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EFFECT OF ENERGY DRINKS ON THE HUMAN BODY

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Abstract: In the article, effective work carried out by our state in order to provide the population with food products, public safety, diseases caused by the increase in the amount of caffeine in the products, anti-selling measures and information are mentioned.

Keywords: vitamin, taurine caffeine, carnitine, creatine, inositol, inositol, carnitine, creatine, glucuronolactone and ginkgo biloba, methylxanthines, maltodextrin ginseng root extract.

Introduction. On September 7-8, 2023, an international conference on food safety was held in the city of Samarkand of our country. More than 35 representatives of international organizations from more than 30 countries took part in the event. It is certainly not in vain that such large-scale events are held in our country after the COVID-19 pandemic. It was decided to develop specific measures to expand the possibility of using green technologies in the processes from the cultivation of agricultural products to their non-destructive processing. In our country, special attention is paid to the issues of turning agriculture into a more efficient and resource-saving sector, improving the standard of living of the rural population, providing our people with safe and vitamin-rich food products at low and stable prices, and establishing a healthy diet.

Importance. For human health, it is important for everyone to follow the rules of proper storage of food products, comply with the requirements indicated on the label when consuming, and follow the norms of consumption based on relevant recommendations.

Energy drinks contain a lot of caffeine and taurine. Energy drinks sold on the shelves of our country contain substances such as caffeine and taurine. Excessive amounts of these types of substances have a negative effect on human health and psyche, and unfortunately, the amount of these substances in some types of energy drinks is not fully indicated. Taurine in the drink is a substance that accelerates the energy process and develops the nervous system. For example, the daily norm of taurine for the human body is 400 mg. In the composition of some energy drinks, this substance is twice as much, and this will definitely have a serious effect on the health of teenagers.

Caffeine in the drink is a psychostimulant. It can give a temporary feeling of freshness, relieve fatigue, and increase mental activity, but after a certain time (1-1.5 hours) the human body becomes more tired, headaches appear, and it reduces not only mental activity, but also physical activity.

For teenagers and children, it is necessary not to increase the consumption of caffeine more than 60 mg weekly. One energy drink should contain no more than 30 mg of caffeine on average. In most countries, it is strictly prohibited by law to advertise and sell these types of drinks to persons under 18 years of age.

On 09.01.2019, the Law of the President of the Republic of Uzbekistan No. O'RQ-514 "On amendments and additions aimed at improving mechanisms for ensuring public order" was adopted. In Article 221 of the Law, the law on regulation of advertising of energy drinks was adopted.

In this article

- advertising of this type of drinks on television and radio from 7:00 a.m. to 10:00 p.m.;
- free distribution among minors and youth under 18 years of age in advertising;
- organizing various events and promoting the drink among minors using the name and trademark of the drink;
- sale and distribution of goods (T-shirts, hats and other products) bearing the name, trademark and image of the energy drink;
- Advertising in printed publications intended for children, in medical, sports and educational institutions is strictly prohibited.

But unfortunately, these types of drinks are sold in shops near schools and vocational colleges.

The number of drinks of this type is increasing year by year in our country. However, it is important for all countries to control the sale of the product and its composition, and to study the impact of the product on people. In the research part, the effects of this type of drinks on the cardiovascular, gastrointestinal, kidney, and dental systems are presented.

Research part. If we analyze the composition of this type of energy drinks, the drink contains water, sugar (glucose, fructose), acidity regulators, (citric acid, sodium citrate), flavoring agents, antioxidants, (ascorbic acid, taurine), caffeine, coloring substances, (sugar choller, riboflavin), amino acids (taurine, carnitine, creatine) inositol, inositol, carnitine, creatine, glucuronolactone and ginkgo biloba, methylxanthines, maltodextrin ginseng root extract, group B vitamins (B6 and B12) and other substances are widely used. The average age of drinking this type of drink is 13-35 years old. Although there is some information on the negative effects of energy drinks on human health, the manufacturers emphasize the safety of these types of drinks [3; 468-474-b].

Effects of drinking on the cardiovascular system. In a series of studies conducted by scientists from England, Germany and Great Britain, after consuming energy drinks, heart rate and arterial blood pressure increased. According to the results of investigations, these changes were due to the energetic effect of caffeine in the drink [4;

168-172-b]. In 14-16-year-olds, as a result of regular consumption of this drink, it caused heart rhythm disturbances, irregular heartbeat, contraction or slowing down of blood flow [5]. Among 17- and 19-year-old healthy boys, problems related to myocardial infarction appeared. This led to a partial or as a result of blood deficiency, cardiovascular system dysfunction and put the patient's life at risk [6]. Some studies have shown that energy drink consumption can lead to increased insulin levels and epilepsy. In some literature and studies, it is said that consumption of more than 300 mg of caffeine can cause hallucinations in people [7; 38-40 p].

Effect on gastrointestinal diseases. Energy drinks contain a large amount of sugar up to 20-30 g, the sugar used is in the form of glucose or fructose syrup. And sugar increases the resistance of cells to insulin and paves the way for the development of diabetes. A high level of glucose in the blood is very harmful and causes a decrease in vision and other negative conditions in people with diabetes. An increase in the amount of sugar in the blood is called "hyper-glycemia". A normal blood sugar level should be 100-110 mg/dL after 8 hours of fasting. Excessive caffeine consumption reduces insulin sensitivity, which can be explained by the increase in blood glucose levels after consumption of energy drinks, which has been shown in some studies. Excessive caffeine intake reduces insulin sensitivity in a dose-dependent manner [8;529-533-b].

Scientists from the Department of Surgery, Medicine, Dentistry and Morphological Sciences of the University of Modena and Reggio Emilia, Italy, studied the effects of energy drinks on the intestines in a study conducted on rats by Milena Nasi. According to the results of studies, the caffeine contained in the drink caused eosinophilic infiltration in the intestinal mucosa. They proved that eosinophilic infiltration was caused by caffeine and not by other substances in the drink. It has been proven that when the product is stopped, eosinophil infiltration is completely eliminated [9; 1-11-b]

There are also reports of jaundice, abdominal pain, and liver dysfunction among women who consume this type of drink. But which substances in the drink cause liver damage, and which people are sensitive to the side effects of this drink require additional research and studies [10; 214-215-b].

Effects on the kidney. Caffeine in energy drinks has been proven to increase the state of diuresis. Therefore, energy drinks should be avoided during prolonged exercise or physical activity in hot environments due to the possibility of dehydration. Studies have shown that dehydration at a level of 1.5% during prolonged exercise and physical activity can increase body temperature, heart rate, circulatory system, and perceived exertion [11; 1340-1350-b].

Increasing the amount of caffeine caused the loss of sodium in the urine. In 2-week experiments in people over 40 years of age, it caused a violation of serum creatinine. Serum creatinine is an important indicator of kidney function, and an increase in serum creatinine; indicates a decrease in kidney function.

Effects on teeth. Consuming too much energy drinks or consuming them regularly can lead to oral health problems. The sugar contained in the product causes the erosion of the enamel layer of the teeth. If the food eaten is not washed after consumption, it

causes the formation of acids that cause erosion of the layer called enamel. This is followed by tooth decay and decay. After drinking sugary products and drinks, this process is accelerated. [12; 101-109-b]

The tooth mainly consists of enamel, dentine, and cementum. The enamel layer is 2-3 mm and becomes thinner towards the root. This layer is rapidly eroded by products with a low pH. Under the influence of products rich in Ca+2, this layer becomes denser. This, in turn, is explained by the increase in the amount of mineral substances in the tooth tissue. The enamel layer consists of 95% inorganic mineral salts and mainly hydroxyapatite crystals: on average calcium-37%, phosphorus-17%, and organic matter-1.2%, water 3.8% is in the enamel part [13; 9-10 p].

But there are also such types of drinks, in the preparation of which, instead of caffeine and taurine, biologically active substances obtained from natural plant products are effective. Usually, in the use of plant products, they are widely used in folk medicine and scientific medicine from the flower part, root part, leaf and dried part [14].

Positive aspects. Caffeine in the drink is well absorbed by the body. Effects usually occur within 5 minutes to several hours after ingestion. Caffeine affects a person's mood, sleep and alertness. It increases the mental alertness of the person consuming it and increases physical energy. As an increase in alertness, it can be clearly felt in people who are active at night or in people who do low-intensity activities. A large amount of caffeine increases insomnia. Awareness of this effect is explained by a decrease in vigilance. In some studies, withdrawal of caffeine from beverages has been observed to cause aggressive states, and this state has been observed in hypersensitive people [15; 1243-1255-b].

In conclusion, it should be noted that when consuming this type of energy drinks, its consequences and effects should be taken into account. When consuming a drink, you should always keep in mind its composition, shelf life, and other diseases it may cause. When studying drink consumption, it is advisable not to consume on an empty stomach, not to exceed the daily limit of caffeine by 400 mg, and to consume only beverages approved by a doctor.

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