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**COURSE TITLE: HISTOPATHOLOGY TECHNIQUES AND MUSEUM**

**COURSE CODE: MLS 408**

**ASSIGNMENT TITLE: HISTOPATHOLOGY TECHNIQUES**

**QUESTION**

1. In a tabular form only, compare and contrast sections of the Gastrointestinal tract.

**ANSWER**

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| **Sections of the GIT** |  **Basic structural organization** |
| Mucosa | Submucosa | Muscularis externa | Adventitia/Serosa |
| * **Oral cavity**
 | * Non keratinized striated squamous epithelium lines the soft palate, underside of the tongue, floor of the mouth, and mucosal surface of the cheeks and lips.
* Keratinized striated squamous epithelium lines the gums(gingivae), hard palate and most of the upper surface of the tongue.
 | * Tough collagenous submucosal layer with accessory salivary glands.
 | * Tongue possesses skeletal muscles.
 | * Adventitia due to a fact that it is not in a cavity.
 |
| * **Oesophagus**
 | * It is lined by nonkeratinized stratified squamous epithelium. The borderline between epithelium and lamina propria is not distinct and numerous papillae extend toward the basal portion of epithelium.
* In the connective tissue core of the papillae are blood vessels and nerves. Lamina propria contains numerous lymph follicles (mucosa associated lymphoid tissue, MALT) especially around gastroesophageal junction.
 | * It consists of fibroelastic connective tissue with numerous blood and lymphatic vessels and mucous glands.
 | * It composes of outer longitudinal and inner circular layer.
* Upper third of oesophagus consists of striated skeletal muscle. The lower third consists of smooth muscle and the medial third contains both types of muscle tissue.
* Between inner and outer layer, the autonomic nerve plexus is localized (plexus myentericus Auerbachian).
 | * Serosa covers only abdominal part of oesophagus. The rest of oesophageal tube is covered by adventitia.
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| * **Stomach**
 | * Mucosa forms gastric pits. These are deep crypts lined by epithelium. Several (3-7) tubular gastric glands (Glandulae gastricae). Glandulae gastricae extend from the bottom of gastric pits through lamina propria toward submucosa.
* Gastric mucosa (including the gastric pits) is lined by simple columnar epithelium with secretory function.
* Surface mucous cells produce mucus onto the surface of mucosa. This mucus protects and lubricates the mucosa.
* In the glandular lining are found chief cells, parietal cells, mucous neck cells, undifferentiated stem cells and enteroendocrine cells.
 | * Deep to the mucosa is a thick layer of connective tissue known as the gastric submucosa. Its arrangement means that it is durable, yet flexible and mobile.
* Aside from rich vasculature and lymphatics, this layer also holds the submucosal (Meissner’s) plexus.
* The nerve fibres of this plexus carry parasympathetic innervation to the blood vessels and smooth muscle of the stomach wall.
 | * The gastric muscularis externa, also known as Tunica muscularis, is the smooth muscle located deep to the submucosa.
* It is made up of 3 layers: inner oblique, middle circular and outer longitudinal.
* The muscularis external layer produces churning movement required for mechanical digestion.
 | * Gastric serosa is the outermost layer of the stomach wall. It consists of a layer of simple squamous epithelium, known as mesothelium, and a thin layer of underlying connective tissue.
* The mesothelium produces serous fluid, which lubricates the outer wall of the stomach and ensures its smooth movement in the abdominal cavity. The serosa is continuous with the parietal peritoneum.
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| **Small intestine** | **Duodenum** | * Simple columnar epithelium, few goblet cells, broad spatula-shaped villi that are closely packed.
 | * Presence of mucus secreting Brunner’s glands.
 | * Presence of crypts.
* No Peyer’s patches.
 | It is a smooth membrane consisting of a thin layer of cells that secrete serous fluid and a thin layer of connective tissue. |
| **Jejunum**  | * Simple columnar epithelium, tongue-shaped villi and presence of goblet cells.
 | * Contains only connective tissues and blood vessels.
 | * Presence of crypts
* Diffuse infiltration of lymphocytes
* No Peyer’s patches
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| **Ileum**  | * Simple columnar epithelium, few thin finger shaped villi and goblet cells.
 | * Presence of Peyer’s patches.
 | * Presence of crypts.
* Peyer’s patches extend into submucosa.
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| **Large intestine** | * It is made up of simple columnar epithelium with large number of mucus-secreting goblet cells.
* The mucosa of the large intestine is smooth, lacking the villi found in the small intestine. It Includes lamina propria, and muscularis mucosa; the appendix is rich in mucosa-associated lymphoid tissue (MALT).
 | * The submucosa Contains the blood vessels and Meissner nerve plexus.
 | * The muscular layer is made up of 2 layers of smooth muscle, the inner circular layer and the outer longitudinal layer.
* These layers contribute to the motility of the large intestine.
 | * The serosa is a thin layer of simple squamous epithelial tissue that secretes watery serous fluid to lubricate the surface of the large intestine, protecting it from friction between abdominal organs and the surrounding muscles and bones of the lower torso.
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| * **Anal canal**
 | * Stratified squamous epithelium.
 | * No specialized structure.
 | * Presence of striated muscle cells.
 | * Adventitia due to the fact that it is not in a cavity.
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