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**Gastrointestinal Tract**

**Gastrointestinal tract** is divided into upper and lower tracts.

The intestine is divided into small and large parts.

- **Upper gastrointestinal tract**
  - The upper gastrointestinal tract consists of:
    - the buccal cavity,
    - pharynx,
    - esophagus,
    - stomach,
    - and duodenum

**This division commonly used by clinicians to describe gastrointestinal bleeding**

The bleeding of the upper gastrointestinal tract is **BLACK blood**.

السبب وراء كىن لىن الدم اسىد ... بسبب احتراق الدم وتيجت تفاعله مع حمض الهيدروكلوريك من المعدة.

The bleeding of the lower gastrointestinal tract is **RED blood**.

as being of either "upper" or "lower" origin.

**$\$$ Mouth**

- The **mouth** is the first portion of the alimentary canal [that receives food and saliva.]
- The mouth consists of two regions, the vestibule and the oral cavity proper.

**Vestibule**: is the space between the cheek, lips and teeth

**Oral cavity proper**: is the mouth cavity enclosed within the teeth.
$\textbf{Teeth}$

\textbf{Milk teeth and adult teeth}

1- Milk teeth:

- Every baby has teeth hidden in the gums.للثة.
- These begin to show after 6 months.
- Milk teeth are also called deciduous teeth.
- By the time you are 3 years, you have about 20 already showing. (At the age of 3 years the number of milk teeth is complete.)

- Milk teeth are extremely important because it helps toddlers in chewing and speech development. It also helps the jaw to develop.
- Between the ages of about six and seven, the roots of these milk teeth dissolve and eventually the tooth falls out.
- Milk teeth also work as a guide for adult teeth to follow - so even though they drop out it is important to look after them to avoid damage to the adult teeth when they arrive.

2- Adult teeth:

- After 6 years, adult teeth (permanent teeth) will gradually begin to replace all of the milk teeth.
- This replacement events will last for about 7 years.
- This means that before you turn 12-14 years, you will have both milk and adult teeth all mixed up. This stage is called Mixed Dentition.

**Number of teeth**

Children typically have 20 primary teeth and adults have 32 permanent teeth, including four wisdom teeth.

\rightarrow \text{Part of the reason for the difference in number is that a child's mouth is much smaller than an adult's.}

Children don't have room for eight to 12 molars in the back of the mouth. But, as they grow older, the jaw lengthens to make space for the additional teeth.
**Primary vs. Permanent Teeth Eruption**

<table>
<thead>
<tr>
<th>Teeth</th>
<th>Erupt (Non)</th>
<th>Erupt (Yr)</th>
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</thead>
<tbody>
<tr>
<td>Upper Teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Incisor</td>
<td>8-12</td>
<td>7-8</td>
</tr>
<tr>
<td>Lateral Incisor</td>
<td>9-13</td>
<td>8-9</td>
</tr>
<tr>
<td>Canine (Cuspid)</td>
<td>16-22</td>
<td>11-12</td>
</tr>
<tr>
<td>First Molar</td>
<td>13-19</td>
<td>10-11</td>
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<tr>
<td>Second Molar</td>
<td>25-33</td>
<td>10-12</td>
</tr>
<tr>
<td>Lower Teeth</td>
<td></td>
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</tr>
<tr>
<td>Second Molar</td>
<td>23-31</td>
<td>12-13</td>
</tr>
<tr>
<td>First Molar</td>
<td>14-18</td>
<td>17-21</td>
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<td>Lateral Incisor</td>
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<td>6-7</td>
</tr>
<tr>
<td>Central Incisor</td>
<td>6-10</td>
<td>9-10</td>
</tr>
</tbody>
</table>

*We have 4 incisor / 2 canine / 4 premolar / 6 molar
No premolar in the children tooth just in adult
wisdom tooth appear after 18 year*

*save the name and the number of each teeth*

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**Tongue:**

- is freely mobile order muscular organ in the mouth that manipulates food for mastication, and is used in the act of swallowing.

- It is the primary organ of taste.

- The tongue's upper surface (dorsum) is covered in taste buds housed in numerous lingual papillae.

- It is sensitive and kept moist by saliva, and is richly supplied with nerves and blood vessels.

- The tongue also serves as a natural means of cleaning the teeth.
A major function of the tongue is the enabling of speech in humans.

The human tongue is divided into two parts, an oral part at the front and a pharyngeal part at the back.

The left and right sides are also separated along most of its length by a vertical section of fibrous tissue (the lingual septum) that results in a groove, the median sulcus on the tongue's surface.

There are two groups of muscles of the tongue. The four intrinsic muscles alter the shape of the tongue and are not attached to bone.

The four paired extrinsic muscles change the position of the tongue and are anchored to bone.

- **a- intrinsic muscle:**
  1- Transverse
  2- oblique
  3- vertical
  4- longitudinal

- **b- extrinsic muscle:**
  connect to:
  1- Mandible
  2- Hyoid bone

The human tongue is divided into anterior and posterior parts by the terminal sulcus which is a V-shaped groove.

The apex of the terminal sulcus is marked by a blind foramen, the foramen cecum.
The upper surface of the tongue is covered with keratinized stratified squamous epithelium.

Embedded in this are numerous lingual papillae that house the taste buds and their taste receptors.

The lingual papillae consist of filiform, fungiform, circumvallate papillae and foliate papillae.

Only the filiform papillae are not associated with any taste buds.

The ventral surface is stratified squamous non-keratinized epithelium which is smooth.

**All the papillae has taste buds except Filiform**

**Filiform>> تعطي خشونة ل اللسان**
**Pharynx:**

- The pharynx is the part of the throat that is behind the mouth and nasal cavity and larynx. It is above the oesophagus.
- It is a common place for passage of food and air.
- The pharynx is divided into three parts: the nasopharynx, the oropharynx and the laryngopharynx.
- It is also important in vocalization.
- The pharynx chamber serves both respiratory and digestive functions.
- Thick fibres of muscle and connective tissue surround the pharynx and attach the pharynx to the base of the skull.
Both circular and longitudinal muscles occur in the walls of the pharynx; the circular muscles form constrictions that help push food to the esophagus and prevent air from being swallowed, while the longitudinal fibres lift the walls of the pharynx during swallowing.

**Esophagus**:

- The esophagus (American English) or oesophagus (British English) commonly known as the food pipe.
- It is an organ through which food passes, aided by peristaltic contractions, from the pharynx to the stomach.
- The esophagus is a fibromuscular tube, about 25 centimetres long in adults, which travels behind the trachea and heart, passes through the diaphragm and empties into the uppermost region of the stomach.
- During swallowing the epiglottis tilts backwards to prevent food from going down the larynx and lungs.
- Esophagus has two muscular rings or sphincters in its wall, one at the top and one at the bottom.
- The lower sphincter helps to prevent reflux of acidic stomach content.
the esophagus generally starts around the level of the sixth cervical vertebra behind the cricoid cartilage of the larynx, enters the diaphragm at about the level of the tenth thoracic vertebra, and ends at the cardiac region of the stomach, at the level of the eleventh thoracic vertebra.

Esophagus has:

1- Upper muscle (Voluntary>>> striated)
2- Lower muscle (involuntary>>> smooth)

The lower esophageal sphincter is the muscle that surrounds the esophagus just as it enters the stomach. Normally, the upper and lower sphincters are closed except during swallowing, which prevents constant entry of air from the oral cavity or reflux of stomach contents.
Stomach:

The stomach is a muscular organ located on the left side of the upper abdomen. It is a J shaped organ.

The stomach receives food from the esophagus. As food reaches the end of the esophagus, it enters the stomach through a muscular valve called the lower esophageal sphincter.

The stomach has three parts. They are the Fundus (above the level of esophageal opening), Body and Pyloric portion.

Pyloric portion is subdivided into a proximal dilated pyloric antrum and distal tubular pyloric canal.

The cardiac region is a small area around the esophageal opening.

The stomach has lesser and greater curvatures; it has anterior and posterior surfaces. Ridges of muscle tissue called rugae line the stomach.
The stomach **secretes** acid and enzymes that digest food.

The stomach muscles contract periodically, churning food to enhance digestion (changing food into chyme).

The **pyloric sphincter** is a muscular valve that is found between the stomach and duodenum. It opens to allow food to pass from the stomach to the duodenum.

Food needs **2 – 4** hours to leave the stomach to the duodenum

*Rugae* >>> بروزات لعضلات جدار المعدة
*Pylorus >>> sphincter between the stomach and duodenum
*Duodenum >>> بداية الأمعاء الدقيقة

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**Duodenum**:

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الفريق الطبي الأكاديمي
A short tube (about 25 cm long) which receives chyme from the stomach, together with pancreatic juice containing digestive enzymes and bile from the gall bladder.

The digestive enzymes break down proteins, and bile emulsifies fats into micelles.

The duodenum contains Brunner's glands, which produce a mucus-rich alkaline secretion containing bicarbonate.

These secretions, in combination with bicarbonate from the pancreas, neutralizes the stomach acids contained in the chyme.

*Duodenum juice is ALKALINE.*

*Brunner's gland secrete >>> bicarbonate*

*Bicarbonate interact with HCL from the stomach to neutralize it ..*

*Bicarbonate + HCL → water + salt*

The duodenum is C shaped tube surrounds the head of pancreas. The opening of the Cis directed to the left.

The duodenum is divided into four segments based upon function, location, and internal anatomy.

The four segments are as follows (starting at the stomach, and moving toward the jejunum): 1- superior, 2- descending, 3- horizontal, and 4- ascending.

common bile duct brings bile from the liver and gallbladder it also receives the pancreatic duct and dilates distally to form ampulla of Vater.

The common bile duct opens in the descending part of the duodenum at its middle on its posteromedial surface.

Duodenum consist of:

Superior >> 2 inches >> 5.08 cm
2nd part of Duodenum receives:

1- Common bile duct from liver

2- Pancreatic duct from pancreas

*** Common bile duct >>
common hepatic duct + cystic duct

*** Ampulla of vater >>
common bile duct and pancreatic duct

*** Sphincter of Oddi

تىسع ينتج عن التقاء
توسع ينتج عن التقاء
و لها صمام يسمى

sphincter of oddi

Esophagus
Stomach
Duodenal ulcer
Duodenum (small intestine)
Pylorus
Stomach ulcer
Salivary glands:

- The mouth, normally moist, is lined with a mucous membrane, and contains the teeth. The lips mark the transition from mucous membrane to skin.

- Three pairs of salivary glands open into the mouth; they are Parotid, Submandibular and Sublingual salivary glands.

- **Parotid gland** located in front of auricle, it is purely serous gland, and secretes saliva in the mouth through parotid duct.

- **Submandibular** gland is mixed type of gland (serous and mucous); it is located under the floor of mouth and under the mucous membrane of floor of mouth. It secretes saliva through submandibular duct under the tongue.

- **Sublingual gland** is mainly mucous secreting gland, it is located under the mucous membrane offloor of the mouth; it secretes its secretion through many ducts in the floor of the mouth.