

# **The Effect of Caffeine and Coffee on Weight Loss**

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Weight loss is an obsession for many Americans. The prevalence of adults who are overweight is at an all-time high with the percentage currently hovering at 65 percent, of whom 30.5 percent are considered obese. Rates of weight gain and obesity are dangerously increasing in children as well. Carrying excess weight not only hastens early mortality, but being overweight is associated with many chronic diseases, including: diabetes, high cholesterol, high blood pressure, cardiovascular disease and increased incidence of cancer.<sup>1</sup> Research has found that caffeine and coffee negatively affect many of these health conditions that are prevalent in overweight people. Additionally, both caffeine and coffee contribute to increased appetite that thwarts the efforts of people on diets to stick to their regime.

Americans spend more than \$33 billion annually on weight loss products and services.<sup>2</sup> The popularity of nutritional supplements for weight-loss such as the FDA banned ephedra & caffeine diet pills and the newer weight-loss supplements that are rapidly filling the void left by ephedra, reflects the desperation of people attempting to lose weight.

The use of so-called weight loss supplements is generally discouraged as they have negative health effects and for the weight loss to be sustained, they may have to be taken on a long-term basis. Caffeine is often an ingredient in weight-loss formulas. Since caffeine is a stimulant, it is thought that it enhances fat metabolism and encourages weight loss. Many people believe their daily mug of coffee or other caffeinated drink helps them to lose weight or keep weight off. However, the diuretic effect of caffeine is what appears to create weight loss, and this causes loss of water, not fat. Reputable practitioners, like the Mayo Clinic, debunk the myth of caffeine for weight loss and discourage its use as a weight loss aid.<sup>3</sup>

Caffeine intake often perpetuates many of the factors contributing to weight gain and continued obesity. Coffee and caffeine intake aggravates stress, including physical, mental, and emotional stress, leading to increased levels of the glucocorticoids including cortisol. A well documented relationship exists between chronically elevated levels of these stress hormones and deposition of excess fat in the abdomen leading to obesity as well as increased caloric intake, particularly increased ingestion of fats and sugars.<sup>4</sup>

Of all the dietary habits that people find difficult to change, coffee drinking is one of the most challenging because it is so entrenched in cultural habits and caffeine addiction.<sup>5</sup> Withdrawal symptoms can involve painful headaches, nausea, vomiting, and loose stools, as well as depression, fatigue and anxiety.<sup>6,7</sup> People whose health problems would be ameliorated if they gave up coffee can improve their chance for successfully quitting coffee if they have both a satisfying alternative and a method to slowly decrease their caffeine intake to reduce withdrawal symptoms.

## **The following characteristics of coffee have an adverse effect on weight loss:**

- **Coffee Elevates Stress Hormones**
  - Caffeine in coffee elevates the stress hormones cortisol, epinephrine (also known as adrenaline) and norepinephrine.<sup>8,9,10,11</sup> These hormones are responsible for increased heart rate and blood pressure, and a sense of “emergency alert”. Circulation of oxygen to the brain and extremities is decreased and the immune system is suppressed.

- The purpose of this “fight or flight” response is to provide the body with a temporary energy boost for intense physical activity. With today’s sedentary lifestyle, the continual state of increased stress resulting from caffeine consumption can negatively affect weight control through disruptions in normal metabolism.
- **Increased Cortisol Levels Lead to Abdominal Obesity**
  - Chronically elevated blood cortisol levels that are caused by frequent stress or regular caffeine or coffee intake lead to an increased buildup of fat in the abdominal area; this type of weight gain further stimulates the release of additional stress hormones.<sup>12</sup>
- **Increased Stress Leads to Overeating**
  - This chronic state of increased stress caused by caffeine is associated with a markedly increased tendency to overeat. CNS stimulants stimulate anxiety and caffeine consumption increases the tendency of people to overeat or binge-eat and abuse laxatives and diet pills.<sup>13,14</sup>
  - Coffee drinking increases physiological measurements of stress, and although this effect is greater with increased caffeine levels, decaffeinated coffee may also influence stress as factors other than caffeine in coffee are associated with stress.<sup>15</sup>
  - Elevation of stress hormones leads to fat cravings.<sup>16</sup>
  - Elevated levels of cortisol increase appetite.<sup>17</sup>
- **Caffeine Exacerbates Insulin Resistance Syndrome**
  - Caffeine ingestion contributes to insulin resistance and impairs glucose and insulin homeostasis as part of the stress response.<sup>18,19</sup> Even moderate amounts of coffee can have this effect.<sup>20</sup>
  - Obesity, high blood pressure, impaired glucose metabolism and elevated LDL and lowered HDL blood lipids cluster to generate insulin resistance syndrome. Stress and the release of corticosteroids contribute to the pathogenesis of this syndrome. When people with this syndrome drink coffee as a weight-loss aid, it negatively affects all the conditions associated with this syndrome.<sup>21,22</sup>
  - Drinking coffee can cause insomnia and sleep deprivation, both of which have been found to increase insulin resistance.<sup>23</sup> People who are deprived of adequate deep sleep, and are in situations of sleep debt have lower levels of glucose tolerance, greater insulin resistance, increased concentrations of blood cortisol and stimulation of the sympathetic nervous system.<sup>24,25</sup>
- **Caffeine Stimulates Appetite**
  - Although caffeine is included as an ingredient in many weight-loss aids, it actually stimulates appetite, and organizations including the Mayo Clinic<sup>26</sup> discourage the use of caffeine as a weight-loss aid. Initially caffeine may decrease appetite through its central nervous system response. However, subsequently caffeine increases cortisol levels and higher levels of cortisol can stimulate appetite.<sup>27,28</sup>
  - Caffeine triggers hypoglycemia through the activation of the sympathetic nervous system and the adrenal glands, causing an immediate and sustained constriction of blood vessels, decreased circulation to the brain and a heightened feeling of low blood sugar.<sup>29</sup> The body’s reaction to hypoglycemia results in food cravings and increased appetite. People often crave higher calorie foods resulting in increased caloric intake, further interfering with the body’s ability to maintain a healthy weight.<sup>30,31</sup>
- **Coffee Increases Serum Cholesterol Levels**
  - Lipid metabolism is an important factor in weight loss, and drinking coffee is linked to higher levels of serum cholesterol, with particularly high levels noted in people who drink boiled coffee or coffee processed at high temperatures (which includes espresso and espresso drinks).<sup>32, 33</sup> Other forms of coffee including decaffeinated coffee have also been shown to increase serum

cholesterol levels.<sup>34,35</sup> Coffee drinking also demonstrably raises blood levels of low density lipoproteins in one lipid research study<sup>36</sup>, although results in other studies are inconclusive.

- **Caffeine Interferes with GABA Metabolism**

- GABA (Gamma-aminobutyric acid) is a neurotransmitter naturally produced in the brain and nervous system as well as the heart. It plays an important role in mood and stress management and influences a person's sense of well-being.
- Caffeine has been found to interfere with binding of GABA to GABA receptors, preventing it from performing its calming function.<sup>37</sup> GABA's role in stress management is compromised in the presence of caffeine, and increased physiological and psychological stress lead to overeating as well as difficulties losing weight.

**Recommendation:**

Individuals who are trying to lose weight would do well to avoid coffee. Dietary changes that include weaning off of coffee and all other sources of caffeine along with an appropriate diet and exercise program can encourage weight loss. Caffeine increases the reactivity of the body to the stress of everyday life and increased levels of stress negatively affect weight loss.<sup>38</sup> Nutrition professionals can support people who need to lose weight by guiding them through the process of substituting a non-caffeinated, alkaline herbal coffee that brews and tastes just like coffee.

**Kicking the Caffeine Habit:**

The social prevalence of coffee drinking and the addictive side effects of caffeine can cause problems with patient compliance. Caffeine-free herbal coffee marketed under the brand name of Teeccino<sup>®</sup> helps coffee drinkers replace their regular or decaf coffee with a satisfying alternative. Coffee drinkers need a dark, full-bodied, robust brew to help satisfy their coffee craving. Teeccino satisfies the 4 needs coffee drinkers require in a coffee alternative:

- 1) Teeccino brews just like coffee, allowing coffee drinkers to keep their same brewing ritual.
- 2) It has a delicious, deep roasted flavor that is very coffee-like.
- 3) It wafts an enticing aroma.
- 4) People experience a natural energy boost from nutritious Teeccino.

**Teeccino offers the following health benefits for people who need to lose weight:**

<b><u>Beneficial Features of Teeccino</u></b>	<b><u>Teeccino Ingredients:</u></b> <small>40,41,42,43,44,45,46,47,48,49</small>
<ul style="list-style-type: none"> <li>▪ Inulin fiber from chicory                             <ul style="list-style-type: none"> <li>• Unlike coffee, Teeccino has nutritional value, including soluble inulin fiber, a pre-biotic that helps support a healthy population of beneficial microflora.</li> </ul> </li> <li>▪ 65 mg of Potassium                             <ul style="list-style-type: none"> <li>• Teeccino is a source of potassium. In liquid form, potassium is easily absorbed to help relieve muscle fatigue and maintain normal heart rhythm, supporting ability to follow an exercise program.</li> </ul> </li> <li>▪ Alkaline – helps reduce acidity                             <ul style="list-style-type: none"> <li>• As opposed to acidic coffee, Teeccino is alkaline, which reduces stomach hyperacidity.</li> </ul> </li> <li>▪ Gluten Free                             <ul style="list-style-type: none"> <li>• Gluten does not extract into boiling water. Tests show Teeccino is gluten free although it contains barley.</li> </ul> </li> <li>▪ Naturally Caffeine-free                             <ul style="list-style-type: none"> <li>• No chemical processing like decaffeinated coffee.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Carob                             <ul style="list-style-type: none"> <li>• Consumption of water-soluble fiber from carob lowers elevated blood cholesterol.</li> <li>• Carob improves glucose metabolism.</li> </ul> </li> <li>▪ Barley                             <ul style="list-style-type: none"> <li>• Contains niacin, a B vitamin important for healthy heart function and resistance to stress</li> <li>• Improves lipid metabolism.</li> </ul> </li> <li>▪ Almond                             <ul style="list-style-type: none"> <li>• Lowers serum lipid levels.</li> </ul> </li> <li>▪ Figs                             <ul style="list-style-type: none"> <li>• Contain polyphenols, plant compounds that act as antioxidants.</li> <li>• A good source of potassium.</li> </ul> </li> <li>▪ Dates                             <ul style="list-style-type: none"> <li>• Contains potassium and magnesium, important for maintaining heart rhythm. Magnesium deficiency is associated with increased stress response.</li> </ul> </li> <li>▪ Chicory root                             <ul style="list-style-type: none"> <li>• Has been shown to improve mineral absorption, including magnesium.</li> </ul> </li> </ul>

**The Pain-free Way to Wean off of Coffee:**

Start by mixing normal coffee 3/4 to 1/4 Teeccino Herbal Coffee. Gradually reduce the percentage of coffee over a two to three week period until only 100% Teeccino Herbal Coffee is brewed. Gradual reduction of caffeine is recommended.<sup>39</sup> Side effects such as headaches, fatigue, and brain foginess can be avoided as the body gradually adjusts to less reliance on stimulants.

**Example:** Use the following proportions if you make a 10-cup pot of coffee daily:

<b>DAY</b>	<b>Regular Coffee</b>	<b>Teeccino</b>
<b>Day 1-3:</b>	4 tablespoons	1 tablespoon
<b>Day 4-6:</b>	3 tablespoons	2 tablespoons
<b>Day 7-9:</b>	2 tablespoons	3 tablespoons
<b>Day 10:</b>	1 1/2 tablespoons	3 1/2 tablespoons
<b>Day 11:</b>	1 tablespoon	4 tablespoons
<b>Day 12-13:</b>	1/2 tablespoon	4 1/2 tablespoons
<b>Day 14:</b>	0	5 tablespoons

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