

Is decaffeinated coffee safe to drink? ^[1]

Dear Alice,

Do you have information regarding decaffeinated coffee and its negative health impact? I have heard that the process used to produce decaffeinated coffee, or the ingredients thereof, do more harm than good.

— Curious

Answer

Dear Curious,

In order for coffee to qualify as decaffeinated, it must have at least 97 percent of its caffeine removed. What does that chock up to? An eight-ounce cup of decaf coffee would have no more than five or fewer milligrams (mg) of caffeine (compared to the range of 40 to 180 mg typically found in one eight-ounce cup of brewed, dripped, or percolated java). Your concern over the safety of decaffeinated coffee probably stems from solvents used in the past.

Today, most processors use safe methods to remove caffeine. A few different techniques are available, and understanding them may help allay your concerns about coffee contaminants. Coffee beans are decaffeinated by softening the beans with water and using a substance to extract the caffeine. Water alone cannot be used because it strips away too much of the flavor. The goal is to extract the caffeine with minimal loss of flavor. Substances used to remove the caffeine may directly or indirectly come in contact with the beans, and so the processes are referred to as direct or indirect decaffeination.

In one process, coffee beans are soaked in water to soften them and dissolve the caffeine. The water containing the caffeine (and the flavor from the beans) is treated with a solvent, heated to remove the solvent and caffeine, and then returned to the beans. The flavors in the water are reabsorbed by the beans, which are then dried. This process is referred to as "indirect decaffeination," because the beans never touch the solvent themselves. The most widely used solvent today is ethyl acetate, a substance found in many fruits. When your coffee label states that the beans are "naturally decaffeinated," it is referring to this process, specifically using ethyl acetate. Although it doesn't sound like a natural process, it can be labeled as such because the

solvent occurs in nature. Other solvents have been used, some of which have been shown to be harmful. One, methylene chloride, has been alleged to cause cancer in humans and therefore isn't often used. Back in the 1970s, another solvent, trichloroethylene, was found to be carcinogenic and is no longer used.

Another indirect method soaks the beans in water to soften them and remove the caffeine, and then runs the liquid through activated charcoal or carbon filters to decaffeinate it. The flavor containing fluid is then returned to the beans to be dried. This charcoal or carbon process is often called "Swiss water process" (developed by a Swiss company). If your coffee is labeled naturally decaffeinated or Swiss water processed, you can be assured that no harmful chemicals are used. If you are uncertain, you can ask or call your coffee processor to learn about the method used.

A direct decaffeination process involves the use of carbon dioxide as a solvent. The coffee beans are soaked in compressed CO₂, which removes 97 percent of the caffeine. The solvent containing the extracted caffeine evaporates when the beans return to room temperature.

So go ahead and enjoy that cup of joe — caffeine free!

Alice!

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