

APPLICATION OF BROCCOLI TO IMPROVE THE PERIOD OF REHABILITATION
AFTER POSSIBLE COVID-19 IN THE ELDERLY

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✓ *Resume*

We tried to reveal the problem of rehabilitation of the elderly after suffering COVID-19 using broccoli juice, since a plant from the cabbage family - broccoli - is rich in vitamins and microelements that allow the body to recover after an illness.

Keywords: Broccoli, broccoli juice, COVID-19, rehabilitation.

ПРИМЕНЕНИЕ БРОККОЛИ ДЛЯ УЛУЧШЕНИЯ РЕАБИЛИТАЦИИ ПОСЛЕ COVID-19
У ПОЖИЛЫХ ЛЮДЕЙ

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✓ *Резюме*

Мы постарались раскрыть проблему реабилитации пожилых людей после перенесённого COVID-19 с помощью использования сока брокколи, так как растение из семейства капустных – брокколи – богато витаминами и микроэлементами, которые позволяют восстановить организм после перенесённой болезни.

Ключевые слова: Брокколи, сок брокколи, COVID-19, реабилитация.

KEKSALARDA COVID-19 DAN KEYIN TIKLANISH DAVRIDA BROKOLINI QO'LLASH

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✓ *Rezyume*

Brokkoli sharbatida COVID-19 bilan og'rigan keksalarni reabilitatsiya qilish muammosini ochib berishga harakat qildik, chunki karam oilasidan olingan o'simlik - brokkoli - kasallikdan so'ng tanani tiklashga imkon beradigan vitaminlar va iz elementlariga boy.

Kalit so'zlar: Brokkoli, brokkoli sharbatida, COVID-19, reabilitatsiya.

Relevance

People who have had coronavirus do not leave hospitals completely healthy; there have been cases when young, previously healthy people recovered from COVID-19 for four weeks. After the illness, all patients have asthenia, weakness, and headache, shortness of breath, increased sweating and depressed mood. Rehabilitation after coronavirus is necessary for everyone who has recovered, regardless of the severity of the disease. Elderly patients, especially those who have suffered moderate and severe forms of coronavirus pneumonia, require compulsory comprehensive rehabilitation [1, 2, 3, 4, 46, 49].

Coronavirus infection COVID-19 does not go away without consequences and a feeling of mild malaise can persist for many weeks or even months [30, 31, 32, 42].

Medicine has not yet studied all the long-term consequences of the coronavirus infection COVID-

19[28]. Doctors name several of the most common consequences that require high-quality rehabilitation:

- insomnia or excessive sleepiness
- constant weakness, fatigue
- decreased performance
- memory impairment, cognitive impairment
- violation of A / D (hypertension or hypotension)
- arrhythmia, tachycardia, bradycardia
- shortness of breath
- impaired respiratory function
- dyspepsia, deterioration of the gastrointestinal tract
- depression [28, 39, 45, 47].

Treatment procedures for recovery from coronavirus infection should begin immediately after the end of the 14-day quarantine. When the patient is able to leave the house again and

communicate with others, it is necessary to begin rehabilitation [7, 8, 9, 32, 48].

Recovery procedures should help a person to a normal life. Rehabilitation pursues a number of important goals:

- restore full lung function and respiratory function
- prevent pneumofibrosis
- prevent residual effects
- strengthen the immune system
- increase the vital capacity of the lungs
- eliminate chronic fatigue syndrome
- restore healthy sleep patterns
- relieve depressed mental state and depression
- to increase endurance and performance [28, 34, 42, 49]

Broccoli differs from other types of increased nutrient content, especially specific taste and higher biological activity. Experimental data indicate a high protein content, which includes antisclerotic substances choline and methionine, as well as such essential amino acids as lysine, methionine, valine, isoleucine, leucine, threonine, phenylalanine; nonessential - tyrosine, histidine, alanine, arginine, aspartic acid, glycine, glutamic acid, proline, serine. In terms of protein, broccoli surpasses sweet potatoes, potatoes, corn, sugar, asparagus, spinach. The protein of broccoli is low in purine substances - almost 4 times less than that of cauliflower, which gives it an advantage over the latter. In terms of the content of most essential amino acids in protein, broccoli is not inferior to beef, and in the presence of isoleucine, lysine and tryptophan, it is not inferior to chicken egg white [18, 24, 41].

Among the mineral salts, macro- and microelements in the composition of broccoli cabbage, potassium should be noted, which removes excess salts and water from the body; calcium and phosphorus, which ensure the functioning of bone and marrow tissues; iron, copper, cobalt, which take part in hematopoiesis; iodine, which prevents thyroid disease. This plant also contains a large amount of macronutrients (sodium, potassium, calcium, magnesium, phosphorus) and trace elements (iron, aluminum, manganese, copper, molybdenum, nickel, zinc, silicon) [5].

In terms of vitamin C, broccoli is inferior only to lemon, although much sweeter than the latter. In addition, in cabbage, vitamin C is contained not in

the form of ascorbic acid, but in the form of its precursor - ascorbigen, which is not destroyed during storage. B vitamins have a beneficial effect on the nervous system [23, 24].

Of particular note is the Indole-3-Carbinol contained in broccoli, which increases the efficiency of detoxification systems, which makes it possible to use it as an anti-aging agent [5]

According to recent studies, sulforaphane formed from glucoraphanin helps restore the body's immune functions, activates several antioxidant genes and enzymes in immune cells that fight the harmful effects of molecules - free radicals that cause oxidative damage to cells and tissues of the inflammation process and, therefore, lead to various diseases [5, 23].

In addition to general recommendations for improving rehabilitation, our goal was to study the effect of fresh broccoli juice on the general condition of patients and indicators in the analyzes.

Material and method

In order to improve the rehabilitation period for the elderly who have undergone COVID-19, especially those who have suffered moderate and severe forms of coronavirus pneumonia, they need mandatory comprehensive rehabilitation. For this purpose, in addition to the general recommendations described above, it was proposed to use freshly squeezed broccoli juice, 100 ml 1 time per day in the morning for 15 days. The study involved 44 patients over the age of 55 who had undergone COVID-19, regardless of the severity of the disease. 30 of them took freshly squeezed broccoli juice in the morning with breakfast, the remaining 14 patients took a regular breakfast without broccoli juice. All patients were on an outpatient basis at the city polyclinic №3 of the city of Bukhara.

Result and discussion

During the study, it was noted that in patients who took freshly squeezed broccoli juice as an improvement in the rehabilitation period during the study period, the general condition of the patients improved significantly, good mood and vigor returned, sleep improved, the feeling of fear disappeared, and general indicators in the analyzes also improved (ESR indicators and leukocytes returned to normal).

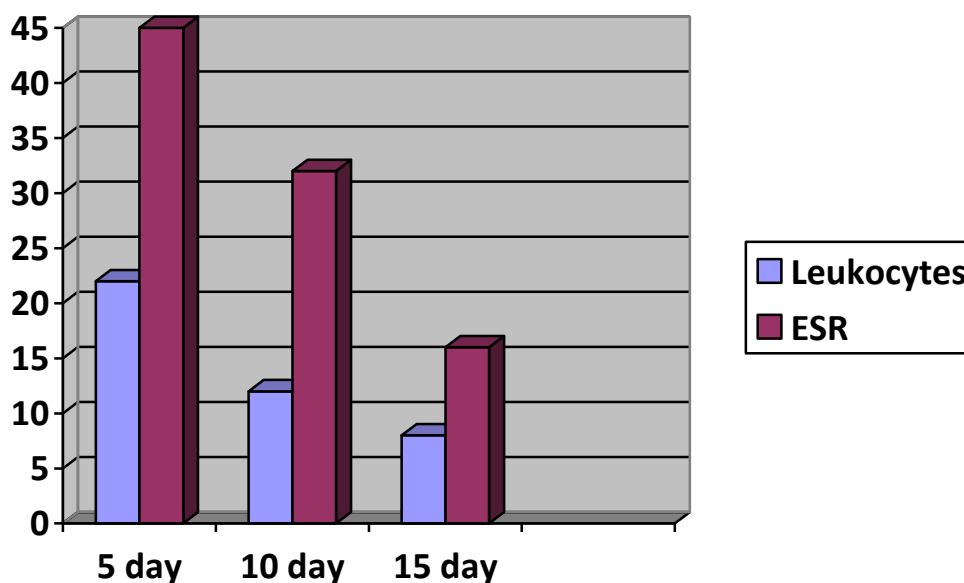


Figure 1. Change in ESR and leukocyte counts after the postponed course of COVID-19

We believe that the consumption of freshly broccoli juice in the elderly who have undergone COVID-19 can help strengthen the immune system and quickly complete the rehabilitation period for patients, in contrast to those who did not take it.

Conclusions

From the above, it is clear that as a result of the consumption of cabbage family vegetables, in particular broccoli, the body is enriched with the necessary amount of vitamins and amino acids, and the risk of colds is reduced. In addition, broccoli has antioxidant properties, which allows you to remove free radical compounds from the body. Since broccoli contains a large amount of vitamin C, it helps to protect the body against certain viral diseases. So, freshly squeezed broccoli juice is an affordable product that can be quickly included in the diet during the rehabilitation period in the elderly who have undergone COVID-19.

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