

EXHIBIT B



NUTRITION Evidence Based

# 9 Side Effects of Too Much Caffeine

Coffee and tea are incredibly healthy beverages.

Most types contain **caffeine**, a substance that may boost your mood, metabolism and mental and physical performance (1, 2, 3).

Studies have also shown that it's safe for most people when consumed in low-to-moderate amounts (4).

However, high doses of caffeine may have unpleasant and even dangerous side effects.

Research has shown that your genes have a major influence on your tolerance to it. Some can consume much more caffeine than others without experiencing negative effects (5, 6).

What's more, individuals who aren't used to caffeine may experience symptoms after consuming what is typically considered a moderate dose (4, 7).

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Written by **Franziska Spritzler, RD, CDE** on August 14, 2017

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High caffeine intake has been linked to increased urinary frequency and urgency in several studies. Reducing your intake may improve these symptoms.

## The Bottom Line

Light-to-moderate caffeine intake seems to provide impressive health benefits in many people.

On the other hand, very high dosages may lead to side effects that interfere with day-to-day living and might even cause serious health issues.

Although responses vary from person to person, the effects of high intake demonstrate that more isn't necessarily better.

To get the benefits of caffeine without undesirable effects, conduct an honest assessment of your sleep, energy levels and other factors that might be affected, and reduce your intake if needed.

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COFFEE

OTHER NAME(S): Cafe, Café, Café Arabica, Café Robusta, Caffea, Coffea arabica, Coffea arnoldiana, Coffea bukobensis, Coffea canephora... Show More

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Overview Information

Coffee is a drink made from coffee beans, which are the roasted fruit of the Coffea arabica bush.

People most commonly drink coffee to relieve mental and physical fatigue and to increase mental alertness. Coffee is also used to prevent Parkinson disease, Alzheimer disease, dementia, and cognitive decline. It is also used to prevent gallstones, gout, type 2 diabetes, and certain types of cancer.

Rectally, coffee is used as an enema to treat cancer. Coffee enemas are used as a part of the "Gerson Therapy." In the Gerson Therapy, cancer patients are treated with caffeinated coffee in the form of enemas every four hours on a daily basis. During the

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People most commonly drink coffee to relieve mental and physical **fatigue** and to increase mental alertness. Coffee is also used to prevent Parkinson disease, **Alzheimer disease**, **dementia**, and cognitive decline. It is also used to prevent **gallstones**, **gout**, **type 2 diabetes**, and certain types of **cancer**.

Rectally, coffee is used as an enema to treat cancer. Coffee enemas are used as a part of the "Gerson Therapy." In the Gerson Therapy, cancer patients are treated with caffeinated coffee in the form of enemas every four hours on a daily basis. During the treatment people are given a diet of **liver**, vegetables, and a variety of other **supplements**. This type of therapy is considered an unacceptable medical practice in the U.S.

#### How does it work?

Coffee contains caffeine. Caffeine works by stimulating the central nervous system (CNS), heart, and muscles. Coffee also contains other chemicals that might have other benefits.

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### Side Effects & Safety

Coffee is **LIKELY SAFE** for most healthy adults when consumed in moderate amounts (about 4 cups per day).

Coffee containing caffeine can cause insomnia, nervousness and restlessness, stomach upset, nausea and vomiting, increased heart and breathing rate, and other side effects.

Drinking unfiltered coffee can increase total cholesterol, low-density lipoprotein (LDL) cholesterol, and levels of another type of blood fat called triglycerides. This might increase the risk of developing heart disease. Using coffee filters helps to

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Drinking unfiltered coffee can increase total cholesterol, low-density lipoprotein (LDL) cholesterol, and levels of another type of blood fat called triglycerides. This might increase the risk of developing heart disease. Using coffee filters helps to reduce these effects on cholesterol.

Caffeinated coffee is **POSSIBLY UNSAFE** when taken by mouth for a long time or in high doses (more than 4 cups per day). Drinking large amounts of caffeinated coffee might cause headache, anxiety, agitation, ringing in the ears, and irregular heartbeats. Drinking more than 6 cups daily might cause "caffeineism" with symptoms such as anxiety or agitation. Also, people who drink a lot of caffeinated coffee every day may need to drink more coffee to get the same effects. They may also become "dependent" on coffee to the point that they develop withdrawal symptoms if they suddenly stop drinking it.

There is some concern that drinking more than 5 cups of coffee per day might not be safe for people with heart disease. But for people who don't have heart disease, drinking several cups daily does not seem to increase the chance of developing a heart problem. There is also concern that occasional coffee drinking might trigger a heart attack in some people. People who usually don't drink more than one cup of coffee daily and also have multiple risk factors for heart disease seem to have an



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