by cancer cells that have spread from another part of the body, such as the breast, lung, or prostate.

- The most common sites for secondary bone tumors are the spine, ribs, pelvis, and long bones of the legs.

- Symptoms of bone tumors may include pain, swelling, and stiffness in the affected area, as well as bone fractures.
- Diagnosis typically involves imaging tests, such as X-rays, CT scans, or MRI scans, as well as a biopsy to examine the cells in the tumor.
- Overall, the prognosis for bone tumors depends on several factors, including the type and stage of the tumor, as well as the patient's age and overall health.
- With early diagnosis and appropriate treatment, many bone tumors can be successfully treated, and patients can go on to live long, healthy lives.
- Treatment for bone tumors depends on the type and stage of the tumor, as well as the age and overall health of the patient.
- Treatment options may include surgery to remove the tumor, radiation therapy, chemotherapy, or a combination of these approaches.
- In some cases, treatment may be palliative, focusing on pain relief and symptom management.

Intervertebral disc prolapse



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- Intervertebral disc prolapse, also known as a herniated disc or slipped disc.
- It is a common condition that occurs when the soft tissue inside a spinal disc protrudes or bulges out through a tear or weakness in the outer layer of the disc.
- This can put pressure on nearby nerves and cause pain, numbness, or weakness in the affected area.
- Intervertebral disc prolapse can occur in any part of the spine, but is most common in the lower back (lumbar spine) or neck (cervical spine).
- It can be caused by aging, degenerative changes in the spine, injury or trauma to the spine, or repeated strain on the spine from activities such as heavy lifting or twisting.
- Symptoms of intervertebral disc prolapse may include:
  1) Pain in the back, neck, or limbs
  2) Numbness or tingling in the limbs
  3) Weakness in the limbs
  4) Loss of bladder or bowel control (in severe cases)

- **Treatment for intervertebral disc prolapse depends on the severity of the condition and may include:**
  1) Pain management: Medications such as nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxants, or opioids may be prescribed to help manage pain.
  2) Physical therapy: Exercises and stretches may be prescribed to help strengthen the muscles around the affected area and improve flexibility.
  3) Surgery: In severe cases, surgery may be necessary to remove the herniated portion of the disc and relieve pressure on the affected nerves

Arthritis and its types

- Arthritis is a term used to describe inflammation of the joints, which can cause pain, stiffness, and reduced mobility.

There are many types of arthritis, but the most common types include:

1) Osteoarthritis: This is the most common type of arthritis and is caused by the wear and tear of the joints over time. It usually affects older adults and can cause pain, stiffness, and reduced mobility, especially in weight-bearing joints such as the hips and knees.
2) Rheumatoid arthritis: This is an autoimmune disease that causes inflammation of the joints, leading to pain, stiffness, and reduced mobility. It can affect people of all ages and often affects the small joints of the hands and feet.
3) Psoriatic arthritis: This is a type of arthritis that occurs in people with psoriasis, a skin condition that causes scaly patches on the skin. It can cause joint pain, stiffness, and swelling, as well as skin and nail changes.
4) Ankylosing spondylitis: This is a type of arthritis that affects the spine, causing pain, stiffness, and reduced mobility. It can also affect other joints, such as the hips and shoulders
5) Gout: This is a type of arthritis that is caused by the buildup of uric acid crystals in the joints, leading to pain, swelling, and inflammation. It most commonly affects the big toe but can also affect other joints.

- Treatment for arthritis depends on the type and severity of the condition, but may include medications to reduce inflammation, pain, and stiffness, as well as physical therapy and lifestyle modifications.
- In some cases, surgery may be necessary to repair or replace damaged joints.

Osteomalacia

- Osteomalacia is a bone disorder that occurs when the body does not get enough vitamin D, calcium, or phosphorus, which are essential for building and maintaining strong bones.
- This can result in weakened and soft bones, leading to increased risk of fractures and other bone deformities.

❖ **Osteomalacia can be caused by a variety of factors, including:**

1) Inadequate intake of vitamin D, calcium, or phosphorus
2) Malabsorption of nutrients due to digestive disorders or surgery
3) Chronic kidney disease
4) Liver disease
5) Certain medications, such as anticonvulsants or glucocorticoids

❖ **Symptoms of osteomalacia may include:**

1) Muscle weakness
2) Bone pain
3) Bone tenderness
4) Difficulty walking or standing
5) Skeletal deformities, such as bowing of the legs or curvature of the spine

❖ **There are several types of osteomalacia that can occur, depending on the underlying cause of the condition. Some common types of osteomalacia include:**

1) Nutritional osteomalacia: This type of osteomalacia occurs due to a deficiency of vitamin D, calcium, or phosphorus, which are essential for bone health. This may occur due to inadequate intake or absorption of these nutrients, or due to increased requirements, such as during pregnancy or lactation.
2) Renal osteomalacia: This type of osteomalacia occurs due to chronic kidney disease, which can result in impaired kidney function and decreased ability to activate vitamin D. This can lead to decreased calcium absorption and bone mineralization, resulting in osteomalacia.
3) Tumor-induced osteomalacia: This rare type of osteomalacia occurs due to a tumor that produces a hormone called fibroblast growth factor 23 (FGF23), which causes increased excretion of phosphate in the urine and decreased absorption of calcium from the intestines. This can result in osteomalacia and other bone-related symptoms.
4) Osteomalacia due to medications: Certain medications, such as anticonvulsants or glucocorticoids, can cause osteomalacia by interfering with the body's ability to absorb or utilize calcium and vitamin D.

- Treatment for osteomalacia depends on the underlying cause and may involve supplementation with vitamin D, calcium, or phosphorus, as well as treating underlying medical conditions or stopping medications that may be causing the condition.
- In severe cases, surgery may be necessary to correct bone deformities or fractures

- Prevention of osteomalacia involves maintaining adequate intake of vitamin D, calcium, and phosphorus through a balanced diet and regular sun exposure.

Tuberculosis of Spine

- Tuberculosis of the spine, also known as Pott's disease, is a form of tuberculosis that affects the vertebrae of the spine.
- It is a rare form of tuberculosis, but can be a serious and potentially life-threatening condition if left untreated.
- Tuberculosis is caused by the bacterium Mycobacterium tuberculosis, which can spread from the lungs to other parts of the body, including the spine.
- In spinal tuberculosis, the bacterium causes an infection in the vertebrae, leading to destruction of bone tissue and the formation of abscesses.

❖ **Symptoms of spinal tuberculosis may include:**

1) Back pain, which may be severe and worsen over time
2) Stiffness and limited mobility in the back
3) Swelling or deformity of the spine
4) Numbness or tingling in the limbs
5) Weakness in the limbs
6) Loss of bladder or bowel control (in severe cases)

- Diagnosis of spinal tuberculosis typically involves imaging tests such as X-rays or MRI, as well as a biopsy to confirm the presence of the bacterium.
- Treatment for spinal tuberculosis usually involves a combination of medications, including antibiotics to kill the bacteria and pain management to relieve symptoms.
- In some cases, surgery may be necessary to stabilize the spine or remove infected tissue.

Rickets

- Rickets is a rare bone disorder that occurs in children and is caused by a deficiency of vitamin D, calcium, or phosphate.
- These nutrients are essential for building and maintaining strong bones, and a deficiency can lead to softening and weakening of the bones.

❖ **Rickets can be caused by a variety of factors, including:**

1) Inadequate exposure to sunlight, which is necessary for the body to produce vitamin D
2) Inadequate intake of vitamin D, calcium, or phosphate through diet or supplements
3) Malabsorption of nutrients due to digestive disorders or surgery
4) Certain medications that interfere with vitamin D metabolism

❖ **Symptoms of rickets may include:**

1) Delayed growth and development
2) Weak and brittle bones
3) Bowing of the legs or other skeletal deformities
4) Muscle weakness and cramps
5) Delayed tooth formation or defects in tooth enamel
6) Skeletal pain, particularly in the legs, pelvis, and spine

- Prevention of rickets involves maintaining adequate intake of vitamin D, calcium, and phosphate through a balanced diet and regular sun exposure.
- Infants who are exclusively breastfed may be at risk for rickets and may require vitamin D supplements.
- Treatment for rickets typically involves correcting the underlying nutrient deficiency.
- This may include increasing intake of vitamin D, calcium, or phosphate through diet or supplements, or treating underlying medical conditions.
- In severe cases, braces or casts may be necessary to correct skeletal deformities, or surgery may be required to stabilize the bones.

Osteoporosis vs Osteomalacia

Features	Osteoporosis	Osteomalacia
Also known as	Fragile bone disease	Soft bone disease
Mechanism	Bone resorbtion > Bone formation	Amount of calcium accretion per unit bone matrix is deficient in adult
Pathogenesis	Bone quality is normal but decrease In quantity	Osteoid formation is normal but defect in mineralization of of bone matrix
Clinical feature	Back pain, Fracture most commonly Dorsolumbar spine> Neck of femur> Colles	Bone pain, Muscle weakness, Spontaneous fracture
X-Ray	Most common site: Compression fracture of vertebrae T12-L1 level. Codfish vertebrae	Looser's zone, Champagne glass pelvis

Types of fractures in skull bone

1. **Linear (Break in a cranial bone resembling thin line)**
2. **Basilar (Fracture any bone in base of the skull)**
3. **Diastatic (Fracture occurs in sutures result in separation of sutures)**
4. **Depressed (Break in cranial bone with depression towards brain)**

Fractures in skull base

Anterior skull base	**Intraorbital injury,** **1st Cranial Nerve - Anosmia**
Central skull base	**Vascular injury (Intracranial artery occlusion)** **Cranial Nerve injury (II, III, IV, V, VI)**
Posterolateral skull base	**Vascular injury (Intracranial artery occlusion)** **Cranial Nerve injury (VII, VIII)** **Mastoid CSF leak**
Posterior skull base	**Vascular injury – Vertebrobasilar injury** **Cranial Nerve injury (IX, X, XI, XII)** **Craniocervical junction & C-Spine injuries.**

According to fossa

Anterior fossa	**Partial/ Total loss of vision & smell** **Eye movement defects**
Middle fossa	**Damage to carotid artery** **Hearing loss** **Loss of balance**
Posterior fossa	**Vertebral artery injury** **Cervical spine injury**

CHEST TRAUMA

- In blunt/penetrating chest trauma part of heart most vulnerable to injury i.e Right ventricle as it is situated substernal.
- Pulmonary contusion injury is m/c injury to lung seen in thoracic
- Diagnosis of pneumothorax is confirmed by erect PA view chest X-ray.
- Tracheobronchial disruption occurs usually within 2 cm of carina.
- Pericardial tamponade: The diagnosis is best made by a combination of injury pattern
- Treatment: Immediate anterolateral thoracotomy (if patient is stable) or pericardiocentesis through a subxiphoid pericardial window or via percutaneous drain placement.

RIB FRACTURE

• Results from fracture of at least 2 sites of 3 adjacent ribs.
• Diagnosis: by inspection asymmetrical chest movement and paradoxical movements are seen in
spontaneously breathing patient.
• Paradoxical respiration is seen in diaphragm paralysis
• Treatment: Mainly ventilator support.
• Mechanical ventilation should be started if Pa02 is <70 mmHg.
• Surgical stabilization (preferably internal) is advocated nowadays.
• Analgesia with regional anesthesia (epidural) has most role in chest wall injuries.
• Pulmonary contusion is NOT an indication for thoracotomy.
• Lung abscess is usually not seen in Mycoplasma pneumoniae.

Surgical incisions to open thorax

1. Median sternotomy is the preferred approach to heart
2. A sternotomy with a neck extension is useful for injuries at thoracic outlet.
3. Anterolateral thoracotomy in supine is performed for exploratory thoracotomy that to Pericardial tamponade.
4. Posterolateral thoracotomy is used for injuries of posterior aspect of the trachea or main bronchi near the carina, A tear of the descending thoracic can be repaired through a left posterolateral thoracotomy

Appendicitis

- Appendicitis – Rovsing sing, Obturator sign, Psoas sign, Blumberg's sign
- Line of incision in Appendicitis – McBurney's incision, Lanz incision.
- Most common organism causing appendicitis – E. Coli
- Sheren's triangle is area of hyperesthesia in abdomen in case of appendicitis
- Complication – Intestinal obstruction, Appendicular rupture, Appendicular abscess, Perforated appendicitis.

Gastric & Deodenal ulcer

	Peptic ulcer	Duodenal ulcer
Location	Along lesser curvature in pyloric antrum Posterior wall	First part part of duodenum Anterior wall
Bleeding	Common Due to erosion of Left gastric artery	Most common complication Occurs from posterior wall Due to erosion of gastroduodenal artery
Effect of eating	Aggravates pain Pain relieves by antacid	Relieves pain
Weight	Weight loss	Weight gain
Clinical features	Pain after taking food	Hunger pain Night pain
Barium meals shows	Hampton's line Niche on lesser curve	Show deformity Absent duodenal cap & trifoliate duodenum.
Association	Blood group "O" association	Blood group "A" association

Gastric Carcinoma

Lauren Classification for Gastric Carcinoma

- **Intestinal**
  - Patients greater than 50, male>female
  - Arises from metaplastic glands in chronic gastritis; associated with H. pylori

- **Diffuse (signet ring cell, linitis plastica)**
  - Most Commonly Younger patients, no gender preference
  - It is not associate with H. pylori
  - Incidence increasing

Perforated Peptic ulcer

Blumberg sign – Rebound tenderness

X-Ray

Cupula sign – Crescent shaped radiolucency under diaphragm

Rigler's sign – Visualization of both aspect of bowl wall (Bas-releif sign)

Football sign – Visualization

Most common site of ischemic ulcer – Fundus

Intestinal Tuberculosis

- It can effect any part from mouth to anus
- Most commonly it effects ileocecal region due to abundant Peyer's patches

Most commonly 2 foam of intestinal tuberculosis

1. Ulcerative
2. Hyperplastic

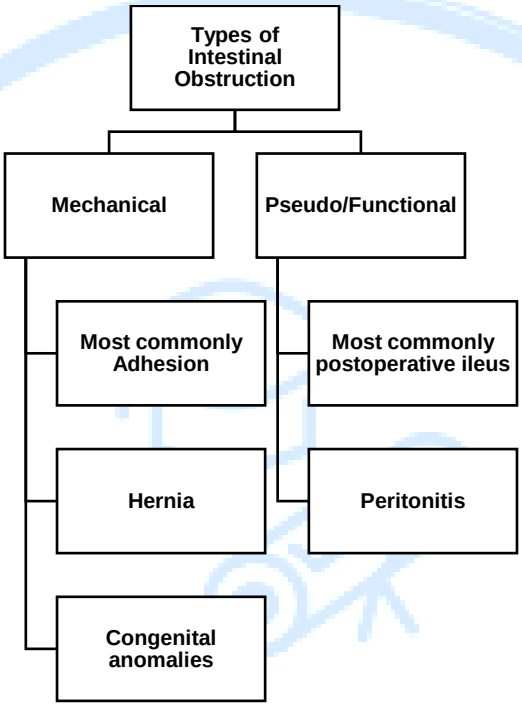
	Ulcerative Tuberculosis	Hyperplastic Tuberculosis
Pathological	Multiple transverse ulcers	Chronic granulomatous lesion
Clinical features	Diarrhea, Bleeding, Loss of appetite	Mass in right iliac fossa
Complication	Stricture, obstruction	Obstruction, surgery required
Causes	Secondary to pulmonary tuberculosis	Secondary or primarily

Most commonly organism now a days is Mycobacterium Tuberculosis Hominis.

Intestinal Obstruction

Cardinal sign seen in intestinal obstruction are

1. Abdominal Pain
2. Vomiting
3. Abdominal distension
4. Obstruction



Hydrocoele

A hydrocele consists of a collection of fluid within the tunica or processus vaginalis.

Although it may occur within the spermatic cord, it is most often seen surrounding the testis.

Communicating hydrocele of infancy and childhood is a form of indirect inguinal hernia. It is secondary to a patent processus vaginalis, which is continuous with the peritoneal cavity.

Types of Hydrocele

1. Vaginal hydrocele
Occurs when hydrocele sac is patent only in the scrotum
2. Infantile hydrocele
The sac from the scrotum is patent up to deep inguinal ring
3. True congenital hydrocele
In this condition, the scrotal sac communicates with the peritoneal cavity.

It is seen in infants may be secondary to TB peritonitis. The scrotal swelling appears when the child assumes an erect posture for a long time and it may not reduce due to inverted ink bottle effect.
Hence congenital hydrocoele is not reducible.
It regresses in size if child assumes supine position while sleeping

4. **Encysted hydrocoele of the cord**
   In this condition the sac is obliterated above (inguinal canal) and below (Scrotum)but patient at the root of the scrotum around spermatic cord.
   Diagnosis is established by traction test
5. **Hydrocoele-en-Bissac (bilocular hydrocoele)**
   In this condition, the scrotal sac communicates with another sac underneath the anterior abdominal wall musculature
   Diagnosis is made by eliciting cross-fluctuation test.

Hernia

Inguinal hernia

- ✓ Strangulated is blood supply of bowel is obstructed
- ✓ Direct inguinal hernia does not strangulate
- ✓ Direct through the Hesselbach 's triangle
- ✓ Indirect Inguinal hernia is most common of all forms of hernia.
- ✓ Bubonocele: hernia is limited in the inguinal canal.
- ✓ Direct: Through Posterior Wall of Inguinal Canal (Hesselbach's Triangle)
- ✓ Indirect: Through Deep Inguinal ring

Triangle of Doom:

a. Bounded laterally by the gonadal vessels
b. Medially by the vas deferens

Hernia Repairs:

a. Modified Bassini's
b. Shouldice repair
c. Lichtenstein on-lay patch repair (Tension-Free Hernia Repair)
d. Stoppa: Rives giant prosthetic repair of the visceral sac

Femoral Hernia

- ✓ More common in elderly women
- ✓ Strangulation occurs often without pain

- **Treatment:**
  a. Low Approach (LOCKWOOD)
  b. High Approach (McEVEDY)
  c. Inguinal Approach (LOTHEISSEN)

Umbilical Hernia

- ✓ Observe as most hernias close spontaneously before 5 years of age.
- ✓ Mayo Repair

Incisional Hernia

- ✓ Develops in scar of prior laparotomy or drain site
- ✓ Repair of larger defects generally requires the use of prosthetic materials, a tension free repair

Other Hernia's

- ✓ Sliding hernia (Hernia en glissade)
  a. Posterior wall of sac is also formed by cecum (right), Sigmoid colon (left)
  b. MORE common on the left side.

- ✓ Spigelian hernia Occurs commonly at the level of arcuate line
- ✓ Lumbar hernia through inferior lumber triangle of Petit
- ✓ Obturator hernia through the obturator canal
- ✓ Paraduodenal hernia MC variety of internal hernia
- ✓ Richter's hernia: Hernia in which the sac contains only a part of the circumference of the intestine
- ✓ Gibbon's Hernia – Hernia & Hydrocele
- ✓ Amyand hernia – Vermiform appendix within hernial sac
- ✓ Litters Hernia – Hernial sac contains Meckel diverticulum
- ✓ Richets hernia – Mesentric boarder of gut get incarcinated & strangulated without obstruction of lumen of hernial orifes
- ✓ Busaga hernia – Direct inguinal hernia
- ✓ De garengeot hernia – Appendix contains femoral hernia
- ✓ Spigelian hernia – Slit like defect in anterior abdominal wall adjacent to semilunar line
- ✓ Dodson hernia – Internal hernia

Anal fissure

- ✓ Most Common site Mid-line posteriorly
- ✓ Most Common symptom Pain

- Treatment:

  a. Conservative initially
  b. Surgery if above fails
  c. Lateral internal sphincterotomy
  d. Intersphincteric abscess
  e. Park / standard classification

- ✓ Low type/ High type (Supra levator / Pelvi rectal)
- ✓ MRI is the 'gold standard' for fistula imaging
- ✓ Primary fistulotomy (LOW FISTULA)

- ✓ High trans sphincteric and supra levator fistulas are managed with a cutting seton.
- ✓ A seton is a ligature of silk, nylon, Silastic or Linen
- ✓ A high fistula may be converted into a low fistula by setons

- **Goodsall's rule:**

  a. Used to indicate the likely position of the internal opening according to the position of the external opening(s)

  b. MC type of carcinoma to arise in fistula-in-ano Colloid carcinoma

Prostatitis

- ✓ Most commonly caused by E. Coli
- ✓ Rectal examination reveals hot and tender prostate
- ✓ Urethral instrumentation should be avoided in acute phase.
- ✓ Commonest presenting symptom is acute urinary retention and fever
- ✓ Main diagnostic tools are TRUS and CT scan.
- ✓ Treatment: Antibiotics, transurethral drainage under antibiotic cover, Prostatodynia.
- ✓ Symptoms of prostatitis but, no history of UTI.

Hemorrhoids

It is a type of mucus prolapse

Most commonly: Idiopathic cause

1. Internal Hemorrhoids: Located proximal to the dentate Line, Painless.
   - ✓ Classification of Internal hemorrhoids:
   - ✓ 1st degree, 2nd degree, 3rd degree, 4th degree
   - ✓ Rubber band ligation or sclerotherapy (only for internatal hemorrhoid)
   - ✓ Conservative treatment for 10 and 20

2. External Hemorrhoids Located distal to dentate Line, Painful.

   - ✓ Conservative treatment for 10 and 20
   - ✓ Surgical management required for 30 and 40
   - ✓ Closed hemorrhoidectomy and Stapler anopexy or hemorrhoid pexy

Splenic trauma

- It is most common organ injured in blunt trauma abdomen
- Malaria is most common cause of spontaneous rupture of spleen
- Splenic sepsis is more common in children
- Saegesser's splenic point of tenderness is found on sternomastoid & scalenus medius.
- During 5^{th} – 8^{th} months of featal life spleen is active in production of both RBC & WBC.
- Spleen is involved in only platelet entrapment in adult life.

- Kehr's sign, Balance's sign – Positive in splenic rupture.
- Splenectomy is advised in – Hilar injuries, Pulverized splenic parenchyma, Bleeding esophageal varices, Splenic abscess.
- Splenic artery embolism is indicated in – Grade III laceration, Bleeding in abdomen.

Cholecystitis

Risk Factor

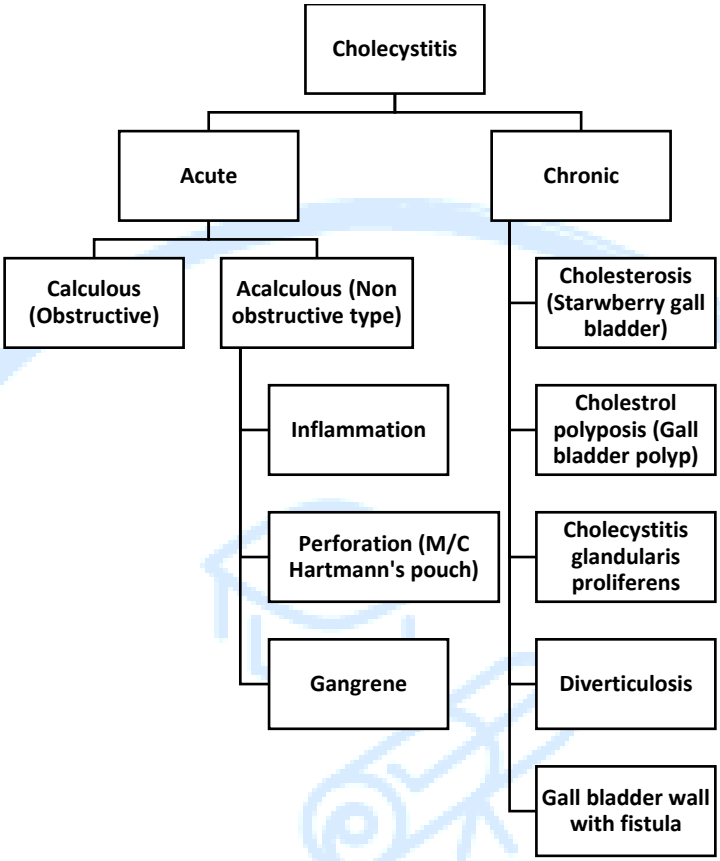
1. Fat
2. Female
3. Fertile
4. Age (Forty)

- **Cholesterol stone**
- **Most common type**
- **It is radiolucent**
- **Pigment stone**
- **Due to Hemolyzed RBC**

✓ Charcot traid – Billiary obstruction, (Pain, Fewer, Jaundice)

✓ Rigler's traid:- (Pnemobilia, Small bowel obstruction, Ectopic gall stone)

Cholecystitis



- **Sign's of cholecystitis Murphy's sign, Boas sign**
- **Radiolucent gall stone in X-Ray Mercedes Benz sign (Triradiate), Sea Gull sign (Biradiate).**

Liver Transplant

- ✓ Milan criteria are reliable in the selection or suitable candidates for OLT(Orthoptic liver transplantation) for the treatment of Hepatocellular carcinoma.
- ✓ Milan criteria: Used to assess suitability in patients for liver transplantation with cirrhosis and hepatocellular liver (HCC).
  1. Single tumour with diameter more than 5 cm, or up to 3 tumours each with diameter 3 cm
  2. NO extra-hepatic involvement
  3. No major vessel involvement

TYPES of liver donor

I. **Live donor**
II. **Cadaveric donor – More common**

Absolute contraindications to liver transplant

- Sepsis
- Active alcohol or drug abuse (no abstinence in last 6 months)

• Malignancy (Liver, GB cholangiocarcinoma)
• AIDS

- 1st liver transplantation was done by Startzl.
- Most transplant livers come from a donor who has recently died (cadaver).
- Most commonly indication in adults is cirrhosis.
- Most commonly indication in children is biliary atresia.

Polycystic kidney disease

- ✓ Autosomal dominant
- ✓ Kidneys are grossly enlarged with multiple cysts
- ✓ Most commonly clinical feature is hypertension
- ✓ Most common cause of death is Chronic Renal Failure.
- ✓ Spider leg or bell like deformity)
- ✓ Pain relief by:
  - I. Rovsing's operation (DE roofing of the cyst)
  - II. Dialysis or renal transplantation (only definitive treatment) for renal failure

Trauma of Kidney and Ureter

- ✓ Hematuria is the most common clinical feature
- ✓ Catheterization is contraindicated if blood is present at urethral meatus.
- ✓ Most commonly late Features is Urinoma
- ✓ In 90% of renal injuries conservative measure is treatment of choice

Ureteral Injuries

- ✓ Mid ureter is most common site in penetrating injuries
- ✓ Immediate exploration and repair is indicated.
- ✓ A bladder tube flap can be used if the ureter is short (Boari flap).

Nephrolithiasis

- ✓ Most common renal stone is calcium oxalate
- ✓ Triple phosphate or stag horn calculi is associated with alkaline urine and it is softest stone
- ✓ Uric acid calculi associated with acidic urine
- ✓ Cystine stone is hardest stone
- ✓ Hypercalciuria is the single most common metabolic abnormality found.

Hydronephrosis

Staging of hydronephrosis

- Stage I - Dilatation of ureter
- Stage II - Dilatation of ureter + Pelvis
- Stage III - Dilatation of ureter + Pelvis +Calyx
- Stage IV - Blunting of calyces

- Mostly unilateral
- Causes:
  a. Extramural
  b. Intramural

c. Intraluminal obstruction

- Unilateral hydronephrosis (commonly caused by idiopathic pelviureteral junction obstruction or calculus)
- Bilateral hydronephrosis
- Bladder outflow obstruction predominate.
- Ultrasound is the least invasive means of detecting hydronephrosis
- In males, complete epispadias with a wide and shallow scrotum.
- In females, bifid clitoris with wide separation of the labia

Congenital pulsion diverticulum in outlet obstruction.

Commonest site is near the ureteric orifice.

Traction diverticulum : sliding hernia

Prune belly syndrome (Eagle barret syndrome) is characterized by absent lower rectus abdominis, mega dilated ureter, bladder undescended testes and bilateral hydronephrosis but small dysplastic kidney.

Dietl's crisis is acute pain & swelling/ renal lump in renal area due to small stone into the ureter which causes unilateral obstruction and hydronephrosis. When stone passes away with diuresis, pain/ swelling subsides (Intermittent hydronephrosis).

Treatment: Serial USG & if dilatation is increasing then only decompression by nephrostomy.

Pyelonephritis

- Characterized by the presence of gas Within the renal
- Most commonly caused by Proteas > E. coli
- Triad "Fever, flank pain, and vomiting"
- CT scan is more sensitive
- Most cases require nephrectomy.

Affected kidney is almost always hydronephrotic and obstructed

Vesicle Calculus

Oxalate stone

- ✓ Size moderate
- ✓ Uneven surface
- ✓ Dark brown

Uric acid stone (Most common adult stone)

- ✓ Round shape
- ✓ Smooth surface
- ✓ Pale yellow colour
- ✓ Not opaque to X-Ray

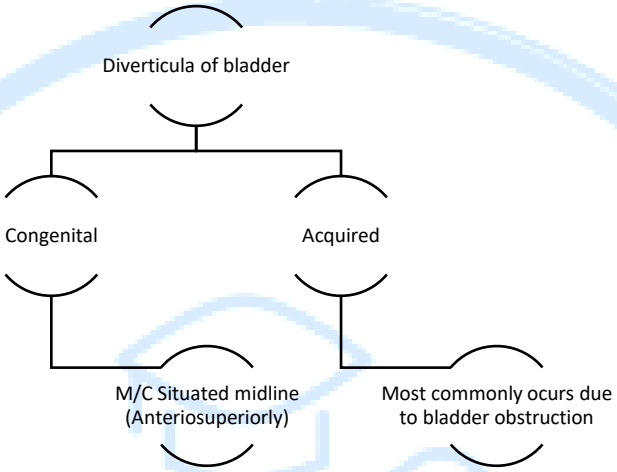
Cystine

- ✓ Radio opaque due to high Sulphur contains

Triple phosphate

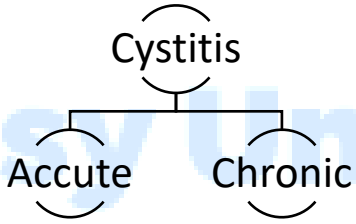
- ✓ Ammonium, Magnesium and calcium phosphate
- ✓ Dirty with in colour

Diverticula of Bladder



Cystitis

Inflammation of Bladder



E.N.T & OPTHALMOLOGY

امراض اذن، انف، و حلق و امراض عین

Eye Lid Diseases

1. **Distichiasis:-** Extra row of eye lashes
2. **Trichiasis:-** Misdirected eye lases (Most commonly occurs chronic inflammation of lid margin)
3. **Blepharitis:-** Inflammation of eyelid
4. **Ankyloblepharon:-** Adhesion of both upper & lower lid margin.
5. **Symblepharon:-** Adhesion of both bulbar conjunctiva & palpebral conjunctiva
6. **Stye:-** Inflammation of sebaceous glands of Zeis (Most common orbital cyst, dermoid cyst)
7. **Chalazion:-** Inflammation of meibomian glands

Malignancy caused by Chalazion is Meibomian gland adenocarcinoma

8. **Ectropion:-** Lower eyelid droops away from eye and turn outwrds
9. **Entropion:-** Eyelid rolled inwards against eyeball
10. **Ptosis:-** Abnormal lying (or) Dropping of upper eyelid (Due to 3rd cranial nerve palsy)

Diseases of lacrimal apparatus

Dacryo-adenitis

- ✓ It is a medical condition that refers to inflammation of the lacrimal gland, which produces tears. It is usually caused by a bacterial or viral infection, although other causes such as autoimmune disease or trauma can also contribute to its development.
- ✓ Symptoms of dacryoadenitis include pain, swelling, and redness in the area around the affected gland, as well as fever and general malaise.

Dacryocystitis

- ✓ It is a medical condition that refers to inflammation or infection of the lacrimal sac, which is located in the corner of the eye near the nose.
- ✓ The lacrimal sac is responsible for collecting tears from the eye and draining them into the nasal cavity.
- ✓ Symptoms includes pain, swelling, and redness in the area around the affected sac, as well as discharge from the eye and a feeling of pressure in the eye.

Fistula lacrimallis

- ✓ Fistula lacrimalis, also known as lacrimal fistula, is a rare medical condition that involves an abnormal connection or passageway between the lacrimal sac and the skin surface around the eye.
- ✓ This condition can occur as a complication of dacryocystitis,

Epiphora

Epiphora is a medical term that refers to excessive tearing or watering of the eyes. It is a common condition that can be caused by a variety of factors, including:

1. Blocked or obstructed tear ducts
2. Allergies or irritants in the air
3. Eyelid problems, such as ectropion or entropion
4. Infections, such as conjunctivitis or blepharitis
5. Corneal abrasions or other injuries to the eye
6. Dry eye syndrome

Symptoms of epiphora may include excessive tearing, watery eyes, blurred vision, and a feeling of irritation or discomfort in the eyes

Orbital disorders

Shape of orbit is Quadrilateral / Pyramidal

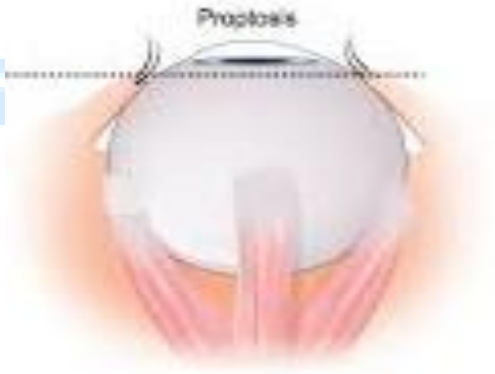
Capacity of orbit is 30 cc

Orbit volume is 30 ml

Eye volume is 6.5 ml

Proptosis (Exophthalmos)

Increase in size of eyeball



Types:

1. Unilateral
2. Bilateral

Causes:

Congenital

Trauma

Inflamation

Circulatory disturbance

Tumors of orbit

Orbital cellulitis

Acute infection of soft tissue of the orbit behind the orbital septum.

Causes:

Infection
Exogenous infection
Endogenous infection

Clinical features:-

Swelling with severe pain
Fever, Nausea, Vomiting
Vision loss/ diplopia
Swelling of lid
Chemosis of conjunctiva
Proptosis
Congestion of retinal veins.

Diseases of Conjunctiva

Conjuctivitis

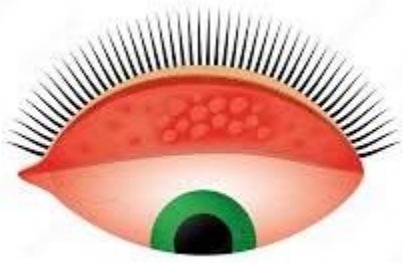
Conjunctivitis	Etiology
Angular	Lacunata Gram—ve-diplobacillus
Pseudomembranous	Adenoviruses, Staphylococcus, Streptococcus, pneumococcus, gonococcus. E.coli, Erythema
Mucopurulent	Staphtococcus aureus
Swimming pool	Chlamydia trachomitis
Pharyngoconjunctival fever	Adenovirus
Neonatal	Chlamydia trachomitis Gonorrhoea S.aureus Chlamydia Pseudomonas
Acute haemorrhagic	Entero virus Adeno virus Coxsackle Echo virus

- **Epithelial lining of conjunctiva is Stratified squamous non keratinised epithelium.**

- **The term "pink eye" is a broader term used for conjunctivitis caused by both bacteria and virus.**
- **Pink eye is usually caused by H.aegypticus (acute bacterial conjunctivitis) and adeno virus.**
- **Most common cause of viral conjunctivitis is adeno virus.**
- **Most common cause of keratoconjunctivitis in contact lens user is Pseudomonas.**
- **Inclusion conjunctivitis is caused by Clamydia trachomatis**
- **Most common type of bacterial conjunctivitis is Acute Mucopurulent conjunctivitis**
  Most Common cause = Streptococcus aureus
  Complication = Marginal corneal ulcer
- **Most common cause of bilateral conjunctivitis in neonates within 48hrs is Neisseria gonorrhoeae.**
- **Most common complication after neonatal gonococcal conjunctivitis is dacrocystitis.**

Trachoma

- **Also known as Egyptian Ophthalmia.**
- **It is a bacterial infection that effects Eyes, & it is a leading preventable cause of blindness.**
- **Caused by Chlamydia trachomatis**
- **Trachoma is a leading preventable cause of blindness.**



Conjunctival signs:

- **Follicular conjunctivitis (in upper tarsal conjunctiva, fornices affected)**
- **Limbal follicles (Leber cells in follicles)**
- **Arlt's line is a thick band of scarring in the conjunctiva**
- **Herbert's pits (After resolution of follicles)**

Corneal signs:

- **Superficial keratitis, trachomatous pannus, Herbert pits (at limbus), corneal ulcer.**

WHO Classification of trachoma

State of trachoma	Defination
Trachomatous Follicle	More than 5 follicle on upper tarsakl conjunctiva, each of more then 0.5 mm in size.
Trachoma Intense	Numerous inflamed follicle + papillae, more then 50% vessels can not seen clearly
Trachoma Scarring	Scarring of tarsal conjunctiva, white lines & bands
Trachomatous Triachiasis	At least one trichiatic eye lash, Evidence of recently removed in-turn lash (epilation)
Trachomatous Corneal Opacity	Corneal opacity obscuring papillary margin.

- **Screening age group for trachoma 5—9 yrs.**
- **"SAFE" strategy used for trachoma is**

Surgery to correct trichiasis of lids

Antibiotics (Oral, topical, tetra) for acute infection

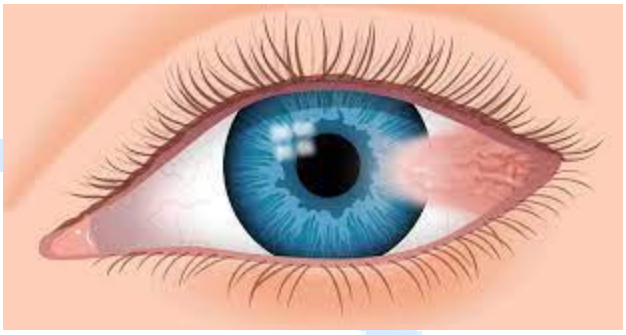
Facial hygiene

Environmental changes

Conjunctival follicle are seen in trachoma, benign folliculosis, acute and chronic follicular conjunctivitis.

PTERYGIUM

- Degenerative condition of subconjunctival tissue.
- Wing shaped fibrovascular fold of conjunctiva encroaching upon the cornea from either side.
- More common in hot climate, in elderly males.



Clinical Features

- Stocker's line: on head end due to deposition of iron.
- Islets of Vogt.

Treatment

- **Surgical excision is TOC.**

Pinguecula is considered precursor of pterygium.

Pinguecula is due to hyaline infiltration and elastic degeneration of submucous tissue. There is thickening of bulbar conjunctiva near the limbus in the area of palpebral fissure.

Diseases of Sclera

Episcleritis

It is inflammation of episcleral involving the overlying Tenon's capsule but not underlying sclera.

Clinical features

Episcleritis is characterized by redness, mild ocular discomfort described as gritty, burning of foreign body sensation

On examination two clinical types of Episcleritis,

1. Simple
2. Nodular may be recognised.

- Simple episcleritis is characterised by sectorial (occasionally diffuse) inflammation of episclera. The engorged episcleral vessels are large and run in radial direction beneath the conjunctiva.
- Nodular episcleritis is characterised by a pink or purple flat nodule surrounded by injection, usually situated 2-3 mm away from the limbus

- The nodule is firm, tender, can be moved separately from the sclera and the overlying conjunctiva also moved.

Causes

Exact etiology not known in many

- Systemic diseases associated with episcleritis, include gout, rosacea, psoriasis and connective tissue diseases.

- Hypersensitjvity reaction to endogenous tubercular or streptococcal toxins is also reported.

- Infectious episcleritis may be caused by herpes zoster virus, syphillis, Lyme disease and tuberculosis.

✓ **Staphyloma is thinning of outer sclera(White portion) of eye.**

Diseases of Cornea

Corneal ulcers

- Organism which can penetrate intact cornea – Gonococci, Corynebacterium diphtheria, Listeria.
- Hypopyon corneal ulcer / Ulcer Serpens is due to pneumococcus (Cause due to bacterial toxin)
- Most common organism for fungal corneal ulcer are Aspergillus Fumigatus, Candida albicans.

Clinical features

- Satellite lesion
- Immune ring of wessely
- Dry looking ulcer with feathery finger like extension

Complication:-

- Toxic iridocyclitis
- Secondary glaucoma

Perforation of corneal ulcers

I. Prolapse of iris
II. Corneal fistula
III. Intraocular hemorrhage
IV. Corneal scarring

Keratitis

Inflammation of Cornea

Classification

1. Ulcerative keratitis
2. Non ulcerative keratitis
    I. Infective keratitis
        Bacterial
        Viral
        Fungal
        Protozoal
        Spirochetal
    II. Allergic keratitis
    III. Trophic keratitis

IV. Traumatic keratitis

Interstitial Keratitis is inflammation of corneal stroma without primary involvement of epithelium or endothelium

Corneal Opacity

This term use for loss of transparency of cornea due to scarring

Causes

Congenital opacities may occurs as development anomalies or following birth trauma

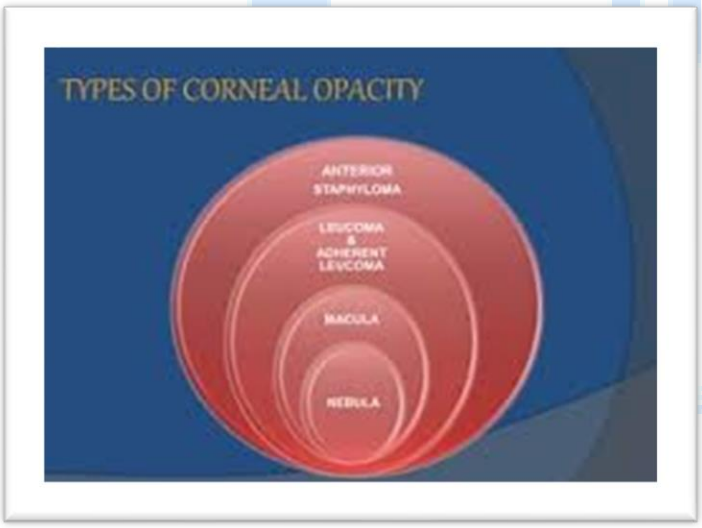
Healed corneal ulcers

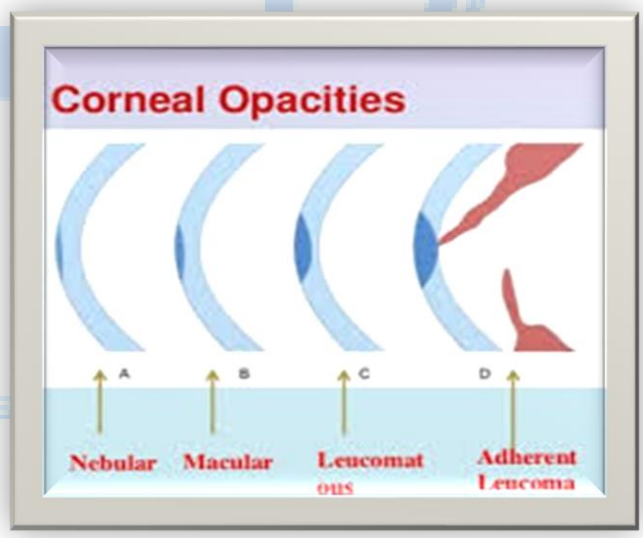
Healed corneal wounds

It produces loss of vision or blurred vision

Types of Corneal Opacity

1. Nebular corneal opacity
2. Macular corneal opacity
3. Lucomatous corneal opacity
4. Adherent leucoma
5. Corneal facet
6. Kerectasia
7. Anterior staphyloma





Diseases of Iris

Iritis

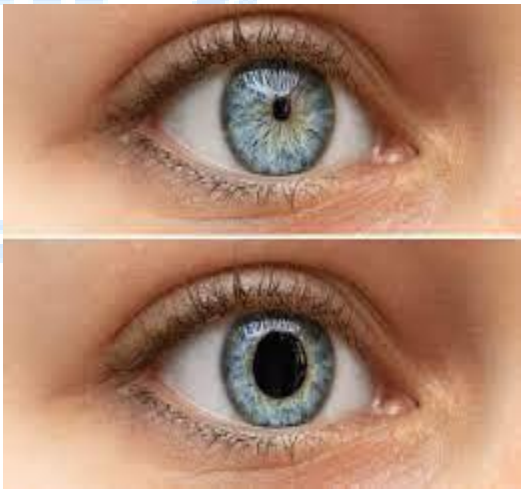
- ✓ Iritis, also known as anterior uveitis, is an inflammation of the iris, which is the colored part of the eye that controls the amount of light that enters the eye.
- ✓ Iritis is a type of uveitis, which refers to inflammation of the uvea, the middle layer of the eye that includes the iris, ciliary body, and choroid.
- ✓ Symptoms of iritis can include eye pain, redness, sensitivity to light, blurred vision, and small pupils. It can occur as an isolated condition or as a part of a systemic autoimmune disorder, such as rheumatoid arthritis, ankylosing spondylitis, or inflammatory bowel disease.
- ✓ Iritis is typically diagnosed by an eye doctor through a comprehensive eye exam, including a slit-lamp examination, which uses a microscope and bright light to examine the structures of the eye.

Myosis

- ✓ It is excessive smallness or contraction of the pupil of eye.

Causes

- ✓ Effect of local miotic drugs (parasympathomimetic drugs).
  Effect of systemic morphine.
  Iridocyclitis (narrow, irregular, nonreacting pupil).
  Horner's syndrome.
  Head injury (Pontine haemorrhage).
  Senile rigid miotic pupil.
- ✓ Due to effect of strong light.
  During sleep pupil is pinpoint.
- ✓



Mydriasis

- ✓ It is dilated pupils, which may occur normally or in response to a trauma, illness or drugs

Causes

Effect of topical sympathomimetic drugs
Effect of topical parasympatholytic drugs

Acute congestive glaucoma (vertically oval large immobile pupil).
Absolute glaucoma
Optic atrophy.
Retinal detachment
Internal ophthalmoplegia
3rd nerve paralysis
Belladonna poisoning

Diseases of Retina

Retinitis

Inflammation of Retina

Common in Type I Diabetes mellites

Severity in diabetic Retinopathy is more in Type II Diabetes mellites

I. Nonspecific retinitis

It is caused by pyogenic organisms and maybe either acute or subacute.

1. Acute purulent retinitis.
It occurs as metastatic infection in patients with pyaemia.
The infection usually involves the surrounding structures and soon converts into metastatic endophthalmitis or even pan ophthalmitis.
2. Subacute retinitis of Roth.
It typically occurs in patients suffering from subacute bacterial endocarditis (SABE).
It is characterized by multiple superficial retinal hemorrhages, involving posterior part of the fundus.
Most of the hemorrhages have a white spot in the centre (Roth's spots).
Vision may be blurred due to involvement of the macular region or due to associated papillitis.

II. Specific retinitis
It may be Bacterial (Tuberculosis, Leprosy, Syphilis) Viral (Cytomegaly, Herpes zoster) Fungal origin.

Clinical features

It is divided into 4 stages

- ✓ Stage of acute inflammation (Active retinal vasculitis)
- ✓ Stage of ischemia or vascular occlusion
- ✓ Stage of retinal neovascularization
- ✓ Stage of sequelae

Treatment

Medical treatment

Laser photocoagulation

Vitreoretinal surgery

Diabetic Retinopathy

It refers to patients with diabetes mellitus the life expectancy of diabetics, the incidence of diabetic retinopathy has increased.
Diabetic retinopathy is a leading cause of blindness.

It has been classified as following

1. Non proliferative diabetic retinopathy

- Mild NPDR
- Moderate NPDR
- Severe NPDR
- Very severe NPDR
- Proliferative diabetic retinopathy
- Diabatic maculopathy
- (Non

Earliest sign of NPDR is capillary microaneurysm (present in inner nuclear layer)

Macular edema is most common cause of low vision
Hard exudates, cotton wool spots
Focal argon laser photocoagulation

Progressive Diabatic Retinopathy

Neovascularization is hallmark
Venous dilatation and arteriolar constriction occurs.
Diabatic Retinopathy leads to blindness
Vitreous detachment and vitreous hemorrhage
Treatment panretinal photocoagulation, vitrectorny

Hypertensive Retinopathy

Always bilateral.

Vasoconstriction of the retinal arterioles is primary response to the raised Blood pressure
Narrowing of nasal arterioles is the earliest change seen on fundus examination.

Grading (Keith—Wagener—Barker classification)

Grade I - Consists of mild arterial attenuation, broadening of the arteriolar light reflex.

Grade II - Marked generalized narrowing and focal attenuation of arterioles, S—shape deflection of veins at A—V crossings (Salus's sign). Exaggeration of light reflex.

Grade III Grade II + Copper wiring of arterioles flame shaped hemorrhages, cotton wool spots, hard exudates.

Banking of veins distal to AV crossing — Bonnet's sign.
Tapering of veins on either side of crossing — Marcus Gunn's sign.

Grade IV — Grade III + Silver wiring + papilloedema + Macular edema

Disease of Choroid

Choroiditis:

Inflammation of layers of eye behind the retina, either in its entire (Multifocal choroiditis) or in patches (Focal choroiditis)

Blurred vision occurs in choroiditis.

Endophthalmitis:

Inflammation of inner structure of eyeball Uveal tissue, Retina, Exudates in vitreous cavity, anterior chamber and posterior chamber.

Etiology

It can be Infectious or Non infectious

Clinical features

Pain, Redness, Photophobia, Loss of vision.

Panopthalmitis:

It is an acute bacterial infection

Ocular pain, headache

Complete loss of vision

Purulent discharge

Lids are edematous

Eyeball is slightly proptosed, Occular movement are limited and painful.

Cornea is cloudy and oedematous

Anterior chamber is full of pus

Intraocular pressure is slightly raised

Diseases of Lens

CATARACT: IMPORTANT TYPES

Conditions	Type of cataract
Chalcosis	Sunflower
Galactosemia	Oil drop catract
Diabetes	Snow—storm cataract
Blunt trauma	Rosette shaped cataract, voissious ring at the anterior capsule of lens
Lamellar	“Spoke of a wheel" pattern
Rubella	Nuclear pearly, lamellar cataract
Atopic dermatitis	Shield cataract
Wilson's disease	Sunflower cataract, KF ring
Glass blower's	Infrared (heat) cataract

- Most common type of congenital cataract — Blue dot cataract
- Most common type of congenital cataract causing diminution — Lamellar cataract.
- Most common type of cataract in congenital rubella is Nuclear pearly cataract.
- Most common type of senile cataract is Cuneiform type

- Nuclear cataract can cause — Myopia
- Most common complication of Morgagnian cataract: Phacolytic glaucoma.
  Most common complication of hypermature nuclear sclerosis: subluxation of lens.

Most common complication of steroids in eye:

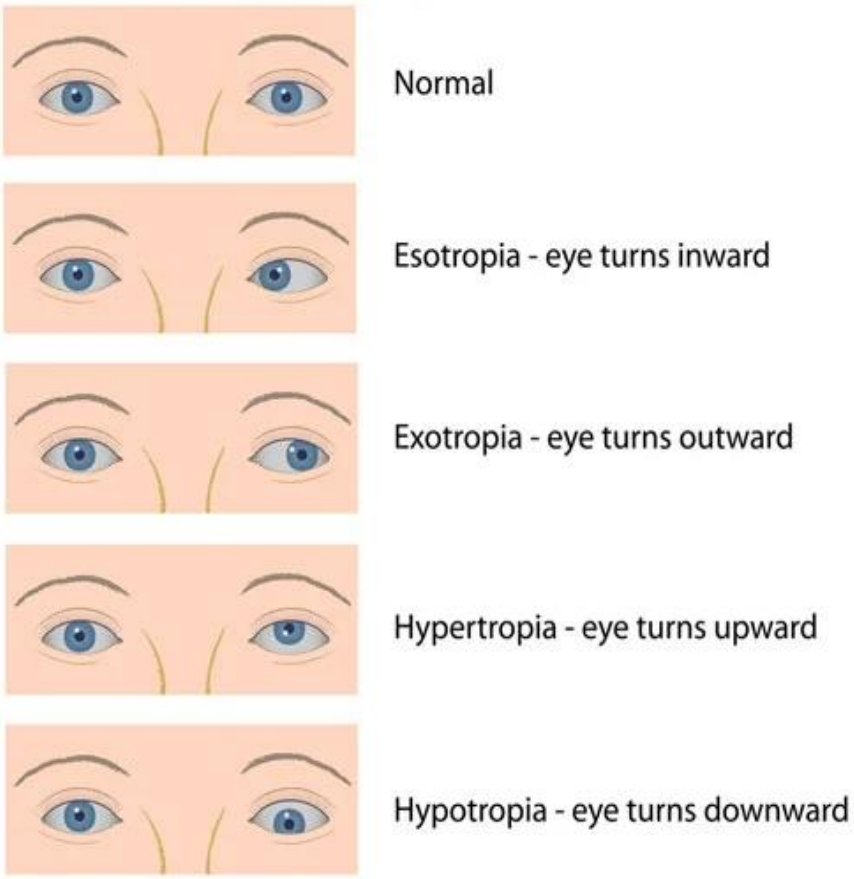
- ✓ Topical steroids - Glaucoma.
- ✓ Systemic steroids - Posterior subcapsular cataract.

Treatment

- ✓ Surgery is not indicated in visually insignificant cataract.
- ✓ Unilateral cataract should be operated immediately (within days after birth) and is followed by immediate intraocular lens implant
- ✓ Bilateral cataract should be operated within 6 weeks of birth, 2nd eye is operated with in few days after first eye.

Squint

- Deviation of Eyeball Inwards or Outwards Denotes inward deviation of one or both eye.
- The angle of is fairly large
- Fixation is alternating. The child uses his right eye in left gaze and vice versa.
- Inferior oblique mostly seen over activity is seen to compensate the squint.



Visual Disorders

Myopia and Hypermetropia

Features	Myopia	Hypermetropia
Also known as	Distant vision	Both distant and near vision are defective
Axial length of eyeball	Increase	Decrease
Power of eye	More	Less
Eyeball	Large	Small
Pupil	Large	Small
Cornea	Megalocornea	Microcornea
Squint	Apparent convergent squint	Latent convergent squint
Fundus shows	Crescents Weis ring	Pseudo papillitis Shot silk appearance
Complication	Macular degeneration Lattice degeneration Retinal detachment	Degenerative retinoschisis Early presbyopia Choroidal detachment Recurrent styles, blepharitis, chalazion

Presbyopia

Associated with aging

Inability to focus clear on near object due to loss of elasticity of capsule & lens fiber sclerosis.

Mostly seen in

1. **Intumescent cataract**
2. **Diabetes**
3. **Keratoconus**

Astigmatism

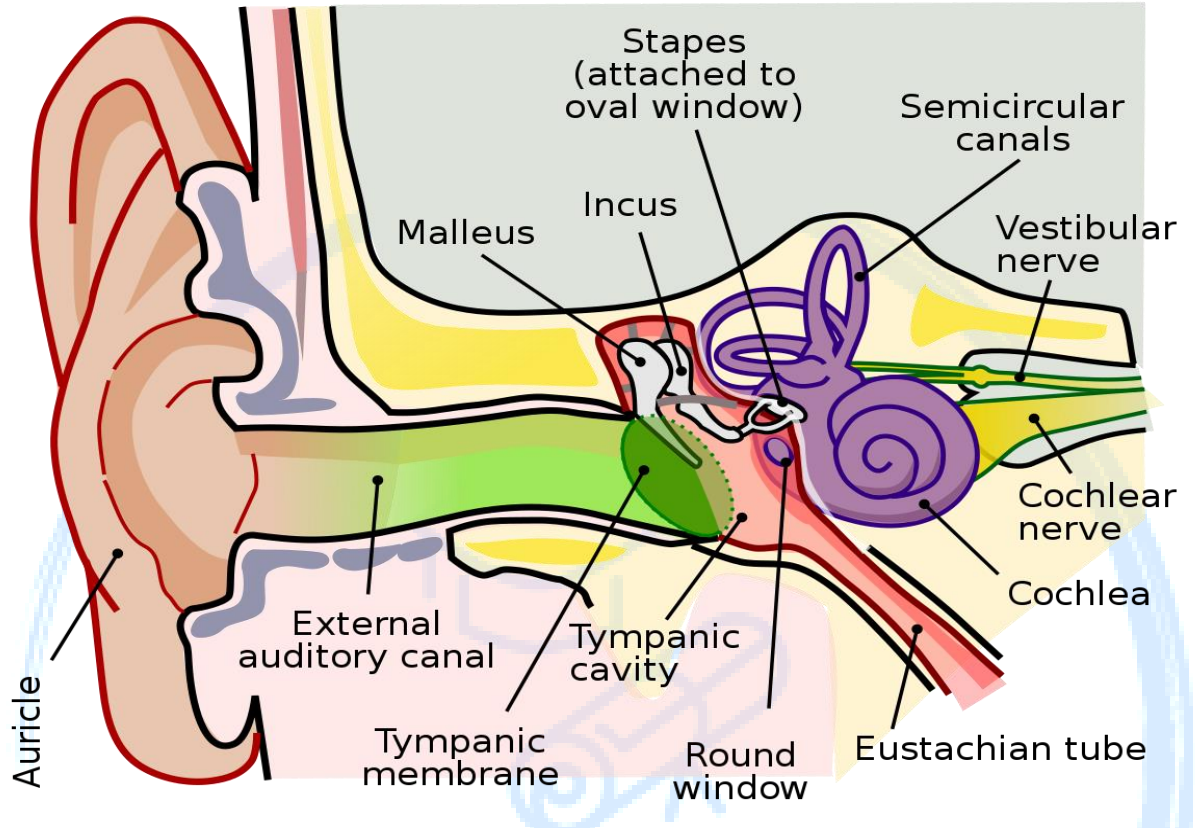
It is a type of refractive error wherein the refraction varies in different meridian of the eye.

Amblyopia

Development of vision disorders in which an eye fails to achieve normal visual acuty, even with eyeglasses or lenses.

Mostly one eye gets affected

Anatomy of Ear



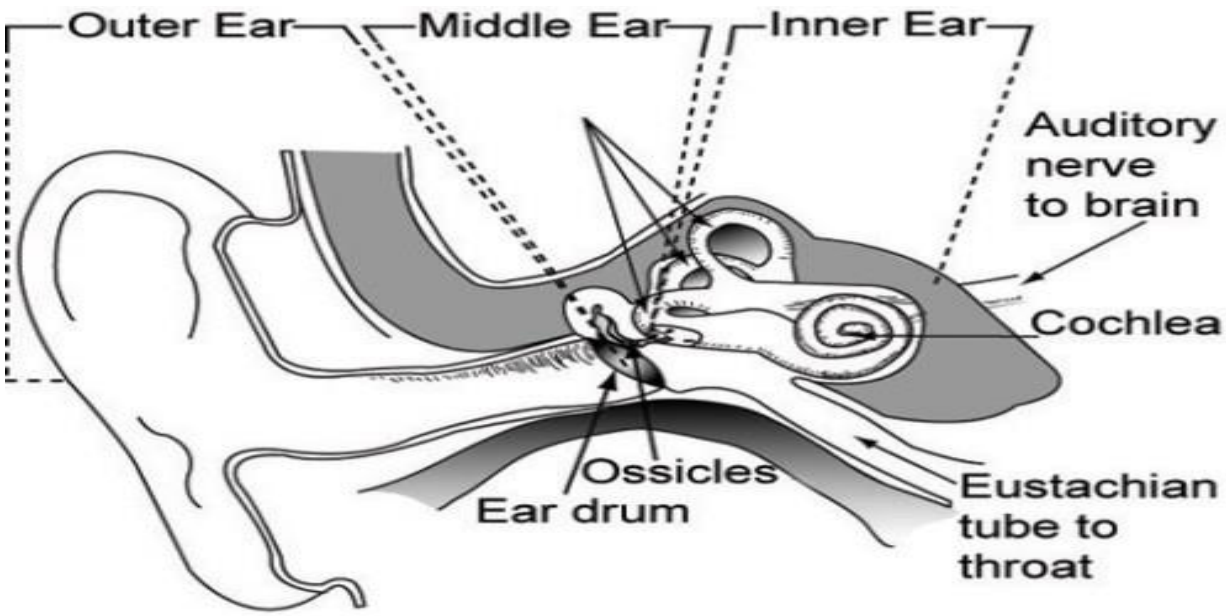


Figure 1: The Outer, Middle, and Inner Ear

Physiology of hearing and Hearing loss

- Otoacoustic emission arise from the outer hair
- Stapedial reflex is mediated by VII and VIII
- Perilymph contains Increased Na+.
- Endolymph in the inner cor is secreted by stria vascularize.
- Higher auditory center determines sound localization.
- Movement of stapes causes vibration in the Scala vestibuli.
- Bones of middle ear are responsible for reduction of impedance of sound transmission.
- Semicircular canals are stimulated by rotation.
- Horizontal semicircular canal responds to rotational acceleration.
- Primary receptor cells of hearing are the inner hair ceils.
- Sound is painful at the level of 100-120db.
- Middle ear is sensitive to 500-3500 Hz.
- After rupture of tympanic membrane, the hearing loss is 10-40db.
- Ossicular disruption with intact tympanic membrane causes maximum hearing loss.
- Commonest cause of hearing loss in children is chronic secretory otitis media.
- Commonest cause of hearing loss in children is otitis media with effusion.
- Commonest cause of deafness in adult is Wax.
- Hyperacusis is defined as normal sounds heard as loud and painful.
- Conductive deafness occurs in travelling in aero plane or ships.
- Otitic barotrauma results due to descent in air.
- Virus causing acute onset sensorineural deafness is Rubella Measles.
- Sensorineural deafness is seen in Alportjs syndrome, Pend red's syndrome, Treacher Collins syndrome, Michelis aplasia etc.

Tests for Hearing

Gene's test is done in otosclerosis.
Stenger's test is used to detect malingering.
Rinne's test is negative in tympanosclerosis.
Negative Rinne's test is seen in CSOM.
Rinne’s test is negative if minimum deafness is 15-20 dB

Positive Rinne test is seen in presbycusis.
Rinne's test is positive in normal individual.
Weber test is best elicited by placing the tuning fork on the fore head and asking him to report in ear he hears it better.
In the right middle ear pathology, Weber's test will be lateralized to right
In Weber's test in conductive deafness, sound louder in diseased ear.
In pure tone audiogram the symbol X is used to mark air conduction in left ear
The "O" sign in a pure tone audiogram indicates air conduction of right ear.
Tone decay test is done for neural deafness.
Impedance audiometry is for pathology of middle ear.
Impedance audiometry is done using frequency probe of 220 Hz.
Flat tympanogram is seen in ASOM.
B-type tympanogram is seen in Serous otitis media.
Flat and dome-shaped graph in tympanogram is found in middle ear fluid,
In osteogenesis imperfecta, the tympanogram is low-compliance.
High frequency audiometry is used in ototoxicity.
Transient Otoacoustic emissions is the best test for screening of the auditory function of neonates.
To distinguish between cochlear and post cochlear damage, Brainstem evoked response audiometry test is done.
Test of detecting damage to cochlea is ABC test.
Threshold for bone conduction is normal and that for air conduction is increased in disease of middle ear.
In electrocochleography, outer hair cells are mainly responsible for cochlear microphonics and summation potential.

Acute Otitis Media

- Degree of pneumatization of the mastoid bone is an important factor in severity of clinical manifestations.
- Usually follows upper respiratory infection.
- Most common organism causes S. pneumoniae and H. influenzae.
- On otoscopy "cartwheel pattern" of Tympanic Membrane
- Pulsatile otorrhea and 'light-house sign ' or nipple sign are seen in stage of suppuration

Secretory otitis media

- Non-suppurative 0M which is also known as catarrhal/ secretory otitis media / otitis media with effusion
- Culture of middle ear often negative (non-purulent effusion in the middle ear cleft)
- Most common presentation is conductive deafness With 25dB hearing loss,

(Most common cause of conductive deafness in children).

- Tympanic membrane: Intact, lusterless, retracted with restricted mobility
  Fluid level and air bubbles are seen rarely but are characteristic.

Chronic suppurative Otitis media

	Tubotympanic (Safe)	**Atticoantral (Unsafe)**
Discharge	Mucoid, Odorless, Profuse	Purulent, Foul smell, Scanty
Perforation	Central	Marginal
Polys	Pale	Red & Fleshy
Ossicular necrosis	Uncommon	Common
Cholesteatoma	Absent	Present
Complication	Rare	Common

Intracranial complication of chronic suppurative otitis media

- Meningitis, Brain abscess.
- Griesinger's sign - due to mastoid edema
- Crow-Beck test – Retinal vein engorgement on pressing jugular vein
- Tobey-Ayer test – No change in CSF pressure on compressor of jugular vein on thrombosed side.

Hearing loss

	Conductive hearing loss	**Cochlear hearing loss**	**Retrocochlear hearing loss**
Pathology	up to foot plate of stapes	Cochlear hair cells damage	8th CN/ Central connection
Audiometry	Air Bone gap present	No air bone gap	
Frequency loss	Lower frequencies involved	Higher frequencies involved	
Hearing loss	Up to 50-60 dB	>60 dB	
Example	Wax impaction	Meniere disease Noise induced hearing loss, Alport syndrome, Ototoxicity, Distal RTA, Batter syndrome	Acoustic neuroma

WHO Classification of Deafness

Class	Hearing loss
Mild	**26-40 dB**
Moderate	**41-55 dB**
Moderately severe	**56-70 dB**
Severe	**71-90 dB**
Profound	**90 dB**

Deafness is complete loss of hearing

Causes of Otalgia

I. External ear

- Furuncle
- Impacted wax
- Otitis externa
- Otomycosis
- Myringitis
- Bullosa
- Herpes zoster

II. Malignant neoplasms

- Middle ear
- Acute otitis media
- Eustachian tube obstruction
- Mastoiditis
- Extradural abscess
- Carcinoma middle ear

III. Referred cause

- Dental carries
- Oral cavity ulcerative lesions
- Sphenopalatine neuralgia

Meniere's Disease

- Meniere's disease is characterized by vertigo, tinnitus hearing loss and headache.
- Meniere's disease is also known as endolymphatic hydrops.
- Endolymphatic hydrops occurs between 3rd and 4th decades.
- Glycerol test is done in Meniere's disease.
- Recruitment phenomenon is seen in Meniere's disease.
- Vasodilators in Meniere's disease are useful because they increase endolymph reabsorption.
- Vasodilators of internal ear are Nicotinic acid, Histamine.
- Endolymphatic decompression is done in Meniere's disease.
- Destructive procedure for Meniere's disease is Labyrinthectomy.

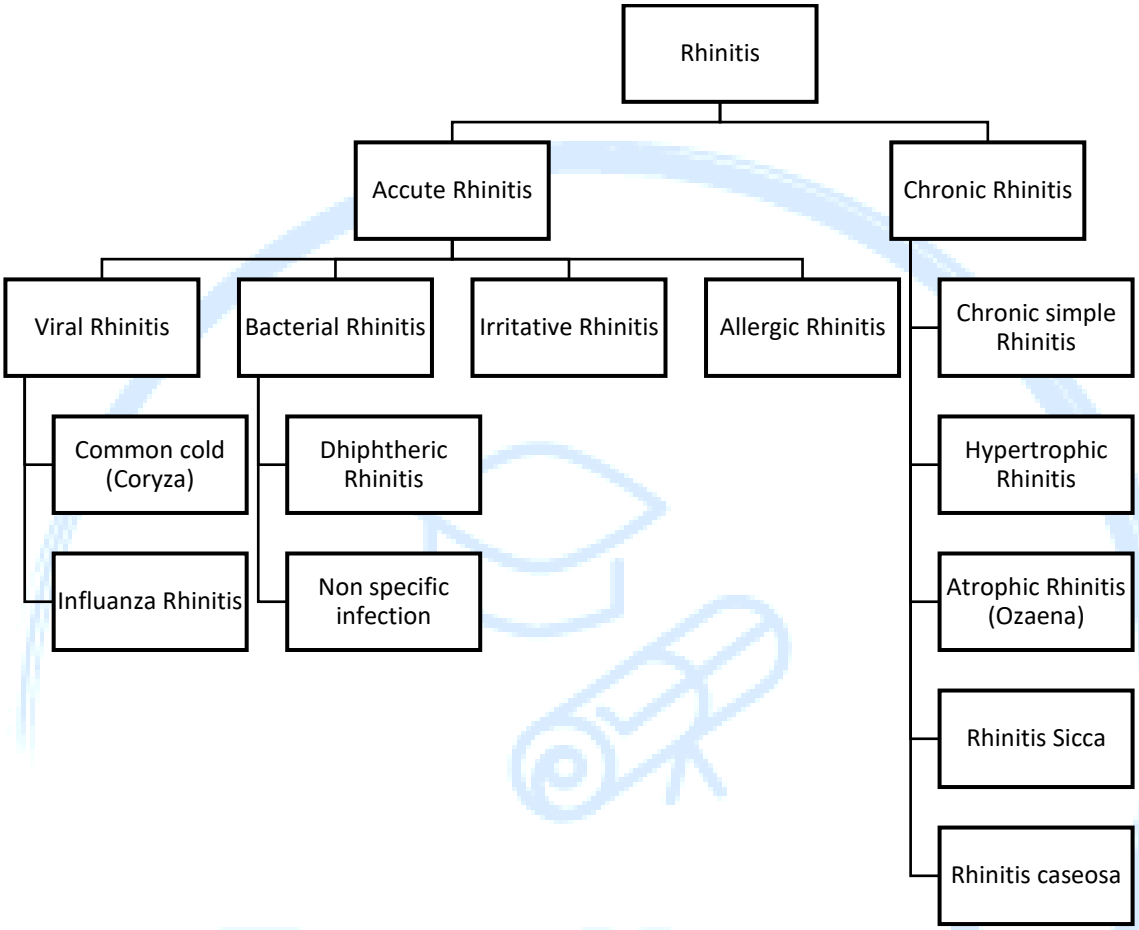
Anatomy & Physiology of Nose

- ✓ Inferior meatus is the largest meatus.
- ✓ Inferior turbinate is the largest turbinate and it is a separate bone.
- ✓ Valve of Nasolacrimal duct is Hasner's valve
- ✓ Frontal sinus drain into middle meatus.
- ✓ Paranasal sinus opening in middle meatus are maxillary, anterior ethmoid
- ✓ and frontal sinuses.
- ✓ The maxillary sinus opens into middle meatus at the level of hiatus
- ✓ semilunaris.
- ✓ Hiatus semilunaris is present in middle meatus.
- ✓ Bulla ethmoiditis is seen in middle meatus.
- ✓ Opening of posterior ethmoid sinus is in superior meatus.
- ✓ Nasolacrimal duct opens into inferior meatus.
- ✓ Anterior ethmoid cells (Agger nasi) is also known as fourth turbinate.
- ✓ Direction of nasolacrimal duct is downward, backward and laterally.
- ✓ Ostiomeatal complex connects nasal cavity with maxillary sinus.
- ✓ Nasal mucosa is supplied mainly by the external carotid artery.
- ✓ During inspiration the main current of airflow in a normal nasal cavity is through the middle part of the cavity in the middle meatus in a parabolic curve.
- ✓ Function of mucociliary action of upper respiratory tract is to trap the pathogenic organisms in inspired air.
- ✓ Parosmia is perversion of smell sensation.

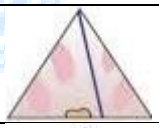
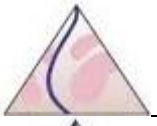
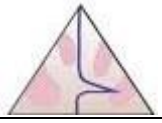
Opening of	Opens in
Posterior ethmoidal sinus	Superior meatus
Sphenoidal Sinus	Spheno-ethmoidal recess
Anterior ethmoidal Sinus	Ethmoidal infundibulum (Hiatus semilunaris) of Middle meatus
Frontal sinus	Ethmoidal infundibulum (Hiatus semilunaris) of Middle meatus
Maxillary sinus	Ethmoidal infundibulum (Hiatus semilunaris) of Middle meatus
Middle ethmoidal Sinus	Middle meatus
Frontonasal duct	Middle meatus
Nasolacrimal duct	Inferior meatus

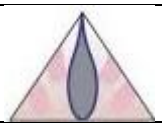
Rhinitis

Irritation and swelling of the mucous membrane in the nose



Deviated Nasal Septum

Type	
Anterior dislocation	
C – Shaped deflection	
S – Shaped deflection	
Nasal Spur	

Thickening of nasal septum	

Epistaxis

- Woodruff's plexus is seen at the posterior part of inferior turbinate.
- Little's area is situated in nasal cavity in anteroinferior part of nasal septum
- Most common cause for nose bleeding is trauma to Little's area.
- In a 5-year-old child, most common cause of unilateral epistaxis is foreign body
- The most common cause in recurrent epistaxis in a 15 year old female is hematopoietic disorder.
- Epistaxis in elderly person is common in hypertension.
- In case of uncontrolled epistaxis, ligation of internal maxillary artery is to be done in the Pterygopalatine fossa.
- Posterior epistaxis is commonly seen in hypertension.
- Posterior epistaxis occurs from Woodruff's plexus
- Sphenopalatine artery is known as artery of Epistaxis

Tumors of Nasal Cavity

Benign Tumors	Malignant Tumors
✓ Squamous papilloma ✓ Inverted papilloma ✓ Pleomorphic adenoma ✓ Schwannoma ✓ Meningioma ✓ Hemangioma ✓ Chondroma ✓ Encephalocele ✓ Glioma ✓ Angiofibroma	✓ Carcinoma I. Squamous cell carcinoma II. Adenocarcinoma ✓ Malignant melanoma ✓ Lymphoma

Neoplasm of Paranasal sinuses

Benign

- Osteoma

Malignant

- Squamous cell carcinoma
- Adenocarcinoma

Neoplasm of Nasal cavity

- Papilloma
- Most common capillary hemangioma is Litters area

- **Anosmia - Partial or full loss of smell.**
- **Parosmia - Distorted sense of smell**

Diseases of Throat

Tonsillitis

- ✓ Tonsillitis is a condition in which the tonsils, which are two small masses of tissue located at the back of the throat, become inflamed and swollen.
- ✓ It is usually caused by a viral or bacterial infection, and can result in symptoms such as sore throat, difficulty swallowing, fever, swollen lymph nodes, and a scratchy or muffled voice.
- ✓ Treatment for tonsillitis depends on the cause of the infection.
- ✓ If the infection is bacterial, antibiotics may be prescribed.
- ✓ In cases of viral tonsillitis, treatment is usually aimed at relieving symptoms, such as pain relievers, rest, and fluids.
- ✓ In some cases, if tonsillitis is recurrent or severe, surgical removal of the tonsils (tonsillectomy) may be recommended.

Quinsy

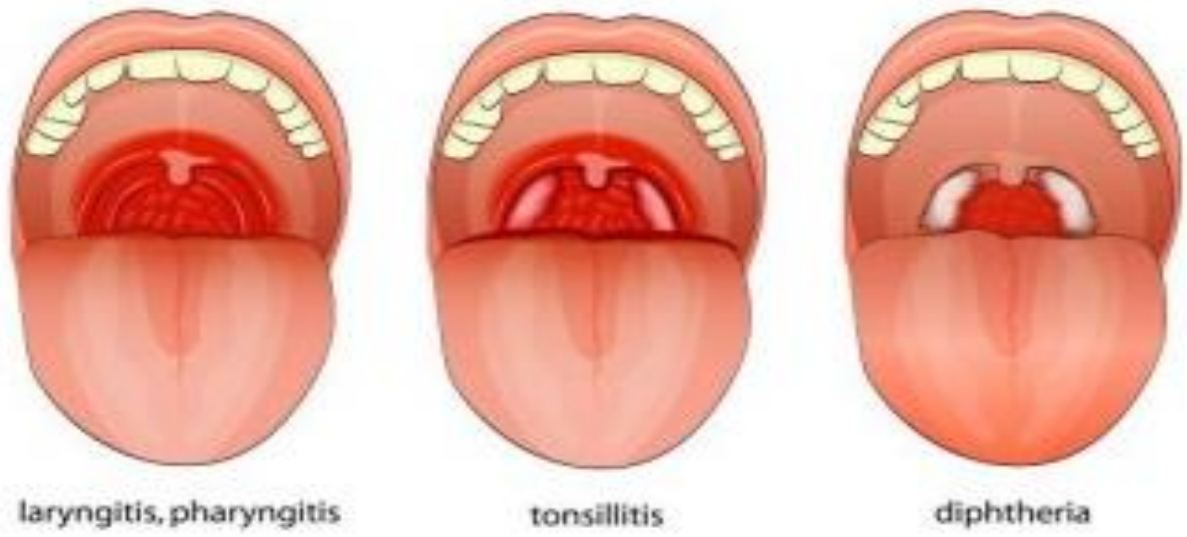
- ✓ Quinsy, also known as peritonsillar abscess, is a rare but serious complication of tonsillitis, which is an infection of the tonsils. In quinsy, pus accumulates in the tissues around the tonsils, causing a painful abscess to form.
- ✓ Quinsy is complication of tonsillitis.

Tumors of larynx

- Tumors of the larynx refer to abnormal growths of cells that develop in the larynx, which is the part of the throat that contains the vocal cords.
- ❖ There are several types of tumors that can develop in the larynx, including:
  1) Squamous cell carcinoma: This is the most common type of laryngeal cancer and accounts for more than 90% of all cases. Squamous cell carcinoma originates in the thin, flat cells that line the larynx.
  2) Adenocarcinoma: This type of cancer originates in the glandular cells that produce mucus in the larynx.

3) Sarcoma: This is a rare type of cancer that develops in the connective tissue of the larynx, such as cartilage or muscle.
4) Lymphoma: This type of cancer develops in the lymphatic tissue of the larynx and is more common in older adults.
5) Melanoma: This is a rare type of cancer that develops in the pigment-producing cells of the larynx.
6) Neuroendocrine tumors: These tumors develop in the hormone-producing cells of the larynx and are rare.

- The treatment and prognosis for laryngeal tumors depend on the type and stage of the cancer, as well as the patient's overall health.
- Early detection and prompt treatment can improve outcomes and reduce the risk of complications.



Laryngitis

- ✓ Laryngitis is a medical condition that is characterized by inflammation of the larynx, which is the voice box located in the throat.
- ✓ The most common cause of laryngitis is a viral infection, although it can also be caused by bacterial infections, allergies, acid reflux, or overuse of the voice.
- ✓ The main symptom of laryngitis is hoarseness or loss of voice, but other symptoms may include a sore throat, dry cough, difficulty swallowing, and a sensation of a lump in the throat.
- ✓ The voice may sound strained, raspy, or weak, and in some cases, it may be completely lost.

- ✓ To prevent laryngitis, it's important to avoid smoking and exposure to secondhand smoke, and to practice good vocal hygiene, such as avoiding shouting or speaking loudly for prolonged periods of time. If you have symptoms of laryngitis, it's important to rest your voice and avoid speaking or singing until your symptoms improve.
- ✓ In most cases, laryngitis will resolve on its own within a week or two, However, if symptoms persist or if you experience difficulty breathing or swallowing, it's important to seek medical attention.

Treatment for laryngitis depends on the underlying cause.

- ✓ For viral laryngitis, the main focus is on rest and hydration, and over-the-counter pain relievers may be taken to help manage symptoms.
- ✓ Bacterial laryngitis may require antibiotics, and acid reflux laryngitis may require medication to reduce stomach acid production.

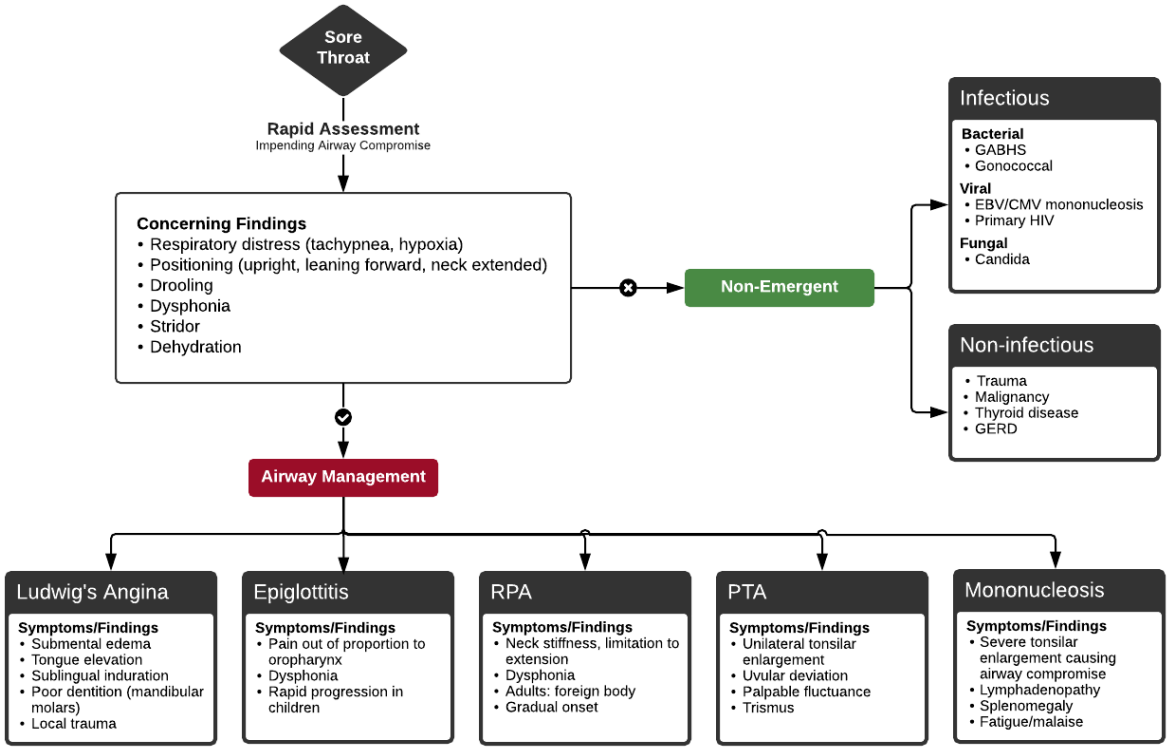
Pharyngitis

- ✓ Pharyngitis is a medical condition characterized by inflammation of the pharynx, which is the part of the throat that lies between the tonsils and the larynx.
- ✓ The most common cause of pharyngitis is a viral infection, such as the common cold or flu. Bacterial infections, such as streptococcal infection, can also cause pharyngitis.
- ✓ The symptoms of pharyngitis include sore throat, difficulty swallowing, fever, headache, and swollen lymph nodes in the neck. In some cases, there may also be coughing, runny nose, or hoarseness.

Treatment for pharyngitis depends on the underlying cause.

- ✓ Viral pharyngitis usually resolves on its own within a week or two, and treatment focuses on relieving symptoms, such as taking over-the-counter pain relievers and using throat lozenges or sprays.

✓ Bacterial pharyngitis is usually treated with antibiotics, which can help prevent complications such as rheumatic fever.



Diseases of Oral Cavity

Stomatitis

- Stomatitis is a medical condition that refers to inflammation of the mucous membranes in the mouth, including the gums, tongue, and inner cheeks.
- It is a common condition that can be caused by a variety of factors, including viral, bacterial, or fungal infections, as well as trauma, autoimmune disorders, and certain medications.
- Symptoms include pain or discomfort in the mouth, redness or swelling of the gums or tongue, sores or ulcers in the mouth, and difficulty eating or drinking.

Cancrum oris

- Cancrum oris, also known as noma or cancrum, is a severe bacterial infection that affects the mouth and face. It typically occurs in children in developing countries who are malnourished and have weakened immune systems.
- The infection begins as a small ulcer in the mouth and can quickly spread to the surrounding tissues, including the gums, lips, and cheeks.
- Symptoms includes pain, swelling, and redness in the mouth and face, as well as fever, fatigue, and loss of appetite.

Cheilitis

- Cheilitis is a medical condition that refers to inflammation of the lips.
- It can be caused by a variety of factors, including exposure to irritants, allergies, infections, and certain medications.
- Symptoms includes redness, swelling, and cracking of the lips, as well as blistering, itching, and burning sensations.

Herpes Labialis

- Herpes labialis is a viral infection that affects the lips and surrounding areas of the mouth.
- It is caused by the herpes simplex virus type 1 (HSV-1).
- Symptom includes tingling, burning, or itching sensations in the affected area.
- This is followed by the appearance of small, fluid-filled blisters on or around the lips.
- The blisters may break open and ooze fluid, and then form a crust or scab as they heal.
- Herpes labialis is a contagious infection and can be spread through close personal contact or by sharing utensils, towels, or other personal items with someone who has the infection.

Ranula

- ✓ A cystic translucent lesion seen in the floor of mouth on one able of
- ✓ Arises from the sublingual salivary gland.
- ✓ Some extend into the neck (plunging ranula).
- ✓ Treatment is Surgical removal or marsupialization.

Oral Carcinoma

- ✓ Risk factor for oral cavity malignancies (squamous cell carcinoma) is significantly associated with the use of pan areca nut
- ✓ Scarring produces contracture, resulting in limited mouth opening and restricted tongue movement.
- ✓ Most common site of Carcinoma oral cavity Tongue >Lip
- ✓ Most common histological type of Carcinoma oral cavity Squamous cell carcinoma
- ✓ Most Common Lymph node involved is submental lymph nodes

- Treatment are:
  a. For TI and T2: Surgery is Treatment of choice
  b. ForT3 and T4: Combined radiation and surgery (vermilionectomy or lip shave)

- ✓ Carcinoma lip has the best prognosis in Carcinoma oral cavity
- ✓ Most common site is middle 1/3 of the lateral margins or vential aspects.
- ✓ Most common Lymph nodes involved are submandibular and upper deep cervical nodes
- ✓ Most common aetiological agents are Tobacco chewing & smoking,
- ✓ Commando's operation Total glossectomy hemimandibulectomy Removal of floor of mouth + Radical lymph node dissection
- ✓ CT & MRI are best for imaging tumors

Salivary gland tumors

- ✓ Open surgical biopsy is absolutely contraindicated.
- ✓ Most common benign tumor of salivary glands
- ✓ Site Parotid (Most common)
- ✓ Known as adenolymphoma
- ✓ FNAC is best diagnostic modality
- ✓ Superficial parotidectomy.
- ✓ Most common site of metastasis is lung
- ✓ Best diagnostic modality is FNAC
- ✓ MRI is radiological imaging of choice

Parotid abscess

- ✓ Most common causative organism Staphtococcus
- ✓ Abcess devolopes then it is drained by giving J shaped incision

Diseases of Tongue

Glossitis:-

- ✓ It is a medical condition that refers to inflammation or swelling of the tongue.
- ✓ It can cause the tongue to become red, swollen, tender, and shiny, and may also result in changes in taste or difficulty in swallowing.
- ✓ Glossitis can be caused by a variety of factors, including infections, allergies, nutritional deficiencies, autoimmune disorders, and some medications.

Fissured tongue

- ✓ It is also known as scrotal tongue or lingua plicata, is a benign condition in which the surface of the tongue develops grooves or furrows.
- ✓ The furrows can be deep or shallow and may be present on the top or sides of the tongue.
- ✓ Fissured tongue is usually a harmless condition and is not a cause for concern. However, in some cases, it can cause discomfort, especially when food particles get trapped in the grooves, leading to bad breath or an increased risk of infection.
- ✓ Fissured tongue can occur in people of all ages, but it is more common in older adults.

Hypertrophy of tongue

- ✓ It refers to an abnormal increase in the size or mass of the tongue.
- ✓ It can be caused by a variety of factors, including genetic disorders, hormonal imbalances, infections, inflammation, trauma, or tumors.
- ✓ Hypertrophy of the tongue can lead to a range of symptoms, such as difficulty in speaking, eating, and breathing, as well as snoring or sleep apnea. In some cases, it may also cause cosmetic concerns.

PHYSIOLOGY

ماہیت امراض

Cell

Cell wall

- The cell wall is a rigid, protective layer that surrounds the cell membrane of most prokaryotic and eukaryotic cells.
- It is primarily composed of complex carbohydrates, such as cellulose, chitin, or peptidoglycan, depending on the organism.
- The main function of the cell wall is to provide structural support and protection to the cell.
- It helps maintain the cell's shape and prevents it from bursting or collapsing under osmotic pressure.
- The cell wall also serves as a barrier, regulating the exchange of substances between the cell and its environment.

Cytoplasmic Organelles

- **Organelles present in cytoplasm of cell**

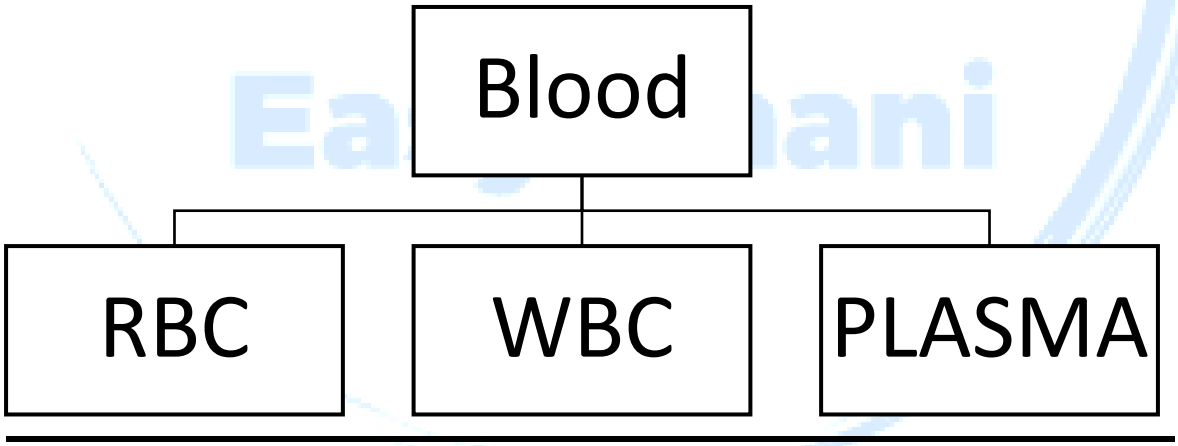
Organelles with limiting membrane	Organelles without limiting membrane
1. Endoplasmic reticulum 2. Golgi apparatus 3. Lysosome 4. Peroxisome 5. Centrosome and centrioles 6. Secretory vesicles 7. Mitochondria 8. Nucleus	1. Ribosomes 2. Cytoskeleton

Functions of cytoplasmic organelles

Organelles	Functions
Rough endoplasmic reticulum	1. Synthesis of proteins
Smooth endoplasmic reticulum	1. Synthesis of lipids and steroids 2. Role in cellular metabolism 3. Storage and metabolism of calcium 4. Catabolism and detoxification of toxic substance
Golgi apparatus	1. Processing, packing, labeling and delivery of protein and lipids

Lysosome	**1. Degradation of macromolecule 2. Degradation of worm organelles 3. Removal of excess of secretory products**
Peroxisomes	**1. Breakdown of excess fatty acids 2. Oxygen utilization 3. Acceleration of gluconeogenesis 4. Degradation of purine to uric acid 5. Role in formation of myelin 6. Role in the formation of bile acids**
Centrosome	**1. Movement of chromosomes during cell division**
Mitochondria	**1. Production of energy 2. Synthesis of ATP**
Ribosomes	**1. Synthesis of protein**
Cytoskeleton	**1. Determine shape of cell 2. Stability of cell shape 3. Cellular movements**
Nucleus	**1. Control of all activities of the cell 2. Synthesis of RNA 3. Sending genetic instruction to cytoplasm for protein synthesis 4. Formation of subunits of ribosomes 5. Control of cell division 6. Storage of hereditary information in genes (DNA)**

Blood



RBC (Red Blood Cells)

- Red blood cells, also known as erythrocytes, are specialized cells in the circulatory system that are responsible for transporting oxygen from the lungs to the body's tissues and removing carbon dioxide from the tissues and carrying it back to the lungs to be exhaled.
- Red blood cells are unique in their structure and function.
- They are small, biconcave discs that lack a nucleus and most other organelles, allowing them to have more room to carry hemoglobin, a protein that binds to oxygen and gives the cells their characteristic red color.
- Red blood cells are produced in the bone marrow and have a lifespan of about 120 days.
- After their lifespan, they are removed from circulation and broken down in the spleen and liver.
- Red blood cells are crucial for maintaining proper oxygen levels in the body.

Composition of Heamoglobin

- ✓ Hemoglobin is a protein molecule found in red blood cells that is responsible for carrying oxygen from the lungs to the body's tissues and organs.
- ✓ Hemoglobin is composed of four protein subunits, each of which contains a heme group.
- ✓ The heme group consists of an iron ion surrounded by a porphyrin ring, which is responsible for binding to oxygen.
- ✓ There are several different types of hemoglobin found in humans
    1. Hemoglobin A (HbA): This is the most common type of hemoglobin found in adults and is composed of two alpha globin chains and two beta globin chains.
    2. Hemoglobin A2 (HbA2): This type of hemoglobin is composed of two alpha globin chains and two delta globin chains. HbA2 typically makes up only a small percentage of total hemoglobin in the blood.
    3. Fetal Hemoglobin (HbF): This type of hemoglobin is present in developing fetuses and is composed of two alpha globin chains and two gamma globin chains. HbF production declines shortly after birth and is replaced by the production of HbA.
    4. Hemoglobin S (HbS): This is an abnormal form of hemoglobin that is produced in people with sickle cell disease. HbS is composed of two alpha globin chains and two abnormal beta globin chains that cause red blood cells to become misshapen and break down more easily.
    5. Hemoglobin C (HbC): This is an abnormal form of hemoglobin that is produced in people with hemoglobin C disease. HbC is composed of two alpha globin chains and two abnormal beta globin chains that can cause mild anemia.
    6. Hemoglobin E (HbE): This is an abnormal form of hemoglobin that is produced in people with hemoglobin E disease. HbE is composed of two alpha globin chains and two abnormal beta globin chains that can cause mild to moderate anemia.

Types of WBC

✓ There are several types of white blood cells (WBCs), also known as leukocytes, which play a key role in the body's immune system. Some of the most common types of WBCs include:

1. Neutrophils: These are the most common type of WBCs and are the first to respond to an infection. They help to destroy bacteria and other pathogens.
2. Lymphocytes: These cells are responsible for recognizing and attacking specific pathogens, including viruses and cancer cells. There are two main types of lymphocytes: B cells, which produce antibodies to neutralize pathogens, and T cells, which directly attack infected cells.
3. Monocytes: These cells help to engulf and destroy bacteria and other pathogens. They can also help to activate other immune cells.
4. Eosinophils: These cells play a role in fighting parasitic infections and are also involved in allergic reactions.
5. Basophils: These cells release chemicals such as histamine that play a role in inflammation and allergic reactions.
6. Mast cells: These cells are similar to basophils and also release histamine and other chemicals that play a role in inflammation and allergic reactions.

Platelets

- Platelets, also known as thrombocytes, are small, disc-shaped cell fragments that are present in the blood.
- They play a crucial role in the process of blood clotting, which is essential for stopping bleeding after injury.
- When a blood vessel is damaged, platelets are activated and aggregate at the site of injury, forming a plug that helps to stop the bleeding.
- Platelets are produced in the bone marrow, and their lifespan is approximately 7 to 10 days.
- Platelets also have other functions beyond blood clotting, such as promoting wound healing and inflammation. They are also involved in the immune response and can interact with white blood cells to fight off infections.

Coagulation of Blood

- Blood coagulation, also known as blood clotting, is a complex process that involves the activation of a series of proteins in the blood, called clotting factors, leading to the formation of a fibrin clot that seals a wound and prevents further bleeding.
- When a blood vessel is injured, platelets become activated and aggregate at the site of injury, forming a platelet plug that helps to stop the bleeding.

Clotting Factors

Factor	Synonym
Factor I	Fibrinogen
Factor II	Prothrombin
Factor III	Tissue factor, trombinogen
Factor IV	Calcium
Factor V	Labile factor
Factor VI	
Factor VII	Proconvertin, Stable factor
Factor VIII	Anti hemophilia factor
Factor IX	Christmas factor
Factor X	Struat-prover factor
Factor XI	Plasma thromboplastin antecedent
Factor XII	Hageman factor
Factor XIII	Fibrin stabilizing factor

- **These factors are responsible for the formation of clot and prevent bleeding.**

Bleeding time

- Bleeding time is a medical test that measures the time it takes for a small skin puncture to stop bleeding
- Normal bleeding time ranges from 2 to 9 minutes, but the results can vary depending on factors such as age, gender, and medications.

Clotting time

- Clotting time is a medical test that measures the time it takes for blood to form a clot.
- The test is used to evaluate the coagulation system and can help diagnose bleeding disorders or monitor the effectiveness of anticoagulant therapy.
- The normal range for clotting time is typically between 6 and 10 minutes, but the results can vary depending on factors such as age, gender, and medications.

Blood transfusion

- A blood transfusion is a medical procedure that involves the transfer of blood or blood components from one person (the donor) to another person (the recipient).
- Blood transfusions can be used to replace blood lost due to injury or surgery, to treat certain medical conditions such as anemia or bleeding disorders, or to provide support during cancer treatment.
- Before a blood transfusion, the recipient's blood type and Rh factor are determined to ensure compatibility with the donor's blood.
- During a blood transfusion, the donor blood is typically administered through an intravenous (IV) line inserted into a vein in the recipient's arm.

- The procedure is closely monitored to ensure that the transfusion is proceeding safely and that the recipient does not experience any adverse reactions.
- Although blood transfusions can be life-saving in some situations, they also carry some risks.
- Transfusion reactions can occur if the recipient's immune system reacts to the donor blood, causing symptoms such as fever, chills, hives, and shortness of breath.
- To minimize the risks associated with blood transfusions, blood banks carefully screen and test all donated blood, and follow strict protocols for blood collection, storage, and transfusion.
- Blood transfusions are also carefully monitored and administered by trained medical professionals to ensure the safety and effectiveness of the procedure.

Transfusion of fractions of blood)

In addition to whole blood transfusions, it is also possible to transfuse specific components or fractions of blood, depending on the needs of the recipient.

Some examples of blood components that can be transfused include:

1. **Red blood cells (RBCs):** These are the most commonly transfused blood component, and are used to treat anemia and other conditions that result in low levels of red blood cells. RBCs can be transfused as whole blood or as a concentrated solution of red blood cells.
2. **Platelets:** These are small cells in the blood that help with blood clotting, and are used to treat conditions such as bleeding disorders and low platelet counts. Platelets can be transfused as whole platelets or as a concentrated solution of platelets.
3. **Plasma:** This is the liquid component of blood that contains proteins, clotting factors, and other substances. Plasma can be transfused to treat conditions such as bleeding disorders or severe burns, or to replace blood volume in patients who have lost a lot of blood.
4. **Cryoprecipitate:** This is a component of plasma that contains high levels of clotting factors, and is used to treat bleeding disorders such as hemophilia.

VITAMINS

	Function	Deficiency
Vitamin A (Retinol) **Fat soluble**	**Role in Vision** **Formation of bone & teeth**	**Night blindness, Xeropthalmia, Keratomalacia, Hyperkeratosis**
Vitamin D (Calciferol) **Fat soluble**	**Active foam of Calcitriol** **Protect against muscle weakness, osteoarthritis & cancer** **Help in absorption of calcium & phosphorous, helps in bone growth.**	**Rickets in children's,** **Osteomalacia in adults**
Vitamin E (Tocopherol) **Fat soluble**	**Anti-oxidant,** **Protect cell membrane,**	**Infertility**
Vitamin K **Fat soluble**	**Helps in clotting** **Synthesis of clotting factors**	**Hemorrhagic disease of newborn**
Vitamin B1 (Thiamine) **Water soluble**	**Co-factor for pyruvate**	**Beri Beri** **Wernicke Korsakoff syndrome, Lactic acidosis, Edema**
Vitamin B2 (Riboflavin) **Water soluble**	**Precursor to the coenzyme Flavin Mono Nucleotide & Flavin Adenine Dinucleotide.**	**Glossitis, Cheilosis, Dermatitis, Corneal ulceration.**
Vitamin B3 (Niacin) **Water soluble**	**Requirement of Nicotinamide adenine dinucleotide, dehydrogenase**	**Pellagra**
Vitamin B5 (Pantothenic acid) **Water soluble**	**Active foam of is Coenzyme A** **Anti-stress vitamin**	**Dermatitis, Alopecia, Adrenal insufficiency, Enteritis.**
Vitamin B6 (Pyridoxine) **Water soluble**	**Antibody & Red cell formation**	**Seizures.**
Vitamin B7 (Biotin) **Water soluble**	**Active foam of Carboy biotin**	**Dermatitis, Alopecia.**
Vitamin B9 (Folic acid) **Water soluble**	**Active foam of tetrahydro folic acid**	**Megaloblastic anemia** **Macrocytic anemia**
Vitamin B12 (Cyanocobalamin) **Water soluble**	Anti pernicious factor **Formation of Blood cells** **Amino acid metabolism** **Utilization of iron** **Regeneration of folate**	**Deficiency cause Pernicious anemia Crohn's diseases Malabsorption.**
Vitamin C (Ascorbic Acid) **Water soluble**	**Anti-Oxidant, Co-factor of dopamine, Role of Collagen synthesis, Prevents neuralathyrism**	**Scurvy**

Circulatory system

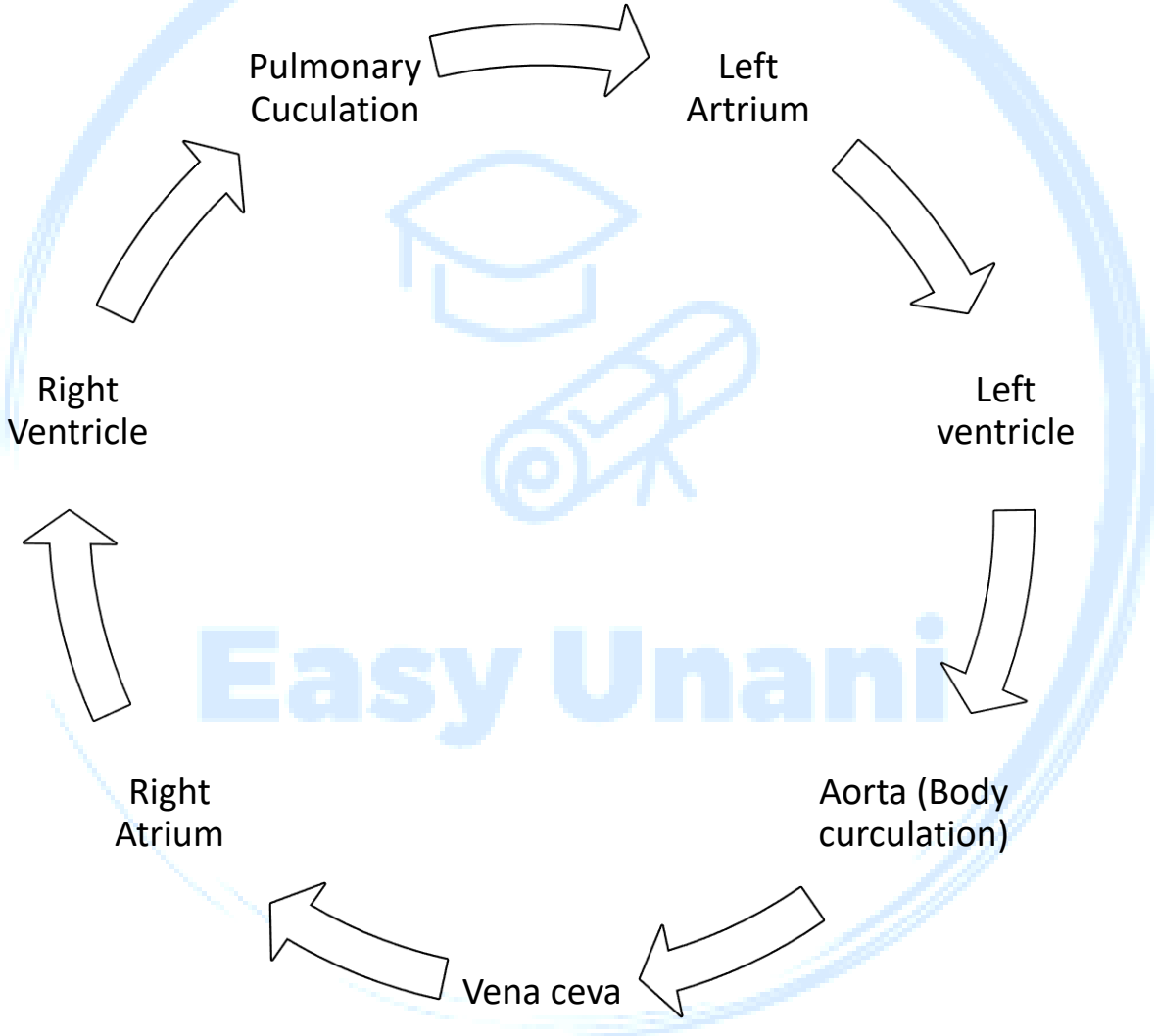
It includes Heart & Blood vessels

Heart

4 chambers

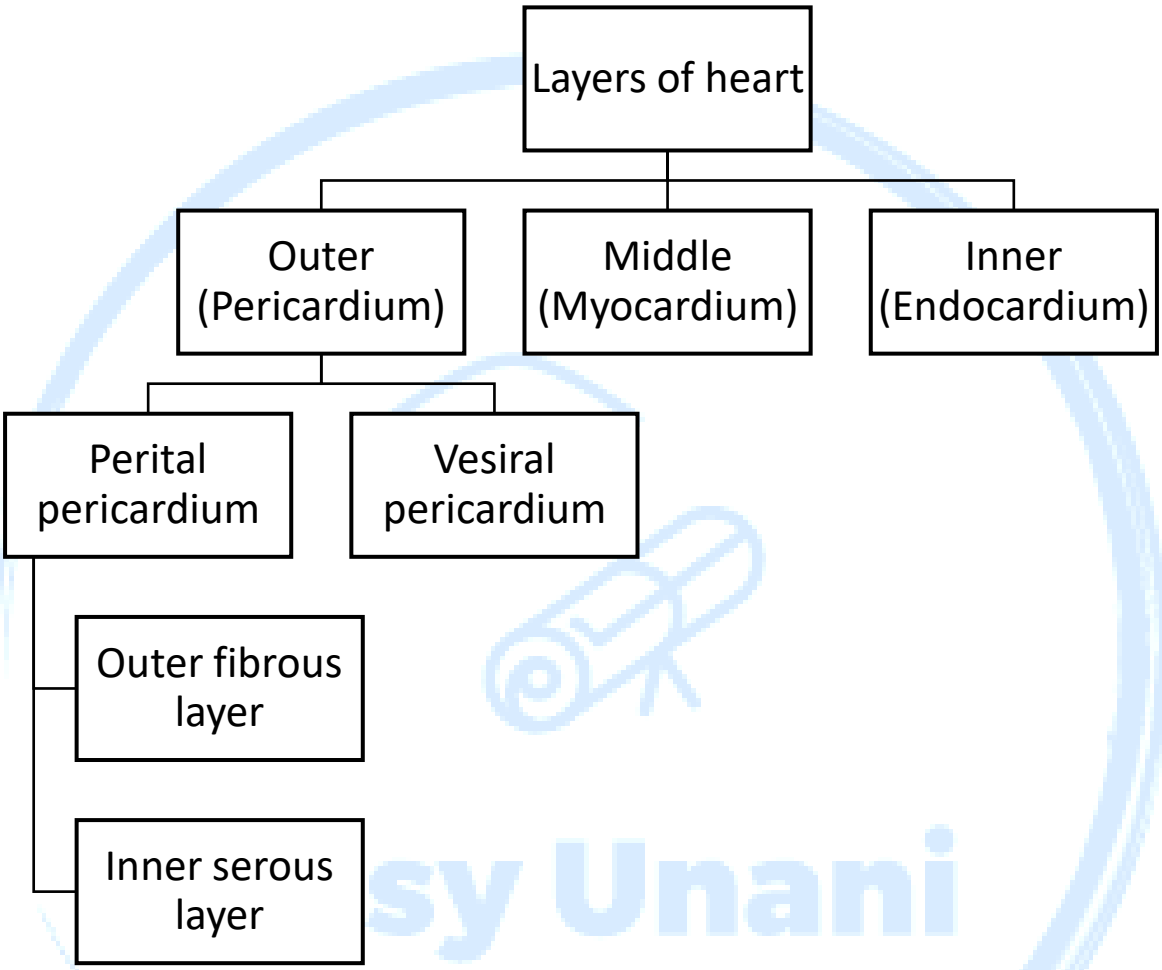
2 Atria

2 Ventricles

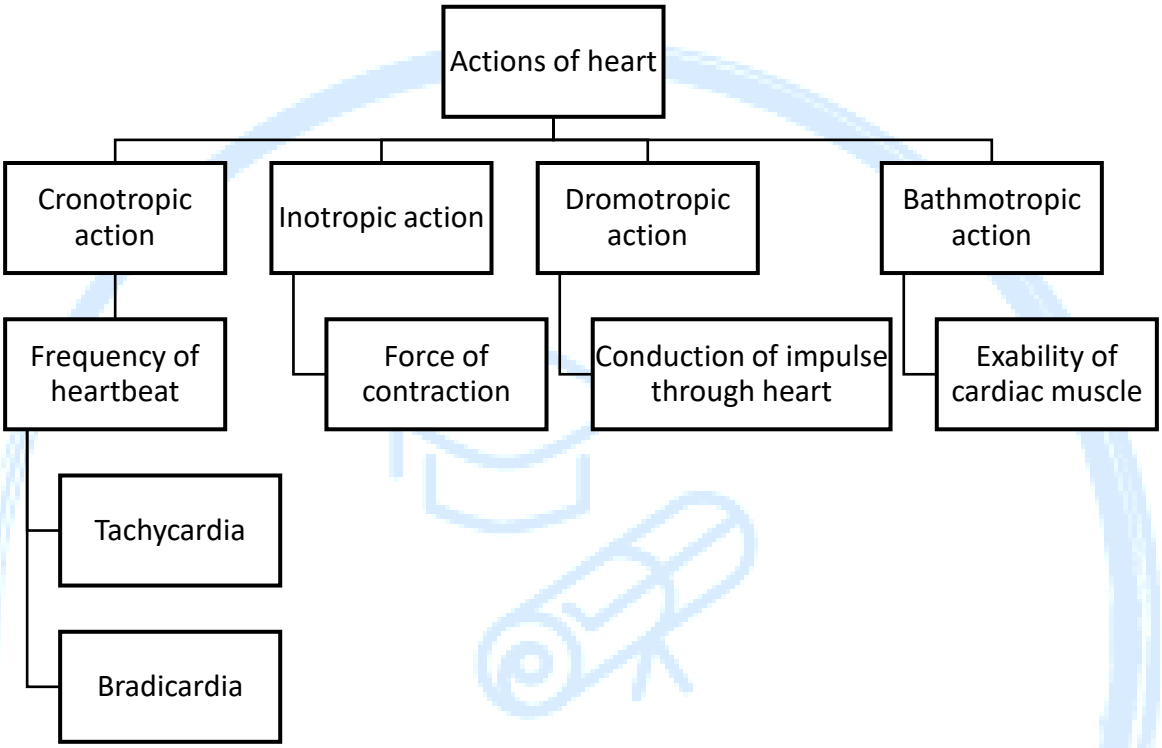


Blood Circulation

Layers of walls of Heart



Action of heart



Properties of Cardiac Muscles

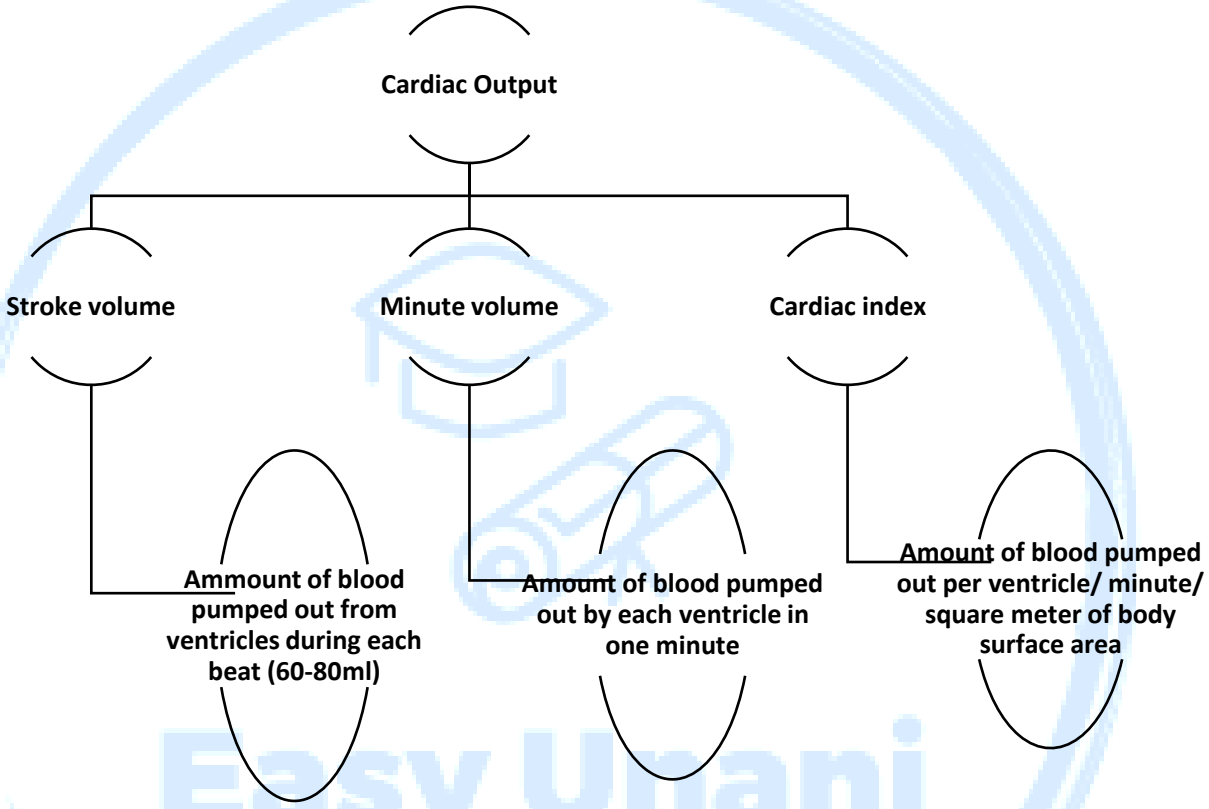
1. Excitability
2. Rhythmicity
3. Conductivity
4. Contractility

Conduction system of heart

Heart Sound

	1st Heart Sound	2nd Heart Sound	3rd Heart Sound	4th Heart Sound
Occurs during	Isometric contraction period and part of ejection period	Protodiastole and part of isometric relaxation	Rapid filling phase	Atrial systole
Characteristics	Long, soft and low pitched Resembles the word "LUBB'	Short, sharp and high pitched Resembles the word 'DUP'	Low pitched	Inaudible sound
Cause	Closure of atrioventricular valves	Closure of semilunar valves	Rushing of blood into ventricle	Contraction of atrial musculature
Duration (sec)	0.10 to 0.17	0.10 to 0.14	0.07 to 0.10	0.02 to 0.04
Frequency(cycles per sec)	25 to 45	50	1 to 6	1 to 4
Relation with ECG	Coincides with peak of 'R' wave	Precedes or appears 0.09 second after peak of 'T' wave	Between 'T' wave and 'P' wave	Between 'P' wave and 'Q' wave

Cardiac Output



- **Normal Heart Rate is 72/min (Ranges between 60-80/ min)**

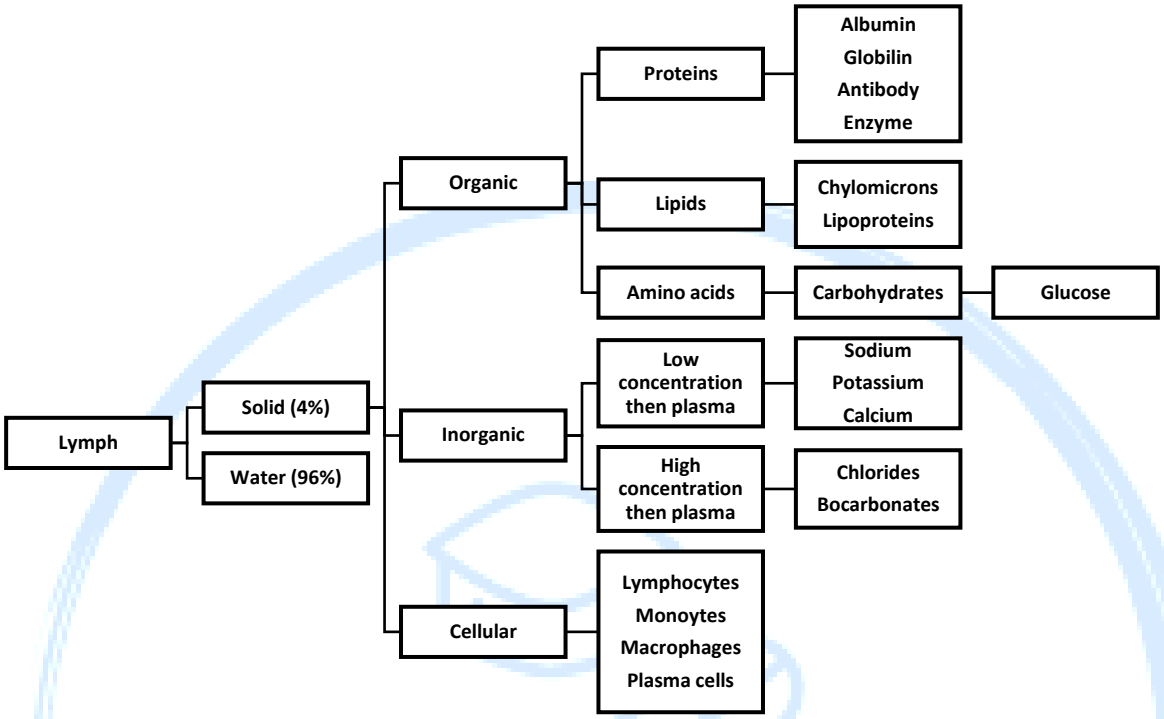
Waves of Normal ECG

Wave / Segment	From - To	Cause	Duration (Second)	Amplitude (mV)
P wave	-	Atrial depolarization	0.1	0.1-0.12
QRS complex	Onset of Q wave to the end of S wave	Ventricular depolarization and atrial repolarization	0.08-0.10	Q = 0.1-0.2 R = 1 S = 0.4
T wave	-	Ventricular repolarization	0.2	0.3
P-R interval	Onset of P wave to onset of Q wave	Atrial depolarization and conduction through AV node	0.18 (0.12-0.2)	-
Q-T interval	Onset of Q wave and end of T wave	Ventricular depolarization and ventricular repolarization	0.4-0.42	-
S-T segment	End of S wave and onset of S wave	Isoelectric	0.08	-

FORMATION OF LYMPH

- ✓ Lymph is formed from interstitial fluid, due to the permeability of lymph capillaries. When blood passes via blood capillaries in the tissues, 9/10th of fluid passes into venous end of capillaries from the arterial end.
- ✓ The remaining 1/10th of the fluid passes into lymph capillaries, which have more permeability than blood capillaries.
- ✓ So, when lymph passes through lymph capillaries, the composition of lymph is more or less similar to that of interstitial fluid including protein content.
- ✓ Proteins presents in the interstitial fluid cannot enter the blood capillaries because of their larger size.
- ✓ So, these proteins enter lymph vessels, which are permeable to large particles also.

Composition of Lymph



Digestive System

Digestion of Carbohydrates

Secreting area	Juice	Enzymes
Mouth	Saliva	Salivary amylase
Stomach	Gastric juice	Gastric amylase (Week amylase)
Small intestine	Pancreatic juice	Pancreatic amylase
	Succus entericus	Sucrase
		Maltase
		Lactase
		Dextrinase
		Trehalase

Digestion of Proteins

Secreting area	Juice	Enzymes
Mouth	Saliva	No proteolytic enzyme
Stomach	Gastric juice	Pepsin
Small intestine	Pancreatic juice	Trypsin
		Chymotrypsin
		Carboxypeptidase A &B
	Succus entericus	Dipeptidases
		Tripeptidases
		Amino peptidases

Digestion of Lipids

Secreting area	Juice	Enzymes
Mouth	Saliva	Lingual lipase
Stomach	Gastric juice	Gastric lipase (Week lipase)
Small intestine	Pancreatic juice	Pancreatic lipase
		Cholesterol ester hydrolase
		Phospholipase A
		Phospholipase B
		Colipase
	Succus entericus	Intestinal lipase

Functions of lipoproteins

Lipoproteins	Functions
VLDL	Transports triglycerides from liver to adipose tissue
LDL	Transports cholesterol and phospholipids from liver to tissues and organs like heart
HDL	Transports cholesterol and phospholipids from tissues and organs like heart back to liver.

Hormonal control of Gastro Intestinal Tract

Parts of G.I.T	Source of secreting	Enzyme	Functions
Esophagus	Mainly parotid salivary gland	Ptyalin	↓ Converts complex starch in simple carbohydrates
Stomach	G-Cells at (pyloric antrum)	Gastrin	↓ Stimulates gastric secretion and motility ↓ Stimulates release of pancreatic hormones
Intestine	S-cells (duodenum, Jejunum)	Secretin	↓ Stimulates secretion of watery and alkaline pancreatic secretion ↓ Inhibits gastric secretion and motility ↓ Constricts pyloric sphincter Increases potency of cholecystokinin action
	I-cells (duodenum, Jejunum)	Cholecystokinin	↓ Contracts gallbladder ↓ Stimulates pancreatic secretion with enzymes ↓ Accelerates secretin activity ↓ Increases enterokinase secretion ↓ Inhibits gastric & Intestinal motility ↓ Augments contraction of pyloric sphincter ↓ Suppresses hunger ↓ Induces drug tolerance to opioids
	K-cells (duodenum, Jejunum)	Glucose inhibitory peptide (GIP)	↓ Stimulates insulin secretion ↓ Inhibits gastric secretion and motility
	M-cells (duodenum, Jejunum)	Motilin	↓ Increase gastric mortality
	L-cells (Ilium and colon)		↓ Inhibits gastric secretion and motility ↓ Reduces secretion of pancreatic juice ↓ Inhibits intestinal motility and bowel passage ↓ Suppresses appetite and food intake
Pancreas	Alpha-cells	Glucagon	↓ Increase blood glucose level
	Beta-cells	Insulin	↓ Decrease blood glucose level
	D-cells		↓ Inhibits secretion of growth hormone ↓ Inhibits gastric secretion and motility ↓ Inhibits secretion of pancreatic juice ↓ Inhibits secretion of GI hormones
	PP-cells	Pancreatic polypeptide	↓ Increases secretion of glucagon ↓ Decreases pancreatic secretion

Formation of Faeces and Defecation

Formation of feces and defecation are important physiological processes that occur in the digestive system.

1. Formation of feces: After food is digested and absorbed in the small intestine, the remaining waste products (including undigested food, water, and electrolytes) enter the large intestine (colon) as a liquid. In the colon, water and electrolytes are absorbed, and the remaining waste material becomes more solid as it moves through the colon. Bacteria in the colon also play a role in breaking down and fermenting some of the waste material. Finally, the feces are stored in the rectum until they are eliminated from the body during defecation.
2. Defecation: Defecation is the process of eliminating feces from the body. When the rectum is sufficiently distended (filled with feces), it triggers the urge to defecate. This is because the rectal walls contain stretch receptors that send signals to the brain when they are stretched. When a person is ready to defecate, they sit on a toilet or other appropriate receptacle and relax the anal sphincter muscles, allowing the feces to pass out of the body. The process of defecation is under voluntary control, but it can also be influenced by factors like diet, hydration, and certain medical conditions.

Functions of Liver

1. **Metabolism**: The liver plays a key role in metabolizing nutrients from food, including carbohydrates, proteins, and fats. It also helps to regulate blood glucose levels by storing and releasing glucose as needed.
2. **Detoxification**: The liver is responsible for removing toxins and other harmful substances from the body, including drugs, alcohol, and environmental pollutants.
3. **Bile production**: The liver produces bile, a substance that helps to digest fats in the small intestine.
4. **Protein synthesis**: The liver synthesizes many important proteins, including albumin, which helps to maintain fluid balance in the body, and clotting factors, which are important for blood clotting.

5. **Storage**: The liver stores important vitamins and minerals, including iron, copper, and vitamins A, D, and B12.
6. **Immune function**: The liver plays a role in immune function by removing bacteria and other foreign substances from the bloodstream.
7. **Regulation of cholesterol**: The liver is involved in regulating cholesterol levels in the body, including producing cholesterol and removing excess cholesterol from the blood.
8. **Hormone regulation**: The liver helps to regulate levels of hormones like insulin, estrogen, and testosterone.

Absorption of water

- Absorption of water occurs primarily in the large intestine (colon) of the digestive system.
- The large intestine receives the remaining undigested food from the small intestine in the form of a liquid called chyme.
- As the chyme moves through the colon, water and electrolytes are absorbed from it and into the bloodstream.
- The colon has specialized cells called crypt cells that actively transport sodium ions and other electrolytes from the chyme into the bloodstream, creating an osmotic gradient that pulls water out of the chyme and into the bloodstream as well.
- The colon also has passive water channels called aquaporins that allow water to move from the chyme into the bloodstream.
- The amount of water absorbed from the chyme depends on a variety of factors, including the volume and composition of the chyme, the amount of fiber and other indigestible material in the diet, and the hydration status of the body.
- Dehydration can impair the ability of the colon to absorb water, leading to constipation and other digestive issues.
- It's important to drink enough fluids and eat a diet rich in fiber and other nutrients to support healthy digestion and absorption of water in the colon.

Respiratory System

Characters of Lung

- ✓ Lung is kept dry because of hydrostatic pressure
- ✓ Both lungs and thoracic cage are elastic structure
- ✓ Mean pressure difference of arteries is low.
- ✓ Arterioles are not present in lung, so resistance is low, capillary pressure is low.
- ✓ Hypoxia and acidosis produce vasoconstriction and increase pressure in pulmonary vasculature
- ✓ Pulmonary arteries are more distensible than systemic.
- ✓ Bronchial smooth muscles are relaxed by Vasoactive Intestinal Peptide
- ✓ Airway smooth muscles are contracted by bronchoconstrictor agent, including histamine, prostaglandin, leukotriene, Serotonin.
- ✓ In the normal lungs, activation of Endothelin-A (ETA), epithelial receptor causes pulmonary vasoconstriction in the large, conducting vessels of the lungs.

Pneumocytes/ Alveolar Cells

Types	Features	Role
Type 1	Alveolar lining	Most numerous (Line 95% of alveolar surface) Role in phagocytosis
Type 2	Contain multi lamellar bodies	Secretes surfactant
Type 3	Brush cells	

- ✓ Clara cells are non-ciliated cells present in terminal bronchioles. Their role in decreasing surface tension, stem cell function, protection against emphysema and harmful substances have been described.

- ✓ Kultschitzky cells are neuroendocrine cells found in clumps throughout the tracheobronchial tree and secrete dopamine and serotonin.

- ✓ Type of cells in synovial fluid
  - Type A cells: Phagocytose joint debris
  - Type-B cells: Secrete synovial fluid

- ✓ Dust cells are macrophages in the wall of alveoli. They phagocytize dust particles in their cytoplasm.

SURFACTANT

PRODUCTION

- ✓ Synthesis starts as early as 20 weeks and peaks at 35 weeks in a fetus.
- ✓ Immature surfactant starts appearing in amniotic fluid by 23-24 weeks.
- ✓ Mature surfactant is detectable by 35 weeks.
- ✓ Secreted by 'Type-II pneumocytes/Alveolar cells. (Production is accelerated by thyroid hormone.

COMPOSITION

- ✓ Pulmonary surfactant is a mixture of phospholipids, other lipids, proteins and carbohydrates

FUNCTIONS

- ✓ Surface tension reducing agent.
- ✓ Surfactant action is based on Law of Laplace.
- ✓ It increases the radius of alveoli, Decreases alveolar surface tension.
- ✓ Prevents alveolar collapse & prevents pulmonary edema.
- ✓ Surfactant helps to maintain the alveolar viscosity and surface tension. The absence of phosphatidyl choline (Lecithin) in newborn leads to fatal condition known as respiratory distress syndrome.

DEFFICEINCY

May occur with — Occlusion of pulmonary artery/ main bronchus, smokers, prolonged 100% oxygen therapy.

Partial pressure and content of oxygen and carbon dioxide in alveoli, capillaries and tissue

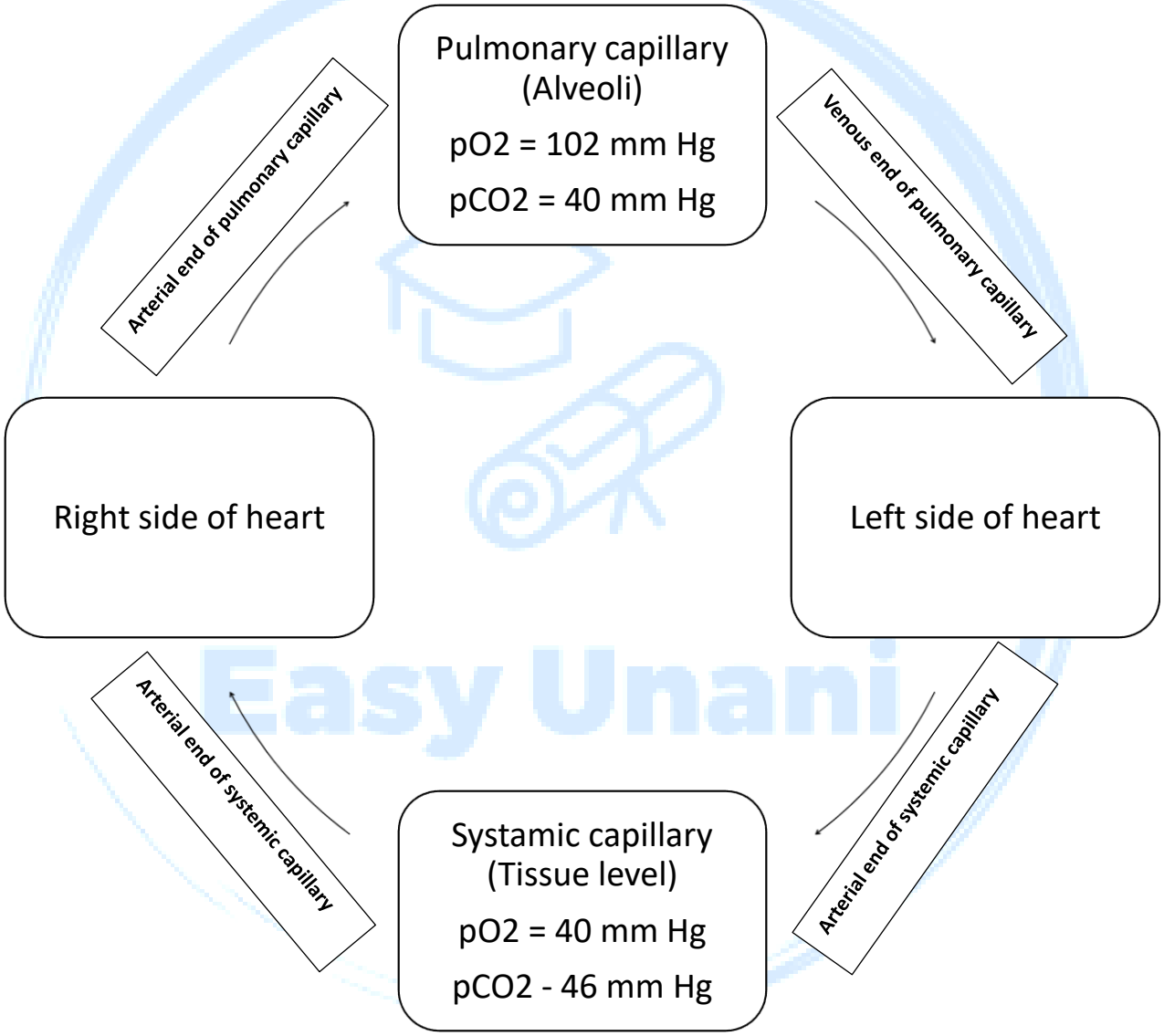
	Arterial end of pulmonary capillary	Alveoli	Venous end of pulmonary capillary	Arterial end of systemic capillary	Tissue level	Venous and systemic capillary level
pO (mm Hg)	40	104	104	95	40	40
Oxygen content (ml%)	14	-	19	19	-	14
pCO_2 (mm Hg)	46	40	40	40	46	46
Carbon dioxide content (ml%)	52	-	48	48	-	52

Dyspnea:- It also known as shortness of breath, is a medical condition characterized by difficulty in breathing or a feeling of not getting enough air. Dyspnea can be caused by a wide range of factors, including lung diseases, heart diseases, allergies, anxiety, and obesity, among others. It can also occur as a result of physical exertion, such as during exercise.

Anoxia:- It is a medical condition characterized by a total absence of oxygen supply to the body or a particular organ. It can be caused by a variety of factors, including suffocation, drowning, carbon monoxide poisoning, or severe respiratory distress. Anoxia can lead to cellular damage or death within minutes, especially in the brain, which requires a constant supply of oxygen to function properly.

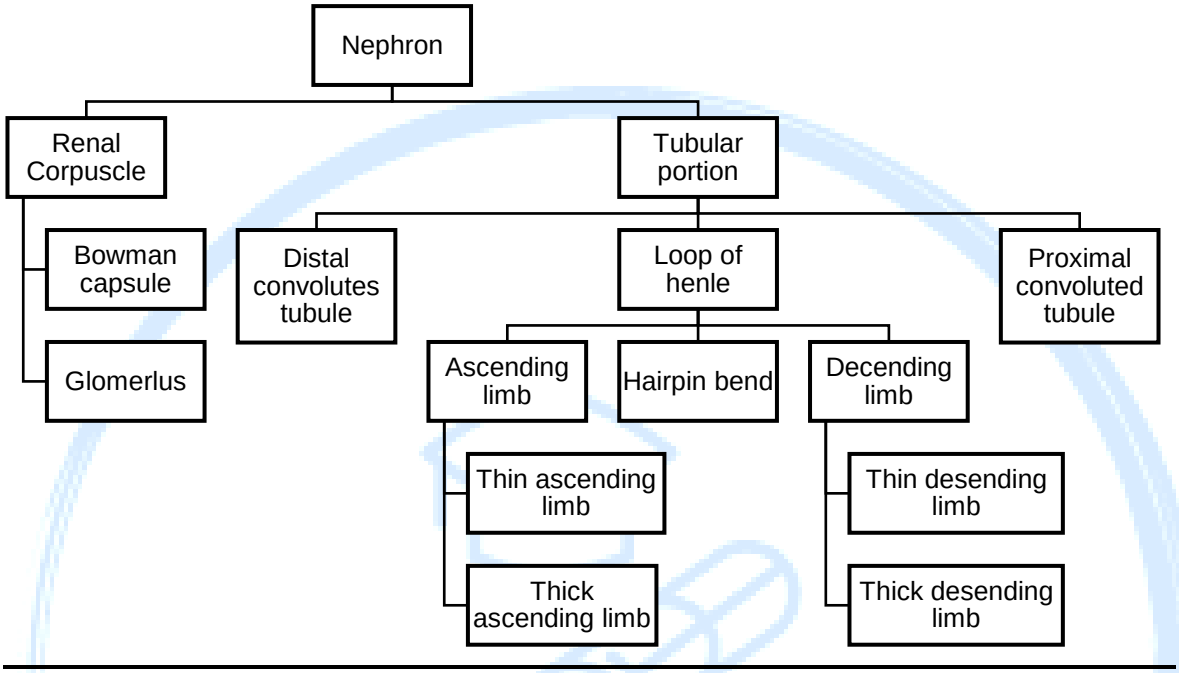
Apnea:- It is a medical condition characterized by a temporary cessation or pause in breathing. It can be caused by a variety of factors, including obstruction of the airway, neurological disorders, heart failure, or the use of certain medications or drugs.

Hypercapnia:- It is a medical condition characterized by an excessive accumulation of carbon dioxide in the bloodstream. It can occur due to a variety of factors, including respiratory failure, chronic obstructive pulmonary disease (COPD), asthma, neuromuscular disorders, or exposure to certain toxins or drugs.



Excretory System

Parts of Nephron



Size and cells of different parts of nephron and collecting duct

Segment	Epithelium	Length (mm)	Diameter (μ)
Bowman Capsule	**Flattened epithelium**	**-**	**200**
Proximal convoluted tubule	**Cuboidal cells with brush border**	**14**	**55**
Thick descending segment	**Cuboidal cells with brush border**	**6**	**55**
Thin descending segment, hairpin bend and thin ascending segment	**Flattened epithelium**	**10-15**	**15**
Thick ascending segment	**Cuboidal epithelium without brush border**	**9**	**30**
Distal convoluted tubule	**Cuboidal epithelium without brush border**	**14.5-15**	**22-50**
Collecting duct	**Cuboidal epithelium without brush border**	**20-22**	**40-200**

- **Urine formation is a blood cleaning function, Normally about 1300ml of blood (26% of cardiac output) enters the kidneys.**
- **Kidneys excrete the unwanted substances along with water from the blood as urine, Normally urinary output is 1000 – 1500ml / day.**

- Juxtaglomerular apparatus is absent in the medulla.
- GFR increases if afferent arteriole dilates or Efferent arteriole constricts.
- In renal disease albumin is first to appear in urine because it has weight slightly greater than the molecules normally getting filtered.
- The status of fluid in distal convoluted tubule is Always hypotonic.
- Maximum absorption of HCO_3 occurs is PCT.
- Creatinine is least absorbed in tubules.
- Potassium is either reabsorbed or secreted in DCT.
- Active potassium secretion occurs at Distal convoluted tubule.
- Na absorption is maximum at PCT.
- In Proximal segment by active reabsorption of Na+, the major portion of glomerular filtrate is reabsorbed.
- The amount of protein normally excreted in urine per day is up to 150mg.
- Potassium is maximally absorbed in Proximal convoluted tubules.

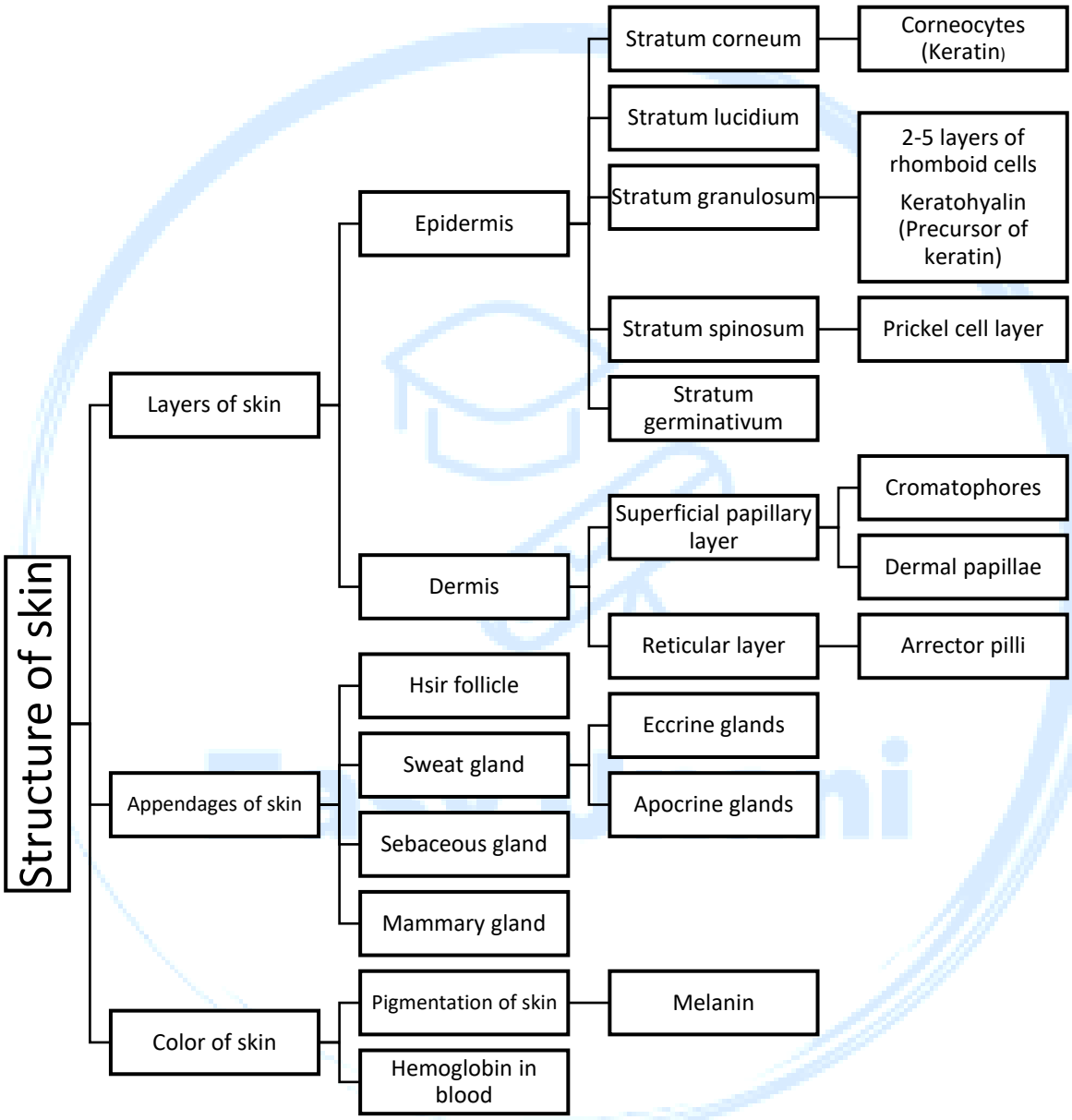
Acid-Base Balance

1. Anion gap is mainly due to albumin.
2. The enzyme required for the generation of the ammonium ion in the kidney is Glutaminase.
3. The Henderson-Hasselbalch equation is used for measuring the acid base balance.
4. J cells are responsible for acid secretion in kidney.

Endocrine functions of kidney

1. Sodium is excreted in urine in **Syndrome of inappropriate antidiuretic hormone secretion** (SIADH).
2. In Hypervolemia, renin secretion is inhibited.
3. Renin is released when there is low sodium.
4. ADH act as collecting tubules
5. Production of aldosterone is stimulated by Renin,
6. Ascending Loop is most permeable part of nephron for water.
7. In collecting duct there is increased excretion of K+.
8. Renin in synthesized by JG cells.
9. Arginine vasopressin (AVP) is synthesized in the Anterior hypothalamus
10. An increase in central blood volume leads to decreased Na+ reabsorption by the kidneys.
11. Skeletal muscle injury cause hyperkalemia.
12. The main driving force for water reabsorption by the proximal tubule epithelium is active reabsorption of Na+.
13. Atrial natriuretic peptid (ANP) acts at collecting duct.

Structure of skin

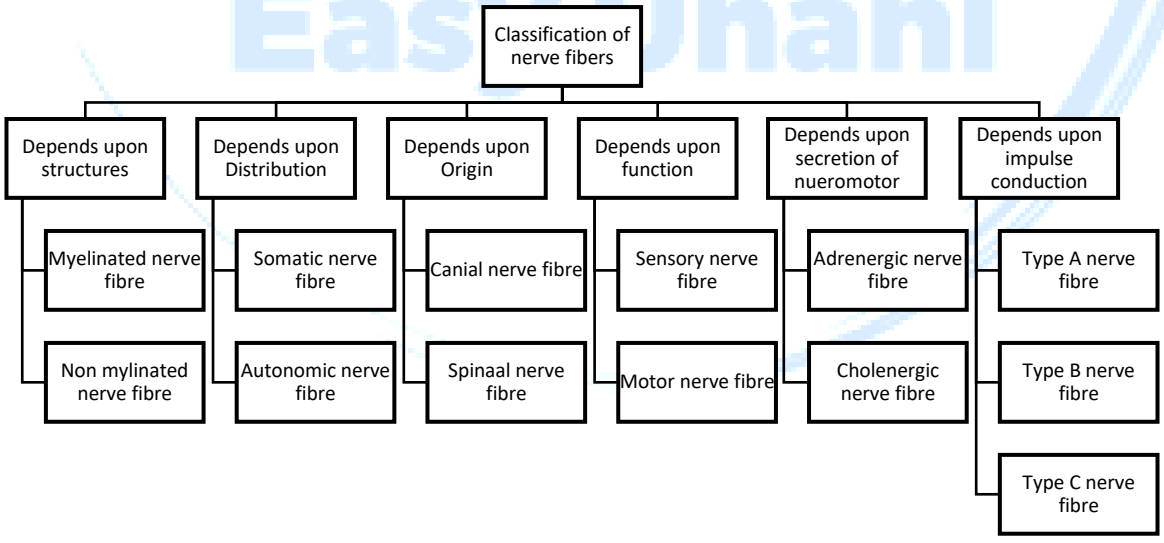


Differences of Apocrine & Eccrine glands

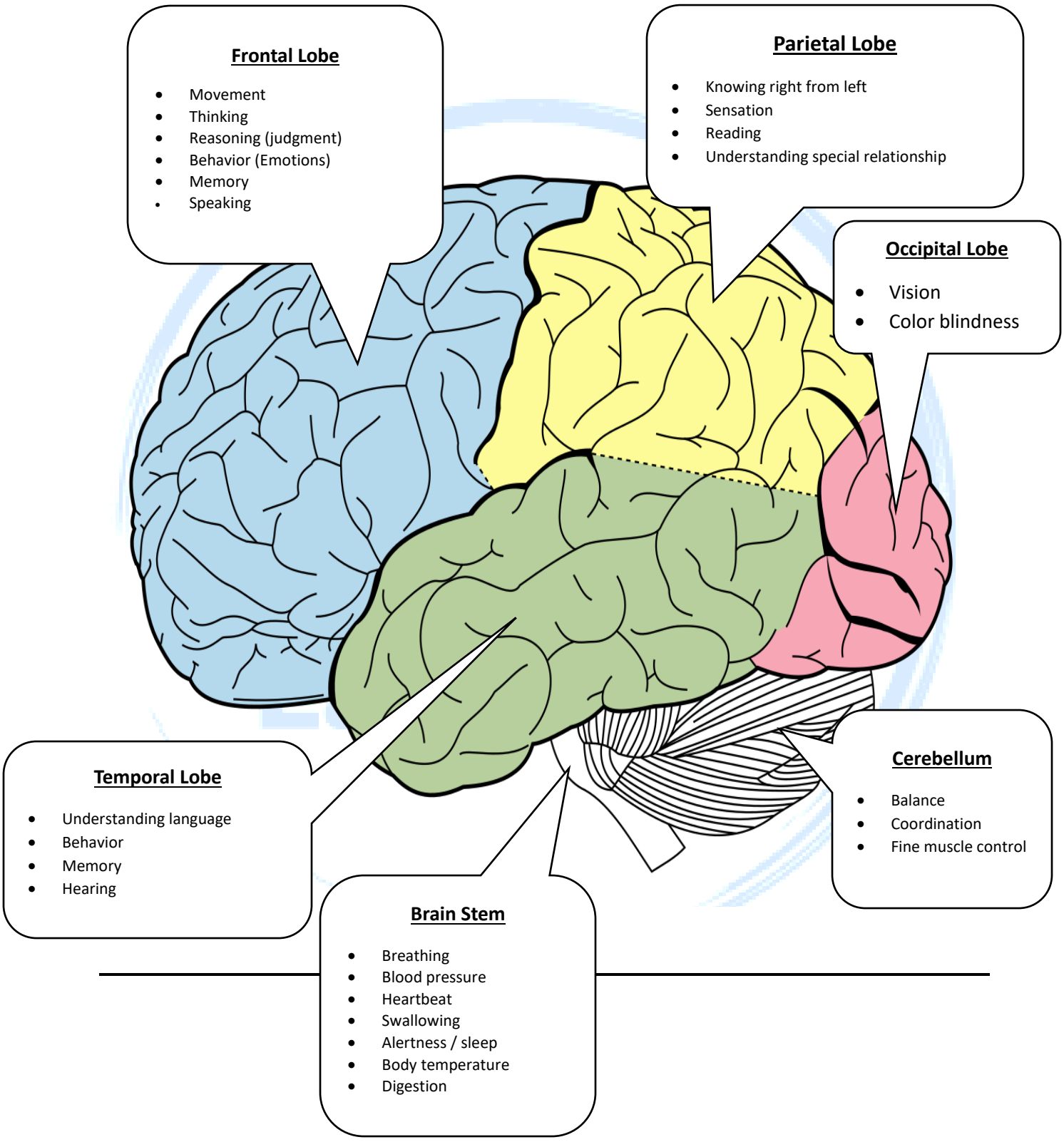
Features	Eccrine glands	Apocrine gland
Distribution	Throughout the body	Only in limited areas like axilla, pubis, areola and umbilicus
Opening	Exterior through sweat pore	Into the hair follicle
Period of function	Function throughout life	Start functioning only at puberty
Secretion	Clear and watery	Thick and milky
Regulation of body temperature	Play important role in temperature regulation	Do not play any role in temperature regulation
Condition when secretory activity increases	During increased temperature and emotional conditions	Only during emotional conditions
Nerve supply	Sympathetic cholinergic fibers	Sympathetic adrenergic fibers
Control of secretory activity	Under nervous control	Under hormonal control

Nervous System

Classification of nerve fibers



Function of different parts of Brain



Immunoglobulin

Immunoglobulin	Function
IgA	First line defense against infection by microorganism
IgD	Humoral Immunity
IgE	Associated with hypersensitivity reaction (Allergies)
IgG	Crosses the placenta Opsonization
IgM	First antibody produce by fetus

Sensory organs

- Sensory organs are specialized structures in the body that detect external stimuli and transmit information to the brain to produce a sensation.
- There are several types of sensory organs in the body, including:

1) Eyes - detect light and produce visual sensations
2) Ears - detect sound and produce auditory sensations, as well as detect movement and acceleration
3) Nose - detect odors and produce olfactory sensations
4) Tongue - detect taste and produce gustatory sensations
5) Skin - detect touch, pressure, temperature, and pain and produce tactile sensations

- These sensory organs are responsible for gathering information from the environment and transmitting it to the brain through specialized nerves.
- The brain processes this information to create the complex sensations we experience every day, such as seeing a rainbow, hearing a song, smelling a flower, or feeling the warmth of the sun on our skin.

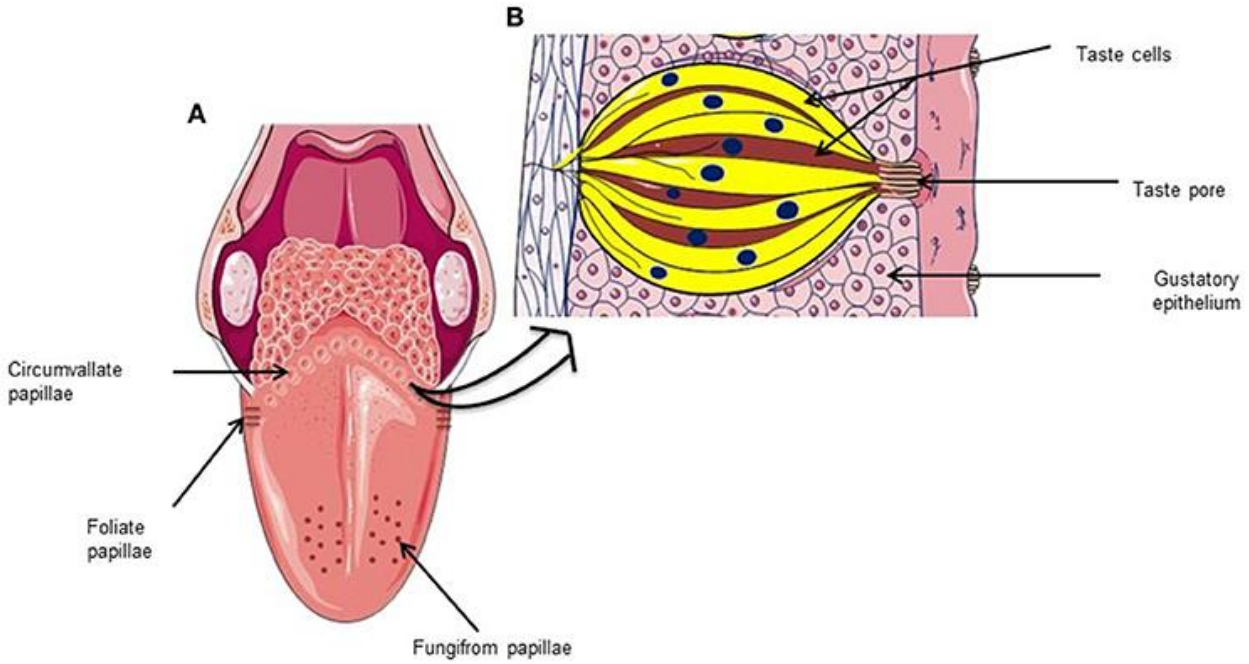
Physiology of Taste

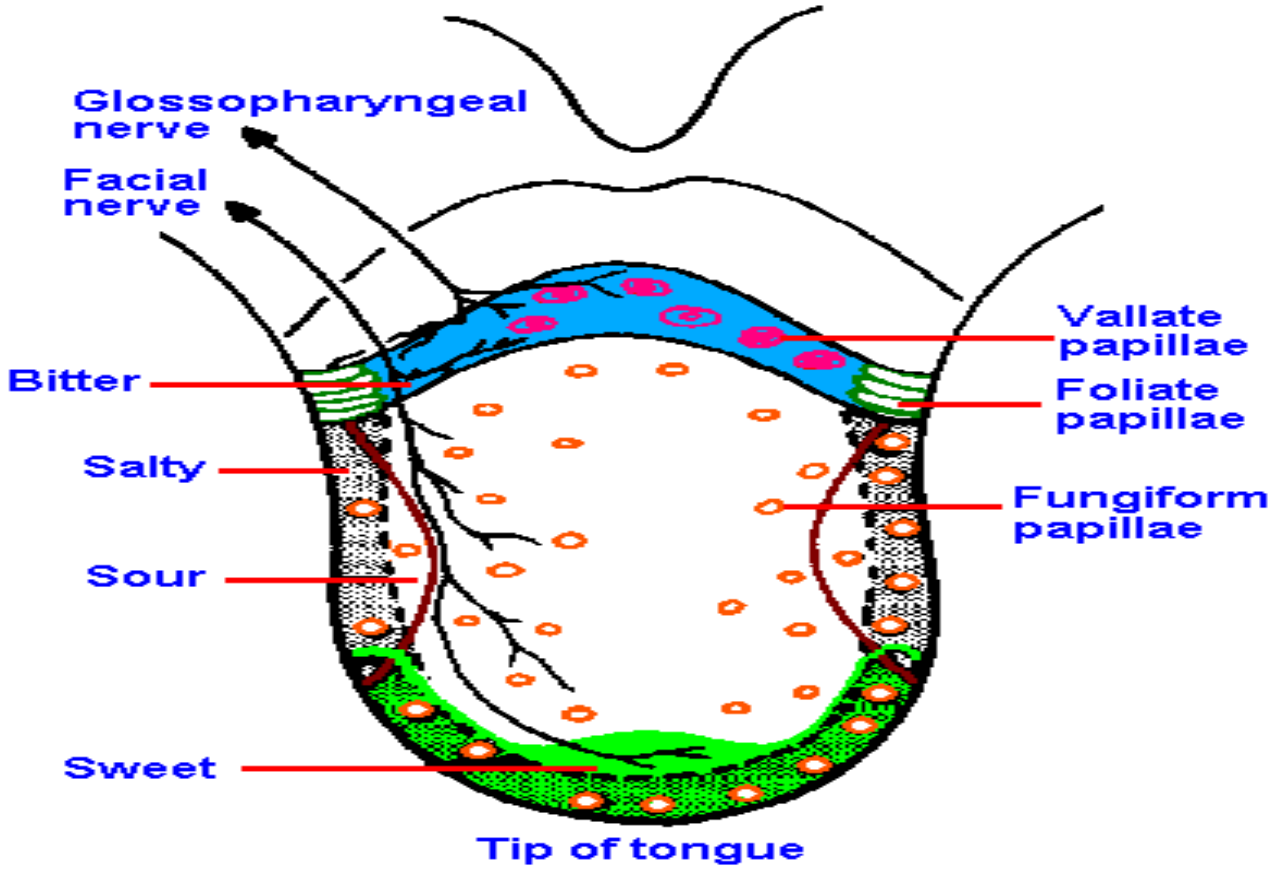
The taste buds, which are small clusters of specialized cells on the tongue, contain taste receptor cells that respond to different chemical compounds in food. There are several primary tastes that humans can detect,

1. Sweet - sensed by receptors for sugars and other carbohydrates
2. Sour - sensed by receptors for acids, such as those in citrus fruits
3. Salty - sensed by receptors for sodium and other salts
4. Bitter - sensed by receptors for alkaloids and other bitter substances, such as coffee or dark chocolate

When food enters the mouth, the taste receptors on the tongue and other parts of the mouth are stimulated by different compounds in the food.

This sends signals through the facial, glossopharyngeal, and vagus nerves to the gustatory cortex in the brain, where the signals are processed and interpreted as different flavors.


A
B
Taste cells
Taste pore
Gustatory epithelium
Circumvallate papillae
Foliate papillae
Fungifrom papillae


Glossopharyngeal nerve
Facial nerve
Vallate papillae
Bitter
Foliate papillae
Salty
Fungiform papillae
Sour
Sweet
Tip of tongue

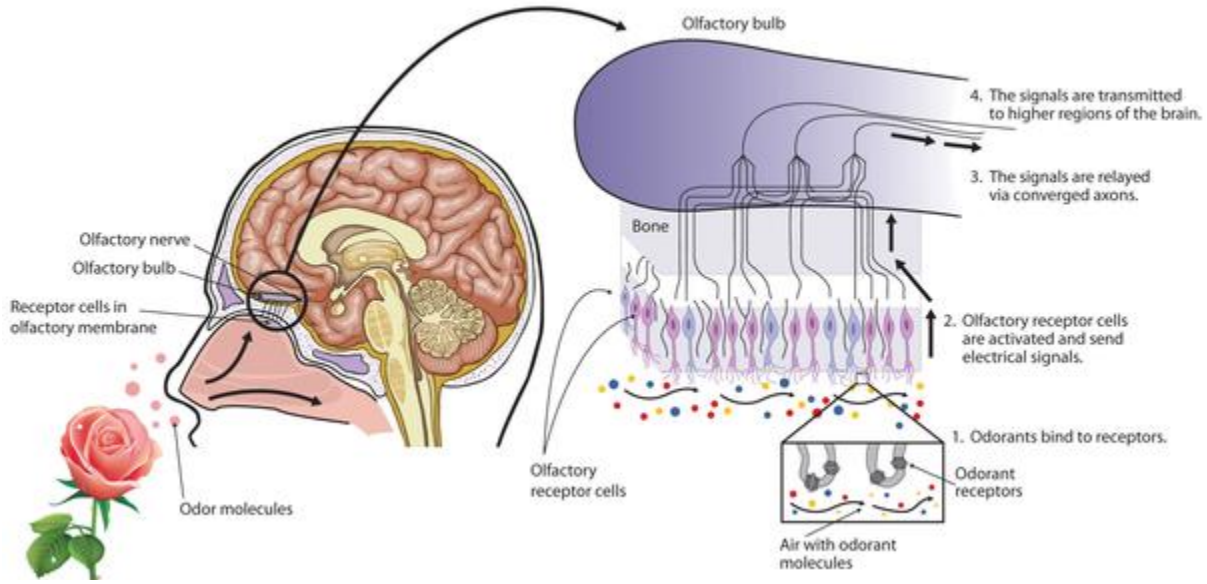
Physiology of Smell

- Smell, also known as olfaction, is the process by which the brain interprets and identifies different odors.
- The sense of smell is mediated by olfactory receptors located in the upper part of the nasal cavity.
- Cranial Nerve responsible for olfaction is Olfactory Nerve (CN=1).

Mechanism of smell

1. **Odorant bind to receptor cells which located in the olfactory epithelium, a small patch of tissue at the top of the nasal cavity.**
2. **Olfactory receptor cells are activated and send electrical impulses.**
3. **This signal is then transmitted to the olfactory bulb, a structure located at the base of the brain. In the olfactory bulb.**
4. **These signals are processed and sent to the olfactory cortex, where the brain identifies the odor and interprets its meaning.**

- Humans can detect thousands of different odors, and the brain is able to distinguish between them based on their chemical composition and the specific olfactory receptors that they bind to.
- Different odors can evoke strong emotional responses and memories, and can also play a role in guiding behavior, such as detecting the presence of food or danger.



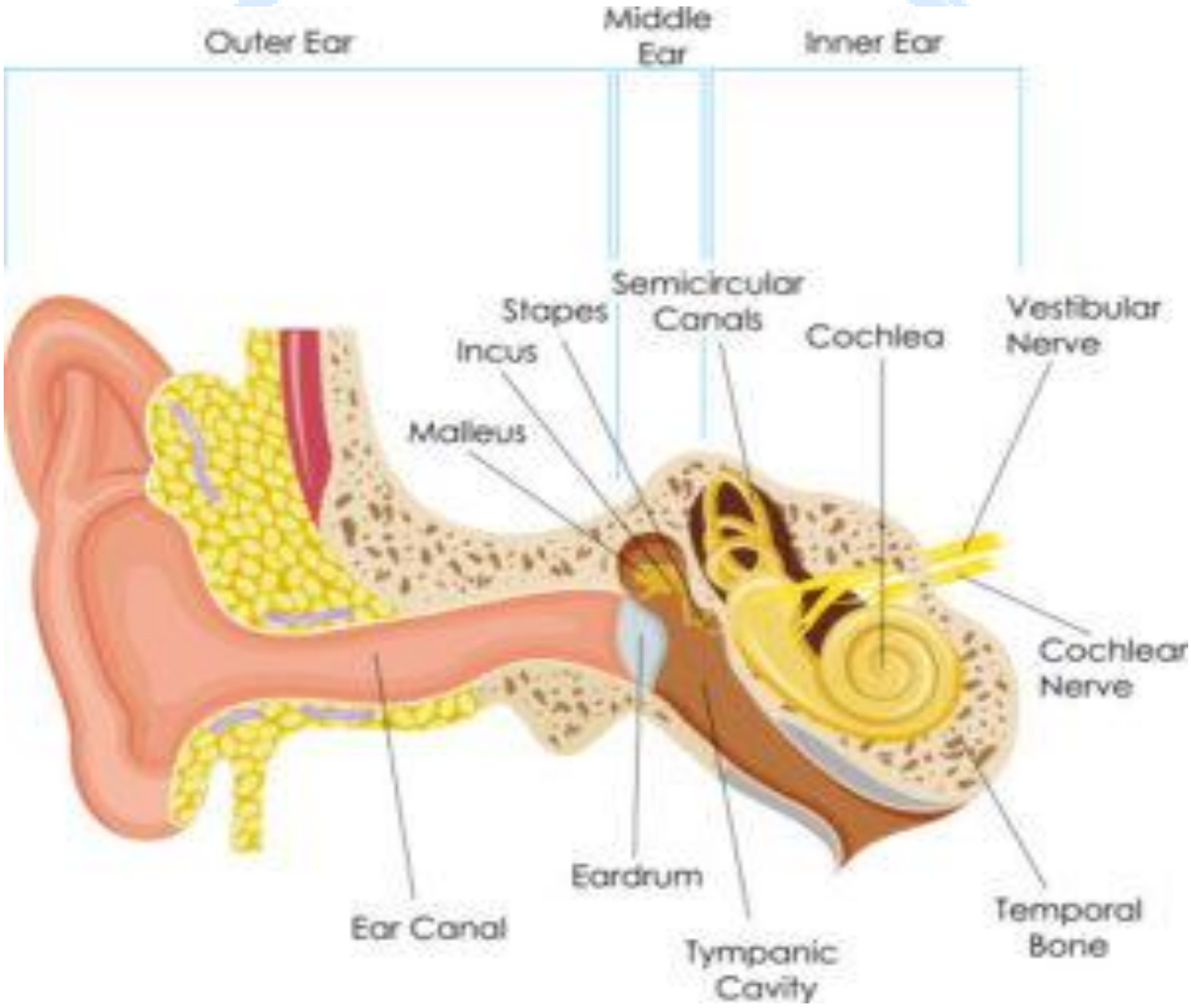
Physiology of Hearing

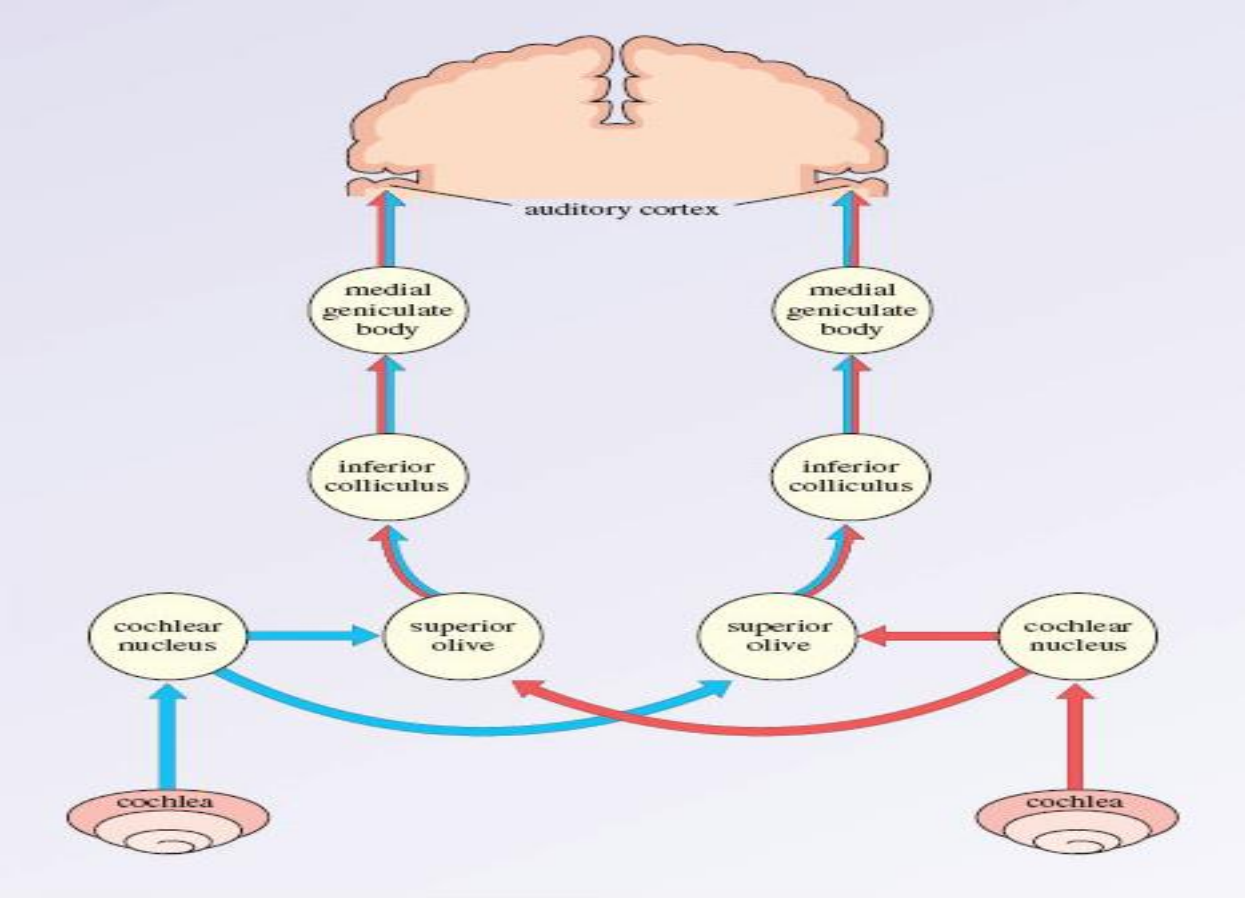
Hearing is the process by which the brain interprets and identifies different sounds.

The ear is the primary organ of hearing, consisting of three main parts:

1. Outer ear
2. Middle ear
3. Inner ear

Mechanism of Hearing





i. When sound waves enter the ear, they travel through the outer ear and into the ear canal.
ii. The sound waves cause the eardrum to vibrate, which in turn causes three small bones in the middle ear (the malleus, incus, and stapes) to vibrate.
iii. These bones amplify the sound and transmit it to the inner ear.
iv. The inner ear contains the cochlea, a spiral-shaped structure filled with fluid and lined with specialized hair cells.
v. The vibrations from the middle ear cause the fluid in the cochlea to move, which bends the hair cells and creates electrical signals that are transmitted to the auditory nerve.
vi. The auditory nerve sends these signals to the brainstem, where they are processed and interpreted by the auditory cortex in the brain.

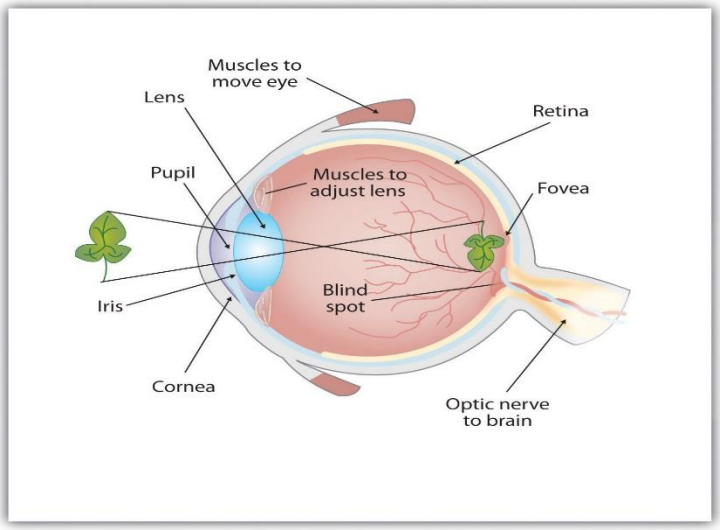
- The brain is able to distinguish between different frequencies, or pitches, of sound based on the location of the hair cells that are activated in the cochlea.
- In addition to hearing, the ear plays an important role in maintaining balance and equilibrium.

- **The vestibular system**, located in the inner ear, contains specialized cells that detect movement and changes in position, and sends signals to the brain to help maintain balance and orientation in space.

Physiology of Vision

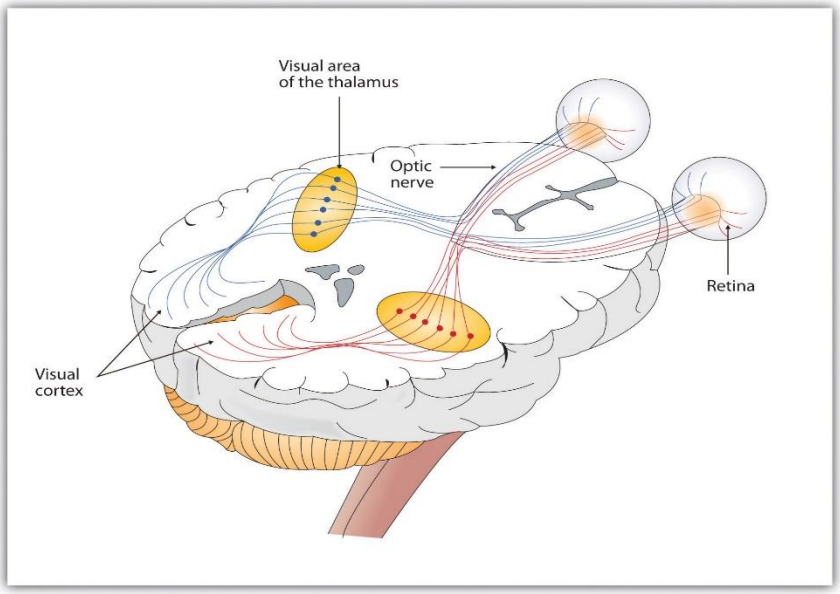
Vision is the process by which the brain interprets and identifies visual information received from the eyes.

The eyes are the primary organs of vision, consisting of several structures that work together to capture and transmit visual information to the brain.



Mechanism of vision

1. When light enters the eye, it passes through the cornea, a clear outer covering that helps to focus the light.
2. The light then passes through the pupil, a small opening in the center of the iris, which regulates the amount of light that enters the eye.
3. The light is then focused by the lens, a flexible structure that changes shape to adjust the focus of the image onto the retina. (The retina is a thin layer of specialized cells at the back of the eye that contains photoreceptor cells called rods and cones).
4. Rods are responsible for detecting light and dark, while cones are responsible for detecting color. When light strikes the photoreceptor cells, it triggers a series of biochemical reactions that generate electrical signals that are transmitted to the optic nerve.



5. The optic nerve carries these signals to the visual cortex in the brain, where they are processed and interpreted to form a visual image.

- The brain is able to distinguish between different colors based on the wavelength of light that is detected by the cones in the retina.
- The brain is also able to perceive depth and distance by comparing the different images that are received from each eye, a process called binocular vision.
- The brain is also able to adapt to changes in lighting conditions, such as adjusting to different levels of brightness or changes in color temperature.

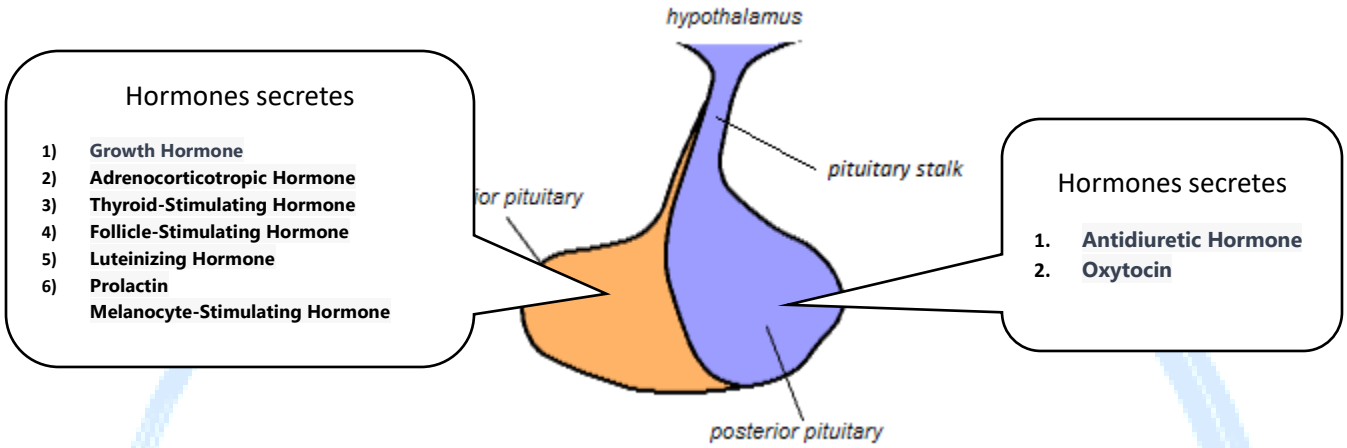
Physiology of touch

- Touch is a complex sense that involves a combination of physical and psychological processes.
- It involves the stimulation of specialized receptors in the skin that transmit signals to the brain for interpretation.
- There are several types of receptors in the skin that are responsible for different types of touch sensations.
- The most common types of receptors are Meissner's corpuscles, Merkel cells, Ruffini endings, and Pacinian corpuscles.
    1. Meissner's corpuscles are responsible for detecting light touch and vibration.
    2. Merkel cells are responsible for detecting pressure and texture.
    3. Ruffini endings are responsible for detecting skin stretch.
    4. Pacinian corpuscles are responsible for detecting deep pressure and vibration.

- Once the receptors in the skin are stimulated, they send signals to the spinal cord, which then relays the information to the brain for processing.
- The brain then interprets the information and creates a perception of touch.
- Touch is a critical sense for social interaction and communication, as well as for protecting ourselves from harm.
- It also plays a significant role in our emotional well-being and can be used as a form of therapy.

Endocrinology

Pituitary Gland: Growth Hormone & Prolactin



- ✓ High prolactin is associated with Increase estradiol
- ✓ The secretion of prolactin is controlled by Dopamine
- ✓ LH surge is responsible for menopausal hot flashes.
- ✓ The antidiuretic hormone is released by Posterior pituitary.
- ✓ Transection of pituitary stalk leads to the increase in prolactin.
- ✓ Lactogenesis is caused by prolactinandejection of milk by Oxytocin.
- ✓ Acromegaly occurs due to Acidophilic adenoma.
- ✓ Posterior pituitary stores and releases Oxytocin and vasopressin
- ✓ Follicle stimulating hormone is produced by Basophilic cells of Pituitary
- ✓ In the neurohypophysis, secretory granules accumulate in nerve endings
- ✓ Insulin stress test assay estimates Growth hormone.
- ✓ Growth Hormone causes hyperglycemia.

Thyroid Gland

- **Hormones Secrete**
  1. T3
  2. T4

- ✓ Thyroid act by nuclear receptors
- ✓ T3 level gives an indication of Thyroid state.
- ✓ "C" cells are found in thyroid.
- ✓ Reabsorption Lacunae in thyroid are seen in Colloid, in active follicles.
- ✓ Thyroglobulin synthesis does not take place in colloid.
- ✓ Iodide uptake into thyroid cell is an example of Secondary active transport
- ✓ Active form of thyroid hormone is T3.
- ✓ An increase in both TSH as well as thyroid hormones can be encountered in T3, T4 resistance.

Pancreas

- **Hormones Secrete**
  1. Insulin
  2. Glucagon
  3. Somatostatin

- ✓ Somatomedin mediates the deposition of chondroitin sulphate.
- ✓ Epinephrine decreases insulin release.
- ✓ Delta cells or 'D' cells of pancreas Secrete Somatostatin.
- ✓ Human insulin differ from beef insulin by 3 Amino acid.
- ✓ Insulin does not cause Lipolysis.
- ✓ Insulin does not cross placenta.
- ✓ HbA1c level in blood explains the long term status of blood sugar.

Adrenals

- **Hormones Secrete**
  1. Cortisol
  2. Aldosterone
  3. Adrenaline (Epinephrine)
  4. Noradrenaline (Norepinephrine)
  5. Androgens

- ✓ In the adrenal gland, androgens are produced by the cells in the Zona reticularis.
- ✓ Zona glomerulosa secretes aldosterone.
- ✓ Non-shivering Thermogenesis in adults is due to Noradrenaline.
- ✓ The adrenal medulla 90% of cells are of epinephrine secreting type.
- ✓ Most of the total mass of adrenal gland is made up of Zona fasciculate.
- ✓ Secretion of adrenal androgens is controlled mainly by ACTH.
- ✓ Glucocorticoids act as anti-inflammatory / anti-allergic agents because they prevent release of histamine/cytokines.
- ✓ ACTH bursts are maximum in Early morning.
- ✓ The primary form of cortisol in the plasma is Bound to corticosteroid-binding globulin (CBG).

Parathyroid glands (Calcium And potassium)

- ✓ Ionized calcium is the active form of calcium in the body.
- ✓ The mechanism by which hyperventilation may cause muscle spasm is decreased calcium.
- ✓ Osteoclast has specific receptor for Calcitonin.
- ✓ Sudden decrease in serum calcium is associated with increased sensitivity of muscle and nerve.
- ✓ Inositol triphosphate acts to increase the release of Ca 2+ from endoplasmic reticulum.
- ✓ Parathyroid hormone is responsible for increased production of 1,23 & Dihydroxycholecalciferol in kidney.
- ✓ Osteomalacia is associated with increase in osteoid maturation time.
- ✓ Main mineral salt of bone in Hydroxyapatite.
- ✓ Main effect of VIT.D. (1,25 Dihydroxycholecalciferol) is increase intestinal absorption of Ca++.
- ✓ The major site(s) for control of body's phosphorous is Kidney.
- ✓ Hyperparathyroidism responsible for osteoporosis.

Reproduction & Related Hormones

- **Hormones secretes**

1. Parathyroid Hormones (PTH) also known as Parathormone

- ✓ Best indicator for ovarian reserve is FSH.
- ✓ Sertoli cells are associated with Spermiogenesis.
- ✓ Leydig cells secrete testosterone.
- ✓ Sequence of sperm movement is straight tubules — rete testis — efferent tubules.
- ✓ Sertoli cells in the testis have receptors for FSH.
- ✓ Sperms acquire motility in Epididymis.
- ✓ Inhibin hormone is secreted by Sertoli cells.
- ✓ Antibodies against sperms develop after vasectomy.
- ✓ Progesterone causes increase in basal body temperature during ovulation.
- ✓ In postmenopausal women, estrogen is metabolized mostly into Estrone.
- ✓ Nucleus is the site of estrogen action.
- ✓ Normal or elevated LH/FSH is seen during polycystic ovary disease.
- ✓ FSH is inhibited by Inhibin
- ✓ After formation, the sperms are stored in Epididymis
- ✓ Meiosis occurs in human males in seminiferous Tubules.
- ✓ Length of spermatozoa is 50 micron.
- ✓ The enzyme associated with the conversion of androgen to estrogen in the growing ovarian follicle is Aromatase.
- ✓ Androsterone is responsible for hirsutism.
- ✓ Blood testis barrier is formed by Sertoli cells.
- ✓ Prostaglandins found in the seminal fluid are the secreting products of Seminal vesicle.
- ✓ Hormone responsible for initiation of ovulation is LH.
- ✓ Insulin stimulated glucose entry is seen in cardiac muscle.
- ✓ Fructose is secreted by seminal vesicle.
- ✓ Hormone acting on adjacent cells is called Paracrine.
- ✓ Premenopausal peripheral conversion of estrogen precursors in the obese patient results in the formation of Estrone.
- ✓ Insulin secretion is inhibited by Hypokalemia.
- ✓ Glucose mediated insulin release is mediated through ATP sensitive K+ channels
- ✓ Estriol production during pregnancy requires Androgens substrates from the fetus.
- ✓ A major factor in of hypogonadism is reduced secretion of gonadotropin- releasing hormone.
- ✓ The major function of follistatin is to bind activin and thus decrease FSH secretion.
- ✓ A major function of the epididymis is the storage and transport of mature sperm.
- ✓ The production of mature spermatozoa from spermatogonia takes 70 days.
- ✓ Testosterone is converted to dihydrotestosterone in the prostate.
- ✓ Sex hormone-binding globulin (SHBG) binds testosterone with a higher affinity than estradiol
- ✓ The production of estradiol by testes requires Leydig cell, Sertoli cells, LH, and FSH
- ✓ Granulosa cells do not produce estradiol from cholesterol because they do not have an active 17α Hydroxylase
- ✓ Estradiol synthesis in the graafian follicle involves stimulation of aromatase in the granulosa cell by FSH
- ✓ A Clinical indicating the onset of the menopause is an increase in plasma FSH levels.
- ✓ Increased progesterone during the postovulatory period is associated With an increase in basal body temperature by 0.5 to 1˚C,
- ✓ The theca interna cells of the graafian follicle are distinguished by their capacity to produce androgens from cholesterol.
- ✓ The next ovulatory cycle after implantation is postponed because of the production of hCG by trophoblast cells.
- ✓ Implantation occur only after priming of the uterine endometrium progesterone and estrogen.
- ✓ Successful fertilization is most likely to occur when the oocyte is in the oviduct and has entered the second meiotic division.

Miscellaneous

متفرقات

Medicine (معالجات)

Pathological types of Bronchiectasis

Type	Description
Cylindrical (Fusiform)	**Uniformly dilated bronchi**
Varicose	**Beaded bronchial wall, as a result of areas of dilatation, mixed with area of constriction**
Saccular (Cystic)	**Severe, irreversible ballooning of the bronchi peripherally, with or without air fluid level**
Follicular	**Extensive lymphoid nodules within the bronchial walls**

Morphological type of Emphysema

Centriacinar

- Begins in respiratory bronchioles and spreads peripherally
- Associated with long-standing cigarette smoking
- Most commonly involves upper half of lung

Panacinar

- **Destroys entire alveolus uniformly**
- **Most commonly involves lower half of lung**
- **Most commonly observed in patient with homozygous alpha-1 antitrypsin deficiency**

Paraseptal

- Most commonly involves distal airway structures, alveolar duct, and alveolar sac
- Localized around the setae of lungs or pleura
- Apical bullae may lead to spontaneously pneumothorax

Examination of Meningitis

1. Kerner's sign
2. Brudzinski sign

Cerebral Trombosis

Cerebral Embolism

Cerebral Hemorrhage

Differential Diagnosis:-

	Embolism	Thrombosis	Hemorrhage
Nature of onset	Instantaneously	Sudden or progressive	Catastrophic
Common causes	Mitral stenosis with atrial fibrillation, Carotid stenosis	Arteriosclerosis with or without hypertension	Hypertension almost invariable
Clinical feature I Headache	Variable	Slight or absent	Severe
II Vomiting at onset	Rare	Rare	Common
Convulsions	Common	Rare	Common
Coma	Rarely deep	Varies	Deep unconsciousness
Stiff neck	Rare	Rare	Frequent

Conjugate deviation of eyes	Rare	Seldom	Frequent
Reaction of pupil	No change	May be impaired	Commonly impaired
Blood pressure	Normal	May be high	Usually high
CSF	Usually normal	Clear, Pressure slightly increase	Usually BP high
CT scan or MRI	Infraction may not appear for 2-4 days	May not appear for 2-4 days	Can be conformed within minutes of onset
Termination	Recovery usually	Recovery often	Rapid deterioration high mortality

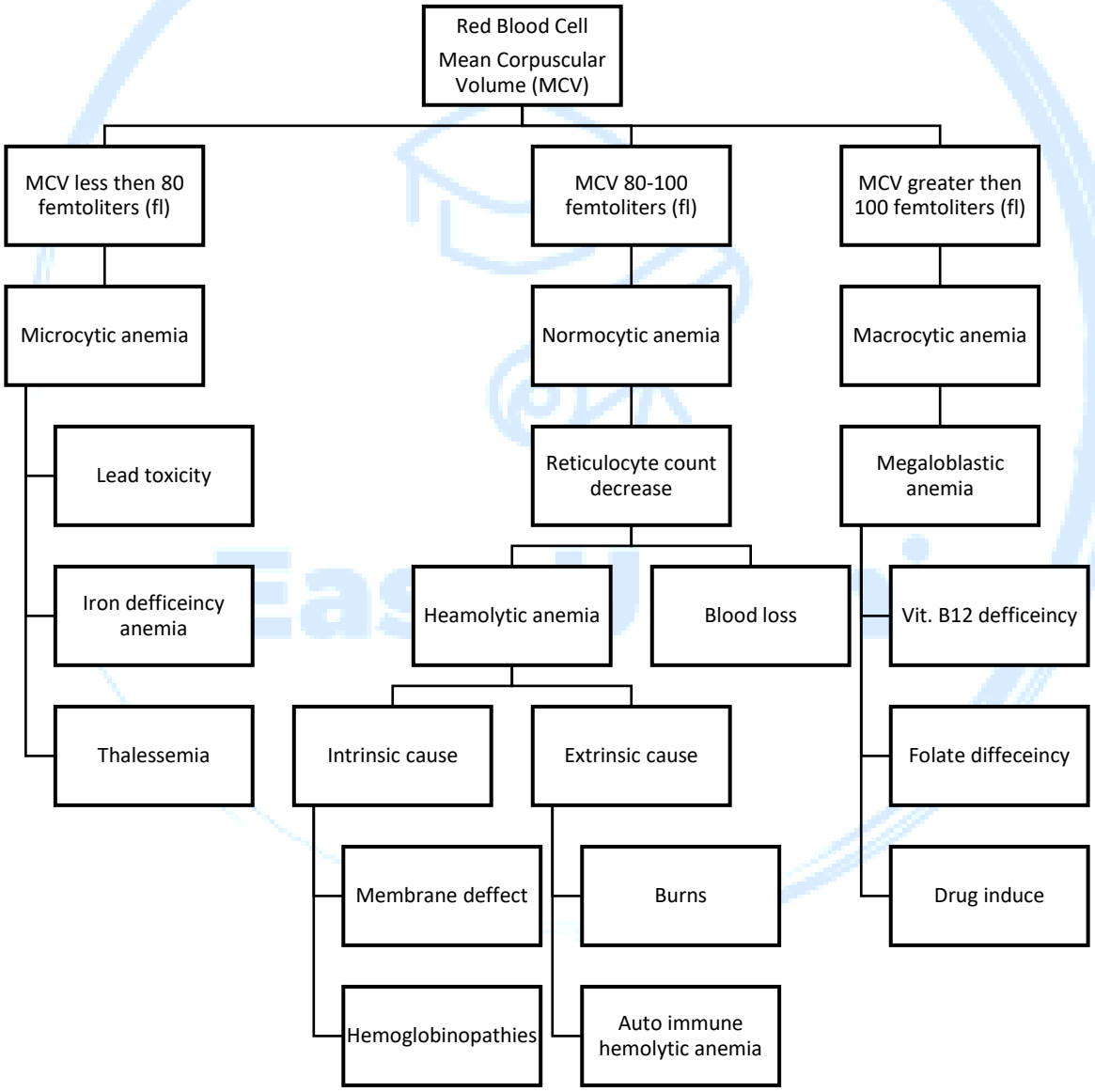
Localization of site of lesion:-

SITE OF LESION	LOCALIZING SYMPTOMS
Cortex	Flaccid hemiplegia with cortical sensory loss. Aphasia common. Convulsions may occur.
Internal capsule	Commonest site. Hemiplegia. Hemianaesthesia if lesion in posterior one-third. No loss of consciousness. Spasticity marked.
Thalamus	Thalamic syndrome — 1- Fleeting hemiparesis or hemiplegia on the side opposite the lesion. 2- Impairment of superficial and loss of deep sensation on the opposite side of the body. 3- Elevation of threshold to cutaneous, tactile, thermal, and painful stimuli, but these when perceived have an abnormal painful quality. 4- Intolerable, spontaneous pains and hyperpathia on opposite side. 5- Ataxia, tremor and/or choreoathetoid movements on the opposite side. 6- Conjugate internal deviation of both eyes with weakness of upward gaze.

Midbrain	**Upper level — Weber's syndrome — 3rd nerve palsy with crossed hemiplegia.** **Lower level — Benedict's syndrome (upper red nucleus syndrome)- 3rd nerve affection on side of lesion with tremors, hypertonia and ataxy on opposite side**
PONS	**1- Millard-Gubbler syndrome — Paralysis of lateral rectus, with or without LMN type of facial paralysis on one side with crossed hemiplegia.** **2- Foville's syndrome — Similar to Millard - Gubbler syndrome except that instead of lateral rectus paralysis, there is congugate ocular deviation to side of lesion.** **3- Avellis's syndrome— Paralysis of 10th cranial nerve on one side (LMN type) with contralateral hemiplegia.** **4- Horner's syndrome — Paralysis of the ocular sympathetic may result from a lesion in the tegmentum of the pons.**
Medulla	**1- Medial medullary syndrome (Dejerine's syndrome) — Ipsilateral flaccid tongue weakness, contralateral hemiplegia and contralateral loss of position and vibration sense (from infarction of medial lemniscus).** **2- Lateral medullary syndrome (Wallenberg's syndrome) — Abrupt onset with vertigo (vestibular nucleus), dysphagia (N. ambigus), ataxia (inferior cerebellar peduncle). On examination ipsilateral anaesthesia of face (descending tract of 5th nerve), and contralateral of limbs and trunk (spinothalamic tract), Horner's syndrome (descending sympathetic fibres), nystagmus (vestibular nerve and cerebellar fibres), ipsilateral intention tremor (inferior cerebellar peduncle).**
Temporal lobe	**1- Deep posterior temporal lobe — Pyramidal fibres pass in close proximity to visual fibres hence hemiplegia usually associated with homonymous hemianopia or upper quadrantic field defect.** **2- Anterior temporal lobe — On the dominant hemisphere the pyramidal**

	system lies just medial to the speech fibres, hence hemiparesis associated with expressive aphasia.
Spinal cord	**Unilateral lesion of the cortico-spinal tract below the medulla and fifth cervical segment produces spinal hemiplegia involving the limbs of the affected side but without paralysis of muscles innervated by cranial nerves.**

Classification of Anemia



Functional Tests for Malabsorption

Test	Method	Interpretation
Carbohydrate malabsorption Hydrogen breath test	After overnight fast, basal sample taken and 50g lactone in 200ml in water. End-expiratory blood sample analysed at 15 or min interval for 2hrs	If bacteria in upper gut. or lactose absent, increased excretion of H_2 in breath. Positive test increase of 200ppm or more.
Fat malabsorption (Pancreatic function)	Tests ability to digest fat	
Triolein test	Oral dose of labelled fat and measurement of CO_2 in expired breath	
3-day faecal fat collection	Adequate amount of fat intake (70g/d)	Normal amount of fat in stool < 5g/day. More fat excretion confirms steatorrhoea.
Tubeless test	Pancreolauryl test links a flurescinated probe to a carrier by a link that is sensitive to pepsin	Low proportion of ingested dye recovered from urine when luminal trypsin is reduced in pancreatic insufficiency
N-benzoyl-tryrosyl paraamino-benzoic acid test	After fasting, oral dose of 500mg NBT-PABA is given with 250ml water	Normal subjects excrete— more than 57% in 6h. Test relies on hydrolysis Of NBT-PABA by trypsin and subsequent excretion of para-aminobenzoic acid and it's metabolites
SeHCAT test scan	Patient's 7 day retention of oral dose of labelled bile acid (Se homo-cholyltaurine) after whole body scan	Low (<7%) in extensive ileal disease or bile salt malabsorption
Schilling test (Vitamin B12 absorption)	Ingestion of radioactive B12 and measurement of urinary recovery	If cause of abnormal B12 absorption is gastric, it can corrected by co-administration of B12, if cause is terminal ileum it cannot be corrected.
D-xylose absorption test	5g D-xylose per oral given to fasting patient and urine collected at 30 min. intervals for next 5 hrs.	Test is abnormal (if renal function is not abnormal) if < 1.2g xylose is present in 5-h urine collection. Test is almost always positive in primary jejunal disease
Tests of small bowel contamination	Aspiration Uncontaminated small bowel aspirate with pre-sterilized, sheathed aspiration cannula. Aerobic and anaerobic culture of aspirate	Total aerobic and anaerobic count of 10^5 or more suggests bacterial overgrowth.

Fevers Types And its other causes

Fever type	Its cause
Hemorrhagic fevers	Ebola virus. Chikungunya (alpha Virusj Dengue Viruses type 1-4 Flavi Yellow fever (Flaviviruses) Nairo viruses
African hemorrhagic fever	Marburg & Ebola viruses
Brazilian hemorrhagic fever	Sabia virus
Quartan fever	Plasmodium malaria
Glandular fever	Epstein-Barr virus
Pontiac fever	Legionella
Pel-Epstein fever	Hodgkin's lymphoma
Picket fence fever	Lateral sinus thrombosis
Step ladder fever	Typhoid fever
Saddle back fever (Break bone fever)	Dengue fever
Benign tertian fever	Plasmodium vivax, Plasmodium ovale
Malignant tertian fever	Plasmodium falciparum

Drug addiction and Alcoholism

- Drug addiction and alcoholism are both forms of substance use disorders characterized by the compulsive use of drugs or alcohol, despite their harmful consequences.
- Drug addiction, also known as substance addiction, refers to the compulsive use of drugs, including illegal drugs, prescription drugs, or over-the-counter drugs.
- People with drug addiction may experience intense cravings for the drug, and they may continue to use it despite negative consequences, such as legal problems, financial problems, relationship problems, or health problems.
- Alcoholism, also known as alcohol addiction or alcohol use disorder, is a form of addiction that involves the compulsive use of alcohol.
- People with alcoholism may experience physical dependence on alcohol, which can lead to withdrawal symptoms when they try to stop drinking.
- They may also experience intense cravings for alcohol and continue to drink despite negative consequences, such as health problems, relationship problems, or job loss.
- Both drug addiction and alcoholism are serious health conditions that can have a significant impact on a person's life.

Treatment may involve a combination of behavioral therapies, medications, and support groups to help individuals overcome their addiction and achieve long-term recovery.

Rehabilitation for drug addiction and alcoholism

Rehabilitation for drug addiction and alcoholism typically involves a combination of different therapies and approaches aimed at helping individuals overcome their addiction and achieve long-term recovery. Some of the most common types of rehabilitation programs for drug addiction and alcoholism include:

1. Inpatient Rehabilitation: Inpatient rehabilitation programs involve individuals staying at a residential treatment center for a specified period, typically ranging from 30 to 90 days. Inpatient rehab offers a structured environment where individuals can receive intensive therapy, support, and medical care.
2. Outpatient Rehabilitation: Outpatient rehab programs are less intensive and do not require individuals to stay at a residential treatment center. Instead, individuals attend therapy sessions and other treatments on a regular basis while living at home.
3. Behavioral Therapies: Behavioral therapies, such as cognitive-behavioral therapy, motivational interviewing, and contingency management, are often used to help individuals identify and change negative thought patterns and behaviors related to drug addiction and alcoholism.
4. Medication-Assisted Treatment: Medication-assisted treatment involves the use of medications, such as methadone or buprenorphine, to help individuals manage withdrawal symptoms and cravings associated with drug addiction and alcoholism.
5. Support Groups: Support groups, such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA), offer peer support and encouragement to individuals in recovery.

Overall, rehabilitation programs for drug addiction and alcoholism aim to help individuals overcome their addiction and develop the skills and strategies needed to maintain long-term recovery. The specific type of rehabilitation program that is most appropriate will depend on the individual's unique needs and circumstances.

Anatomy (تشریح البدن)

Points on Muscles

Muscle which has Dual nerve supply

1. Brachialis
2. Adductor magnus
3. Pectineus
4. Digastric
5. Flexor policis brevis
6. Flexor digitorum profundus
7. Biceps femoris

Types of muscles

According to shape

- Triangular

1. Deltoid
2. Adductor longus
3. Temporalis

- Quadrangular

1. Quadratus femoris

- Diamond shaped

1. Rhomboid major

- Round shape

1. Teres major

- Straight

1. Rectus abdominis

- **Spiral (Twisted)**

2. Trapezius
3. Pectoralis major
4. Latissimus dorsi
5. Supinator

Some special muscle names

- **Boxer's muscle is known as Serratus anterior**
- **Muscle of marriage is known as Medial rectus**
- **Muscle of honeymoon is known as Sartorius**
- **Swing muscle is known as Pronatus quadratus**
- **Climbing muscle is known as Latisimus dorsi**
- **Muscle of divorce is known as Lateral rectus**
- **Muscle of rape is known as Gracilis**
- **Tailor's muscle is known as Sartorius**
- **Red muscle is known as Postural muscles**
- **White muscle is known as Extra ocular muscle**
- **Spurt muscle is known as Brachialis**
- **Shunt muscle is known as Brachioradialis**
- **Gantzer's muscle is known as Flexor pollicis longus**
- **Shunt muscle is known as Brachioradialis**
- **Forgotten muscle is known as Subscapularis**
- **Key muscle is known as Piriformis**
- **Locking muscle is known as quadriceps**
- **Unlocking muscle is known as popliteus.**

Types of Muscles

Types	Features	Position
Skeletal	**Fibers : striated, tubular and multi nucleated** **They are Voluntary**	**Usually attached to skeleton**
Smooth	**Fibers : Non-striated, spindle shaped, and uninucleated.** **They are Involuntary**	**Usually covering wall of internal organs**
Cardiac	**Fibers : striated, branched and uninucleated.** **They are Involuntary**	**Only covering walls of the heart.**

Ligaments

- Fibrous bands which connects bone to bone

1. **Deltoid ligament:-**

   Talocalcaneonavicular joint and tibia.

2. **Coracoclavicular ligament:-**

   Provide strength Acromioclavicular joint

3. **Lacunar ligament:-**

   Crescent shaped extension of fibers at the medial end of the inguinal ligament

4. **Coopers ligament:-**

   Extension of fibers from lacunar ligament along pectin pubis of pelvis brim

5. **Gastrosplenic ligament:-**

   Contains short gastric vessels

6. **Leino renal ligament:-**

   Contains splenic vessels & tail of pancrease

7. **Ilio-femoral ligament is strongest ligament of body**
8. **Spring ligament supports talocalcaneonavicular joint**

Fascia is classified as

1. **Superficial fascia**
2. **Deep fascia**
3. **Visceral fascia**

Superficial fascia

- It is thicker in trunk then in limbs and become thinner peripherally
- Platysma muscle in neck
- External anal sphincter
- Dartos fascia in scrotum
- Scarpa fascia in abdomen

Deep fascia

- Surround bone, muscles, nerves, blood vessels.
- It is commonly more fibrous, highly vascularized and contain well developed lymphatic channels.
- Deep fascia of perinium is Gallaudet
- Deep fascia of thigh is Fascia lata
- Deep fascia of Bucks fascia
- Deep fascia separate posterior surface of prostate from rectum is Fascia of Dononvilliers
- Pouch of Dunn is found between – Bladder & uterus

Visceral fascia

- Fascia of Gerota – Covers kidney and adrenal glands
- Sibsons fascia – Suprapleural membrane which covers apex of lung
- Fascia bulbi – Fascial sheath of eyeball which extends from optic nerve to sclerocorneal junction

Triangles of Neck

Anterior triangle

	Submental	Digastric	Carotid	Muscular
Boundary	**Each side there is anterior belly of digastric muscle Base: Body of hyoid Floor: Right & left mylohyoid muscle**	**1.Anterior belly of digastric 2.Posterior belly of digastric & Stylohyoid 3. Superior Angle of mandible & mastoid**	**1.Anteriosuperiorly: Posterior belly of digastric & stylohyoid 2.Anteriorinferiorly: Superior belly of omohyoid 3. Anterior boarder of sternocleidomastoid muscle**	**1.Anteriorly: Anterior median line of neck from hyoid bone to sternum 2. Posterosuperiorly: Superior belly of omohyoid muscle 3. Anterior boarder of sternocleidomastoid muscle**

Contents	Submental lymph nodes Submental veins	Anterior part of tongue Posterior part of tongue Internal carotid artery Internal jugular vein Vagus nerve	Common carotid artery Internal carotid artery External carotid artery Internal jugular vein Common facial vein Pharyngeal vein Lingual vein Vagus nerve Spinal accessory nerve Hypoglossal nerve Carotid body	Infrahyoid muscles (a) Sternohyoid (b) Sternothyroid (c) Thyrohyoid (d) Omohyoid

Posterior triangle

Boundries:-

Anteriorly: Posterior boarder of sternocleidomastoid

Posteriorly: Anterior boarder of trapezius

Inferior/Base: Middle one third of clavicle

Its tributaries are:

a. **Posterior external jugular vein**
b. **Transverse cervical vein**
c. **Suprascapular vein**
d. **Anterior jugular vein**

Contents:-

Nerves:

1. **Spinal accessory nerve**
2. **Four cutaneous branches of cervical plexes**
   a. **Lesser occipital (C2)**
   b. **Great auricular (C2, C3)**
   c. **Anterior cutaneous nerve of neck (C2,C3)**
   d. **Supraclavicular nerve (C3,C4)**

3. Muscular branches
    a. Levator scapula
    b. Trapezius
4. C5, C6 roots of brachial plexus
5. Vessels
    a. Transverse cervical artery and vein
    b. Occipital artery
6. Lymph nodes

Temporomandibular joint is Bicondylar joint of synovial joint

Ribs

Typical ribs are

1^{st},2^{nd},10^{th},11^{th},12^{th}.

11^{th},12^{th} = Floating ribs.

Sternum consist of Manubrium, Body, Xiphoid process.

It is 17cm long

It is longer in male then female

Manubrium is strongest part of sternum

Bones of upper limb

Total no. of bones in upper limb = 32

Both limbs 64

Scapula (Axial bone)

Clavicle (Long bone, First bone to ossify)

Humerus (Long bone)

Radius (Long bone)

Ulna (Long bone)

Carpel = 8 (Short bone)

Metacarpal = 5 (Short Long bone)

Phalanges 14 (Short Long bone)

Bones of lower limb

Total no. of bones in upper limb = 31

Both limbs 62

Pelvis (compose of Ilium, Ischium, Pubis)

Femur (Long bone)

Tibia (Long bone)

Fibula (Long bone)

Tarsal = 7 (Short bone)

Metatarsal = 5 (Short Long bone)

Phalanges 14 (Short Long bone)

Arteries carries deoxygenated blood

- Pulmonary artery
- Umbilical artery

Veins carries oxygenated blood

- Pulmonary veins
- Umbilical veins

Important Named Veins

- Marshall's vein — Oblique vein of left atrium
- Labbe vein — Inferior anastomotic vein of brain
- Trolard vein — Superior anastomotic vein of brain
- Leonardo da vinci vein — Posterior arch vein of leg
- Vein of Mayo (Latarjet vein) is another name of — prepyloric vein.

Veins which do not have muscular tissue

- Dural sinuses and pial veins
- Veins of maternal part of placenta
- Retinal veins
- Veins of spongy bones
- Venous spaces of erectile tissue of penis

Veins which do not have valves

- Superior vena cava
- Inferior vena cava (Except its opening in right atrium)
- Very small veins of diameter <2mm
- Hepatic, portal, facial, renal, ovarian, uterine, cerebral, emissary, pulmonary and umbilical veins.

Vessels of lower limb

1. Femoral artery begins at the mid-inguinal point.
2. The superficial external pudendal artery is a branch of the Femoral artery.
3. Popliteal artery is difficult to palpate because it is not superficial.
4. Dorsalis pedis artery is the continuation of the Anterior tibial artery.
5. Main blood supply to the head and neck of femur comes from the Medial circumflex femoral Artery.
6. The blood supply to femoral head is mostly by the Profunda femoris.
7. Peroneal artery is a branch of the Posterior tibial artery.
8. Nutrient artery arises to fibula from the Peroneal artery.
9. The Great saphenous vein starts as a continuation of medial marginal vein.
10. Hunterian perforators are seen in mid-thigh.

Obstetrics (علم القبالت)

Anatomy of Female genital organs

- ✓ Trophoblast give rise to placenta
- ✓ The uterine blood flow at term IS 500-750 ml/min
- ✓ Utero placental blood flow at term 450-650 ml/min
- ✓ Feto placental blood flow = 400 ml/min
- ✓ The folds of Hoboken are found in the umbilical cord
- ✓ Fetal blood loss in abnormal cord insertion is seen in Vasa previa
- ✓ Decidual space is obliterated by 16th week
- ✓ After 7 - 9 days of ovulation, embryo implantation occurs
- ✓ The folds of Hoboken are found in umbilical cord
- ✓ Fetal blood loss in abnormal cord insertion is seen in vasa previa
- ✓ Decidual space is obliterated by 16th week
- ✓ Uteroplacental circulation is established on 10-12 days after fertilization
- ✓ Longest part of the fallopian tube is ampulla
- ✓ Narrowest part of fallopian tube is interstitial portion
- ✓ Complete failure of fusion of the Mullerian duct leads to uterus didelphys
- ✓ Paramesonephric duct develop into uterus
- ✓ Fertilized ovum reaches the uterine cavity in 3 days
- ✓ Protective bacterium in normal vagina is Lactobacillus
- ✓ The main source of physiological secretion found in the vagina is cervix
- ✓ The epithelial lining of cervical canal is high columnar
- ✓ Nabothian follicles occur in erosion of cervix
- ✓ Vaginal defence is lost after 10 days of birth
- ✓ Ovary is attached to the posterior layer of the broad ligament by mesovarium
- ✓ To diagnose uterus didelphys, procedure of choice is MRI > 3D-USG
- ✓ The most important indication for surgical repair of a bicornuate uterus is habitual abortion
- ✓ Vaginal atresia is associated with uterine atresia

- ✓ **Progesterone Is produced by granulosa luteal cells**
- ✓ Highest cardiac output in pregnancy is after delivery
- ✓ Lactose is present normally in the urine of a pregnant women in the third trimester and lactation
- ✓ During foetal life maximum growth is caused by Insulin
- ✓ HCG is secreted by Syncytiotrophoblast cells
- ✓ Hormone responsible for decidual reaction and Arias stella reaction in ectopic pregnancy is Progesterone
- ✓ Schwangershaft protein is the other name of Pregnancy specific beta-1 glycoprotein
- ✓ Most sensitive for detecting hCG is Fluorescent Immuno Assay (FIA)
- ✓ Decreasing sensitivity for detecting hCG is FIA>RIA>ELISA = RRA>IRMA
- ✓ Placental sign denotes spotting on the expected date of period in early pregnancy
- ✓ Subcostal angle increases from 680 to 1030 in pregnancy

- ✓ Albumin and IgM being high molecular weight substances cannot pass through the placenta.

❖ **Pearson's diagnostic criteria for peripartum cardiomyopathy**

I. Development of cardiac failure in the last month of pregnancy or within 5 months after delivery
II. Absence of an identifiable cause for the cardiac failure
III. Absence of recognizable heart disease prior to the last month of pregnancy.
IV. Left ventricular systolic dysfunction demonstrated by classic echocardiographic criteria

Hormones during pregnancy

- ✓ The production of cervical mucus is stimulated by estradiol
- ✓ Ferning of cervical mucus depends on estrogen
- ✓ Clomiphene citrate is antiestrogen & it is indicated in Stein - Leventhal syndrome
- ✓ The most serious complication of clomiphene therapy for induction of ovulation is hyperstimulation syndrome
- ✓ Probable source of Relaxin is ovary
- ✓ Granulosa cells produces estrogen with the help of the enzyme aromatase
- ✓ Most common Androgen produced by ovary = Androstenedione

- Most potent androgen = Dihydrotestosterone

Hormones increases in pregnancy

- Growth hormone
- ACTH
- T3, T4
- Thyroxin binding globulin
- Aldosterone
- Testosterone
- Cortisol
- Insulin resistance

Hormones decreased in pregnancy

- LH
- FSH
- Serum iodine

Hormones unchanged in pregnancy

- TSH
- ADH

Anemia in pregnancy

- ✓ According to W.H.O. anemia in pregnancy is diagnosed when hemoglobin is less than 11.0 gm%
- ✓ Serum ferritin is most sensitive for the detection of iron depletion in pregnancy
- ✓ Total amount of iron needed by the fetus during entire pregnancy is 300 mg
- ✓ With oral iron therapy, rise in Hb% can be seen after 3 weeks
- ✓ Tablets supplied by government of India contain100 mg elemental iron
- ✓ Formula used for estimation of the total iron requirement is 4.4 × body weight(kg) × Hb deficit (g/dl)
- ✓ With oral iron therapy, rise in Hb% can be seen after 3 weeks
- ✓ 2500 mg iron is the amount a patient can tolerate at a time given intravenously
- ✓ Ideal / best contraceptive for sickle cell women is progesterone only contraceptive (implants/ injections, pills)

- ❖ Dose of folic acid in pregnancy: (per day)
  a) To prevent Neural tube defect = 400 mg
  b) For patient of megaloblastic anemia = 1 mg
  c) For sickle cell disease = 4 mg

Fistula of Genital tract

	Vesicovaginal fistula	**Ureterovaginal fistula**	**Rectouterine fistula**
Site	Between bladder & vagina	Between Uterus & vagina	Between uterus & rectum
Cause	Obstructed labor	Injury to ureter	Cesarian session
Symptoms	Continuous flow of urine	Continuous flow of urine	Hematuria
Investigation	Cystoscopy	Dye test + cystoscopy	Cystoscopy

Valvular heart disease

- ✓ Left ventricular hypertrophy is not a feature of Mitral stenosis
- ✓ S3 is not a feature of Mitral stenosis
- ✓ Gallavardin sign is seen in Arterial stenosis
- ✓ Sudden death can occur in Arterial stenosis
- ✓ Commonest symptoms of Arterial Regurgitation is Palpitation
- ✓ Austin flint murmur is heard in Arterial Regurgitation
- ✓ Carvallo's sign is seen in tricuspid Regurgitation
- ✓ Pulsatile liver & ascites is seen in tricuspid Regurgitation
- ✓ Mid-diastolic murmur with presystolic accentuation is heard is mitral stenosis

Endocarditis

- ✓ Infective endocarditis is least likely to occur in Atrial septal defect.
- ✓ Bacterial endocarditis is most commonly caused by Staphylococcus aureus.
- ✓ Vegetations on under surface of Atrio Ventricular valves are found in Libman Sack's endocarditis.
- ✓ Flat vegetations in pockets of valves are due to Libman sacks Endocarditis.
- ✓ Osier's nodes are seen at Tip of Palm & Sole.
- ✓ Roth spots are seen in Endocarditis.
- ✓ Best investigation to diagnose endocarditis is 2D-Echo and blood culture.
- ✓ Duke criteria is used in Endocarditis

Labour

- ✓ The advantage of ventouse extraction is that it can be applied without full dilatation of cervix
- ✓ Ventouse in the 2nd stage of labor is contraindicated in premature fetus.
- ✓ Least complication in outlet forceps is cervical tear
- ✓ Forceps delivery not applied brow presentation
- ✓ Forceps delivery can applied preterm fetus & face presentation
- ✓ An absolute indication for LSCS in case of a Heart disease is co-arctation of Aorta
- ✓ Not a Contraindication of vaginal delivery after previous Caesarean: Breech presentation in previous pregnancy
- ✓ Level of anesthesia in caesarean is T4
- ✓ Ideal time to conceive after caesarean is 18 months (minimum time = 6 months)

NEONATAL DISEASES

Asphyxia neonatorum

- ✓ Asphyxia neonatorum, also known as neonatal asphyxia, is a medical emergency that occurs when a newborn baby is deprived of oxygen during the birth process or shortly after delivery.
- ✓ The term "asphyxia" refers to a lack of oxygen, which can lead to brain damage and other serious complications if not promptly treated.
- ✓ The most common causes of neonatal asphyxia include problems with the placenta, such as placental abruption or placenta previa, a difficult or prolonged delivery, or a lack of oxygen due to respiratory or cardiac problems in the newborn.
- ✓ The symptoms of neonatal asphyxia can vary depending on the severity and duration of the oxygen deprivation, but may include difficulty breathing, blue or pale skin, low heart rate, weak or absent reflexes, and seizures.
- ✓ Immediate treatment for neonatal asphyxia may include providing supplemental oxygen, mechanical ventilation to help the baby breathe, and medications to support blood pressure and circulation.
- ✓ In severe cases, emergency measures such as chest compressions or cardiopulmonary resuscitation (CPR) may be necessary.
- ✓ Long-term outcomes for babies with neonatal asphyxia can vary depending on the severity of the condition and the promptness and effectiveness of treatment.
- ✓ Some babies may recover fully with no long-term effects, while others may experience lasting neurological damage or developmental delays.
- ✓ Prevention measures for neonatal asphyxia include regular prenatal care to identify and manage any maternal or fetal health problems that may increase the risk of complications during delivery, as well as skilled delivery attendance and prompt emergency care if complications arise.

Ophthalmia Neonatorum

- ✓ Ophthalmia neonatorum is a medical condition in which a newborn baby develops conjunctivitis, which is an inflammation of the conjunctiva, the thin tissue that covers the white part of the eye and lines the inside of the eyelids.
- ✓ The condition can occur in the first 28 days of life, and it is typically caused by an infection, most commonly acquired during delivery.
- ✓ The most common cause of ophthalmia neonatorum is a bacterial infection, usually transmitted from the mother during delivery.
- ✓ The bacteria responsible for the infection can include Neisseria gonorrhoeae, Chlamydia trachomatis, and other bacteria that are normally found in the birth canal.
- ✓ The symptoms of ophthalmia neonatorum may include redness and swelling of the eyes, discharge or crusting of the eyelids, and sensitivity to light. In severe cases, the infection can lead to corneal ulcers, scarring, or even blindness.
- ✓ Prompt diagnosis and treatment are important to prevent complications of ophthalmia neonatorum.
- ✓ Treatment typically involves topical antibiotics to eliminate the infection, and in some cases, oral antibiotics may also be necessary.
- ✓ Babies with severe infections may need to be hospitalized for observation and treatment.
- ✓ Prevention measures for ophthalmia neonatorum include routine screening and treatment of pregnant women for sexually transmitted infections, as well as administration of antibiotics to the newborn baby's eyes immediately after birth to prevent infection.

Icterus Neonatorum

- ✓ Icterus neonatorum, also known as neonatal jaundice, is a common medical condition that occurs in newborn babies, usually within the first week of life.
- ✓ It is characterized by a yellowing of the skin and whites of the eyes, and is caused by an excess of bilirubin in the blood.
- ✓ Bilirubin is a waste product that is formed when red blood cells are broken down.
- ✓ Normally, bilirubin is removed from the body by the liver and excreted in the stool, However, in some newborns, the liver may not be fully developed or functioning properly, leading to a buildup of bilirubin in the blood.
- ✓ The symptoms of neonatal jaundice include yellowing of the skin and whites of the eyes, lethargy, poor feeding, and dark urine.
- ✓ In most cases, the condition is harmless and resolves on its own within a few weeks, but in rare cases, severe jaundice can lead to brain damage or other complications.
- ✓ Treatment for neonatal jaundice may include phototherapy, in which the baby is placed under special lights that help break down bilirubin in the blood, or exchange transfusion, in which small amounts of the baby's blood are replaced with donor blood to reduce the bilirubin level.
- ✓ Prevention measures for neonatal jaundice include ensuring adequate feeding and hydration for the baby, as well as monitoring bilirubin levels and treating high levels promptly.
- ✓ In some cases, underlying medical conditions that may contribute to neonatal jaundice, such as blood type incompatibility or infections, may need to be identified and treated.

Convulsion (Tashannuj) in new born

Convulsions or seizures in newborns can be a serious and potentially life-threatening condition that requires immediate medical attention.

- ✓ Causes of convulsions in newborns can vary, including infections, metabolic disorders, brain injury, or genetic conditions.
- ✓ Identifying the underlying cause is important to provide appropriate treatment.
- ✓ Signs of a convulsion in a newborn may include rapid or jerking movements of the arms and legs, staring or unresponsiveness, clenched fists, or difficulty breathing.
- ✓ Depending on the severity of the convulsion, treatment may involve medications to control seizures or other interventions to address the underlying cause.
- ✓ Preventive measures may include avoiding premature birth, ensuring proper nutrition during pregnancy, and promptly treating any infections or other health conditions.
- ✓ Seizures in newborns can have long-term effects on a child's development and health.
- ✓ Parents should work closely with healthcare providers to monitor the baby's progress and provide appropriate support and interventions as needed.

Congenital Syphilis (Aatshak Khalqi) in New Born

Congenital syphilis is a condition where a baby is born with the infection due to transmission from the mother during pregnancy.

- ✓ Congenital syphilis can cause a range of symptoms in newborns, including rash, fever, enlarged liver or spleen, jaundice, bone pain, and other symptoms.
- ✓ If a mother has syphilis during pregnancy, it is important to receive treatment to reduce the risk of transmission to the baby.
- ✓ Prenatal care can help identify and treat syphilis early in pregnancy.
- ✓ If a baby is born with congenital syphilis, treatment with antibiotics is needed as soon as possible.
- ✓ The treatment will depend on the severity of the infection and may involve a combination of different medications.
- ✓ Even with treatment, babies with congenital syphilis can experience long-term complications, including developmental delays, vision or hearing loss, bone and teeth deformities, and other issues.
- ✓ Preventive measures, such as routine prenatal care and screening for syphilis during pregnancy, can help reduce the risk of transmission and prevent congenital syphilis.

If you are pregnant and have concerns about syphilis, it is important to talk to your healthcare provider about getting tested and receiving treatment if necessary. Early detection and treatment can help protect both you and your baby from the potential complications of syphilis.

Hydrocephalus (Ma ur Raas) in New Born

Hydrocephalus is a condition in which there is an abnormal accumulation of cerebrospinal fluid (CSF) in the brain, which can cause increased pressure and damage to brain tissue. Here are some important.

- ✓ Hydrocephalus can be congenital (present at birth) or acquired later in life.
- ✓ Congenital hydrocephalus may be caused by genetic or environmental factors, while acquired hydrocephalus may be due to a brain injury, infection, or tumor.
- ✓ Symptoms of hydrocephalus in newborns may include an unusually large head, bulging fontanelles (soft spots on the skull), seizures, irritability, and developmental delays.
- ✓ Treatment for hydrocephalus in newborns typically involves surgery to remove excess CSF and alleviate pressure on the brain. In some cases, a shunt may be inserted to help drain excess fluid.
- ✓ Early diagnosis and treatment of hydrocephalus is critical to prevent long-term complications and improve outcomes.
- ✓ Regular monitoring and follow-up care are also important to ensure proper management of the condition.
- ✓ Babies with hydrocephalus may require ongoing medical care and support throughout their lives, including physical therapy, occupational therapy, and speech therapy, to address developmental delays and other complications.

Anencephaly (Adam-e- Dimagh)

- ✓ Anencephaly is a serious birth defect that occurs when the neural tube, which forms the brain and spinal cord, fails to close properly during early fetal development.
- ✓ This results in the absence of a major portion of the brain, skull, and scalp.
- ✓ The exact cause of anencephaly is unknown, but it is thought to be related to a combination of genetic and environmental factors.
- ✓ Infants with anencephaly are usually stillborn or die shortly after birth. In some cases, a fetus with anencephaly may be diagnosed during pregnancy using prenatal ultrasound or other imaging tests.

Microcephaly (Sighrud Dimagh)

- ✓ Microcephaly is a birth defect that is characterized by a smaller than normal head size and brain development that is incomplete or delayed.
- ✓ It occurs when the brain fails to grow properly during pregnancy or after birth.
- ✓ Microcephaly can range from mild to severe and can be associated with other developmental problems.
- ✓ Microcephaly can be caused by genetic factors, infections during pregnancy, exposure to toxins or certain medications during pregnancy, or a combination of these factors.
- ✓ The exact cause of microcephaly may not be identified in every case.
- ✓ Infants with microcephaly may experience a range of symptoms, including seizures, developmental delays, intellectual disability, vision and hearing problems, and motor impairment.

Down Syndrome (Humaq)

- ✓ Down syndrome, also known as trisomy 21, is a genetic disorder that occurs when there is an extra copy of chromosome 21.
- ✓ This extra genetic material results in a range of physical and intellectual disabilities.
- ✓ The physical characteristics of individuals with Down syndrome can include a flattened facial profile, upward slanting eyes, small ears and mouth, short neck, and a single crease on the palm of the hand.
- ✓ People with Down syndrome also commonly have intellectual disability and may experience developmental delays, learning difficulties, and behavioral challenges.

Congenital Heart Diseases

- ✓ Congenital heart diseases are heart conditions that are present at birth.
- ✓ Congenital heart diseases can range from mild to severe, and can impact the structure, function, or circulation of the heart.
- ✓ The exact cause of most congenital heart diseases is unknown, but genetic and environmental factors can both play a role.
- ✓ Some congenital heart diseases may be associated with other genetic conditions or syndromes.
- ✓ Symptoms of congenital heart diseases can vary widely depending on the type and severity of the condition.
- ✓ In some cases, symptoms may not be noticeable until later in childhood or even adulthood.
- ✓ Common symptoms can include rapid breathing, difficulty feeding or poor weight gain, blue-tinted skin, fatigue or weakness, and heart murmur.

Carcinoma of Breast

Risk Factors:

a. Increasing Age is the most important risk factors.
b. Increase risk.
c. By Early menarche.
d. By Late menopause.
e. Nulliparous women.

DCIS: Ductal Carcinoma in Situ-DCIS most frequently present as mammographic calcifications.

Investigation of Carcinoma Breast

- ✓ Most malignant type of Carcinoma breast Inflammatory breast cancer.
- ✓ Most common site of Carcinoma breast Upper outer quadrant (left breast >right).

- **Triple Assessment:**
  a. Clinical examination.

b. Imaging (USG or mammography).
c. Tissue sampling (FNAC or true cut biopsy).

- ✓ First investigation FNAC.
- ✓ Best and diagnostic investigation is Biopsy.

Types of breast carcinoma

Fibroadenoma

- ✓ Most common benign breast tumours in younger female population (Breast mouse).
- ✓ Diagnosis is confirmed by FNAC.
- ✓ Mammographic appearance is Popcorn appearance.
- ✓ Treatment is excisional biopsy.

Breast cyst

- ✓ It can be Multiple & Bilateral.
- ✓ Treatment is Aspiration.

Phyllodes tumor (Cystosarcoma Phyllodes)

- ✓ Commonly seen after 40 years.
- ✓ It is usually benign but it has malignant potential.
- ✓ GROSS APPERANCE lobulated, leaf-like appearance.
- ✓ Biopsy is the investigation of choice.
- ✓ A wide local excision is Treatment of choice.

Paget's Disease of Nipple

- ✓ Superficial manifestation of the underlying breast cancer.
- ✓ Infiltrating ductal carcinoma 90%.

Gynecomastia

- ✓ Gynecomastia refers to an enlarged breast in the male.
- ✓ Excess of circulating estrogens in relation to circulating testosterone.
- ✓ Most cases resolve spontaneously.
- ✓ Treatment:- Surgical Procedures: Mastectomy, subtotal mastectomy, subcutaneous mastectomy, reduction mammoplasty.

Intraductal Papilloma and breast abscess

- ✓ Usually occurs within a major duct.
- ✓ Frequently cause are nipple discharge, bleeding.
- ✓ Diagnosis is Ductography.
- ✓ Treatment is excision (Microdiscectomy).

Mammary duct ectasia (periductal mastitis)

- ✓ Dilatation of the major subareolar ducts.
- ✓ Diagnosis is Ductography.
- ✓ Treatment is Hadfield's operation.

Breast Abscess

- ✓ Typically seen in staphylococcal infections.
- ✓ Drainage procedure is best accomplished via circumareolar incisions or incision paralleling Langer's lines.