

## OPTIMIZATION OF RATIONAL NUTRITION FOR PATIENTS WITH CORONAVIRUS

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**Abstract:** *In recent years, the Covid-19 virus has become a global problem. This has left its mark on patients who are currently infected with the virus. Among the unfortunate patients are the elderly and children. Foods rich in vitamins are necessary for elderly people and children who became infected with coronavirus and have now recovered.*

**Key words:** *Covid-19, prevention, vitamin, calcium, ascorbic acid, mefin, product.*

Today, even the coronavirus seems normal to us, one of the main reasons for this is that the body was able to create immunity to it.[1] But during the Covid-19 pandemic, it has left its complications in people infected with the virus. The coronavirus has weakened the main organs of the immune system. For example, calcium in the skeletal system has been removed from the bones. As a result, calcium in the blood caused the formation of calcium salts in the kidneys and urine. As a result of exposure to this virus, organ dysfunctions have arisen, so food contains substances necessary for our body [2]. During illness and after illness, it is necessary to avoid consuming the following foods:

- Sweets and cupcakes;
- Spices;
- Sauce, ketchup, mayonnaise;
- Sausages and smoked meats;
- Semi-finished products;
- Coffee, chocolate;
- Alcoholic drinks;
- Trans fats (cakes, waffles, margarine, fast food). Products in this category inhibit the functioning of the immune system and disrupt the functioning of the intestinal microflora.

Vitamin D reduces the release of pro-inflammatory cytokines, reducing inflammatory responses and lung damage.[3] We can get it from the following products:

- fatty fish;
- eggs;
- salmon;
- liver, beef.

A more desirable product, lycopene, is found in tomatoes, grapefruits, roses and other red-orange fruits. Protein is the building material for enzymes, interferons, white blood cells, etc. Therefore, it is important to ensure a sufficient amount of protein in the diet. Vegetarians should supplement their diet with protein supplements.[4] It is recommended to eat beef and lamb due to the full production of amino acids that improve metabolism and the functional state of immune cells. Vitamin C is an important nutrient

for white blood cells, improves the absorption of iron and thereby allows the body to better resist infections. [5] It also reduces the production of pro-inflammatory cytokines. To further reduce your exposure to the virus, it is important to focus on foods that you eat to strengthen your immune system.[6] Beef, pumpkin seeds, fish, young lamb, rabbit and chicken, eggs, beef liver, tomatoes, potatoes, radishes, cabbage, garlic, asparagus, onions, apples, raspberries, figs, black currants, dates, citrus fruits, buckwheat, pearl barley, brown rice, oatmeal, honey, legumes) - increases the body's immune defense, takes an active part in the formation of lymphocytes, the production of antibodies, and has antimicrobial activity.[7] Under the influence of this virus, sleep also becomes suboptimal. The sleep hormone melatonin is essential for normalizing sleep and combating anxiety after coronavirus infection.[8] It has antioxidant, immunomodulatory and anti-inflammatory effects. It helps normalize sleep and reduce anxiety, and has a beneficial effect on the stability and recovery of the body. It is made from tryptophan, an amino acid that can be obtained from the following food groups: fresh cherries, Dutch and Swiss cheese, cottage cheese, Parmesan cheese, rabbit meat, chicken, beef, cheese, eggs, rice, turkey, salmon, squid, cod, pink salmon, mackerel, bananas, cauliflower, cashews, peanuts, almonds. [9] Of course, what food sensations should Covid-19 patients pay attention to: One of the symptoms of COVID-19 is loss of smell. Therefore, carefully monitor the quality of the product, stick on stickers so as not to consume expired products and not get poisoned.[10] Avoid perishable and expired foods. Fighting and recovering from an illness is an energy-consuming process. Therefore, it is important that food is easily digestible and high in calories during and after coronavirus.[11] Eat lightly processed foods and as many fresh vegetables and fruits as possible. This strategy allows you to get the required amount of vitamins, minerals and essential elements. Even the coronavirus is disrupting the food system itself. [12] In some patients, the disease is accompanied by digestive disorders rather than the usual cough and sore throat. Symptoms (nausea, vomiting, intestinal upset) are very similar to rotavirus infection. Chronic pathologies such as duodenitis, pancreatitis, cholecystitis may worsen. [13] Antibacterial and other drugs prescribed by doctors during coronavirus only increase the load on the gastrointestinal tract. Because of this, dysbiosis develops and diarrhea appears. Therefore, it is important to carefully monitor your diet and avoid unhealthy foods.[14] The disease is debilitating and requires rest from heavy eating. First of all, when determining the nutritional system, it is important that it contributes to the rapid elimination of the pathological process. Food with the beneficial substances it contains should affect the patient's body as follows:

1. provision of all necessary resources to combat viral agents;
2. increase immunity and affect protective properties;
3. ensure the normal functioning of the digestive system when taking antibacterial drugs;
4. minimization of neurological manifestations;
5. restore the activity of the respiratory system;

#### 6. Liver support, removal of toxic metabolic products.

Inflammation is localized at a specific point. When the virus begins to actively multiply, the function of the intestinal barrier is disrupted. There are also problems with detoxification. [15] This leads to changes in the composition of the intestinal microflora and its negative changes. Antibiotics increase the load. The diet for covid pneumonia and the entire diet for corona in general should cover these processes.[16] The liver, which is a vital part of the digestive system, is under severe stress during coronavirus. It has to act as a filter that stops viral metabolites, which is not effective enough for the disease. The disease drags on for a long time, and serious complications may occur.[17] Medicines also put a lot of stress on internal organs. Food is also a burden, so it is advisable to eat foods that are quickly digested in the stomach and are rich in vitamins. A, C, E and beta carotene are found in fruits and vegetables. It is useful to eat carrots, green beans, beets, mangoes, tangerines during coronavirus. Many beneficial components can be obtained from egg yolk and liver. [18] Ascorbic acid is found in large quantities in black currants, rose hips and sweet peppers. Almonds, pine nuts, salmon, and wheat germ have antiviral properties. Above we have mentioned the products you need. Now let's get acquainted with the foods that you should not eat. [19] After learning how to eat healthy for Covid-19, foods to avoid include:

- sugar;
- sweeteners, including those contained in products;
- baked goods, cakes;
- products containing gluten (especially those based on various grains);
- semi-finished products and fast food;
- oil processed from any raw material;
- processed and refined foods (eg, polished rice, pasta, snacks);
- coffee, strong black tea;
- Alcoholic drinks.

In addition, it is important to limit foods with a high glycemic index (bananas, dates, dried apricots, etc.) and foods that promote mucus formation (mushrooms, pumpkin, pork).[21] The fact is that the listed products put additional stress on the internal organs, which becomes unnecessary in the presence of a disease. [22] Fresh fruits contain a lot of fructose, so the liver experiences additional stress. "Meals for people with covid infection should be easily digestible, rich in vitamins, microelements and proteins. It is recommended to eat a small amount of food with barra salad and greens. These are soups, minced meat cutlets, cutlets, cutlets, fish meat, cottage cheese, hard-boiled eggs, liquid legume dishes, pearl barley porridge. [23] It is also advisable to drink a lot of liquid. Various fruit juices, compotes, green tea, lemon, currants, ginger, honey and raspberries. teas are among them. Alcohol introduces toxic components into the body, tonic drinks are enriched with tannins, which negatively affect the absorption of nutrients and cause dehydration. [24] All food must be processed to high standards. Frying and eating raw vegetables should

be avoided. This creates additional stress on the digestive system. [25] This is why we can prevent disease without any antibiotics by treating ourselves or treating complications, even if we follow good nutritional guidelines.

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