



## Bile Salts

### **Control Gallstones & Excess Cholesterol**

Bile is produced by the liver and stored in the gallbladder. It is secreted into the duodenum, the first section of the small intestine. Here, bile breaks down fats and converts them into usable fatty acids.

Bile helps remove excess cholesterol from the body. Gallstones occur when cholesterol secretion is increased and/or bile acid secretion is decreased. Bile then becomes over-saturated with cholesterol. This sets the stage for stone formation. It is important to know however, that high blood cholesterol levels do not necessarily mean there will be high levels of cholesterol in the bile.

### **Bile's Other Important Functions:**

- Emulsifies fats and fat-soluble vitamins (A, D, K and F), which improves their absorption.
- Removes excess cholesterol
- Helps keep small intestines free from micro-organisms
- Softens stool by promoting the addition of water into the stool
- Carries toxins. The liver filters the toxins and dumps them into the bile. Bile then carries the toxins to the intestines, where they are absorbed by dietary fiber and excreted.

### **Causes of Decreased Bile Production**

As we age, bile production can decrease. Other factors that can cause a decrease in bile production include: oral contraceptive use, other drug use, viral Hepatitis and alcohol consumption.

### **Symptoms of Low Bile Levels**

Symptoms that may be signs of low bile levels include: constipation, poor digestion, gas, excess acid or headaches. These may also be signs of cholestasis, a condition where the excretion of bile is inhibited. This condition causes toxins to stay in the liver longer. Gallstones can be a major cause of cholestasis.

### **Risk Factors for Gallstones**

An estimated twenty million people in the United States have gallstones. Women tend to be at a higher risk for gallstones - about 2.5 times more than men. Approximately 20% of American women and 8% of American men have gallstones.

**GENDER:** Women tend to be at greater risk than men because they have a higher cholesterol synthesis and estrogen decreases the production of bile. Pregnancy, as well as the use of oral contraceptives, and/or elevated estrogen levels dramatically increases the incidence of gallstones.

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**DIET:** A diet high in refined carbohydrates (sugars), high in fat and low in fiber from fruits and vegetables leads to a reduction in bile acid synthesis by the liver and a lower bile acid concentration in the gallbladder. This combined with a high cholesterol diet can increase the risk of gallstones.

**WEIGHT:** Obesity causes an increased secretion of cholesterol in the bile and increases the synthesis of cholesterol. Therefore, obese individuals have a higher risk of gallstones. It is important to know, however, fasting or rapid weight loss causes initial increases in the concentration of cholesterol in the bile.

**DISEASE:** Bile is recycled by the body. About 95% of bile is reabsorbed in the ileum of the small intestine. Diseases such as Crohn's disease and cystic fibrosis can impair the reabsorption of bile acids, thus reducing the bile pool and the rate of bile secretion. Liver diseases such as Hepatitis or cirrhosis can also impair the liver from producing adequate amounts of bile.

**AGE:** Bile production decreases with age and therefore increases the risk of gallstone formation.

**DRUGS:** Oral contraceptives and estrogen therapy can increase gallstone risk. Some cholesterol-lowering drugs increase the risk of gallstones, by increasing the level of cholesterol in the bile.

**LOW LECITHIN CONCENTRATION IN BILE:** Lecithin is a phospholipid. It takes fifty molecules of pure bile salt micelles to enclose a single molecule of cholesterol, while only seven bile salt/phospholipid micelles are required to perform the same job. A food found to be high in lecithin is organic egg yolks.

### **Bile Salts to the Rescue**

Once stones have formed, diet continues to play an important role. Bile supplementation through oral bile capsules will increase the bile/cholesterol balance. Using dehydrocholic or deoxycholic acid in the dissolution of gallstones has produced excellent results according to some studies. Dehydrocholic and deoxycholic acids stimulate the production of bile from the liver.

### **Bile Salts by Dews' Twenty First Century Products**

Each capsules provides 432 mg of bile salt extract NF, which is equivalent to 250mg of sodium dehydrocholic or deoxycholic acid. Each bottle contains 90 capsules. Suggested use: 1-2 capsules, 1-3 times a day.

Phosphoric acid can also aid in the dissolution of gallstones. Phosphoric acid drops can be added to natural apple juice and the mixture consumed for three days. Apple juice is high in pectin, which can also aid in the dissolution of gallstones. One half a cup of olive oil and 1/2 cup of grapefruit juice are then ingested. The olive oil and the grapefruit juice will cause the gallbladder to contract, dispelling the softened stones into the intestines where they can be expelled out of the body.

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