

السنة الثانية – الفصل الثاني  
الجهاز الهضمي  
**The Digestive System**  
**(0500251)**  
**(6) Credit Hours**

**Objectives:**

By the end of this course, the student should be able to:

1. Describe the gross and micro anatomy of the digestive system as well as the development of organs of the system.
2. Mention the biochemical constituents of saliva, stomach juice, bile and pancreatic secretions and their functions.
3. Describe the functions of the different organs of the system.
4. Describe the process of digestion and absorption of food.
5. List pathologic disorders of the GI systems.
6. Mention drugs used in the treatment of GI diseases.
7. Discuss the Epidemiology of diseases of the GI system, their prevention and control.
8. Take proper history and perform physical examination of the GI system.

**Content Summary:**

(1)	Anatomy	24	:	14 Lecture + 10 Lab
	Histology	4	:	2 Lecture + 2 Lab
	Embryology <sup>2</sup>		:	2 Lect
				Total 30 hrs
(2)	Biochemistry		:	4 Lecture
				Total 4 hrs
(3)	Physiology		:	9 Lecture + 2 Lab
				Total 11 hrs
(4)	Community Med		:	2 Lecture
				Total 2 hrs
(5)	Pathology		:	12 Lecture + 3 Lab
				Total 15 hrs
(6)	Microbiology		:	12 Lecture + 2 Lab
				Total 14 hrs
(7)	Pharmacology		:	4 Lecture
				Total 4 hrs
(8)	Clinical aspects		:	10 hrs

**(1) Anatomy, Histology & Embryology 30 hrs**

**Anatomy:**

- Anterior abdominal wall
- Rectus sheath – inguinal canal – spermatic cord
- Peritoneum
- Abdominal viscera (stomach, small intestine, large intestine, liver gall bladder, pancreas)
- Posterior abdominal wall
  - vesseles of posterior abdominal wall
  - nerves of posterior abdominal wall

**Histology :**

- the lip, teeth, sublingual , submandibular & parotid glands

- Dental Histology, vallate and filiform papilla of the tongue
- oesophagus, stomach, duodenum, jejunum, ileum & colon
- Pancreas- liver and gallbladder

**Embryology:**

- The foregut – development of the esophagus, stomach, duodenum  
development of the liver, gallbladder and biliary apparatus  
development of the spleen
- The midgut – rotation of the midgut loop – fixation of the intestine
- The cecum and appendix
- The Hindgut – the cloaca – the anal canal

**(2) Biochemistry 4 hrs**

- Constituents of the saliva. Gastric constituents and production of gastric HCl
- Constituents of pancreatic secretions. Constituents of intestinal secretions
- Composition of hepatic and gall-bladder bile & bile acids
- Absorption of biochemicals
- Investigation of liver diseases disorders & pancreatic enzymes

**(3) Physiology 11 hrs**

- Introduction of GI Physiology
  - Physiology of smooth muscle
  - Neural hormonal control of GI
  - Blood flow and GI activities
- GI motility:
  - Mastication and swallowing
  - Gastric motor activities and control
  - Small intestinal movements and control
  - Defecation and control
- GI secretions:
  - Introduction to secretions
  - Salivary secretion, Mechanisms of secretion, Function, Control
  - Gastric secretion, Mechanisms, Function, Control
  - Intestinal secretions
  - Pancreatic secretion, Mechanisms, Function, Regulation
  - Liver and Gallbladder: Bile secretion, Function, Control

Digestion and Absorption:

- Intestinal specialization
- Digestion and Absorption of Carbohydrates
- Digestion and Absorption of Proteins
- Digestion and Absorption of Lipids
- Absorption of water, electrolytes, Ca<sup>++</sup>, Fe<sup>++</sup>
- Absorption of Vitamins
- Body Energetics, Dietary balance and Regulation of food intake

**(4) Community medicine 2 hrs**

- Investigation of the digestive diseases

**(5) Pathology 15 hrs**

**ESOPHAGUS**

- Hiatal hernia
- Achalasia
- Lacerations
- Other anatomic & motor disorders
- Varices

**Esophagitis**

Types, mechanisms & appearances

### **Barrett's Esophagus**

#### **Carcinoma**

Types, epidemiology, clinical

Morphology

### **Stomach**

#### **Acute Gastritis**

#### **Chronic Gastritis**

Types (superficial atrophic, granulomatous...etc)

Gastric atrophy

Mechanisms, pathogenesis, morphology

#### **Peptic Ulcer**

Pathogenesis, epidemiology

Morphology, complications

Clinical

### **Tumours**

Polyps, other benign

Malignant tumours

Carcinoma, types, morphology, clinical, outcome & risk factors

Lymphoma

Carcinoid

Other

## **LOWER GI TRACT DISEASES**

### **Congenital Anomalies**

Meckels

A tresia and stenosis

Imperforate anus

Hirschsprung disease

Ischemic Bowel disease

Angiodysplasia

Hemorrhoids

Diarrheal diseases

Infection enterocolitis

Idiopathic inflammatory bowel disease

Crhon's Disease

Ulcerative colitis

Diverticulosis

- Tumors

Benign (polyps)

Malignant

## **LIVER PATHOLOGY**

### **Definitions**

Cirrhosis

Hepatic encephalopathy

Jaudice

Cholestarios

### **Hepatitis**

Viral

Antoimmune

### **Liver abscess**

Drug induced liver disease

Alcoholic liver disease

Hemochromatosis  
Antitrypsin deficiency  
Rye's syndrome  
Biliary cirrhosis  
Cholangitis  
Congenital anomalies of the biliary tree  
Vascular disorders of the liver  
Liver transplantation  
Tumors of the liver

#### **GALLBLADDER DISEASE**

Gall stones  
Cholecystitis  
Tumors and associated disease  
Injury iatrogenic  
Extrahepatic bile duct disorders  
Cholelithiasis  
Ascending cholangitis  
Choledochal cyst

#### **PANCREAS**

Congenital anomalies  
Cystic fibrosis  
Pancreatitis  
tumors

#### **(6) Microbiology 14 hrs**

##### **Natural defense of the gastrointestinal tract**

Normal flora  
Immune responses

##### **Viral infections of the intestinal Tract**

Rotavirus  
Adenoviruses  
Caliciviruses  
Astroviruses  
Enteroviruses

##### **Bacterial infections of the gastrointestinal tract:**

Campylobacter  
Vibrioses  
Diarrhea agent  
Salmonella  
Plesiomonas  
Food poisoning agent  
Shigella  
Yersinia  
E. coli  
Helicobacter  
Clostridium perfringens  
cereus  
Clostridium difficile  
botulinum

##### **Parasitic infections of the Gastrointestinal Tract**

###### **Protozoa:**

Giardia lamblia  
Cryptosporidium parvum  
Entameba histolytica

**Helminths:**

Enterobius vermicularis  
Trichuris trichiura  
Ascaris lumbricoides  
Hook worms  
Strongyloides stercoralis  
Tapeworms  
Trematodes

**Bacterial Infection of the liver**

Leptospira spp  
Coxiella burnettii  
Brucella spp  
Mycobacterium

**Viral Infections of the liver**

EBV, CMV, YF and others  
Hepatitis A virus  
Hepatitis E virus  
Hepatitis B virus  
Hepatitis D virus  
Hepatitis E virus

**Epidemiology**

Pathogenesis  
Clinical features  
Diagnosis  
Prevention and control

**Parasitic Infections of the liver**

Schistosomes  
Hydatid disease  
Fasciola hepatica

**(7) Pharmacology 4 hrs**

Drugs in peptic ulcer disease  
Antidiarrheal, Laxatives, Antispasmodic drugs  
Emetics, antiemetics  
Drugs in G.I.T inflammatory conditions.

**(8) Clinical aspect 10 hrs**

**SYMPTOMS AND SIGNS**

Painful mouth  
Dysphagia and Odynophagia  
Regurgitation and Belching  
Heartburn  
Nausea and Vomiting  
Abdominal pain  
Dyspepsia  
Anorexia and Weight loss  
Flatulence  
Abdominal distension-(bloating)  
Altered bowel habits  
Rectal bleeding-Tenesmus  
Hiccups

Jaundice  
Abdominal masses  
Ascitis  
Hernial orifices and Hernias

## **HISTORY TAKING AND EXAMINATION OF THE ABDOMEN AND G.I SYSTEM**

Regions of the abdomen  
General approach

**Inspection:** Hair, Skin, Umbilicus, Contour of the abdomen Peristalsis, Pulsation's, Veins, Movements, and Hernias

### **Palpation:**

Light palpation, Deep Palpation, Palpation of the liver, Dipping technique, Palpation of the spleen, Palpation of the kidneys.

### **PERCUSSION:**

The distended abdomen, the liver the spleen, Assessing for Ascitis. (Shifting dullness and Fluid Thrill)

### **AUSCULTATION:**

Bowel sounds, Arterial bruits, Venous Hum, Friction sounds, and Succession splash

**EXAMINATION** of the Hernial orifices and external genitalia

### **Ano-rectal examination:**

Inspection of the anal area  
Digital rectal examination  
Proctoscopic examination