

Caffeine - description, benefits, effects on the body and the best sources

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Abstract. Many unconfirmed facts, myths and legends are associated with the effects of caffeine on the body. What properties characterize this substance, and how does it affect humans? Let's figure it out together.

Key words: Caffeine, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Products with the highest caffeine content:

- Coffee beans
- Instant coffee
- Guarana fruit
- Black tea
- Green tea
- Mate
- Kola nuts
- Cocoa
- Decaffeinated coffee
- Green coffee [1]
- Chocolate black

General characteristics of caffeine

Caffeine is a well-known natural stimulant. It has pronounced tonic properties. Made from plant materials (coffee, tea, guarana, mate).

Available in tablets, it is included in some dietary supplements and products for athletes. It is found in many medications for headaches and asthma.

The effects of caffeine on the human body are not clear. It can be characterized as either positive or negative. In very large quantities it is toxic.

Daily caffeine requirement

Caffeine is not a vital substance for the body. Doctors recommend taking 1-2 tablets per day for the first week if migraines occur. Then take 1 tablet of a drug containing caffeine for no more than 1 month.

Bodybuilding experts recommend taking caffeine in an amount of 3 mg per 1 kg of weight 30 minutes before training. This dosage of the substance can increase the body's performance by 20%. To make it

easier to navigate the amount of caffeine, you can use this guide. 1 cup of tea (237 ml) contains 100 mg of caffeine.

The need for caffeine increases

- for diseases accompanied by depression of the central nervous system;
- with frequent spasms of cerebral vessels (migraines [2] and other types of headaches);
- with reduced mental activity;
- in states of shock, in a state of collapse, with the threat of loss of consciousness;
- with low physical performance, weakness and drowsiness;
- with hypotension;
- asthma [3];
- when diagnosed with enuresis in children;
- when losing weight;
- for breathing problems and diseases such as idiopathic apnea in newborns.

The need for caffeine is reduced:

- with high blood pressure;
- for chronic diseases of the heart and blood vessels;
- with atherosclerosis;
- weak nervous system;
- for oncological diseases;
- for neuropsychiatric disorders;
- for sleep disturbances (insomnia) [4];
- for glaucoma (contraindicated);
- in old age;
- in children (due to the lability of the nervous system);
- in preparation for pregnancy (excess caffeine reduces the possibility of fertilization);
- during pregnancy and breastfeeding.

Caffeine Absorption

Caffeine is easily absorbed by our body, but it irritates the mucous membranes of the gastrointestinal tract and clogs the body.

Beneficial properties of caffeine and its effect on the body

The effect of caffeine on the body was studied by I.P. Pavlov. Studies have shown that caffeine enhances arousal processes in the cerebral cortex. It also affects the increase in physical activity.

Caffeine stimulates performance, while significantly reducing the feeling of fatigue and drowsiness. Using caffeine helps prevent blood clots.

It is noted that coffee lovers are 2 times less likely to suffer from such a terrible diagnosis as a stroke. In addition, coffee increases the body's perception of insulin. This fact suggests that the body is well protected from type 2 diabetes.

So, with fairly moderate consumption, the substance has the following features:

- is a stimulant that reduces the feeling of drowsiness and fatigue;
- improves mood [5];
- sharpens the functioning of the senses;
- protects against strokes;
- is a stimulator of active blood circulation;
- accelerates metabolism [6], stimulates fat burning;
- used for vascular spasms;
- used as an antidepressant of natural origin [7].
- causes an increase in mental and physical activity;
- acts as a trainer for the heart and blood vessels, by increasing the frequency of contraction of the heart muscle.

Interaction with Essential Elements

It is not recommended to consume caffeine and caffeine-containing products immediately after meals. This may negatively affect the absorption of some vitamins and microelements (magnesium, calcium and sodium [8-10]).

Caffeine has a mild diuretic effect [11]. If you use caffeine in large quantities, dehydration may occur.

Interacts with analgesics, increasing their bioavailability to the body.

Signs of a lack of caffeine in the body:

- low blood pressure;
- reduced blood cholesterol levels;
- fast fatiguability;
- decreased mental and physical activity;

Signs of excess caffeine in the body:

- hyperactivity and agitation;
- insomnia;
- hypertension;
- tachycardia, cold sweat;
- dry mouth;
- nausea and vomiting;
- frequent urination;
- tinnitus;
- state of anxiety, unjustified anxiety, "tremor";
- depression, fatigue;
- drowsiness (at very high dosages);
- confusion of consciousness.

Factors affecting caffeine levels in the body

In order for the level of caffeine in the body to be normal, a nutritious diet that includes foods containing it is sufficient. In this case, it is worth paying attention to the individuality of the body: diseases, age, chronic diseases, intolerances and allergies.

Caffeine for beauty and health

Caffeine increases the strength and performance of muscles, promotes their intense contraction. Athletes are allowed to use caffeine before training. Caffeine as a doping is prohibited in competitions.

The benefits of caffeine for creating a strong and beautiful body is the topic of many discussions. There is no definitive answer about the advisability of using it before training.

Caffeine is also an essential component of weight loss creams.

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