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EFFECTS OF CAFFEINE ON THE HUMAN BODY

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Resume. *Caffeine is probably the most frequently ingested pharmacologically active substance in the world. It is found in common drinks (coffee, tea, soft drinks), foods and medications. Because of its wide consumption, the public and the scientific community have expressed interest in the potential for caffeine to produce adverse effects on human health. This report summarizes the available data on its effects.*

Keywords: *health; caffeine; addiction.*

Relevance. Many cultures have given an important place to caffeine-containing foods and drinks. Caffeine is a naturally occurring substance found in many plants, including coffee beans and tea leaves. Kola nuts and cacao pods also contain caffeine. Caffeine can also be man-made, and it is added to many of our foods and drinks. Many over-the-counter and prescription medications contain caffeine.

So caffeine is one of the best studied food ingredients, but scientific research has not exhausted all we should know about it.

Most of us consume caffeine in one form or another: caffeine's in our coffee, tea, soft drinks, and chocolates. The nervous system stimulant is even found in some medicines we take, including over-the-counter pain killers. Caffeine is such an integral part of our dietary lives that it’s important to know the pluses and minuses of this common substance.

Aim: to study the impact of caffeine on the human body and the ways to make coffee less harmful.

Tasks:

1. To study the chemical structure and mechanism of action of caffeine.

2. To figure out how caffeine affects the systems of our organism.

3. To find out whether caffeine consumption can protect our organism against some diseases.

Materials and methods. I used native and foreign literature as a source of information, analysed the Caffeine Content Table and compared it with the results I got on how much caffeine we take every day.

Results: caffeine is a psychoactive stimulant. It is a bitter, white crystalline alkaloid, and is closely related chemically to the adenine and guanine contained in deoxyribonucleic acid (DNA) and ribonucleic acid (RNA).

The most important mechanism of action of caffeine is the antagonism of adenosine receptors. Adenosine is a locally released purine which acts on different receptors that can increase or decrease cellular concentrations of cyclic adenosine monophosphate. Caffeine blocks adenosine receptors and inhibits the action of adenosine. Caffeine results in the release of norepinephrine, dopamine and serotonin in the brain and the increase of

circulating catecholamines, consistent with reversal of the inhibitory effect of adenosine.

Caffeine contains antioxidants which protect our cells from free-radical damage. According to some researchers, it's safe for most healthy adults to consume up to 400 milligrams of caffeine per day. People also differ greatly in their sensitivity to caffeine. Scientists have recently discovered a 'slow metabolizer gene': persons with this gene eliminate caffeine more slowly.

It temporarily increases mental processes: it makes us more alert, increases energy levels. It can make it easier for you to concentrate. Caffeine has been shown to reduce the risk of non-insulin dependent diabetes in people with normal blood sugar levels.

One of the studies suggests that consuming three cups of coffee a day may reduce the risk of liver cancer, the risk of mouth and throat cancer by 50%, produce positive effects on the brain, and protect against cardiovascular disease and stroke. There is also growing recent evidence that coffee consumption may help maintain cognitive functions in aging. Scientists believe coffee prevents the body from losing dopamine-transmitting brain cells — the cells Parkinson's disease destroys.

However, other studies indicate that caffeine consumption causes glucose levels to rise slightly in diabetics. When it comes to caffeine, moderation is important.

There are some definite drawbacks to too much caffeine stimulation, including anxiousness, nervousness, irritability, headache, irregular or fast heartbeat, sleeplessness, muscle twitches and tremors. In addition to caffeine's immediate negative side effects, heavy consumption may also increase a woman's chances for a miscarriage and for giving birth to lower-weight babies, or speed up bone loss in postmenopausal women. Even though coffee has antioxidants, if you drink too much of it, it can cause dehydration and wrinkling of the skin as a result.

For some people, caffeine consumption can result in caffeine addiction. When people use caffeine every day, their bodies get used to it, and they don't get "good effects" of feeling more awake and able to concentrate unless they use more of it. When people experience symptoms of caffeine addiction such as headaches, muscle aches, temporary feelings of depression they often just take in more caffeine to make them go away. This cycle is hard to break.

Most people don't think of coffee as a "health drink". And it's certainly not healthy the way most people make it with loads of added sugar or artificial sweeteners and artificial creamers. But there are some ways on how people can make their cup of coffee healthier:

1. Avoid adding any refined sugar or harmful artificial sweeteners. Instead, try to use either a very small touch of **maple syrup** or a natural **or coconut cream**. On the other hand, if you like your coffee black with no sweetener at all, that's the healthiest way.
2. Add cinnamon to coffee.
3. Use filtered water and organic beans.
4. Eat before you drink coffee.

Conclusion: we often rely on caffeine to combat fatigue. Based on the data reviewed, it can be concluded that there is evidence indicating that for the general population of healthy adults, moderate caffeine intake at a dose level of 400 mg a day is

not associated with negative effects such as severe headaches, cardiovascular effects, heartburn, increased incidence of cancer and effects on male fertility. The biggest problem with coffee consumption is caffeine addiction. People require greater dosages to get the same effects. But there are many other ways to overcome fatigue - some food and exercise strategies can help. Green tea, lemon water and pomegranate juice are good alternatives to coffee. Therefore, when it comes to caffeine, it is important to keep the notion of balance in mind.

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