

Bioflavonoids - description, benefits, effects on the body and the best sources.

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Abstract. At a time when it's cold outside and the body requires energy, it's a good idea to remember about vitamins. Or rather, about one of them, known as "vitamin P". Vitamin P, or bioflavonoids, were first discovered in red bell peppers and only after some time were found in other vegetables, fruits, berries, herbs, grains and nuts.

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

Foods rich in bioflavonoids:

- Citrus
- Red bell pepper [1]
- Black and red currants [2]
- Rosehip [3]
- Cranberry
- Green tea
- Cherry [4]
- Buckwheat [5]
- Walnut [6]
- Plums (dark) [7]
- Rowan [8]
- Chokeberry
- Grapes [9]
- Tomato [10]
- Dill [11]

Despite the fact that all of the above products contain bioflavonoids, their concentration in them is very heterogeneous. For example, in most fruits and vegetables, these compounds are located primarily in the skin. The exception is fruits with colored pulp. In them, bioflavonoids are distributed more evenly throughout the volume.

General characteristics of bioflavonoids

Bioflavonoids belong to the group of plant pigments of the *polyphenol class*. Scientists know more than 6,500 varieties of these substances.

These compounds take an active part in plant metabolism and are widely distributed among higher plants. In plants, bioflavonoids are present in the form of glycosides.

All flavonoids vary in color. For example, anthocyanins give plants their red, blue and purple colors. And flavones, chalcones, flavonols and aurones are yellow and orange. Flavonoids are involved in photosynthesis and lignin formation.

In the human body, bioflavonoids are involved in strengthening the walls of blood vessels. In addition, they are capable of neutralizing free radicals and play a significant role in supplying the body with energy.

Daily requirement for bioflavonoids

The body's need for bioflavonoids is on average 25-50 mg per day. It should be taken into account that vitamin P is not formed in the human body on its own; it must be consumed with food products of plant origin.

The need for bioflavonoids increases:

- in the cold season;
- with weakness and fatigue;
- for peptic ulcers of the stomach and duodenum;
- in stressful situations;
- with increased capillary fragility;
- for external and internal injuries and wounds.

The need for bioflavonoids is reduced:

- in the presence of individual intolerance to one or another group of bioflavonoids;
- in case of diseases associated with impaired absorption of these substances;
- when consuming dietary supplements that already contain bioflavonoids.

Bioflavonoids digestibility

Since bioflavonoids belong to the group of polyphenolic carbohydrates [12], they actively interact with sugars. It must be remembered that for their complete absorption, you should consume a sufficient amount of water [13].

Beneficial properties of bioflavonoids, their effect on the body

Bioflavonoids, consumed together with plant foods, have the following effects on our body:

- reduce fragility and permeability of capillaries;
- participate in redox processes;
- protect vitamin C [14] from oxidation;
- regulate blood sugar levels;
- prevent the occurrence of cataracts;
- lower cholesterol levels in the blood [15] and normalize the composition of bile;
- improve tissue respiration;
- used to treat heart, stomach, kidney and vascular diseases;
- increase stress resistance and reduce fatigue.

Bioflavonoids are used for diseases associated with disorders of the permeability of the vascular wall. They are prescribed for hemorrhagic diathesis, strokes, retinal hemorrhages, and radiation sickness.

Using bioflavonoids, good results can be achieved in rheumatism, endocarditis, hypertension, myocarditis, chronic glomerulonephritis, atherosclerosis, coronary heart disease and gastric ulcer.

Interaction with Essential Elements

All bioflavonoids actively interact with carbohydrates (a group of sugars). At the same time, they form complex compounds - glycosides, which are responsible for protecting the body from unfavorable environmental conditions. In addition, almost all bioflavonoids combine well with rutin and organic acids.

Signs of a lack of bioflavonoids in the body:

- general weakness;
- malaise;
- fast fatiguability;
- joint pain;
- minor hemorrhages on the skin (in the area of the hair follicles).

Signs of excess bioflavonoids in the body:

- headache [16];
- aching joints;
- fast fatiguability;
- irritability;
- allergies [17] .

Factors influencing the content of bioflavonoids in the body

There is only one factor influencing the content of flavonoids in our body - regular consumption of foods containing these compounds. In this case, it is desirable that the products are subjected to minimal thermal effects. Only with this method are bioflavonoids able to have the appropriate effects on the body.

Bioflavonoids for beauty and health

Many people have probably heard that past generations of people were healthier than current ones. Doctors say that this is due not only to the environmental situation in the world, but also to the products that regularly come to our tables.

Previously, especially in hungry years, a huge amount of greenery was eaten, from beet tops to rolls and pistils of pine, and a lot of fresh berries, nuts, and vegetables were served at the table. And since bioflavonoids are present precisely in plants, their consumption contributed to better health, and hair and skin [18,19] were particularly beautiful and radiant.

Therefore, if you have any problems with your nails [20], skin and hair, you should eat plant foods rich in bioflavonoids. At the same time, it is desirable that the food be varied and contain different groups of these substances necessary for the body.

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Received 10.05.2019

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