Smoking and Your Digestive System

Cigarette smoking causes many life-threatening diseases. These include lung cancer, other cancers, emphysema, and heart disease. About 430,000 deaths each year are directly caused by cigarette smoking. Smoking results in disease causing changes in all parts of the body. This includes the digestive system. This can cause serious effects, since the digestive system converts foods into nutrients the body needs to live.

Smoking has been shown to have harmful effects on all parts of the digestive system. It adds to common disorders, such as heartburn and peptic ulcers. It also increases the risk of Crohn's disease, and possibly gallstones. Smoking seems to affect the liver by changing the way it handles drugs and alcohol and removes them. In fact, there seems to be enough evidence to stop smoking based solely on digestive distress. Some of the harmful effects of smoking are:

- **Heartburn (*acid reflux*).** Heartburn happens when acidic juices from the stomach splash into the esophagus, which has a more sensitive and less acid resistant lining than the stomach. Normally, a muscular valve at the lower end of the esophagus keeps out the acid solution in the stomach. Smoking decreases the strength of the esophageal valve and its ability to keep out acidic stomach contents. This allows stomach acid reflux, or flow backward into the esophagus.
- Smoking also seems to promote the **movement of bile salts** from the intestine to the stomach. This makes stomach acids more harmful.
- A **peptic ulcer** is an open sore in the lining of the stomach or duodenum (*first part of the small intestine*). The exact cause of ulcers is not known. A link between smoking cigarettes and ulcers, especially duodenal ulcers, does exist. Ulcers are more likely to occur, less likely to heal, and more likely to cause death in smokers than in nonsmokers.
- Some research suggests that **smoking might increase a person's risk of infection** with the bacterium Helicobacter pylori (*H. pylori*). Most peptic ulcers are caused by this bacterium.
- Stomach acid is also important in causing ulcers. Normally, most of this acid is buffered (*neutralized*) by the food we eat. Most of the unbuffered acid that enters the duodenum is quickly neutralized by sodium bicarbonate. This is a naturally occurring alkali, produced by the pancreas. Some studies show that smoking reduces the bicarbonate produced by the pancreas. This interferes with the neutralization of acid in the duodenum. Other studies suggest that chronic cigarette smoking may increase the amount of acid produced by the stomach.
- Whatever causes the link between smoking and ulcers, two points have been repeatedly shown. People who smoke are more likely to develop an ulcer, especially a duodenal ulcer. **Ulcers in smokers are less likely to heal quickly** in response to otherwise effective treatment. This research strongly suggests that a person with an ulcer should stop smoking.
- The liver is an important organ with many tasks. One task of the liver is to prepare drugs, alcohol, and other toxins for elimination (*removal*) from the body. There is evidence that **smoking alters the ability of the liver** to effectively handle such substances. In some cases, this may influence the dose of medicine needed to treat an illness. Some research suggests that smoking can aggravate and speed up the course of liver disease caused by excessive alcohol intake.
- Studies have shown that smokers have weaker or less frequent stomach contractions while smoking, which can cause less efficient digestion.
- Crohn's disease causes inflammation deep in the lining of the intestine. The disease causes pain and diarrhea. It usually affects the small intestine, but it can occur anywhere in the digestive tract. Research shows that current and former **smokers have a higher risk of developing Crohn's disease** than nonsmokers. Among people with the disease, smoking is linked with a higher rate of relapse, repeat surgery, and immunosuppressive treatment. In all areas, the risk for women who are current or former smokers, is slightly higher than for men. Why smoking increases the risk of Crohn's disease is unknown.
- Several studies suggest that **smoking may increase the risk of developing gallstones**. The risk may be higher for women. Research results on this topic are not consistent. More studies are needed.
- Oral (lip, mouth) cancer and cancer of the pharynx (throat) and the esophagus are caused by smoking.

Smoking may be associated with pancreatic cancer.

- Some of the effects of smoking on the digestive system seem to be short-lived. For example, the effect of smoking on bicarbonate production by the pancreas does not appear to last. Half an hour after smoking, the production of bicarbonate returns to normal. The effects of smoking on how the liver handles drugs also disappear when a person stops smoking. However, people who no longer smoke still remain at risk for Crohn's disease.

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