



Omega-3 - description, benefits, effect on the body and the best sources

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Abstract. The article discusses the main properties of omega-3 and its effect on the human body. A systematic review of modern specialized literature and current scientific data was carried out. The best natural sources of omega-3 (plant and animal) are indicated. The use of omega-3 in various types of medicine and the effectiveness of their use in various diseases are considered. The potential adverse effects of omega-3 on the human body under certain medical conditions and diseases are analyzed separately.

Key words: omega-3 , benefit, harm, norm, beneficial properties, sources

Omega-3 polyunsaturated fatty acids are a unique source of vitality and nutrients for the body. It is Omega-3 that improves the health of the cardiovascular system and brain. [1] Currently, nutritionists have documented a lack of Omega-3 in the human diet, so today essential acids of the Omega class are given increased attention in dietetics: special balanced diets are created, and appropriate medications and dietary supplements are produced .

Omega-3 rich foods

See Appendix 1, 2.

General characteristics of Omega-3

Omega-3 polyunsaturated fatty acids are considered essential because the body is unable to synthesize them. Therefore, omega-containing products come to the aid of the body, replenishing the body's need for such substances.

The Omega-3 class of essential fatty acids (EFAs) includes substances such as alpha-linolenic acid (ALA), docosahexaenoic acid (DHA), and eicosapentaenoic acid (EPA).

These acids are of plant and animal origin. Thus, ALA is found in flax seeds, hemp seeds, pumpkin seeds, walnuts [2] and leafy vegetables. EPA and DHA are essential acids of animal origin. They are found in fatty ocean fish, including salmon, sardines and tuna.

In addition, the body can obtain Omega-3 from olive oil, avocados [3], and various nuts and seeds. But fish and seafood are still considered the first source of Omega-3 in nutrition. The exception is fish grown in artificial reservoirs and fed mainly on mixed feed.

The body's daily requirement for Omega-3

Doctors have identified the following feature in modern man: the imbalance of Omega-3 and Omega-6 in the body is becoming widespread. Moreover, most often there is an excess of Omega-6 class EFAs with a significant deficiency of Omega-3. Ideally, the ratio of Omega 6 to Omega 3 in the body should be 2:1. Rapeseed oil has been recognized as one of the most harmonious products in terms of EFA balance.

The daily requirement for Omega-3 is from 1 to 2.5 grams per day. It depends on the state of health of the body. For problems with the cardiovascular system, disorders of the brain (frequent depression, Alzheimer's disease), doctors usually recommend increasing Omega-containing foods in the diet.

The body's daily need for Omega-3 can be met by adding 1 tbsp to food. a spoonful of rapeseed oil or a teaspoon of flaxseed. You can also eat 5-10 walnuts a day, or enjoy a small piece (about 100 grams) of freshly cooked salmon or sardines.

Nutritionists recommend eating fish at least three times a week to fully provide the body with healthy Omega fats.

The need for Omega-3 increases with:

- risk of heart attack;
- hypertension;
- atherosclerosis;
- depression and Alzheimer's disease;
- oncological diseases;
- lack of hormones;
- in the cold season.

The need for Omega-3 is reduced:

- in the warm season;
- at low blood pressure;
- in the absence of the above diseases.

Omega-3 Absorption

For the full absorption of Omega-3, enzymes are needed that help the body make the most efficient use of EFAs received from food. The necessary enzymes are passed to children through mother's milk; in the adult body they are produced independently. The process of Omega-3 absorption occurs in the upper intestine.

When consumed with food, about 25% of Omega-3 is lost, which is why many manufacturers produce fish oil in special capsules that begin to dissolve only in the small intestine. Thus, 100% absorption of Omega-3 entering the body is achieved.

To maximize the absorption of Omega-3 from food, you must follow some rules for preparing and storing food.

Omega-3 is destroyed by exposure to oxygen, light and heat. Therefore, it is necessary to store vegetable oils and other omega-containing products in well-closed containers, preferably in the refrigerator. Deep-frying completely destroys the beneficial properties of unsaturated fatty acids, therefore, to prepare products containing them, it is necessary to use only the most gentle cooking methods.

Beneficial properties of Omega-3 and its effect on the body

Acids are building materials for the brain, nervous and endocrine systems. Participate in the construction of cell membranes, have an anti-inflammatory effect, reduce the risk of heart and vascular diseases, and regulate the concentration of sugar in the blood.

Interaction with essential elements

Omega-3 interacts with vitamin D in the body [4], goes well with vitamin A [5], affects the body in combination with Omega-6. It is well absorbed with protein foods [6].

Signs of deficiency and excess

Signs of Omega-3 deficiency in the body:

- brittle nails;
- skin rashes;
- peeling of the skin;
- the appearance of dandruff;
- depressed mood;
- constipation [7];
- joint problems;
- hypertension.

Signs of excess Omega-3 in the body

- Decreased blood pressure;
- The occurrence of bleeding;
- Digestive problems, diarrhea.

Omega-3 for beauty and health

Omega-3s make the skin more elastic and firm, even out its color and moisturize. They are an excellent prevention of rashes. [8] In addition, Omega-3 accelerates metabolism in the body, which

means it helps us stay slim and beautiful. Products containing Omega-3 are part of the Mediterranean diet, which not only allows you to fight extra pounds, but also tone the nervous system, improving the well-being and vitality of the body. [9]

Omega-3 content in food

Table 1

Top 50 Animal Sources of Omega-3

The number of grams per 100 g of product is indicated [10,11]

No.	Product	g in 100 g
1	Salmon oil raw	13.02
2	Raw sardine fat	10.14
3	Cod liver oil, raw	6.9
4	Raw herring fat	6.27
5	Salted mackerel	1.62
6	Caviar, red or black, cooked	1.26
7	Baked chinook salmon	1.01
8	Chinook salmon raw	1.01
9	Caviar, red or black, raw	0.98
10	Smoked herring	0.97
eleven	Baked herring	0.91
12	Raw mackerel	0.9
13	Salted herring	0.84
14	Anchovies canned in oil	0.76
15	Herring raw	0.71
16	Baked omul	0.64
17	Anchovies raw	0.54
18	Baked mackerel	0.5
19	Canned sardine in oil	0.47
20	Canned horse mackerel	0.43

21	Coho salmon raw	0.43
22	Baked salmon	0.41
23	Baked coho salmon	0.4
24	Baked catfish	0.39
25	Fried smelt	0.35
26	Raw salmon	0.32
27	Shark meat raw	0.32
28	Raw catfish	0.31
29	Baked river perch	0.31
thirty	Baked carp	0.31
31	Baked sockeye salmon	0.3
32	Baked chum salmon	0.3
33	Boiled Kamchatka crab	0.3
34	Baked whiting	0.28
35	Boiled mussels	0.28
36	Raw smelt	0.28
37	Baked oysters	0.27
38	Baked trout	0.26
39	Fried shark meat	0.26
40	Raw sockeye salmon	0.25
41	Baked sturgeon	0.25
42	Raw river perch	0.24
43	Raw carp	0.24
44	Chum salmon raw	0.23
45	Baked pink salmon	0.22
46	Raw mullet	0.22
47	Baked seabass	0.21
48	Trout raw	0.2

49	Raw sturgeon	0.19
50	Raw mussels	0.19

Table 2**Top 50 Plant Sources of Omega-3**

The number of grams per 100 g of product is indicated [10,11]

No.	Product	g in 100 g
1	Flaxseed oil	53.37
2	Chia seeds	17.83
3	Canola oil	9.14
4	Hemp seed	8.68
5	Soybean oil	6.79
6	Mayonnaise	5.33
7	Black Walnut	2.68
8	Parsley	1.86
9	Corn oil	1.16
10	Cracker	0.96
eleven	Multigrain crispbread	0.92
12	Oregano (oregano) dried	0.62
13	Raw turkey skin	0.61
14	Cloves (spice) seasoning powder	0.59
15	Onion rings	0.58
16	Dry white beans	0.54
17	Ground dry chili pepper	0.52
18	Rendered pork lard	0.48
19	Chocolate cupcake with icing	0.45
20	Paprika spice, powder form	0.45
21	Table mustard, paste	0.37

22	Edamame cooked	0.36
23	Dry basil	0.3
24	Indian wheat naan	0.28
25	Poppy seeds	0.27
26	Tortilla	0.27
27	Smoked sausage	0.24
28	Donuts	0.24
29	Ginger extract powder	0.22
thirty	French fries	0.22
31	Roasted pistachios without salt	0.21
32	Roasted salted pistachios	0.21
33	Beef brisket raw	0.21
34	Sausages	0.21
35	Boiled sausage	0.21
36	Chicken egg yolk in powder form	0.18
37	Salami	0.18
38	Boiled white beans	0.18
39	Pepperoni sausage	0.16
40	Baked chicken wings	0.16
41	Cherimoya fresh	0.16
42	White wheat bread	0.16
43	Ground black pepper	0.15
44	Raw chicken thighs, meat with skin	0.14
45	Whole grain wheat bread	0.14
46	Dry teff cereal	0.14
47	McDonald's burger	0.13
48	Swiss cheese	0.13
49	Cream cheese	0.13

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