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Smoking... & the Gastrointestinal Tract

An estimated one-third of all adults smoke. The role of smoking in the development of emphysema, lung cancer and heart disease is well known. What are the effects of smoking on the digestive tract?

Esophagus

Heartburn occurs when stomach juices flow upward and irritate the lining of the esophagus. This occurs when the normal barrier to reflux, the muscular valve located between the esophagus and stomach (lower esophageal sphincter), becomes weakened.

The stomach juices contain large amounts of acid, often along with bile and digestive enzymes which may have flowed into the stomach from the intestine, all of which are highly irritating to the esophagus. This irritation, over time, develops into sufficient injury to cause the typical burning pain in the mid-chest known as heartburn.

Smoking decreases the strength of the lower esophageal sphincter, promoting more reflux of stomach contents into the esophagus.

In addition, smoking may augment the flow of bile salts from the intestine into the stomach, providing more injurious stomach juice.

Finally, the act of smoking may cause direct injury to the lining of the esophagus. In addition to esophagitis, smoking appears to increase the likelihood of developing cancer in the esophagus. An estimated 54% of esophagus cancer could be prevented if smoking were eliminated.

Stomach and Duodenum

Peptic ulcers are sores or raw areas in the lining of the stomach or duodenum (first part of the small intestine, just below the stomach).

Ulcers may be caused by medications such as aspirin or ibuprofen, by a bacterium called *Helicobacter pylori*, by excessive levels of stomach acid, or possibly other causes. Smoking and alcohol may also play a role.

Although the manner in which smoking is linked to ulcer disease is unclear, it is known that ulcers occur more frequently in smokers, that ulcers heal more slowly in smokers, and that, even after healing, ulcers are more likely to recur in individuals who smoke.

In addition to ulcers, smoking has also been implicated in the development of cancer in the stomach. Elimination of smoking would prevent an estimated 35% of stomach cancer.

Liver

The body depends upon the liver to remove drugs, chemicals, alcohol and other toxins from the body. A variety of medications are known to affect the liver's ability to perform this function. There is evidence that smoking also impairs the ability of the liver to metabolize these substances. As a result, the body's levels of medications may be altered, necessitating a change in dosage. The liver itself may become more susceptible to injury from alcohol, increasing the risk of cirrhosis.

Pancreas

Smoking is the most consistently reported risk factor in cancer of the pancreas. Smokers have a 70% increased risk of developing cancer of the pancreas. Elimination of smoking would eliminate an estimated 27-33% of pancreatic cancer.

Colon

The risk of developing colon polyps and colon cancer is increased in smokers. Elimination of smoking might eliminate 16-22% of colon cancers. Some researchers have recommended that cigarette smoking be considered an independent risk factor for colon cancer, justifying colon screening at an earlier age.