

Dietary Recommendations For Solid Cancer Patients

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Healthy eating habits with a balanced intake of varied and healthy nutrients, absence of unhealthy habits and good physical activity are key both for reducing the risk of cancer incidence and for the quality of life during antitumor treatment. There is a need for timely adjustment of the nutritional status of patients even before the first signs of malnutrition and increased toxicity resulting from administration of cytostatic therapies.

Western diet and Mediterranean diet – the difference between proinflammatory and anti-inflammatory diet

The Western diet is characterized by consumption of higher amounts of processed and refined foods rich in salt, added sugar, fats added through frying and breading, increased use of alcohol, sweets and desserts, processed meat products and red meat, and lower amounts of a variety of products in their natural form such as nuts, fruits and vegetables, natural spices, fish and seafood. This dietary pattern has been associated with development and exacerbation of many chronic diseases such as obesity, cardiovascular diseases, oncological diseases, endocrine diseases, autoimmune diseases, etc.

The Mediterranean diet is considered one of the most healthy diets in the world and represents the absolute opposite of the Western dietary pattern.

- Increased consumption of vegetables, fruits, nuts, seeds, legumes, whole grains, herbs, spices, fish, seafood and olive oil.
- Moderate intake of beef, poultry, eggs, dairy products and red wine (for people who consume alcohol)
- Limited intake of pork, cold meats, sweetened drinks, simple carbohydrates, desserts and sweets, refined cereals, semi-finished foods, breaded foods, beer and hard alcohol.

Western diet

Desserts / sweets
Processed meats
Red meats
Highly processed foods

Dairy products (high-fat)
Refined grains
Potato

Wholegrains
Vegetables
Legumes
Fruit

Red meats
Sweets Potato
Processed meats

White meat, seafood, fish
Legumes, eggs
Dairy (low-fat preferably)
Nuts, seeds, olives

Fruit, vegetables
Cereals (wholegrain preferably)
Olive oil

Mediterranean diet

The health effect is attributed to the increased intake of healthy nutrients such as

1. High intake of complex carbohydrates from whole grains, high-fiber fruits and vegetables, plant polyphenols, polysaccharides, alkaloids and saponins.

These molecules have proven antioxidant, anti-inflammatory and prebiotic effects. A high daily intake of polyphenols from a variety of foods (over 900 mg/d) is associated with a healthy gut microbiome function, protection of the gastrointestinal mucosa and reduction of the risk of developing a chronic disease and death.

2. High intake of marine-derived biologically active Omega-3 unsaturated fatty acids – eicosapentaenoic and docosahexaenoic acids (EPA and DHA)

As a result of following this diet the overall ratio between consumption of Omega-3 and Omega 6/9 fatty acids is improved, excessive consumption of saturated fatty acids of animal origin is reduced and intake of unhealthy trans fats is highly limited. This improved balance of dietary fats is associated with reduced production of inflammatory signaling molecules (prostaglandins, interleukins and leukotrienes) and an improved lipid profile, resulting in reduction in the risk of multiple chronic and inflammatory diseases.

3. Intake of protein from high-quality nutritional sources

There are no good and bad proteins, there are good and bad protein sources.

After consumption all ingested proteins are broken down in the stomach into some of the 20 nonessential and essential amino acids, dipeptides and tripeptides, which are absorbed by the gastrointestinal mucosa and satisfy the demands of all tissues, organs and systems of the body. When unprocessed high-protein foods (chicken breast, shrimps, fish, turkey, beef, etc.) are consumed the risk of intake of additional unhealthy food groups, such as simple carbohydrates, saturated fatty acids and trans fats, is reduced.

The diet restricts consumption of mixed foods lower in protein and higher in unhealthy nutrients (smoked salami, salted cold meats, some dairy products), thereby reaching as clean protein intake at mealtimes as possible.

4. Vitamins and minerals

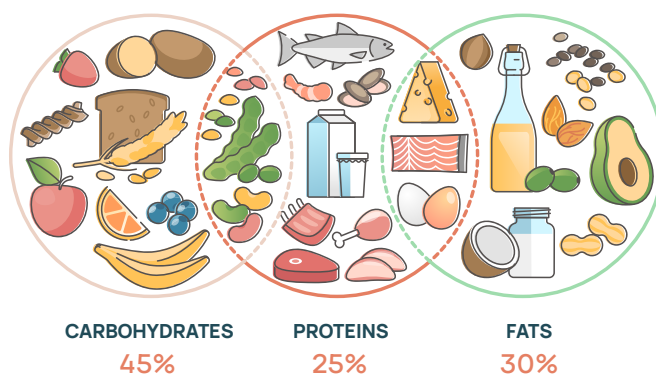
Vitamins and minerals play an essential role in maintaining normal cell functions and growth and development processes. They are required for many enzymatic processes, electrolyte balance, nerve impulse generation, bone matrix formation, hormone regulation, wound healing and many other physiological processes. This diet promotes nutritional diversity with intake of many unprocessed foods of plant and animal origin, sources of all necessary vitamins and minerals, thus preventing the development of their deficiencies in the body.

The Mediterranean diet with different variations in daily calorie intake and macronutrients (e.g. increased protein intake) may be an appropriate healthy and balanced diet that, together with healthy levels of physical activity, may improve the nutritional status and the general well-being and reduce the intensity of adverse drug reactions of the antitumor therapies administered. Data from various clinical studies support the use of the Mediterranean diet during active treatment of cancer patients to reduce cancer-related fatigue and improve overall quality of life (QoL) manifested with increased physical activity, reduction of pain, dyspnea and insomnia.

Macronutrients – intake recommendations

There is no evidence that adequate nutritional support promotes accelerated tumor growth in humans. Therefore, calorie intake in cancer patients is recommended to be similar to that of healthy people. The recommended daily calorie intake is measured according to height, weight and physical activity and usually ranges between 25 to 30 kcal/kg/day.

It is very important to maintain a patient's lean muscle mass during treatment. Patients with higher levels of lean muscle mass tolerate treatments better and reach better final results from their therapy. Therefore, there is a recommendation for increased protein intake between 1 and 1.5 g/kg/day, which should represent 20 to 35% of total daily energy intake. The recommended proportion of carbohydrates is 40 to 50% of total energy intake and the recommended fat proportion is 25 to 35%.



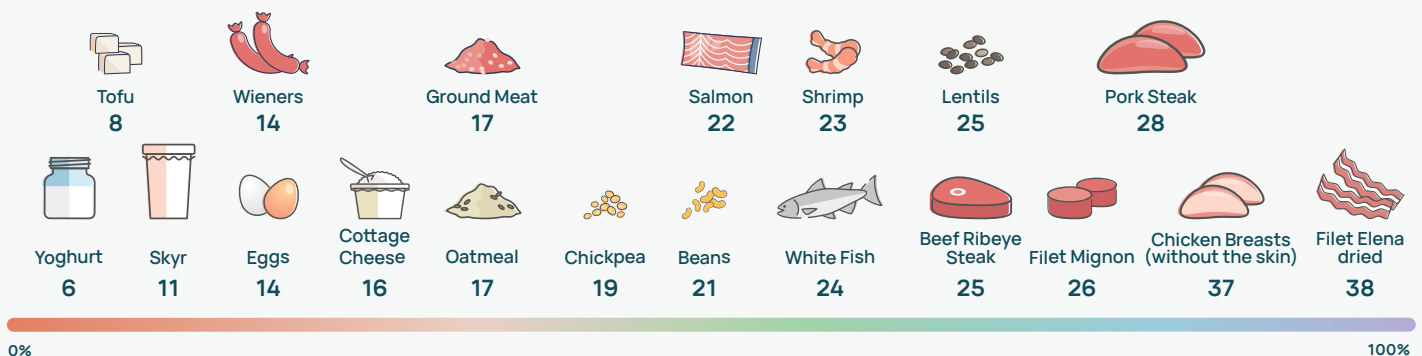
Proteins

Older age, lack of physical activity and systemic inflammation due to antitumor treatment are known to induce anabolic resistance, i.e. reduced sensitivity of protein synthesis to anabolic stimuli.

Recommendations in older, chronically ill people are for increased protein intake of 1.0 to 1.5 g/kg/day as the amino acid and protein doses capable of maintaining a positive protein balance in older cachectic patients may reach up to 2 g/kg/day. In patients with chronic kidney disease the protein supply should not exceed 1.0 to 1.2 g/kg/day.

Many dietary strategies recommend different ways to increase protein intake, such as consuming the protein food first or adding protein powder to the meal to satisfy the body's increased protein demands. Consumption of unprocessed foods with a high percentage of protein and calories such as eggs, fish, beef, chicken, turkey, seafood, legumes, cottage cheese, yogurt etc. is recommended. It is necessary to limit intake of dry and salted meats with a high percentage of saturated fatty acids such as dry cold meats, pork, sausages, bacon, meatballs, etc.

Amount of protein per 100g product



Carbohydrates

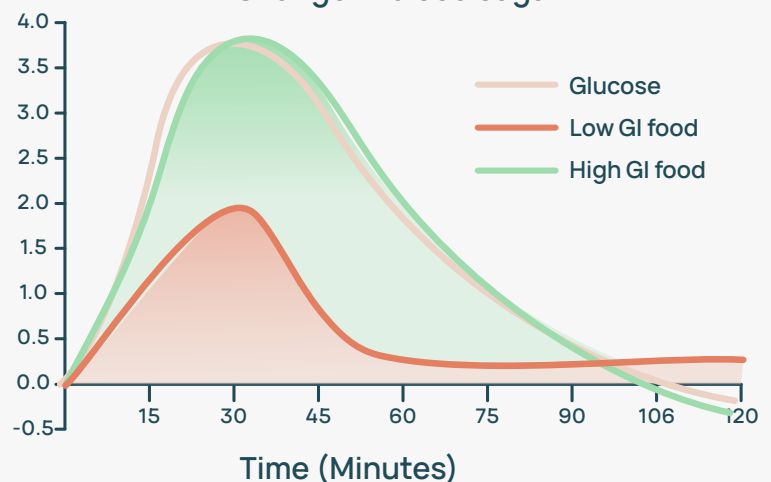
The recommended proportion of carbohydrates for cancer patients is 40 to 50% of total daily energy intake. There are many conflicting opinions regarding carbohydrate consumption in cancer patients. It is important to know that the main role of carbohydrates is to provide the energy necessary for the function of normal cells and tissues in the body. The typical energy demand of cancer cells is many times (sometimes up to 40 times) higher compared to normal tissue. It is important to understand that effective management, rather than restriction, of the body's preferred fuel intake, carbohydrates, helps control the fuel available to cancer cells as well.

A good way to ensure smooth and stable levels of carbohydrate energy for the body's demands and limit the energy available to cancer is by consuming mostly low glycemic index complex carbohydrates and limiting high glycemic index simple carbohydrates.

Low glycemic index foods contain plant fiber, polyphenols and saponins and other healthy nutrients that do not cause an insulin spike and provide the body with high amounts of vitamins and minerals. Such food products are: spinach, olives, cucumbers, brown and black rice, bulgur, quinoa, carrots, tomatoes, green beans, red lentils, mushrooms, zucchini, pumpkin seeds, asparagus, cabbage, raw nuts, whole grains of high fiber content, dark chocolate (containing more than 80% of cocoa), fresh low-sugar fruits such as blueberries, strawberries, blackberries, raspberries, apples, quince, pomegranate, etc.

High glycemic index foods contain high absorption rate simple carbohydrates that cause a serum glucose spike. Such food products are: white flour, white bread, sweets, jams, stewed fruits, honey, potatoes, granola, white rice, milk chocolate, pumpkin, white and brown sugar, high-sugar sweet fruits such as melon, watermelon, banana, pear, peach, etc.

Change in blood sugar



Fats

The recommended fat proportion is 25 to 35% (in some cases up to 40%) of total daily macronutrient intake. Most fats are recommended to be obtained from nutritional sources that are rich in polyunsaturated (**Omega-3 and 6**) and monounsaturated (**Omega-9**) fatty acids in their natural form that have not been exposed to chemical or high-heat processing. Such sources of healthy fats are: most nuts (walnut, almond, macadamia, pecan, peanut, pumpkin seed, chia), olives, avocado, fish, algae oil, cold-pressed oils such as olive oil, rapeseed oil, etc.

Excessive and unbalanced consumption of foods high in saturated fatty acids such as palm and coconut oil, high-fat meat (pork, chicken skin) and other animal products such as cow butter, cheese and milk, except skimmed milk, should be limited (but not completely stopped). Intake of saturated fatty acids should be around 20 g/d.

Trans-fatty acids should NOT be consumed. Trans fats are entirely unhealthy because they cause strong inflammatory reactions in the body. The main source of industrially produced trans-fatty acids are partially hydrogenated oils, which are produced by **high-heat and/or chemical processing of unsaturated vegetable oils**. They are most commonly used in the food industry to produce a large number of semi-finished and packaged foods. They are present in large amounts in margarine, crisps and snacks, biscuits, wafers, cakes and other savory and sweet baked goods, frozen potatoes, frozen pizza and other dough.

Intake of marine-derived Omega-3 fatty acids EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) should be optimized.

The Western dietary pattern is largely associated with a disproportionate intake of saturated fatty acids, unsaturated fatty acids (Omega 3 ALA; Omega 6 and 9), trans fats and saturated fatty acids to Omega-3 EPA/DHA in the range of 20 to 30:1, which is associated with the pathogenesis of many diseases, including cardiovascular, oncological, inflammatory and autoimmune diseases.

The signaling molecules (intraleukins, prostaglandins, etc.) produced by the said fats are more powerful mediators of inflammation compared to marine-derived Omega-3 EPA/DHA fatty acids.

Advanced (stage IV) cancer patients undergoing chemotherapy and at risk of weight loss are recommended to take long-chain Omega-3 fatty acids (EPA and DHA) of 1 to 4 g a day to reduce inflammatory reactions, improve appetite, counteract malnutrition and preserve lean body mass and body weight.

A high intake of Omega-3 EPA and DHA may be ensured by consumption of herring, wild salmon, tuna, mackerel, sardines, anchovies, lake trout, supplementation with algae oil and fish oil in the form of a dietary supplement.

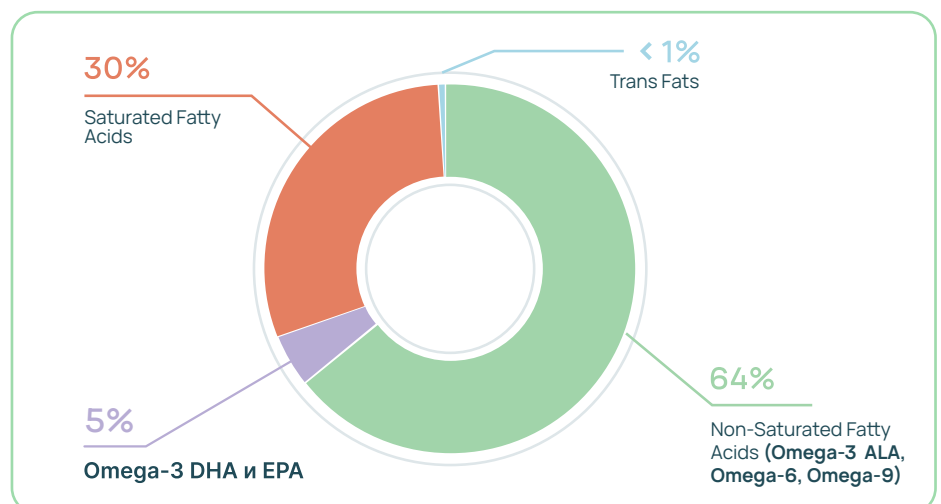
Plant-based Omega-3 fatty acids (ALA) have significantly lower helpful biological activity and cannot replace the healthy effects of marine-derived Omega-3 fatty acids (EPA and DHA).

IMPORTANT: In some more sensitive people intake of high doses exceeding 1 g/d of Omega-3 EPA and DHA fatty acids in the fasting state may cause a slight laxative effect. In this case temporarily reduce intake dose according to individual sensitivity.

In summary:

The optimal ratio of fatty acids should represent 25 to 35% of the body's daily calorie demands in approximate indicative proportions of 8:4:1 of Omega-3 ALA, 6 and 9 unsaturated fatty acids to saturated fatty acids to Omega-3 EPA/DHA unsaturated fatty acids with zero or minimal trans fat intake.

An easy way to distinguish among the different types of fatty acids is that due to differences in their chemical structure at room temperature saturated fatty acids turn solid (butter, lard), while unsaturated fatty acids are in liquid form (olive oil, cooking oil, fish oil). Trans fats are often vegetable oils that have undergone prolonged high-heat and/or chemical processing. They are present in margarine, snacks and crisps.



Water intake

It is important to avoid dehydration while undergoing antitumor treatment. Good hydration is important to reduce side effects of treatment such as nausea, weakness, headache, constipation and fatigue. Aim to take 6 to 8 glasses (2 to 3 liters) of water a day. Include more hydrating foods in your diet such as fruits, vegetables, soups, juices, etc. Limit caffeine and alcohol, which may dehydrate your body. Don't wait until you are thirsty to drink water. Drink water consistently throughout the day. Carry a water bottle with you to remind you to hydrate on a regular basis.

Fasting

Fasting during treatment with chemotherapy agents is not recommended as it carries a risk of developing malnutrition if not done properly. Some of the most common side effects of these therapies are loss of appetite, nausea and vomiting. Practicing fasting in the presence of the said toxicities may exacerbate malnutrition and potentiate additional weight loss. Small but frequent meals spread evenly throughout the day as well as intake of antiemetics, antacids and other drugs to counteract the side effects of chemotherapy are recommended.

Sleep and physical activity

Sleep

Along with physical discomfort and emotional tension many patients struggle with sleep problems such as nightmares, insomnia, daytime sleepiness and fatigue. However, a fulfilling and restful sleep (7 to 8 hours) is crucial for cancer patients undergoing antitumor therapies, since it is key to a patient's immune system function, body recovery processes, mental and emotional state and quality of life.

In order to maintain a healthy circadian rhythm, it is necessary to adhere to a regular sleep schedule with falling asleep and waking up at the same time every day, even on chemotherapy days. A comfortable and restful sleep environment can make a significant difference in sleep quality. A cool, dark and quiet room along with a quality mattress, pillows and bedding can be crucial to healthy sleep. Avoid alcohol, nicotine and caffeine consumption at least 6 hours before bedtime. Exposure to screens, such as smartphones, tablets or TV, immediately before sleep may suppress the production of the sleep hormone melatonin and make it harder to fall asleep.

Physical activity

Cancer patients have reduced levels of physical activity. Inactivity and depression, on the one hand, and cancer treatment, on the other hand, have serious adverse effects on a patient's muscle mass. Data from many analyses provide convincing evidence that physical activity is well tolerated and safe at various stages of cancer and that patients with advanced disease are able and willing to engage in physical activity. Increased physical activity is associated with maintenance or significant improvement of a patient's aerobic capacity, muscle strength, lean muscle mass, quality of life and self-esteem.

The following are recommended:

- Aerobic exercises such as walking in the fresh air, cycling, etc. result in a reduced risk of muscular atrophy due to inactivity.
- In addition to aerobic exercises, individualized resistance exercises are recommended. Such exercises may be done using self-weight, such as abdominal crunches and plank position exercises, and may also include the use of bands of varying resistance, dumbbells (not very heavy) or a medicine ball, and are more effective in improving upper and lower body muscle mass and strength than aerobic exercises.
- All exercises should be tailored to the individual abilities, comorbidities, general condition, type of cancer and surgical interventions performed.
- Physical exercises should strengthen the body's tone and improve a patient's general condition without causing overexertion.
- One of the easiest ways to reach healthy physical activity is to walk daily and use a pedometer to track results.
- About 90 minutes of walking a day is recommended, which is equal to an average of 7 to 8,000 steps. Walking, on its part, should not be high-intensity, should not cause fatigue or shortness of breath and should not increase heart rate above 115/min.
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Additional recommendations for gastrointestinal cancer patients

Upper esophageal, head and neck cancer patients

Head and neck cancer patients often experience difficulty eating and swallowing food. Consumption of soft food or a soft diet is recommended, which consists of foods that can be easily mashed with a fork and are easier to chew and swallow. Examples are tender cooked meat, fish, eggs. Food chopped into small pieces soaked in more liquid (sauce). Soft cooked or canned fruits and vegetables (potatoes, pumpkin, broccoli, banana, pear, peach, etc.). Well-cooked pasta or macaroni well soaked in liquid or sauce. Blended foods in a blender made into purees. Liquid/mushy foods such as cream soups, juices, fresh milk, creams, yoghurt, pudding, shakes, ice cream, smoothies, etc.

For persistent or progressive complaints of inability to have adequate calorie intake of soft and liquid/mushy foods use of nasogastric access for tube feeding (a thin tube passing through the nose and reaching the stomach) or performance of gastrostomy (a tube passing through the abdominal wall and providing access to the stomach whereby feeding can take place) are recommended.

Gastric and lower esophageal cancer patients

Treatment of gastric and lower esophageal cancer often requires surgical removal of the entire stomach or partial gastric resection. Lack of stomach is associated with an inability to take large amounts of food at one meal and a reduced ability to absorb certain vitamins and minerals such as Vitamin D, calcium and iron or Vitamin B12, leading to the development of their deficiencies. You may experience a dumping syndrome when fluids pass into the small intestine too quickly causing cramping, nausea, bloating, diarrhea and dizziness.

To avoid these complications and ensure adequate food intake it is necessary to schedule smaller and more frequent meals (6-8 meals a day). Fluid intake is recommended to be in smaller amounts after or simultaneously with meals. Limit intake of alcohol, caffeine, carbonated drinks and spicy foods. Monitor Vitamin D, calcium and iron or Vitamin B12 levels through blood tests and if deficiencies are present contact your doctor for their correction.

Bile duct and pancreatic cancer patients

In these diseases surgical removal of part of the pancreas is often required. The pancreas is an organ that is responsible for the production of enzymes and bicarbonates needed to digest food and neutralize gastric acid. Many patients with bile duct and pancreatic cancer require pancreatic enzyme product supplementation to assist the processes of food digestion and absorption, prevent weight loss and control discomforts associated with pancreatic enzyme deficiency. It is essential to take these enzymes with every meal, especially with foods rich in fat and protein (meat, dairy products) and very fiber-rich foods such as cereals and dried fruits. Otherwise, these foods may cause diarrhea due to non-digestion of the ingested nutrients.

Intake of enzymes with a large meal (600 calories) and a small meal (300 calories) is recommended to be 40,000 to 50,000 U units and 10,000 to 25,000 U units, respectively, of the approved enzyme products CREON®, Pancreaze®, Pertz®e, Viokace® and Zenpep®.

Dose adjustment by your primary doctor may be required if diarrheal complaints persist. If heartburn is reported an antacid drug such as NEXIUM® or FAMOTIDINE® may need to be prescribed by the primary doctor for symptom correction.

Colorectal cancer patients

Hemicolectomy is a surgical procedure that involves removal of part of the colon. Fortunately, it usually has minimal impact on digestion. The colon continues to absorb water, electrolytes and nutrients from the food taken in, however, some people may experience more frequent constipation, diarrhea, stomach cramps, fatigue. If you notice significant changes, consult your primary doctor for prescription of symptomatic therapy.

A healthy and balanced diet with foods rich in fiber and antioxidants such as leafy greens (spinach, lettuce, parsley, broccoli), fruits (mango, strawberries, blueberries blackberries, melon, orange, lemon, kiwi) is recommended. Hydration with plenty of fluids (water, juices, teas) may aid digestion and alleviate side effects such as constipation and fatigue. Limit caffeine and alcohol, red meat and dry cold meats. Take minimally processed dairy products rich in calcium and Vitamin D (yogurt, fresh cheese).

In the first 1 to 2 months after surgery a soft or low-fiber diet should be started to allow the gastrointestinal system to adjust. Avoid foods such as beans, cabbage, whole grains (nuts, seeds, oats), carbonated drinks that can cause gas and bloating. Later, you can switch to a complete and balanced diet. Eating smaller portions throughout the day may be easier for the gastrointestinal system.

Dietary supplements

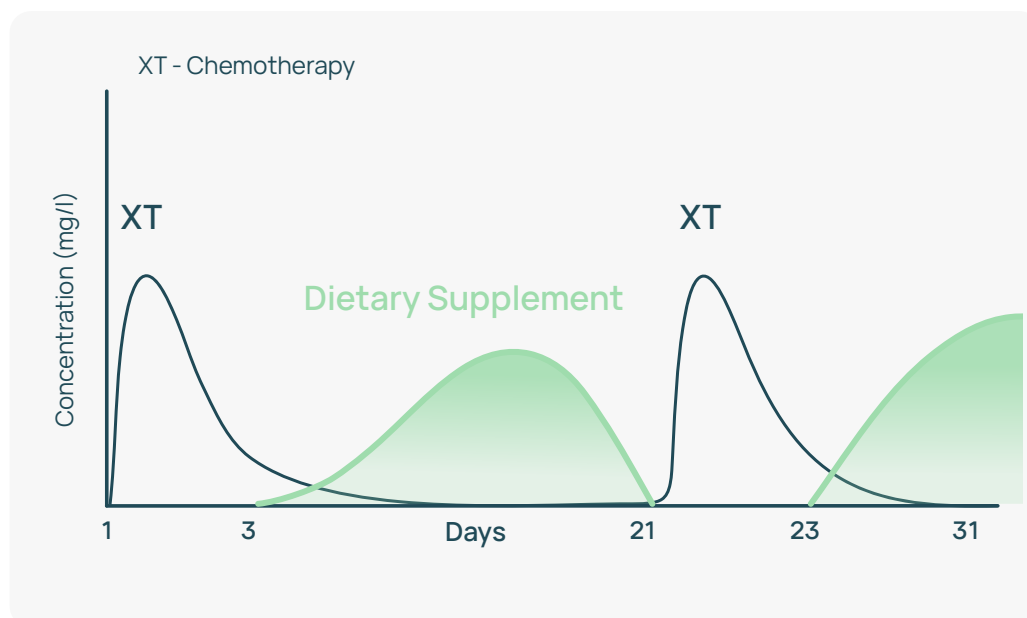
The use of alternative medicine and dietary supplements is extremely popular among cancer patients. Statistics show that the percentage of cancer patients using alternative medicine and dietary supplements can be as high as 73.1% in some European countries. It is important to realize that this phenomenon is a consequence of a completely normal and expected mental and emotional reaction in a patient in an attempt to regain control over their own health.

It is a huge problem that patients can easily be misled by people of no medical education offering false healing practices or inappropriate and non-standardized nutrients, not tailored to the therapy being administered and the body's demands, which not only carry a risk of cross-reactions with the medical treatment, but may also encourage patients to completely abandon conventional medical approaches.

Dietary supplements should add to the diet both quantitatively and qualitatively, providing an easy way of highly concentrated intake of healthy nutrients.

Dietary supplements should be considered a means of further enrichment of an already optimized diet in people with increased nutritional demands who are experiencing difficulties in reaching a balanced diet due to external factors.

Intake of dietary supplements during antitumor treatment should be under the supervision of the primary doctor. An appropriate time to take concentrated nutrients is often during the recovery period in the days between antitumor treatment courses – in this way the risk of cross-reactions is minimized.



Important:

It is essential to avoid taking doses above the maximum daily allowances of substances (overdosing), as well as various nutrients that are strong and moderate modulators of CYP450 family enzymes, such as grapefruit juice, St. John's wort, goldenseal (hydrastis), cat's claw, methystic pepper (kava kava), kratom, echinacea, red clover (trifolium pratense), chamomile, licorice, etc., since they carry a high risk of causing a side reaction with medical therapies.

Properly administered dietary supplementation under medical supervision contributes to correction of nutritional deficiencies, accelerated recovery processes and counteracts malnutrition, fatigue, lack of appetite, nausea, involuntary loss of body mass and many other common toxicities during cancer therapies.

The use of Prima Sanitas dietary supplements during antitumor therapy should be tailored to your treatment schedule and the risk of developing malnutrition. Ask your primary doctor if you are suitable for administration of Prima Sanitas Regimen.

The Plan PrimaSanitas

All products are taken simultaneously, once a day, in the specified amounts, morning or noon, immediately before or during a meal.



Discount code: _____

The regimen consists of a daily intake of the dietary supplements in the indicated doses:

- **Prima Sanitas Antioxidants:** 3 capsules/day
- **Prima Sanitas Omega-3 EPA/DHA:** 3 capsules/day
- **Prima Sanitas Protein/Glutamine:** 1 30-g scoop
- **Prima Sanitas Probiotic/Prebiotic:** 1 capsule/day



Prima Sanitas Antioxidants:

Suitable for cancer-related fatigue
chemotherapy-related nausea and vomiting.
Helps reduce oxidative stress and inflammatory reactions; prebiotic stimulation of the gastrointestinal microbiome.



Prima Sanitas Probiotics + Prebiotic:

Suitable for dysbiosis due to antibiotic and antitumor therapies.
Contributes to reduction of chemotherapy-related diarrhea and constipation; reduction of opportunistic infections and gastrointestinal inflammation and improved immune function.



Prima Sanitas Omega-3 EPA/DHA Oil:

Suitable for anorexia, cachexia and constipation.
Contributes to reduction of chronic inflammation and inflammatory markers, lipid profile improvement; hepatoprotection; cardiovascular health, prevention of chemotherapy-related peripheral neuropathy.



Prima Sanitas Protein and Glutamine:

Suitable for lean muscle mass and electrolytes loss.
Contributes to activation of anabolic processes in skeletal muscles; improved immune function; recovery of gastrointestinal mucosa; improved protein intake.

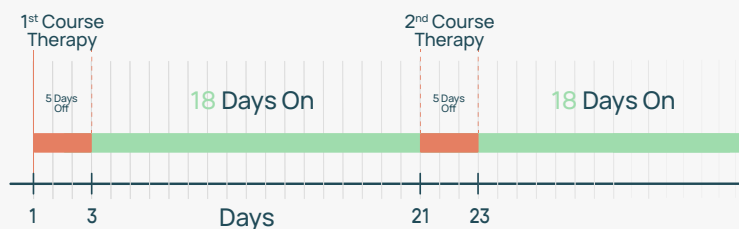
We donate 5% of every sale to charity!

Prima Sanitas Regimen recommended intake – dosage and cyclicity

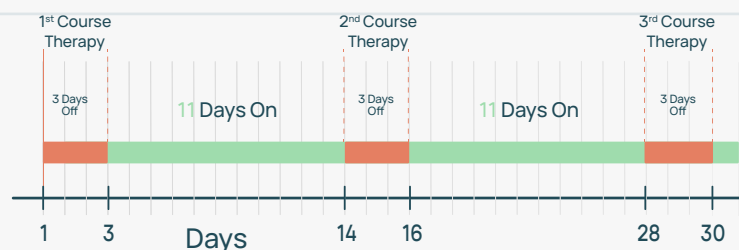
Over 28 days



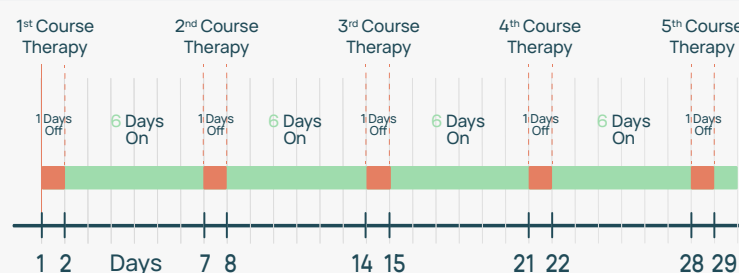
Over 21 days



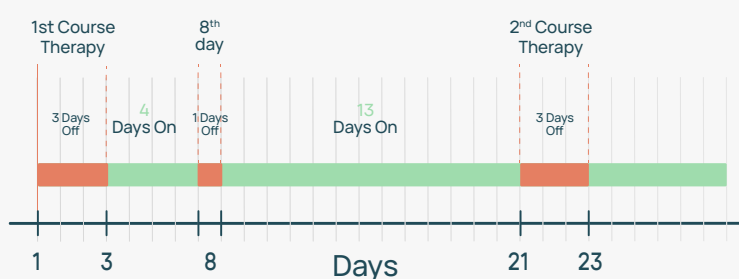
Over 14 days



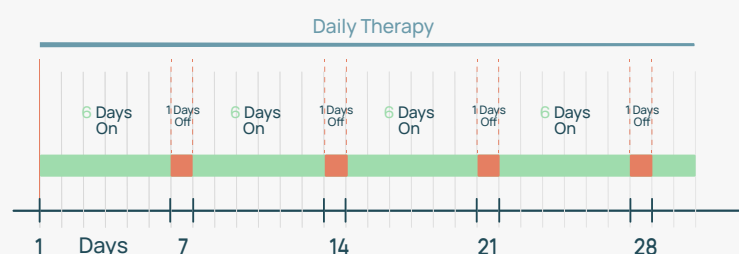
Over 7 days



1st, 8th, in 21 days



daily oral intake



dynamic control

