Body Vehicle

Operating

Manual

Forward

OVERVIEW

The following understanding is of critical importance in understanding how to take your power with your health.

1 you don't digest in your stomach?

2 your body is designed to never ever absorb foreign protein?

The statements above came from Dr Jerry Tenant and almost knocked me off my chair and that presents more questions than answers. So let me provide the answers in a summary of how your digestive system works, which includes your stomach, pancreas, liver and gall bladder.

When you eat food your stomach has to break that food down into amino acids, to do that your stomach has to produce HCI hydrochloric acid and to produce HCI the stomach requires sodium bicarbonate which is produced by the pancreas and in order for the pancreas to make, it has to receive HCI from the stomach and to digest some acidic foods from meat and dairy it has to make HCI to bring down the PH to a 1 when the food is broken down into amino acids it has to bring the PH back up to an PH 8 before it can be move amino acids into the beginning of the small intestine the Duodenum where the food is digested with juices from the liver, Pancreas, and gall bladder and when it is digested the duodenum passes the food into the Jejunum where the nutrients are absorbed and then it passes into the small intestine where more nutrients are absorbed if you do not have a compacted small intestine and the cilia not working properly? If your pancreas is not working properly and cannot produce sodium bicarbonate required for the stomach to make HCI then you cannot digest properly.

If your stomach cannot break all proteins into amino acids and some spill over into the blood stream the proteins are recognized as an invader and the immune troops the white blood cells are called in and they try to destroy and if they cannot they hide the foreign protein in the fat cells. Understand that most Doctors do not know this and still that you digest in the stomach!

If you don't understand this you will never be able to take your power and solve all your health problems yourself. Otherwise you are listening to vested interested telling you what to eat and because they do not understand digestion and nutrition they will give you bad advise.

IMMUNITY = STEM CELL PRODUCTION

Understanding that immunity is stem cell production from the bone marrow. If you have the necessary amino acids to trigger stem cell production, some of those stem cells are turned into B Cells which will produce antibodies to counter any antigen that is present. If you don't have that line of fire; **Stem Cells** into **B Cells** to produce **Antibodies** you don't have an immune system and probably have allergies. Amino acids are the secret to a strong immune system as the right combination of Amino acids triggers stem cell production. Stem cells also produce endocannabinoids and lymphocytes.

Further understanding one shot of antibiotics stops stem cell production, which is why the more antibiotics given the more antibiotics are required as the immune system stops working. This is also true for AZT and all other vaccinations. Contrary to this our Humalife humic having all the amino acids triggers stem cell production and increases immunity. The Life Crystals in our Elixirs also triggers stem cell production and the Life Crystals further brings the mitochondria into super lattice and increases energy levels.

This is a summary of Dr Jerry Tenants amazing contribution Healing is Voltage. Thankyou Jerry for sharing your amazing discovery as I think the understanding of how our body functions is essential for people to take their power with their health.

Ultimately, we have been told how and what to eat by authority figures with vested interests. When you understand how your body operates you can become the master and take control of your body vehicle and become responsible for your actions.

Welcome to a journey in healing and empowerment,

joshua

Healing is Voltage

Understanding Voltage as PH

Cellular Voltage and PH

Cells run between -20 to -25 millivolts

Voltage and PH

+400 millivolts = PH 0

0 millivolts = PH 7

-20 millivolts = PH 7.35

-25 millivolts = PH 7.45

-50 millivolts = PH 7.8

-400 millivolts = PH 14

As voltage drops Acid increases and oxygen decreases resulting in less ATP production by the mitochondria which means less energy.

Lower voltage is associated with hypothyroid, which if you consume fluoride, chlorine or bromine, the iodine receptor site in the thyroid can be captured one of the above halogens. When this happens the thyroid produces a fake hormone that fools the blood test but does not work in the body.

80% of the thyroid hormone made by the thyroid is T4 the active form of the thyroid hormone is T3. The conversion to T3 **requires iodine, selenium, zinc, iron, cortisol, glutathione, and testosterone**. If you are missing one of these elements you make Reverse T3 a fake hormone that doesn't work.

T3 controls the voltage in every cell membrane in the body. T2 controls the voltage in the mitochondria.

ENERGY

You have 4 rechargeable energy batteries

Muscles are piezoelectric and movement of muscles generates electrons which recharges the body. That is why exercise is so important. Muscle battery packs are all hooked to our cell membranes.

Cell Membrane is a capacitor which charges up the cell.

Mitochondria produces ATP energy via the Krebs cycle which runs primarily on fatty acids

DNA follows the Golden mean spiral which causes implosion and scalar energy which implodes into the DNA to energise it so it can do its job.

Muscle Battery Packs

- We have six of these loops of muscle battery packs that provide the ongoing voltage for all of the organs to work and to repair themselves.

1. Kidney/Bladder circuit
2. Liver/Gall Bladder circuit
3. Sympathetic/Parasympathetic circuit
4. Lung/Large Intestine circuit
5. Heart/Small Intestine circuit
6. Spleen/Stomach circuit

Half of our organs are capacitors and half are coils. They are wired together to form Tesla Resonating Circuits like all electronic circuit boards. The parasympathetic is wired to the sympathetic, the lung is wired to the large intestine, the heart to the small intestine, the spleen to the stomach, the kidney to the bladder, and the liver to the gall bladder.

Spleen/Stomach Circuit

- The spleen/stomach circuit supplies the -25 millivolts needed for all the organs on the circuit to

work and also the -50 millivolts needed to make new cells to keep these organs repaired.

- These circuits supply the voltage for the entire reproductive system, the entire endocrine system, the thinking part of the brain, and the macula of the eye.
- When this battery pack cannot hold a charge, you have chronic illness in one or more organs.

Why won't your battery packs hold a charge?

- Hypothyroidism (T-3 controls voltage of cell membranes and total number of mitochrondria while T-2 controls voltage in mitochrondria)
- Scars: block flow of voltage in a circuit.
- Dental infection: acts like a resistor as voltage flows through the tooth.
- Emotions: stored as magnet fields and thus block the flow.
- Toxins : are all electron stealers

Chronic Disease is the inability to produce new cells. If you don't have enough voltage you can't make new cells that work. We are constantly wearing ourselves out and have to make new cells. **High voltage of -50 millivolts is required** to make new cells.

Your body rebuilds itself in less the 365 days. Every cell in the body eventually dies and is replaced by new cells

The macula in your eye is replaced every 48 hrs

Lining in your gut every 5 days

Skin is replaced every 1 month

Liver is replaced every 6 weeks

DNA every 2 months

Bones every 3 months

Blood every 4 months

Nervous system every 8 months

Brain every 1 year

Duodenum: Anatomy, Location, and Function

The first segment of the small intestine

By
Sherry Christiansen
Updated on November 30, 2022
Medically reviewed by
Brian H. Wetchler, DO
Print

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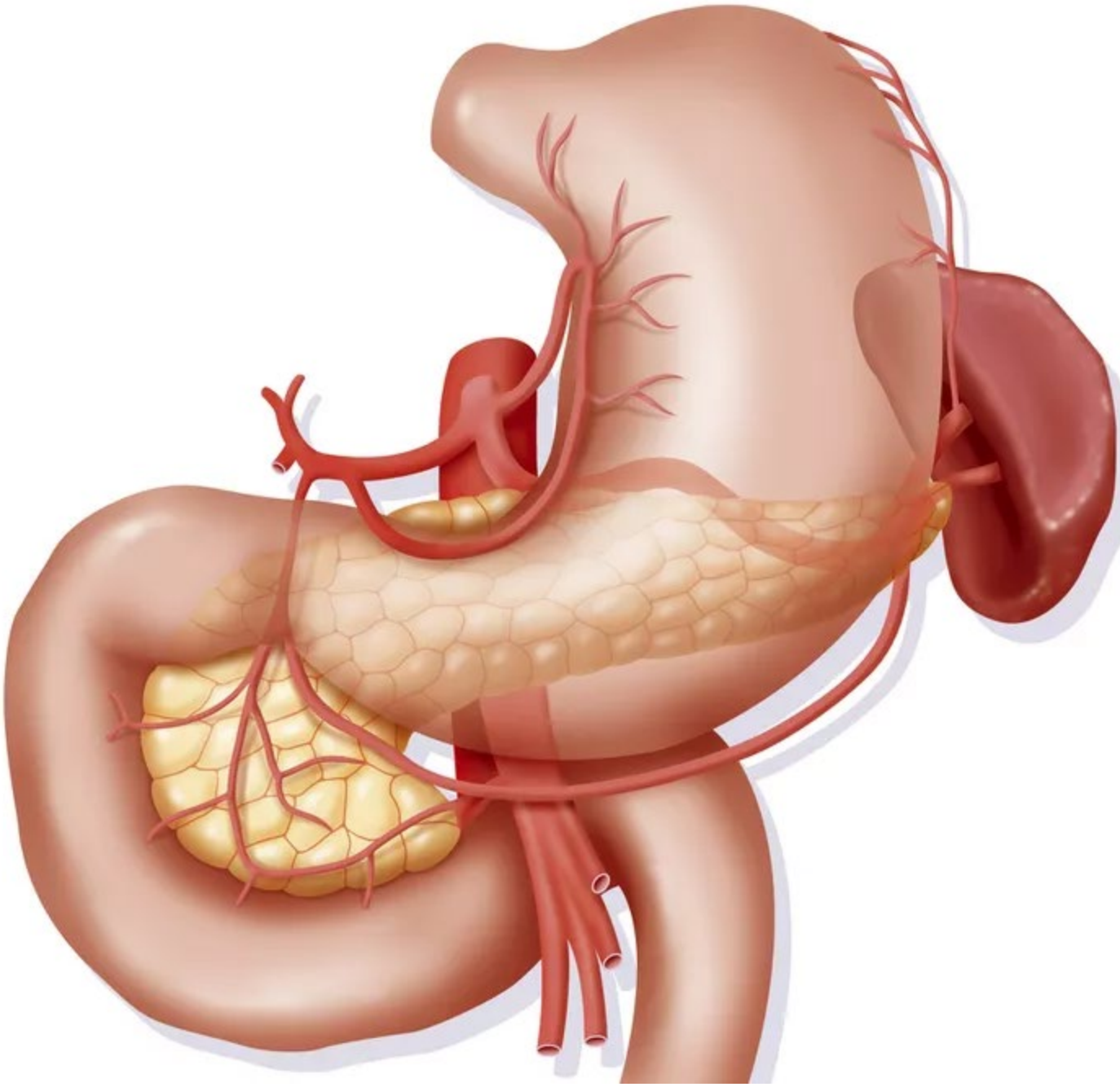
At 8 to 10 inches long, the duodenum is the first and shortest section of the small intestine. The duodenum is connected to the stomach, allowing food particles to leave the stomach to course through the intestines.

The function of the duodenum is to mix food with enzymes and bile to digest it. The duodenum is a key organ in the gastrointestinal (GI) system because it helps break down nutrients from food to make them available for absorption into the bloodstream.

This article explains the structure and function of the duodenum in the digestive system of the body. It discusses conditions that may affect the duodenum, as well as their diagnosis and treatment.



Duodenum and Anatomy

The duodenum has been described as a C-shaped or horseshoe-shaped segment of the small intestine. It is located below the stomach.

The duodenum can be separated into four segments. Each segment has a different structure and shape and performs a different function. The lining of the duodenum is composed of four layers, each with its own specialized function.

The duodenum received its name due to its size. In Latin, duodenum translates to "12 fingers," which is the approximate length of the organ.[1]

Structure

The duodenum's "C" shape surrounds the pancreas, which provides it with pancreatic enzymes for digestion. The duodenum also connects to the liver via a structure called the hepatoduodenal ligament. This junction is where the duodenum receives bile to mix with chyme, an important part of the chemical digestive process.

Segments of the Duodenum

The four segments of the duodenum are:[1]

1. The first segment is called the **superior** segment and it contains the duodenal bulb or cap. It is the first 2 cm of the duodenum, immediately distal to the pylorus. The **duodenal bulb** connects to the liver via the hepatoduodenal ligament. This connection allows nutrients to move from the small intestine to the liver. It also allows the duodenum to receive bile from the liver.
2. The **descending duodenum** is located above the right kidney and extends down. It connects to the pancreas via a small tube called the pancreatic duct, which feeds enzymes into the duodenum to help break down food. The common bile duct carrying bile from the liver also enters this second part of the duodenum.
3. The **transverse duodenum,** commonly called the inferior or horizontal part, extends horizontally across the abdomen. It is located in front of the aorta and travels from right to left, behind a network of blood vessels.
4. The **ascending part of the duodenum** extends up, passing atop or slightly to the left of the aorta. This final segment leads to the jejunum, the middle portion of the small intestine.

When the common bile duct is blocked, it can lead to jaundice.

Layers of the Duodenum

The walls of the duodenum are composed of four layers. Sometimes called duodenum histology, to describe the cells and tissues, these layers include:

1. The mucosa layer is the innermost layer made up of mucus glands and microvilli, the fingerlike projections that work to absorb nutrients.
2. The submucosa layer is primarily composed of connective tissue. It has a rich network of blood vessels and nerves traveling the length of the duodenum. This submucosal layer also contains Brunner's glands, which secrete mucus to help enable food to move through, and bicarbonate. Bicarbonate is a chemical that neutralizes acid in the chyme ahead of further digestion.
3. The muscularis externa layer is made up of smooth muscle tissue that's responsible for contractions in the GI tract. The muscles churn the chyme, mix it with digestive enzymes, and cause the food to move into the jejunum. This muscle movement is called peristalsis.
4. The serosal layer, which is the outermost layer of the duodenum. It is composed of squamous epithelium, a single layer of flat cells that provides a barrier to other organs.

Location

The small intestine is located below the stomach. In addition to the duodenum, the small intestine is composed of the jejunum and ileum.

The duodenum is the only part that is connected to the stomach. It starts where it meets the stomach and ends where it connects to the jejunum.

Organs in the GI Tract

Collectively—in addition to the esophagus—the stomach, large intestine, and accessory organs (such as the liver and pancreas), along with the duodenum and the other two sections of the small intestine, form what is commonly referred to as the GI tract.

Overview of the Accessory Digestive Organs

Anatomical Variations

Duodenal atresia, also called duodenal stenosis, is a rare congenital (present at birth) disorder of the duodenum.[2] It involves complete closure of a portion of the tube-like opening, or lumen, inside the duodenum.

Signs and symptoms of duodenal atresia in the fetus include a buildup of amniotic fluid during pregnancy, called polyhydramnios. Duodenal atresia also causes intestinal obstruction in newborns.

Duodenum and Digestive Function

The duodenum's primary function is to begin the digestive process of breaking down and absorbing nutrients needed by the body. The duodenum begins this process by preparing the chyme so that nutrients can then be absorbed easily.

While chemical digestion begins in the mouth with saliva, food that is swallowed and travels down the esophagus into the stomach will then mix with gastric (stomach) acid. It then enters the duodenum, to begin the body's process of absorbing vitamins, minerals, and other nutrients.

The duodenum is considered the mixing pot of the small intestine because of the churning process that takes place there. It mixes the chyme with enzymes to break down food, adds bicarbonate to neutralize acids, and prepares the chyme for the breakdown of fats and proteins in the jejunum, where most of the body's nutrient absorption occurs.

Specific functions of the duodenum include:

- Receiving the mixed, churned small pieces of food from the stomach
- Neutralizing the acidity (pH level) in chyme
- Advancing the digestive process with bile from the liver, digestive enzymes from the pancreas, and intestinal juices secreted by the duodenum walls and other digestive organs
- Preparing the chyme for further digestion by mixing in bile to help break down fats
- Absorbing certain nutrients, such as folate, iron, and vitamin D[3]

Duodenum's Other Functions

The duodenum contributes to other important digestive processes in the body. This includes the release of two key hormones:

- Secretin, which is released when the pH of the duodenum needs adjusting (specific pH levels are needed for proper digestion of fats and proteins)
- Cholecystokinin, which is released to aid in the digestion and absorption of nutrients such as fats and proteins

Another important function of the duodenum is immune support. The duodenum acts as a barrier to prevent harmful microbes from entering the body.

The friendly bacteria in the duodenum and other parts of the small intestine take up space and compete for food inside the duodenum. As a result, pathogens (disease-causing germs) have a difficult time multiplying there.

Symptoms of Duodenal Disorders

The duodenum is affected by disorders or disease that may be acute (short-term and severe) or chronic (long-term). Symptoms such as discomfort or a burning sensation in the abdominal region may be present.

Other symptoms may include:

- Feeling bloated after eating (even small amounts)
- Nausea and vomiting
- Indigestion
- Pain in the lower abdomen (or in some cases, pain felt in the lower back)
- Black tarry stools, which can occur if there is intestinal bleeding

A condition affecting the duodenum may not result in any symptoms at all. It may be diagnosed when a person is being examined for another type of digestive disorder.

When GI Bleed Is a Medical Emergency

Black tarry stools are often a sign of intestinal bleeding, just as bright, red blood from the rectum or coughed up from the esophagus indicates bleeding. In some cases, this can be an immediate medical emergency. Contact your healthcare provider or seek medical care right away.

Duodenum and Health Conditions

The duodenum can be affected by a number of health conditions common to people of any age. For example, the duodenum is a common source of abdominal discomfort, with symptoms of indigestion, heartburn, and upper abdominal pain affecting approximately 25% of the population.[4]

Duodenum and Cancer

Due to a complex connection between the duodenum and the accessory organs of digestion, such as the liver and pancreas, cancer cells are often seen at the same time in both the duodenum and pancreas, as well as the bile duct of the liver.[4]

Other common disorders of the duodenum include:

- Inflammatory bowel disease (IBD), which may cause inflammation in the duodenum or the stomach. Inflammatory bowel disease has two types: Crohn's disease and ulcerative colitis. Only Crohn's disease affects the duodenum. Ulcerative colitis does not affect the duodenum.
- Celiac disease, a condition that particularly impacts the duodenum due to adverse effects when a person eats gluten or wheat products[5]
- Excessive alcohol consumption, which can cause duodenitis, an inflammation of the duodenum
- Duodenal ulcers, lesions similar to stomach ulcers that form in the lining of the duodenum

Duodenitis can have several different causes, including a *Helicobacter pylori* infection (*H. pylori*) that commonly causes ulcers and inflammation in the stomach and duodenum. Other types of bacterial infection may cause inflammation too.

Additional causes of duodenitis include:[6]

- Viral infections
- NSAIDs (nonsteroidal anti-inflammatory drugs), a class of pain medications such as Advil (ibuprofen) can lead to inflammation with long-term use.
- Duodenal lymphocytosis, a condition involving an increase of small white blood cells, called intraepithelial lymphocytes, in the lining of the duodenum (discovered via a biopsy)
- Smoking tobacco (heavy use)
- Accidental injury or surgery affecting the duodenum
- Chemotherapy or radiation therapy
- Idiopathic (unknown causes)

Different types of duodenitis are treated in different ways, including antibiotics to treat an infection. It's an especially effective treatment in cases caused by *H. pylori* infection.[7] Duodenitis is curable in most cases, though, in some instances may become a chronic condition.

Can You Live Without the Duodenum?

Yes, but it's likely you'll experience complications. For example, a pancreaticoduodenectomy (Whipple procedure) can be done to treat duodenal and pancreatic cancer. It's a complex procedure, with side effects that include digestive problems and bowel habit changes.[8]

Whipple Procedure: Long-Term Care

Duodenum and Diagnosis

Several tests are commonly used to diagnose conditions of the duodenum, including duodenitis. These include:

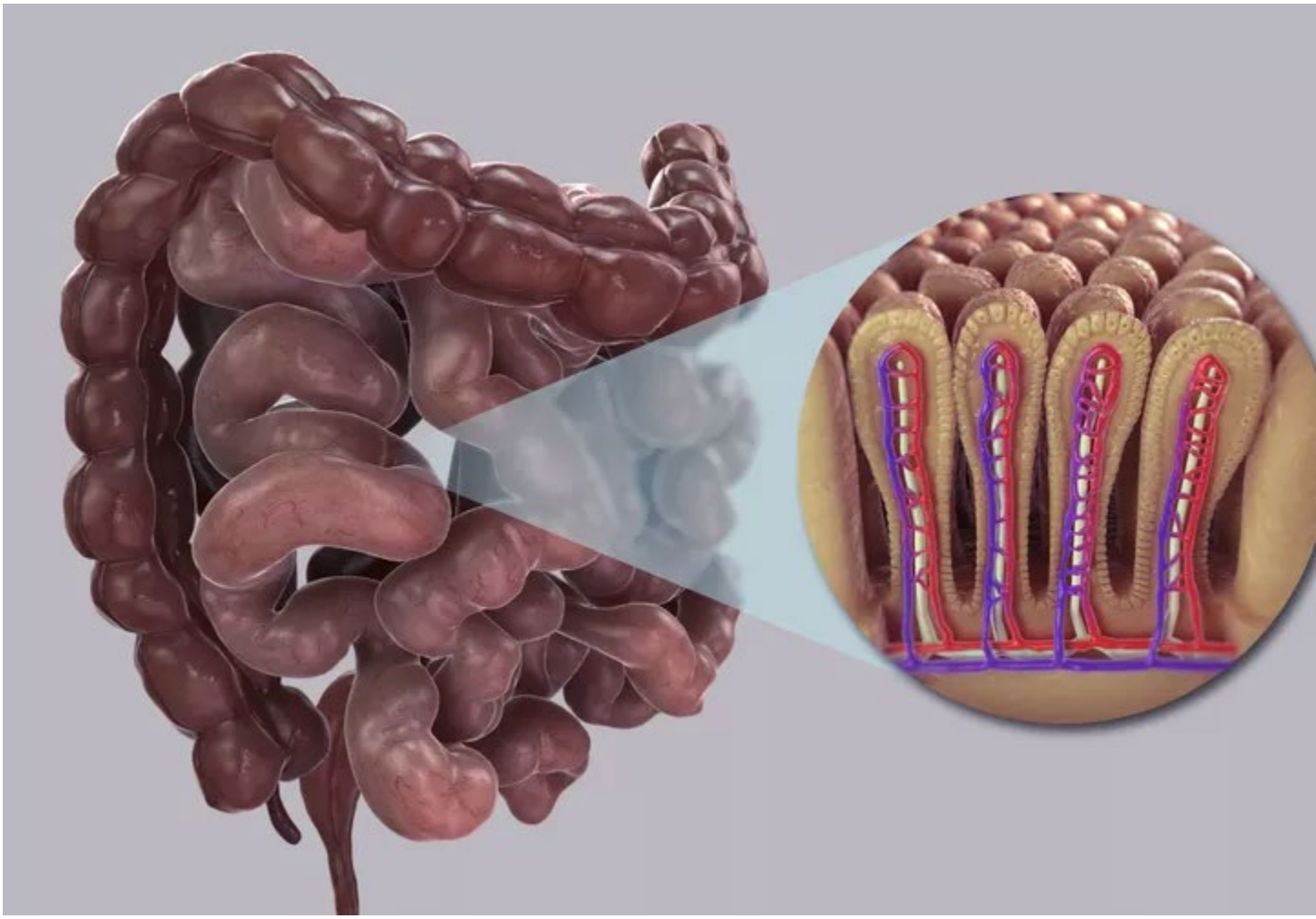
- Blood or stool samples (to test for *H. pylori*)
- A urea breath test to test for *H. pylori*, *done* before and after a person drinks a solution
- Upper endoscopy, or EGD, a test used to diagnose the cause of abdominal pain or prolonged symptoms by enabling your healthcare provider to view the lining of the duodenum and check for the presence of ulcers or other symptoms, such as inflammation or bleeding[4]
- A biopsy to check for cancer cells or to diagnose duodenal lymphocytosis[6]

Parts of the Small Intestine

This Organ Is Where Most Vitamins and Minerals Are Absorbed From Food

Updated on March 23, 2020
Medically reviewed by
Priyanka Chugh, MD

The small intestine is a 20-foot-long tube that is part of the digestive tract and connects the stomach and the large intestine. Because it is so long, it must twist and turn through the abdomen. The small intestine is where most digestion takes place: most vitamins and minerals, as well as fats and some water, are absorbed in the small intestine.



Villi. Science Picture Co / Getty Images

Muscle contractions, called peristalsis, move food through the small intestine as it is digested. Enzymes in the small intestine work to break down food to the nutrient level. These enzymes are created by other organs and then moved into the small intestine, or are secreted by the intestinal wall. Once the food is broken down, it can be absorbed and enter the bloodstream.

Sections of Small Intestine

The small intestine is divided into three main sections, and different processes take place in each one. The parts of the small intestine are the:

- **Duodenum:** The first and shortest section, which is roughly shaped like a "C." Food passes from the stomach to duodenum through a muscle called the pyloric sphincter. Iron is absorbed in the duodenum.
- **Jejunum:** Sugars, amino acids, and fatty acids are absorbed in this part of the small intestine.
- **Ileum:** This last part of the small intestine is where vitamin B12, bile acids, and other nutrients are absorbed.

How Food Is Absorbed by the Small Intestine

The pancreas is where digestive enzymes are created, and they are passed through a duct into the small intestine. These enzymes break down food so that they can be absorbed and used by the body. Proteins, fats, and carbohydrates are degraded into their component parts and taken up by the villi located in the jejunum and the ileum. The villi are structures that protrude from the inner wall of the small intestine like fingers or hair and take up nutrients.

Crohn's Disease of the Small Intestine

When Crohn's disease (one form of inflammatory bowel disease, or IBD) affects the small intestine, the absorption of vitamins and minerals can be affected. [1]

Ileocolitis is the most common form of Crohn's disease and is when the last part of the small intestine and the large intestine are involved. Ileitis is the type of Crohn's disease that affects the ileum and is the second-most-common form of Crohn's disease. People who have ileocolitis or ileitis may be deficient

in vitamin B12 because inflammation may prevent its absorption in the ileum. These types of Crohn's disease may also result in a deficiency of the fat-soluble vitamins (A, D, E, and K), because the bile salts that facilitate the uptake of those vitamins are also absorbed in the ileum.

Jejunoileitis is a less-common type of Crohn's disease that affects the jejunum. Because most of the absorption of vitamins, minerals, proteins, fat, and carbohydrates takes place in the jejunum, inflammation in this section of the small intestine could lead to several nutritional deficiencies.

Gastroduodenal Crohn's disease is another more uncommon form of the disease that affects the duodenum (as well as the stomach). The minerals that could be affected include iron, calcium, and magnesium because they are all absorbed in the duodenum.

The Small Intestine and The J-Pouch

J-pouch surgery (also called ileal pouch or anal anastomosis (IPAA) surgery) is done to treat ulcerative colitis or familial adenomatous polyposis (FAP). In this surgery, the colon is removed and the ileum is used to create a pouch that's shaped like a "J" (sometimes an "S" or a "W" may also be created). Because the j-pouch is created from the ileum, if it later becomes inflamed (such as due to pouchitis), vitamin and mineral deficiencies might occur.[2]

The Anatomy of the Jejunum

This portion of the small intestine is important in absorbing nutrients

By
Amber J. Tresca

Updated on February 06, 2021
Medically reviewed by
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Print

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The jejunum is the second segment of the small intestine. It is located between the first part, the duodenum, and the last part, the ileum. Most of the nutrients in food are absorbed in the small intestine. While it is only one part of the small intestine, most of this absorption takes place in the jejunum.

ericsphotography / E+ / Getty Images

Anatomy

The small intestine is a long, hollow tube, with an empty space inside called the lumen. It is located in the digestive system between the stomach and the large intestine. After food is chewed in the mouth and swallowed, it travels down the esophagus, into the stomach, and then on into the lumen inside the small intestine.

The small intestine is made up of three sections: the duodenum, the jejunum, and the ileum. It can be anywhere from about 22 to 25 feet (around 6.5 to 7.5 meters) long. In most adults, the second section, the jejunum, is about 8 feet (2.5 meters) long.

The small intestine contains several layers. The outer layer is called the serosa and contains the mesothelium and epithelium.

The next layer is called the muscularis, and it consists of two layers of muscle. These muscles work together to move food through the intestine. The thin outer layer of muscle contracts in a way that shortens the length of intestine and the thicker inner layer constricts into the lumen.

The next layer is connective tissue, called the submucosa, which contains nerves and blood and lymphatic vessels. The innermost layer, the mucosa, is covered with a multitude of finger-like structures called villi.[1]

Function

The purpose of the small intestine is to break down and absorb nutrients and minerals from food, which is a process that occurs throughout the small intestine. A large amount of surface area is needed to absorb the small molecules from digested food as it moves through the lumen and over the cells of the small intestine.

This is achieved through the numerous villi that cover the inside of the intestine walls. The many cells of the villi in the mucosal layer of the small intestine facilitate the uptake of nutrients.

The jejunum has a specialized role in digestion. In the duodenum, complex proteins called enzymes begin to break down food. Small nutrient molecules are extracted. The process continues as the food moves through the duodenum and into the jejunum.

The small nutrients, including sugars, amino acids, and fatty acids, can then be absorbed by the cells in the jejunum. The food continues on through the jejunum and into the next (and last) section of the small intestine, called the ileum. The ileum is where remaining nutrients, such as vitamin B12, are absorbed.[1]

Associated Conditions

Crohn's disease is a form of inflammatory bowel disease that can affect any part of the digestive tract, including the jejunum. When Crohn's disease affects the jejunum, it is called jejunoileitis. This form of Crohn's disease is less common.

Inflammation in the jejunum can mean that people with this condition don't absorb as many nutrients from their food. That may lead to malnutrition and other complications.[2]

There are some digestive conditions that make eating and digesting food difficult. There are several different ways that people who are experiencing these problems can receive nutrients.

One way is through a tube that is placed through the wall of the abdomen and into the jejunum. This is called a feeding jejunostomy. A feeding jejunostomy is used in select patients for certain conditions and is often a life-saving procedure.

A feeding jejunostomy might be created if there is a blockage higher up in the digestive tract, and food cannot move through to reach the small intestine. This can be caused by what's called a gastric outlet obstruction. A gastric outlet obstruction might be from a tumor, a peptic ulcer, a fistula, or an impacted gallstone.

A jejunostomy might also be done for a condition called gastroparesis. In gastroparesis, there isn't a physical obstruction in the digestive tract. Instead, the muscles aren't working as they should to move food through. This presents feeding problems for patients with this condition, and a feeding jejunostomy helps to deliver nutrients.

Another reason for a feeding jejunostomy is to deliver medications. This might be used for those who live with Parkinson's disease, as it allows for the steady delivery of the drugs that help in improving motor function.[3]

Short bowel syndrome (SBS) is a rare condition that occurs when a large section of the small intestine is missing. This can occur either at birth (as a congenital defect) or after having surgery to remove parts of the small bowel. When there is less than about 6 feet (2 meters) of small bowel left, it's considered SBS.

The jejunum is important in absorbing nutrients from food, with the first 3 feet (1 meter) doing most of the work. For those with SBS, the type of surgery they've had and how much of their jejunum and their large intestine remains is an important part of understanding what treatments might be needed.

SBS often causes the inability to absorb enough fluid and nutrients from food. SBS is treated with dietary support to ensure patients are receiving enough fluids and vitamins and minerals. Medications might also be used that improve absorption, decrease acid, and control diarrhea.[4]

Jejunal atresia is a rare birth defect that affects the mesentery. The mesentery is a membrane that connects the small intestine to the abdominal wall. If part or all of this membrane is missing, the jejunum might become twisted around an artery that brings blood to the colon. Jejunal atresia is usually treated with surgery.[5]

During this test, it might be possible to take small pieces of tissues (biopsies) from parts of the small intestine. Biopsies can be tested to understand if there are any diseases or conditions present affecting the small intestin5 Sources

By Amber J. Tresca
Amber J. Tresca is a freelance writer and speaker who covers digestive conditions, including IBD. She was diagnosed with ulcerative colitis at age 16.

Stomach Acid

If you can't make enough stomach acid you can't break down the proteins into amino acids then every time you eat you absorb one of those proteins and that whole protein is looked at as a foreigner an invader and you end up attacking everything you just ate and you create an immune reaction.

To make **stomach acid** you require **Vitamin B1, iodine, zinc, and salt**. If you are missing one of these ingredients you cannot make stomach acid (HCI). Without stomach acid you cannot absorb zinc, without zinc you can't make neurochemicals like dopamine or serotonin. Nervous system 50% cholesterol by weight. Anti cholesterol drugs will interfere.

When food enters the stomach it will attempt to go to a **PH of 2**, it accomplishes this by making hydrochloric acid (HCI) and for every molecule of HCI the stomach makes, it has to make a molecule of sodium bicarbonate, which is produced by the Pancreas which requires HCI from the stomach to produce the sodium bicarbonate (baking soda). This is required as when the food passes into the small intestine it has to go to a **PH of 8**.

Importance of Fat Absorption

Fat absorption: **to absorb fat you have to have bile,** the liver makes 1.5 quarts a day and stores the bile in the gall bladder. If you don't have a gall bladder or a liver that works properly and you eat a fatty meal you cannot make enough bile to break down fat you become fat deficient and if you don't have fats you can't make **new nerve cells** and you cannot get better.

Understanding Proteins

Human body designed to never absorb protein?

When you eat a protein, stomach acids break that into Amino Acids, you use those amino acids to make your own proteins.

Your Thymus Gland is the database for all the proteins that are used in the body. When the white blood cells go through the Thymus that database is downloaded into the white blood cells. As the white blood cells travel throughout your body and bump into a protein they compare that protein to their database and if that protein is one the body made then the white blood cell

travels on. If however the protein is not in the database the white blood cell recognizes the protein as a virus or bacteria and calls in the immune troops to make antibodies that attack that protein and try to destroy it, if they can't destroy it the protein will be stored in the fat cells.

Proteins

All living organisms are composed of proteins, which are chains of specific groups of amino acids linked together by chemical bonds. Protein synthesis begins in the cells where proteins carry out all the biological processes that sustain life. Amino acids, also called the building blocks of protein, fall into three categories: **essential amino acids**, which the body cannot make, and **nonessential** and **conditional amino** acids, which the body can synthesize. According to the University of Arizona, protein production is so vital to survival, if a sufficient amount of just one essential amino acid is not obtained from food, the body takes that amino acid from muscle tissue and other sources of protein within the body.

Protein Production

Blood contains a constant supply of amino acid chemicals to fulfill the body's continuous need for protein. Instructions for making protein molecules are encoded in the DNA of genes. Explained simply, protein production occurs in a cell when DNA molecules transfer the genetic code for assembling amino acids to other molecules – RNA and ribosomes. After reading the information, construction begins with specific amino acids arranged in proper sequence to build each protein molecule according to the function it will serve.

Essential Amino Acids

The nine essential amino acids include histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine. Phenylalanine produces tyrosine, a nonessential amino acid. The body cannot produce essential amino acids; they are obtained from the metabolic by products of protein digestion. The best dietary sources for amino acids are animal-based proteins, such as meat, eggs or dairy products, because they each contain all the essential amino acids. Amino acids are also found in plant-based foods, including vegetables, beans, grains, nuts and seeds. However,

plant sources must be combined because they do not contain all the essential amino acids. An example is rice and beans, which form a complete protein when combined.

Nonessential Amino Acids

In addition to amino acids derived from protein metabolism, chemicals found in the body are used to produce nonessential amino acids. Nonessential amino acids include alanine, asparagine, aspartic acid and glutamic acid.

Conditional Amino Acids

The body also produces conditional nonessential amino acids. The amino acids in this group are only needed when the body becomes ill or stressed, according to Drexel University College of Medicine. Conditional amino acids include arginine, cysteine, glutamine, tyrosine, glycine, ornithine, proline and serine.

AMINO ACIDS in Humalife humic products

AMINO ACIDS ASSAY		
Product Code	NGHA PWD (Powder)	
Criterion	Result *mg/g (ppt)*	Test Method
Alanine	3.27	Derivative-HPLC
Arginine	2.03	Derivative-HPLC
Aspartic acid	0.02	Derivative-HPLC
Cysteine	4.54	Derivative-HPLC
Glutamic acid	2.41	Derivative-HPLC
Glycine	0.88	Derivative-HPLC
Histidine	0.31	Derivative-HPLC
Isoleucine	8.96	Derivative-HPLC
Leucine	35.01	Derivative-HPLC
Lysine	10.32	Derivative-HPLC
Methionine	7.86	Derivative-HPLC
Phenylalanine	4.68	Derivative-HPLC
Proline	2.15	Derivative-HPLC
Serine	2.10	Derivative-HPLC
Threonine	4.61	Derivative-HPLC
Tryptophan	20.10	Derivative-HPLC
Tyrosine	17.42	Derivative-HPLC
Valine	3.27	Derivative-HPLC
* Results calculated to a 7.5% w/v concentration using NGHA powder test results.		

Functions of Protein

Proteins play a major role in almost all cellular functions. Antibody proteins provide immune protection. The proteins actin and myosin assist the movement and contraction of muscles, including the cardiac muscle, according to the Imperial College London, National Heart and Lung Institute. Protein carriers help transport molecules, such as hemoglobin in the blood, which supplies oxygen to tissues throughout the body. Protein also plays a role in bone growth and repairing tissues, such as muscle. Ligaments, organs, glands, nails and hair are made from proteins. Enzymes are protein molecules that serve as a catalyst in digestion and vital functions. Some hormones are proteins, such as insulin, which regulates blood sugar. Cells in the pituitary gland produce a protein hormone, which controls growth and metabolism.

Endogenous Proteins

“The body’s own proteins such as α1AT not only strengthen our innate immune system, but they could also be used therapeutically in the fight against the pandemic,” the scientists are convinced.

Research has shown that the body’s own protein Alpha 1 Antitrypsin can help the innate immune system to keep the coronaviruses in check and prevent them from multiplying,”

The protein α1AT is known from biology and medicine as the so-called “acute phase protein”. These include special proteins that appear more frequently in infections and tissue injuries. Alpha 1 Antitrypsin has various anti-inflammatory properties in this context.

“But even when there is no inflammation, Alpha 1 Antitrypsin helps to limit immunological collateral damage in the tissue by keeping certain proteases in check,” explains Lukas Wettstein, doctoral student and first author of the study.

Stand up to the viral intruders

The human organism is not completely defenseless against the coronaviruses. This is ensured not only by the pathogen-specific immune defense, but also by numerous **endogenous proteins** that stand up to the viral intruders.

Scientists from the Institute for Molecular Virology at the University Hospital Ulm have now found out that this includes the protein alpha 1 antitrypsin (α1AT).

Antiviral proteins produced by the body

Researchers at the University of Ulm have investigated what antiviral body-own proteins and peptides that humans have in store, which are helpful in the fight against the novel coronavirus.

The scientists came across alpha 1 antitrypsin. According to Message this protein has an antiviral effect by inhibiting a certain cellular enzyme (TMPRSS2), which in turn is crucial for the activation of the viral spike protein of SARS-CoV-2.

The effect: the viruses cannot penetrate the target cell and thus cannot spread any further.