Hello and welcome back to InterpreterPrep.com

This is our fourth and last presentation on the Digestive System. Up until now in:

- FIRST PRESENTATION: we covered the MOUTH
- SECOND PRESENTATION: we covered the PHARYNX, ESOPHAGUS and STOMACH
- THIRD PRESENTATION: we covered the LIVER and GALLBLADDER

Today we will be going over:

**PANCREAS**  
**SMALL INTESTINE**  
**LARGE INTESTINE**

And I want to remind everyone that although these presentations may serve to recognize signs and symptoms of diseases they are **not meant for that. The only person who can tell if you or anyone else may need a treatment is YOUR DOCTOR.** So if in doubt...**GO SEE YOUR DOCTOR!** I also want to say that the **list of diseases we cover is limited.** We only have 40 hours. The purpose of these presentations is to provide you with a basic and I say “basic” understanding of the health-disease process to help you pass your certification exams and be a better interpreter.

Now having said this, let’s get this presentation underway:

Let me start by saying that the **DUODENUM** is **where the small intestine starts.** It is a loop of intestine that is **wrapped around the HEAD OF THE PANCREAS.** In the image, thanks to the “see through” effect we observe the **PANCREATIC DUCT** coming down to join the **COMMON BILE DUCT.** Both ducts drain into the **AMPULLA** in the duodenum also visible here because a part of the front wall of the duodenum was removed. Understanding how the gallbladder, pancreas and duodenum relate to each other is important to understand some diseases. We can now understand that if a gallstone gets stuck in the ampulla there will be a backup of secretions and increasing pressures in the ducts that can affect the gallbladder and/or pancreas. Also if we get a cancer growing in the head of the pancreas it can invade the common bile duct “squeezing” it causing bile to get backed up and bilirubin starts leaking into the skin so **jaundice** appears. That's easy to understand right? It's easy once you know the anatomy of the biliary duct system.

The **PANCREAS** is a gland located deep in the back of the abdomen. It's a hard worker. It does a double shift. It works as an: **EXOCRINE AND ENDOCRINE GLAND!**

**REMEMBER...**

all the secretions that go into the blood ...are..endocrine secretions.........**ENDO = INSIDE (BLOOD)**  
all the secretions that go elsewhere.........are..exocrine secretions...............**EXO = OUTSIDE**
Here we will only cover the **EXOCRINE FUNCTION OF THE PANCREAS**. Its endocrine function will be covered in the presentation on the Endocrine System. Now having said this, let me ask you a question: the principal organ of digestion is.....??? The stomach!! Right?? NO, NO, NO. Actually it is the **pancreas**. The pancreas secretes digestive juices which contain **enzymes**. Enzymes like:

**PANCREATIC JUICE contains:**

1) **TRYPsin** : breaks down proteins → **PROTEINS**  
2) **LIPase**: breaks down fat aka → **LIPIDS**  
3) **AMYLase**: breaks down → **CARBS**

It also secretes **SODIUM BICARBONATE** which is not an enzyme. It is a “buffer” which means it neutralizes the acid in the chyme coming from the stomach because the enzymes need a more, let’s say, “basic” (more alkaline) environment to work in.

Well, we’ve talked about the **duodenum and pancreas** so far, now let’s see some signs of disease when these organs get sick.

**SOME SIGNS OF DISEASE**

1) **ABDOMINAL PAIN**  
2) **JAUNDICE**  
3) **BLEEDING**: in the digestive tract (aka **MELENA**)  

**SOME DISEASES:**

1) **DUODENAL ULCER**: Most of the ulcers of the duodenum appear in the superior part as seen here. Ulcers are almost always associated with **H. PYLORI** infection. **H. Pylori is a bacteria**. Peptic ulcers can appear in both the stomach and the duodenum but **duodenal ulcers are much more frequent**.

2) **PANCREATIC CANCER**. Luciano Pavarotti, Patrick Swayze and Steve Jobs. Three famous people I can think of off the top of my head who we lost to this cancer. It has a **bad prognosis** and is generally **inoperable**, having “spread” to other organs when detected.

3) **ACUTE PANCREATITIS**: **inflammation of the pancreas**. Can be caused by gallstones, **BILIARY SLUDGE** or alcoholism. When bile gets thick it is called biliary sludge.

**SOME DIAGNOSTIC PROCEDURES:**

1) **BARIUM MEAL**- For this study the patient swallows a **solution that contains barium** and then X-rays are taken. This way the if there is an ulcer it gets coated with barium solution making it visible on the X-ray. So, what is the difference between a barium swallow and a barium meal? It’s basically the same study only that the **barium swallow** is focused on getting images of the **esophagus** while **barium meal** tells the radiologist that they want X-rays of the **stomach and duodenum**.
2) **UPPER ENDOSCOPY**: permits *direct visualization* of the duodenum and stomach, etc.

3) **ABDOMINAL CT SCAN**: useful to detect pancreatic tumors

4) **FLUOROSCOPY**: is a “real time x-ray” seen on a monitor screen. A patient swallows a barium impregnated solution and the radiologist can observe the resulting *moving images in real time* as opposed to the “still” images obtained by a standard X-ray.

**SOME TREATMENTS**

1) **ANTIBIOTICS**: used to treat alcoholic pancreatitis and H. Pylori infections

2) **STOMACH PROTECTORS**: for ulcers like omeprazole, ranitidine.

3) **SURGERY**: a type of surgery known as:
   - **VAGOTOMY**: Is done to treat duodenal ulcers. The nerves that stimulate acid secretion in the stomach are cut (reduces acid secretion in the stomach).

4) **ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY**: endoscopic procedure to visualize and clear out ampulla in acute pancreatitis. So difficult to pronounce that it's commonly referred to as **ERCP**.

Now let’s talk about the intestines. The intestines aka “bowels” and are divided into small and large bowel and if we remember that a quarter is worth **TWENTY-FIVE** cents then we can remember that the small intestine is about **TWENTY** feet long and the the large intestine is about **FIVE** feet long.

The **SMALL INTESTINE** sits in the bottom half of the abdomen. It's divided into the following segments

1) **DUODENUM**: We've already talked about the duodenum, it's relationship with the pancreas and the gallbladder so now we'll comment on the next part of the small bowel called the

2) **JEJUNUM**: Is where most of the absorption takes place and is followed by the

3) **ILEUM** which is the last part of the small intestine where absorption continues and where **vitamin B12 is absorbed**. The absorption of the nutrients into the bloodstream is done through millions of tiny hair-like structures found in the lumen of the bowels called “villi”.

The **LARGE INTESTINE** is divided into:

1) **CECUM**: Here in this image in the lower left side they removed a part of the intestinal wall to make the **ILEOCECAL VALVE** and the cecum visible. The cecum is the first part of the large intestine and has the **form of a pouch**. The ileocecal valve marks the ending of the ileum and the start of the cecum. It's there to make sure the content in the cecum won't reflux back into the ileum. The **APPENDIX** is also connected to the cecum as we see here in this image where it is red and looks like a pig's tail. The appendix is a little piece of intestine which we really don't know too much about. It seems to have had something to do with our defenses (**immunity**) when we were in the womb. Others say it was put there to feed surgeons who frequently remove it!
2) The **COLON**: Here in red we see the whole colon. It has **4 parts** named based on the colon's **trajectory** inside the abdomen. Now please follow me by starting at the bottom left of this image where we have:

- **ASCENDING Colon**: which **goes up** until it turns to the left under liver (at the hepatic flexure)
- **TRANSVERSE Colon**: **crosses the upper abdomen** from side to side and then turns down at the spleen (at the splenic flexure)
- **DESCENDING Colon**: **this part of the colon continues downward** until it enters the pelvis where it becomes the sigmoid colon.
- **SIGMOID Colon**: called that way because it is shaped like an “s”. The sigmoid colon ends at the rectum.

By the way! Remember the spaghetti? It continued to be digested and now it is no longer called bolus or chyme. At this point it's basically **loose FECAL MATTER**. **In the cecum and first parts of the colon is where most of the water is absorbed**. By the time what's left of our meal reaches the last parts of the colon it is now **semisolid fecal matter**. The fecal matter then reaches the last part of the large intestine:

3) The **RECTUM**: As the rectum fills you feel the “urge” to go. Thanks to the **ANAL SPHINXTER**-which we see in this image of a cross section of the rectum- you can “hold it” until you find a restroom. A **sphincter is a circular band of muscle which keeps the rectum closed**. When the **rectum contracts**, the sphincter relaxes and **DEFECATION** occurs. The **ANUS** is the opening through which the feces are eliminated from the body and it is partly mucous membrane and partly normal skin on its outer part.

We have now reached the end of this journey. Now let's talk about:

**SOME SIGNS OF DISEASE**

1) **ABDOMINAL PAIN**
2) **BLOATING** – due to gases
3) **DIARRHEA**
4) **CONSTIPATION**
5) **ITCH**: anal disease
6) **G-I BLEEDING (MELENA)**: losing blood can cause **FATIGUE** which is a symptom of anemia.
7) **FECAL INCONTINENCE**: this is the patient that needs to use diapers.

**SOME DISEASES**

1) **CELIAC DISEASE**: intestinal **villi is damaged** in this disease, patient needs a **special diet** due to **MALABSORPTION**. Diet must **exclude GLUTEN** which is a protein found in grains like:

- WHEAT
- OAT
- BARLEY
- RYE
2) **GASTROENTERITIS**: painful intestinal inflammation caused by food poisoning. Also known as the “STOMACH FLU”.

3) **BOWEL OBSTRUCTION**: means that the transit through intestine is blocked. Can be due to internal scars (aka adhesions) that develop after abdominal surgery or hernia (strangulation and death of the intestine may occur making this a reason to go to the ER urgently)!

4) **ILEUS**: is lack of intestinal peristalsis. Can be caused by general anesthesia and that's why the doctors won't let a patient go home until he swears he has passed gas!

5) **IRRITABLE BOWEL SYNDROME (IBS)**: is a peristalsis disorder of the intestines sort of like how the nutcracker esophagus was a peristalsis disorder of the esophagus. The intestines don't seem to coordinate well. It's like several people rowing in a boat that are all paddling in different directions at different times. **Seems to be stress-related** with symptoms like diarrhea and constipation.

6) **DIARRHEA**: has many causes:
   - GERMS (E.COLI, CAMPYLOBACTER)
   - MALABSORPTION
   - LACTOSE INTOLERANCE (allergy to milk/dairy products)
   - IBS or IBD

7) **INFLAMMATORY BOWEL DISEASE (IBD)**: under this heading we have **ULCERATIVE COLITIS** and **CROHN'S DISEASE** which are diseases that cause inflammation, ulcers and scarring of the intestinal walls with bloody, watery diarrhea.

8) **POLYPOSIS**: are growths in the colon. Some are benign other times cancer.

9) **DIVERTICULOSIS**: presence of these little pouches in the intestinal wall, found typically in the sigmoid colon. Diverticulosis becomes **DIVERTICULITIS** when one of these pouches gets inflamed. Patients need a special diet high in fiber to treat the constipation that comes with this disease.

10) **COLON AND RECTAL CANCER**: In this image we can see the 4 stages of colon cancer (CANCER STAGES) the tumor grows as we see in the image until the last stage:

    **STAGE 4 = METASTASIS**

    Metastasis means the cancer has reached lymph nodes and spread.

11) **HEMORRHOIDS**: is the presence of **DILATED RECTAL VEINS** as seen in this image of a cross section of the rectum. Hemorrhoids can be **INTERNAL** (can't be seen by looking at the anus) or be protruding called **EXTERNAL** (these are the ones that don't want to stay in, they want to go out!!) and are the ones they operate.

12) **ANAL ABSCESS and FISTULA**: let's come back to that cross section image of the rectum to explain this. An abscess and a fistula are **different stages of a same disease process**. It all
starts when one of the anal glands gets blocked and infected forming a localized collection of pus called an abscess. That abscess is sort of like a deep pimple. It can grow and wind up opening and draining to the skin around the anus. That open pathway from the gland out to the skin is called a fistula. We see in this image different varieties of fistulas.

13) Anal fissure: is an ulcer that appears on the anus, looks like a “paper cut”. Makes defecating very painful. Self-limited in most cases.

**SOME DIAGNOSTIC PROCEDURES**

1) **Rectal Exam**: picture says it all! Also known as digital exam. As you can imagine consists in the introduction of a finger into the rectum. Done to examine rectum and prostate gland.

2) **Complete Blood Count (CBC)**: useful to detect anemia due to chronic G-I blood loss.

3) **Colonoscopy aka Lower G-I Endoscopy**: done with a flexible tube inserted through the anus while the patient is sedated. Permits direct visualization of the colon as seen here. Samples of tissues (biopsy) can also be taken during this procedure.

4) **CT of Abdomen aka Computerized Tomography**: another way of saying it is CAT scan. A CAT scan is not a diagnostic imaging study of a cat!

   **CAT = Computerized Axial Tomography.**

5) **Stool for Occult Blood**: done by collecting samples of feces and test it for blood.

6) **AXR**: means abdominal X-ray.

7) **Abdominal Ultrasound**: to view pancreas, common bile duct and gallbladder.

8) **Barium Enema aka Lower G-I Series**: a radiopaque contrast is administered through the rectum and images are obtained through fluoroscopy. Radiopaque means it will look white on an X-ray. Used to view the rectum and sigmoid colon.

**SOME TREATMENTS**

1) **Medication**:
   - **Immunosuppressants**: Prednisone and TNF Blockers like Etanercept. These medicines suppress the immune system reducing inflammation.
   - **Antidiarrheals**: like Loperamide
   - **Laxatives** (aka stool softeners): reduce constipation.
   - **Anti-Inflammatory Medication**: like Mesalamine for ulcerative colitis.

2) **Nasogastric Suction**: a tube inserted through the nose down to stomach or small bowel to suck up gases and liquids from the intestine when there is an obstruction.
3) **SURGERY**: for cancer, complete bowel obstruction or lesions that don't stop bleeding,
   - **APPENDECTOMY** to treat appendicitis.
   - **HEMORRHOIDECTOMY** for external hemorrhoids.

4) **COLOSTOMY**: when a part of the colon is removed what's left may be too short to reattach to the rectum and so an opening (called a stoma) is created in the wall of the abdomen and the colon is sutured in place there. A bag is placed to collect the feces which will be expelled. At other times the colon can't be stitched back together immediately so a temporary colostomy is done. In other words a colostomy can be **temporary or permanent**. In the image we see 2 different colostomies: one done at the transverse colon, another at the descending colon and another done at the small intestine called an **Ileostomy**.

5) **SUPPOSITORIES/SITZ BATHS**: to treat hemorrhoids.

6) **CHEMOTHERAPY** and **RADIATION THERAPY**: for colon cancer, etc.

7) **DIET**: special diets rich in fiber for patients with **diverticulosis**

   **DIVERTICULOSIS = HIGH FIBER**

   or **devoid of gluten** for patients with **celiac disease**.

   **CELIAC DISEASE = NO GLUTEN**

8) **ENEMA**: is the introduction of liquids into the rectum and colon through the anus. Can be done to treat constipation.

The specialists who treat these diseases are **GASTROENTEROLOGISTS** and **GENERAL SURGEONS**.

The specialty that deals with the diseases of the digestive system is **GASTROENTEROLOGY**. Just to be clear **Gastroenterologists don't operate**. So, for example, if a gastroenterologist diagnoses you with gallstones or appendicitis he will refer you to a general surgeon to get your gallbladder or appendix removed.

**TERMINOLOGY REVIEW.** Now it's time for review so let's go over the terminology mentioned in this presentation in English and in the target language.

1) **PANCREAS**: páncreas
2) **LIPIDS**: lípidos
3) **SMALL INTESTINE**: intestino delgado
4) **LARGE INTESTINE**: intestino grueso
5) **DUODENUM**: duodeno
6) **BILIARY SLUDGE**: barro biliar
7) **DUODENAL ULCER**: úlcera duodenal
8) **PANCREATIC CANCER**: cáncer de páncreas
9) **ACUTE PANCREATITIS**: pancreatitis aguda
10) **ABDOMINAL CT SCAN**: tomografía abdominal
11) **FLUOROSCOPY**: fluoroscopía, radioscopía
12) **ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP):**
   (CPRE) colangiopancreatografía retrógrada endoscópica
13) **JEJUNUM:** yeyuno
14) **ILEUM:** íleon
15) **CECUM:** ciego
16) **APPENDIX:** apéndice
17) **COLON:** colon
18) **SIGMOID COLON:** colon sigmoideo
19) **FECAL MATTER:** materia fecal
20) **RECTUM:** recto
21) **ANAL SPHINCTER:** esfínter del ano
22) **DEFECATE:** defecar
23) **ANUS:** ano
24) **BLOATING:** distensión abdominal, meteorismo
25) **DIARRHEA:** diarrea
26) **CONSTIPATION:** estreñimiento, constipación (Argentina, Colombia, Puerto Rico)
27) **FATIGUE:** cansancio, fatiga
28) **FECAL INCONTINENCE:** incontinencia fecal
29) **CELIAC DISEASE:** enfermedad celíaca
30) **WHEAT:** trigo
31) **OAT:** avena
32) **BARLEY:** cebada
33) **RYE:** centeno
34) **GLUTEN:** gluten
35) **STOMACH FLU:** gastroenteritis viral
36) **BOWEL OBSTRUCTION:** obstrucción intestinal
37) **ILEUS:** íleo
38) **IRRITABLE BOWEL SYNDROME (IBS):** colon irritable, síndrome de intestino irritable
39) **INFLAMMATORY BOWEL DISEASE:** enfermedad intestinal inflamatoria
40) **ULCERATIVE COLITIS:** colitis ulcerosa
41) **CROHN'S DISEASE:** enfermedad de Crohn
42) **E.COLI:** escherichia coli
43) **MALABSORPTION:** malabsorción
44) **POLYPOSIS:** poliposis
45) **DIVERTICULOSIS:** diverticulosis
46) **DIVERTICULITIS:** diverticulitis
47) **FIBER:** fibra
48) **COLORECTAL CANCER:** cáncer colorrectal, cáncer de colon y recto
49) **CANCER STAGES:** estadíos del cáncer
50) **METASTASIS:** metástasis
51) **HEMORRHOIDS:** hemorroides
52) **ANAL ABSCESS:** absceso anal
53) **FISTULA:** fístula
54) **ANAL FISSURE:** fisura anal
55) **RECTAL EXAM:** tacto rectal
56) **COMPLETE BLOOD COUNT (CBC):** hemograma completo, recuento sanguíneo completo
57) **COLONOSCOPY/ LOWER ENDOSCOPY:** colonoscopía / endoscopía baja
58) STOOL FOR OCCULT BLOOD/ GUAIAC TEST: prueba de sangre oculta en materia fecal
59) BIOPSY: biopsia
60) BARIUM ENEMA: enema opaco, enema de bario
61) ANTIDIARRHEAL: antidiarreico
62) LAXATIVE/STOOL SOFTENER: laxante, purgante
63) NASOGASTRIC TUBE: sonda nasogástrica
64) APPENDECTOMY: apendicectomía
65) HEMORRHOIDECTOMY: hemorroidectomía
66) COLOSTOMY: colostomía
67) SUPPOSITORY: supositorios
68) SITZ BATH: baño de asiento
69) DIET: dieta
70) GASTROENTEROLOGIST: gastroenterólogo
71) GASTROENTEROLOGY: gastroenterología

In this presentation we have gone over many terms related to GASTROENTEROLOGY while we discussed the signs and symptoms of sickness and diseases. We have also discussed some of the diagnostic procedures and treatments used. At the end of the lesson a list of 71 related terms were provided in English and the target language for you to review. I hope you've enjoyed this lesson and come away with a better understanding of the field of GASTROENTEROLOGY and the terms related to this field of medicine.

Thank you for choosing InterpreterPrep.com