

A Look At The Human Digestive System From Beginning to (Ahem) End

By Lou Lombardo, LMT, NCTMB

The human body is a finely-tuned machine that relies on food as a source of fuel. The breakdown of that food into molecules small enough to be absorbed is a function of the Digestive System.

As a massage therapy student I remember in Anatomy & Physiology class viewing a video on this vital system entitled "*The Digestive System- From Table to Toilet*". Pretty candid if I must say so. And not the most appealing topic to be studying for two solid hours on a hot and humid August night when you know the baseball game is on TV.

But the program was easy to digest, complete with some actual footage of food as it passes from the mouth through various parts of the body (not a show you'd take your first date to).

The digestive system consists of the digestive tract and accessory organs. The digestive tract is sometimes referred to as the alimentary (my dear Watson) canal or gastrointestinal (GI) tract.

This long tube extends from the mouth all the way through the body to the you- know -what. In addition to the mouth, it includes the pharynx, esophagus, stomach, small and large intestines.

The tongue, teeth and salivary glands are accessories to the mouth. The liver, pancreas and gall bladder are not part of this system but they play an important role in the process of digestion.

To better understand the process, let's follow that food from the beginning (table) to the end (toilet).

Unless you're being fed intravenously, food is ingested in our body through the mouth. There, it is mixed with saliva and partially broken down by the chewing action of the masseter and temporalis muscles.

The food leaves the mouth with the aid of the tongue and assumes a new identity- now known as the bolus. It passes through the pharynx by peristaltic actions and is directed into the esophagus, a collapsible muscular tube that connects the pharynx to the stomach.

The stomach is divided into four regions: the cardiac, fundic, body and pyloric. Its capacity averages about one and one-half liters. But some individuals may hold up to four liters (you know who you are).

Once the stomach receives the bolus, the medulla oblongata portion of the brain sends a signal to the gastric glands in the stomach to secrete two to three liters of gastric juices per day. It's no wonder some of us have heartburn.

The combination of the gastric juices and the churning actions of the muscles in the stomach breaks down the bolus into smaller sizes. The resulting mixture is called chyme and it leaves the stomach by peristalsis through the pyloric sphincter and enters the small intestine. (Riddle- What did the pyloric sphincter say to the small intestine? Ans. My chyme is your chyme).

The small intestine is divided into the duodenum, jejunum and ileum. It completes the digestion process with the secretion of the enzymes peptidase, which acts on proteins, maltase, sucrase and lactase which act on simple sugars and lipase which acts on fats. The nutrients from the chyme are absorbed into the body and the remaining waste passes on to the large intestine.

The large intestine is divided into the cecum, colon, rectum and anal canal. Its primary functions are the absorption and recycling of fluids and electrolytes and the elimination of wastes.

Of the major accessory organs, the liver produces and secretes bile that aids in the digestion and absorption of fats and fat-soluble vitamins. The gallbladder stores and concentrates the bile until it is needed. The pancreas secretes digestive enzymes that act on carbohydrates, proteins and lipids (fats).

So, that's the "meat and potatoes" of the digestive system. Although changes in its structure and function take place throughout the process of aging, digestion and absorption are not affected in healthy, older people.

A balanced diet rich in green leafy vegetables like collards, romaine lettuce and kale as well as whole grains will keep this system running smoothly (so to speak) and has also been known to prevent certain types of cancer such as colon and colo-rectal. Exercise also plays an important role in maintaining a healthy digestive system. And without getting into unnecessary details, massage therapy also assists the digestive system in doing its job.

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