

# Hemicellulose - description, benefits, effect on the body and the best sources

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**Abstract.** Beauty. Anyone who strives to achieve it must get used to consuming hemicellulose. Nutritionists think so. At the same time, our very existence will be permeated with purity and lightness.

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

## Hemicellulose-rich foods:

- Apple [1]
- Sprouted wheat
- Cotton seeds
- Brussels sprouts
- Corn [2]
- Jerusalem artichoke
- Peanut
- Beans [3]
- Soybeans
- Lentils [4]
- Oats
- Millet
- Wheat
- Fig [5]
- Buckwheat [6]

## General characteristics of hemicellulose

Hemicellulose (HMC) is a compound belonging to indigestible polysaccharides of plant origin. It consists of various residues of arabinans, xylans, galactans, mannans and fructans.

Essentially, hemicellulose is a type of dietary fiber [7] that promotes the breakdown of polysaccharides of plant origin. Many people call hemicellulose differently: “fiber, plant fiber, etc.” But the difference is that fiber is cellulose, which forms the shell of grains and the bark of plants.

And hemicellulose is a broken down polymer that consists of fibers that resemble fruit pulp. In other words, hemicellulose is a compound close to cellulose, but it is not the same thing.

## Daily requirement for hemicellulose

Foreign researchers are inclined to believe that the daily intake of hemicellulose should be from 5 to 25 grams. But, given that our citizens are accustomed to eating cereals and legumes (unlike residents of Western countries), our scientists came to the conclusion: the optimal amount is 35 grams of HMC per day.

But this only applies if you consume at least 2400 kcal per day. With fewer calories, the amount of hemicellulose should also be reduced.

If you are just starting to eat healthy, then increase the amount of hemicellulose gradually, since the gastrointestinal tract will not be ready for such drastic changes right away!

#### **The need for hemicellulose increases:**

- with age (by the age of 14, during puberty, the need for HMC increases by 10 grams per day, but after 50 years there is a decrease by 5-7 grams);
- during pregnancy [8]. Notice how much the amount of food consumed has increased. Proportionately increase the amount of hemicellulose you consume!
- with weak functioning of the gastrointestinal tract;
- vitamin deficiency;
- anemia;
- overweight (digestion is normalized, metabolism is accelerated);
- excessive gas formation;
- gastritis;
- pancreatitis;
- dysbacteriosis;
- problems with blood vessels.

#### **The need for hemicellulose is reduced:**

- with age (after 50 years);
- when there is an excess of it.

#### **Hemicellulose digestibility**

Since hemicellulose is considered a coarse dietary fiber (softer than fiber, but still), the gastrointestinal tract does not absorb it at all.

If you consume hemicellulose from natural products, then only the accompanying vitamins and minerals will be absorbed. But the substance itself is not digested; we need it for the good functioning of the body as a whole.

HMC fibers attract water [9], swell in the intestines and provide a feeling of fullness for a long time. Thanks to hemicellulose, sugars are absorbed very slowly, without overloading the gastrointestinal tract.

That is, hemicellulose acts as a kind of binding substance, forcing our body to work “like a clock” - measuredly, accurately and correctly.

#### **Beneficial properties of hemicellulose and its effect on the body**

Hemicellulose has a number of positive effects on the body, even though it is almost not absorbed by the body. And therefore, it is often recommended by nutritionists, since, according to them, it performs many important functions:

- hemicellulose facilitates intestinal motility, thereby preventing constipation [10];
- improves digestion, which eliminates the possibility of putrefactive and fermentative processes in the large intestine;
- removes food toxins and poisons;
- promotes rapid absorption of vitamins, minerals and trace elements;
- stabilizes the microflora of the gastrointestinal tract;
- prevents the development of colon cancer.

Also, products containing this carbohydrate are beneficial for people suffering from cardiovascular diseases. By including them in your diet, you can reduce the risk of atherosclerosis and coronary heart disease.

### **Interaction with other elements:**

Hemicellulose reacts very well with water. At the same time, it swells and is ready to perform its evacuation functions. Thanks to this, toxins, heavy metals and other substances harmful to our body leave our body. Excessive consumption of HMC impairs the absorption of zinc, calcium and magnesium [11-13].

### **Signs of lack of hemicellulose in the body:**

- disruption of the cardiovascular system;
- deposition of stones in the gallbladder and its duct;
- disturbance of intestinal microflora, constipation, nausea, vomiting;
- accumulation of heavy metals, as well as their salts and toxins.

### **Signs of excess hemicellulose in the body:**

- bloating;
- nausea and vomiting;
- exhaustion;
- symptoms of zinc, magnesium and calcium deficiency;
- disturbance of intestinal microflora;
- metabolic disorder [14] .

### **Hemicellulose for beauty and health**

Consumption of hemicellulose is a direct path to beauty. Firstly, a person's weight remains within normal limits, and secondly, thanks to the evacuation ability of HMC, your skin will always look healthy!

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