



Introduction to the Digestive System

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Introduction

The gastrointestinal system is liable for the processing and uptake of nutrition. Every cell in an organism needs energy and an array of nutrients to stay alive. Humans ingest a variety of foods; these can be classified by their nutrition content as carbohydrates (sugars), lipids (fats), and proteins. After ingestion and mastication, the food particles move from the mouth into the pharynx, then into the esophagus. This movement is deglutition, or swallowing. Mixing movements occur in the stomach as a result of smooth muscle contraction. These repetitive contractions usually occur in small segments of the alimentary canal and blend the food particles with enzymes and other fluids. The movements that propel the food particles through the digestive tract are called peristalsis. These are rhythmic waves of contractions that move the food particles through the various regions in which mechanical and chemical digestion takes place. The alimentary canal in insects extends from mouth to anus which is divided into an anterior stomodaeum, middle midgut and posterior hindgut. The foregut and hindgut are ectodermal in origin whereas the midgut is endodermal in origin compared to the carnivores (or) sap suckers, the phytophagous solid feeders possess longer alimentary tract. The gastrointestinal tract (GI Tract), also referred to as the digestive tract or alimentary canal, includes the oral cavity, pharynx, esophagus, stomach, small intestine, large intestine, and anus. The accessory digestive organs (salivary glands, liver, gallbladder, and pancreas) work in conjunction with the GI tract. The teeth and tongue allow us to mechanically break down and swallow our food. The digestive tracts of 44 specimens of *Schizodon kneri* were studied using anatomical, histological and histochemical techniques. The mouth has terminal position, the lip epithelium is squamous stratified with mucous, claviform cells and taste buds, teeth have an incisive form and therefore the tongue features a stratified squamous epithelium with mucous cells and taste buds. The oropharynx cavity is made by gill apparatus and pharyngeal teeth. The oesophagus presented pleated mucosa, a stratified squamous epithelium with mucous cells, oesophageal glands and taste buds. The stomach presented cardiac, fundic and pyloric regions,

simple prismatic epithelium with tubular glands, with none within the pyloric region. The intestine contains 11- 15 pyloric caeca, an easy prismatic epithelium with brush border, goblet cells and lymphocytes. Increased stress can cause excess production of the strain hormone cortisol, which successively can negatively affect the gastrointestinal system. This is because the "fight or flight" response to worry, quantified by changing cortisol levels, prioritizes blood flow to the guts and brain, temporarily sacrificing less vital organs like those in the digestive system. Historically, this diversion was necessary during a state of emergency when the cortisol spike was warranted. Many modern-day humans, though, experience chronic activation of the "fight or flight" response as a results of boosted cortisol levels from everyday stress. Thus, these same humans constantly experience the detrimental digestive effects of "fight or flight," even when there's no emergency driving the response. These stressful instances have shown a capability to negatively influence the microbial populations in the lower GI. Increased stress can cause excess production of the strain hormone cortisol, which successively can negatively affect the gastrointestinal system. This is because the "fight or flight" response to worry, quantified by changing cortisol levels, prioritizes blood flow to the guts and brain, temporarily sacrificing less vital organs like those in the digestive system. Historically, this diversion was necessary during a state of emergency when the cortisol spike was warranted. Many modern-day humans, though, experience chronic activation of the "fight or flight" response as a results of boosted cortisol levels from everyday stress. Thus, these same humans constantly experience the detrimental digestive effects of "fight or flight," even when there's no emergency driving the response.¹² These stressful instances have shown an ability to negatively influence the microbial populations in the lower GI. Saliva is secreted by digestive glands called salivary glands. The mouth is not the only organ in the digestive tract to have glands. Although some organs, such as the oesophagus and large intestine, do not have any glands at all. The colon is like a waste treatment works. It contains numerous bacteria which help during this process. In fact, the load of the bacteria in an adult colon is bigger than the load of any organ within the body. After all the nutrients are absorbed within the intestine, the leftover liquid waste passes from the tiny intestine into the massive intestine. The large intestine then processes this liquid waste into solid bowel motions. This is done by absorption of fluid through the large intestine surface into the blood stream. Peristalsis pushes the motion down into the rectum or back passage where it's stored until it's time to empty the bowels. Esophageal motility disorders and esophageal reflux are common, produce a wide range of symptoms, and compromise quality of life. Neural and muscle-based mechanisms contribute to altered function of the lower esophageal sphincter, creating problems if it is too relaxed or too constricted. Improvements in diagnosis and treatment have improved the management of these disorders.