FREE NOTES · NCERT + NEET LEVEL

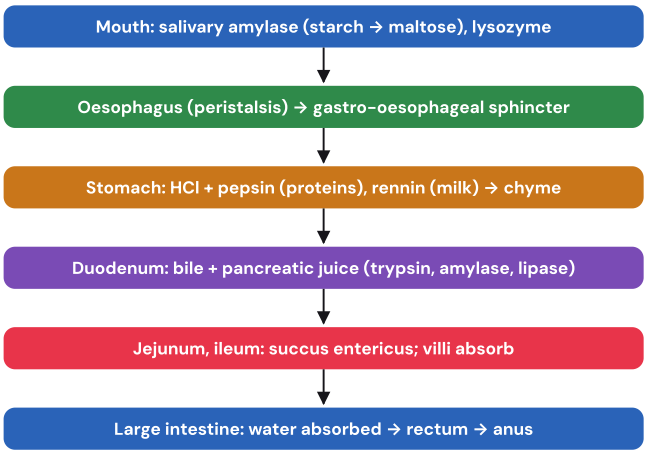
Digestion & Absorption

Extra reading (purana NCERT chapter): human digestive system, daant, digestive glands, har hisse me pachan aur enzymes, pache khane ka absorption, aur bimariyan.

01 Digestive system
02 Digestive glands
03 Khane ka pachan
04 Absorption
05 Bimariyan aur vitamins
06 Important Q&A
07 Common mistakes
08 Practice (NEET style)
09 Quick revision

01 Digestive system

- Alimentary canal: munh → buccal cavity → pharynx → oesophagus → pet → chhoti aant (duodenum, jejunum, ileum) → badi aant (caecum aur vermiform appendix, colon, rectum) → anus.
- Daant: **thecodont** (gaddhon me), **diphyodont** (do set), **heterodont** (4 type). Adult me 32; dental formula **2123/2123** (incisor, canine, premolar, molar aadhe upar / aadhe neeche jabde me). Enamel = sharir ka sabse sakht padarth.
- Jeebh: papillae me taste buds; frenulum neeche jodta. Epiglottis khana saans ki nali me jaane se rokta.
- Pet: cardiac, fundic, pyloric hisse. Aant ki deewar: serosa, muscularis, submucosa, mucosa (pet me rugae, aant me villi).



Alimentary canal me pachan

02 Digestive glands

- Salivary glands: **parotid** (sabse badi, gaal), **sub-maxillary/sub-mandibular** (neeche ka jabda), **sub-lingual** (jeebh ke neeche). Din me ~1.5 L saliva.
- Gastric glands: **mucus neck cells** (mucus), **chief/peptic cells** (pepsinogen, prorennin), **parietal/oxyntic cells** (HCl, vitamin B_{12} ke liye Castle's intrinsic factor).
- **Liver**: sabse badi gland (~1.2–1.5 kg); Glisson's capsule wale hepatic lobules; bile gall bladder me; bile duct + pancreatic duct → hepato-pancreatic duct, **sphincter of Oddi**. Bile me enzyme nahi; bile salts fat ko emulsify karte.
- **Pancreas**: exocrine (pancreatic juice) + endocrine (islets: insulin, glucagon).

03 Khane ka pachan

Khana	Enzyme	Kahan	Product
Starch	Salivary amylase (ptyalin)	Munh (~30%)	Maltose
Proteins	Pepsin (HCl pepsinogen ko active karta)	Pet	Proteoses, peptones
Doodh ka protein (bachche)	Rennin	Pet	Jama doodh
Proteins	Trypsin (enterokinase trypsinogen active karta), chymotrypsin, carboxypeptidase	Duodenum	Peptides, dipeptides
Starch	Pancreatic amylase	Duodenum	Disaccharides
Fats	Lipase (bile ke emulsify karne ke baad)	Duodenum	Di-, monoglycerides
Nucleic acids	Nucleases	Duodenum	Nucleotides
Disaccharides, dipeptides	Maltase, lactase, sucrase, dipeptidases (succus entericus)	Chhoti aant	Monosaccharides, amino acids

Hormones: gastrin, secretin, CCK, GIP. Badi aant me bacteria; wahan khaas pachan nahi. Pet me khana 4–5 ghante.

04 Absorption

- Simple diffusion: kuch glucose, amino acids, Cl^-. Facilitated (carrier): fructose, kuch amino acids. Active transport: glucose, amino acids, Na^+. Passive: paani (osmosis).
- Fatty acids aur glycerol (na ghulne wale) ⇒ **micelles** ⇒ aant ke cells me **chylomicrons** (protein lipte fat globules) ⇒ **lacteals** (lymph) ⇒ khoon.
- Sabse zyada absorption chhoti aant me (villi, microvilli = brush border). Badi aant me paani, kuch minerals aur dawaein; pet me alcohol aur kuch dawaein.
- **Assimilation**: tissues dwara upyog. **Egestion**: mal anus se bahar (apni marzi).

05 Bimariyan aur vitamins

- **Jaundice**: liver prabhavit, bile pigments jamte ⇒ peeli skin aur aankhen. **Ulti**: medulla se control reflex. **Diarrhoea**: baar-baar patla mal, absorption kam. **Kabz**: mal ruk jaata. **Apach**: kam enzymes, chinta, food poisoning, zyada ya teekha khana.
- Protein-energy malnutrition: **marasmus** (protein aur calorie dono ki kami, 1 saal se chhote) aur **kwashiorkor** (protein ki kami, 1–5 saal; sujan).
- Vitamin ki kami: A (raatondhi), B_1 (beri-beri), B_2 (ariboflavinosis), B_3 (pellagra), B_6 (anaemia, dermatitis), B_9 aur B_{12} (megaloblastic anaemia), C (scurvy), D (rickets, osteomalacia), E (kam fertility), K (khoon na jamna).

06 Important Q&A

Q1. Adult insaan ka dental formula? Kitne daant?

Aadhe jabde me 2123/2123 ⇒ (2+1+2+3) × 4 = 32.

Q2. Bile me enzyme nahi phir bhi fat pachan me madad kaise?

Bile salts fat ko chhoti boondon me todte, lipase ke liye surface area badhta; bile lipase ko active bhi karta.

Q3. HCl aur intrinsic factor kaun?

Gastric glands ke parietal (oxyntic) cells.

07 Common mistakes

- Kehna ki bile me enzymes.
- Pancreas ko sabse badi gland kehna (liver hai).
- Marasmus aur kwashiorkor mix karna.
- Sochna ki fat seedhe blood capillaries me (lacteals se jaata).

08 Practice (NEET style)

1. Sabse badi salivary gland?
2. Trypsinogen ko active karne wala?
3. Aant ke cells ke fat globules?
4. Hepato-pancreatic duct ka sphincter?
5. Sharir ka sabse sakht padarth?

ANSWERS

1) Parotid · 2) Enterokinase · 3) Chylomicrons · 4) Sphincter of Oddi · 5) Enamel

09 Quick revision: exam se 5 minute pehle

MOUTH

- 2123/2123, 32 daant
- Amylase ~30% starch

STOMACH

- Parietal: HCl
- Chief: pepsinogen, prorennin

INTESTINE

- Enterokinase → trypsin
- Bile emulsify
- Villi absorb

DISORDERS

- Jaundice, diarrhoea
- Marasmus vs kwashiorkor
- Vitamin table

Koi doubt? padhaiadda.netlify.app pe AI Doubt Solver se poocho, ya is chapter ka mock test do.