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THE HARMFUL EFFECTS OF CAFFEINE

Caffeine containing beverages, such as coffee and black teas, have no nutritional value but are consumed for their stimulating effects. For a long time, the popularity of caffeine has led people to ignore the initial discoveries of caffeine's harmful effects on health. Now the dangers are fairly clear, and it is hard to refute the evidence of the many difficulties generated by this addictive drug. Possible negative effects from caffeine use and abuse include the following:

Negative Influence on Vitamins and Minerals:

- Caffeine's diuretic effect causes loss of potassium, calcium, magnesium, zinc and other minerals. It also causes the loss of water-soluble vitamins like the B Vitamins (especially thiamin, B1) and Vitamin C.
- Caffeine, and particularly coffee, reduces absorption of iron and calcium, especially when it is drunk around mealtime. These minerals are extremely important for women. Osteoporosis and anemia are thus more common with regular coffee users.
- In children and adolescents, caffeinated drinks interfere with the essential minerals needed for growth and development.

Irritation of Gastrointestinal Tract:

- Caffeine promotes ulcer production, aggravates existing ulcers and aggravates heartburn.
- Caffeine stimulates acid secretion in the stomach.¹ Ten and a half ounces of coffee (two small cups) provokes an increase in hydrochloric acid (HCl) output for more than an hour in a healthy person. In someone with an ulcer, the effect is greater, and lasts more than two hours. In addition, caffeine interferes with the healing process in the GI tract.
- Caffeine relaxes the smooth muscle in the colon and can lead to diarrhea. The laxative effect of caffeine can also create a dependency.

¹ Grossman, "Physiologic Approach to Medical Management of Ulcer." *American J. of Digestive Disease. New Series.* 6:56, 1961.

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- The volatile oils in coffee, which create its characteristic flavor and aroma, are called coffeols. They can irritate the lining of the stomach and digestive tract.²

Effects on Cardiovascular System: Caffeine increases the risk of cardiovascular disease, due to a number of negative cardiovascular effects:

- Caffeine raises the blood pressure.³ ⁴ Hypertension is a risk factor in atherosclerosis, and heart disease.
- Caffeine increases cholesterol and triglyceride blood levels, also risk factors in cardiovascular disease.
- Heart rhythm disturbances and arrhythmias, though usually of a mild type, occur with caffeine. Disturbances include a generally increased heart rate⁵ and excitability of the heart nerve conduction system, leading to both palpitations and extra beats.
- Caffeine also increases norepinephrine secretion, which causes some vasoconstriction (restricted blood flow).
- Caffeine inhibits the enzyme phosphodiesterase which is responsible for destroying cyclic AMP. This interferes with the control of fat and blood glucose levels, causing marked and prolonged elevation of blood glucose and free fatty acids. This tends to raise cholesterol levels and thus increase the risk of atherosclerosis.⁶

Effects on Central Nervous System:

- Caffeine has several metabolic effects as a central nervous system stimulant. Common side effects of caffeine use include excess nervousness, irritability, insomnia, "restless legs," dizziness, and subsequent fatigue.
- Headaches commonly occur as a result of caffeine use.

² JAMA. 126:814-820, Nov. 25, 1944.

³ New England Journal of Medicine. 250:845. 1954.

⁴ Cole, Phillip, Lancet. June 26, 1971, p. 1335.

⁵ Myers, Medical Pharmacology, Lange Publishing, Los Altos, CA, p.112, 1970.

⁶ "Coffee Drinking and Acute Myocardial Infarction". report from the Boston Collaborative Drug Surveillance Program. Lancet. Dec. 16, 1972, p.1278.

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- Psychological symptoms of general anxiety or panic attacks may also occur.
- Hyperactivity and bed wetting may also develop in children who consume caffeine.

The Exhausting Effects of Caffeine:

- The adrenal exhaustion/stress/fatigue/hypoglycemia syndrome is associated with caffeine use.
- Both stress and sugar intake tend to pressure and weaken the adrenal function, resulting in increased fatigue.
- Caffeine can override this fatigue and stimulate the adrenals, eventually leading to chronic fatigue, adrenal exhaustion, and subsequent inability to handle stress and sugar intake.
- Caffeine has an overall effect of increasing blood sugar (especially when it is sweetened), by stimulating the adrenal glands.
- Caffeine decreases the amount of sleep people get but does not decrease the need for sleep. Thus, coffee users often suffer from sleep deprivation.

Association of Caffeine Intake with Increased Cancer Incidence:

- Bladder cancer is associated with caffeine intake. Bladder cancer is aggravated by the combination of nicotine and caffeine due to the mild dehydration that results from the use of these two drugs.
- The occurrence of ovarian cancer is increased in women with an association of long-term coffee intake.
- Pancreatic cancer, which is very deadly, has also been in question as occurring more frequently with increased coffee use (more than three cups per day).
- Prostate enlargement and cancer may also be attributed to increased caffeine intake.
- There is a higher incidence of stomach cancer with more than five cups per day.

Addictions: Experiments with animals show when coffee is added to the diet, animals voluntarily drank more alcohol than the amount consumed without coffee.

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Kidneys: Caffeine is also correlated with kidney stones, possibly as a result of its diuretic effect and of the effects of chemicals used in processing coffee.

Fibrocystic Breast Disease: Fibrocystic breast disease may also be consequence of caffeine use. Some women are more sensitive to caffeine use and they experience increases in size and number of cysts with increased use of caffeine. They experience a reduction of disease when they stop using caffeine.

Special Concerns During Pregnancy:

- Birth defects have been noted with higher levels of caffeine use during pregnancy. Caffeine crosses the placenta and affects the fetus.
- Caffeine has mutagenic effects. It breaks chromosomes in the nuclei of cells. It interferes with the repair of DNA.
- Spontaneous abortions are more frequent with coffee drinking early in pregnancy.
- Caffeine also gets into breast milk, so it is wise to limit its use during the nursing period to prevent having a jittery and irritable baby.

COMMON SYMPTOMS OF CAFFEINE ABUSE

Nervousness	Headache	Increased heart rate
Anxiety	Upset stomach	Irregular heartbeat
Irritability	GI irritation	Elevated blood pressure
Agitation	Heartburn	Increased cholesterol
Tremors	Diarrhea	Nutritional deficiencies
Insomnia	Fatigue	Poor concentration
Depression	Dizziness	Bed wetting

COMMON SYMPTOMS OF CAFFEINE WITHDRAWAL

Headache	Constipation	Runny nose
Craving	Anxiety	Nausea
Irritability	Nervousness	Vomiting
Insomnia	Shakiness	Cramps
Fatigue	Dizziness	ringing in the ear
Depression	Drowsiness	Feeling of cold

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Apathy

Inability to concentrate

Tachycardia.

What About That Cup of Tea? The effects of tea are similar to coffee:

- Contains caffeine.
- Contains irritating coffeols.
- Contains tannic acid, which retards digestion with strong brew.
- Contains theophylline, which is six times worse than caffeine in inhibiting prostaglandins.
- Six times worse in releasing fats and sugars into the blood stream; therefore, six times worse in aggravating coronary heart disease.

COMMON SOURCES OF CAFFEINE

What Common Beverages Contain Caffeine?

Yerba maté

Kola nut

Many soft drinks

Coffee (120 mg in 6 oz)

Guarana root

Cocoa/chocolate

Tea (100 mg. in 6 oz)

Caffeine content of common foods, beverages and medications:

BEVERAGES	SERVING SIZE	CAFFEINE (in mg)
Coffee, drip	8 oz	175-245
Coffee, perk	8 oz	95-200
Coffee, instant	8 oz	65-170
Coffee, decaffeinated	8 oz	3-8
Tea, steeped 5 minutes	8 oz	65-160
Tea, steeped 3 minutes	8 oz	30-80
Hot cocoa	8 oz	3-16
Caffeinated soft drinks	12 oz	35-55
FOODS		
Milk chocolate	1 oz	1-15
Bittersweet chocolate	1 oz	5-35

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Chocolate cake

1 slice

20-50

OVER THE COUNTER DRUGS

DOSE

CAFFEINE (in mg)

Anacin, Emprin or Midol

2 capsules or tablets

65

Excedrin

2 capsules or tablets

130

NoDoz

2 capsules or tablets

200

Aqua-Ban (diuretic)

2 capsules or tablets

200

Dexatrim (weight control aid)

1 capsule or tablet

200

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