

Cancer Association of South Africa (CANSA)



Fact Sheet on Nutrition and Related Tips for People Living with Cancer

Introduction

What one eats is really important when one has cancer. The body needs sufficient kilojoules and nutrients to remain strong in the fight against the cancer. Good nutrition can help cancer treatments work better. Nutrition is an important part of one's cancer treatment. Eating the right kinds of foods before, during, and after treatment can help one feel better and stay stronger. However, cancer can make it difficult to always take in what one's body requires. This can be different before, during, and after cancer treatment. A further complication may be that often one just does not feel like eating.



[Picture Credit: Nutrition]

There is no way to know whether one will develop eating problems during a cancer journey, and, if so, how bad it may be. One may have just a few problems or none at all. In part, this depends on the type of cancer one has, which part of one's body is affected, what kind of treatment one is receiving, how long the treatment lasts, and the dose of the treatment received. During treatment, there are many helpful medicines and other ways to manage eating problems. Once treatment ends, many eating problems may go away. One's doctor, nurse, or Registered Dietitian can tell one more about the types of eating problems one might expect and ways to manage them. If one starts to experience eating problems, tell the treating physician, Registered Dietitian, or nurse right away.

Prado, C.M., Pucell, S.A. & Laviano, A. 2020.

"Many patients with cancer experience poor nutritional status, which detrimentally impacts clinical outcomes. Poor nutritional status in cancer is primarily manifested by severe muscle mass (MM) depletion, which may occur at any stage (from curative to palliative) and often co-exists with obesity. The objective of this article was to discuss gaps and opportunities related to the role of nutrition in preventing and reversing low MM in cancer. It also provides a narrative review of relevant nutritional interventions for patients capable of oral intake. The impact of nutrition interventions to prevent/treat low MM in cancer is not well understood, potentially due to the limited number of studies and of clinically viable, accurate body composition assessment tools. Additionally, the type of study designs, inclusion criteria, length of intervention, and choice of nutritional strategies have not been optimal, likely underestimating the anabolic potential of

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nutrition interventions. Nutrition studies are also often of short duration, and interventions that adapt to the metabolic and behavioural changes during the clinical journey are needed. We discuss energy requirements (25-30 kcal/kg/day) and interventions of protein (1.0-1.5 g/kg/day), branched-chain amino acids (leucine: 2-4 g/day), β -hydroxy β -methylbutyrate (3 g/day), glutamine (0.3 g/kg/day), carnitine (4-6 g/day), creatine (5 g/day), fish oil/eicosapentanoic acid (2.0-2.2 g/day EPA and 1.5 g/day DHA), vitamin/minerals (e.g. vitamin D: 600-800 international units per day), and multimodal approaches (nutrition, exercise, and pharmaceutical) to countermeasure low MM in cancer. Although the evidence is variable by modality type, interventions were generally not specifically studied in the context of cancer. Understanding patients' nutritional requirements could lead to targeted prescriptions to prevent or attenuate low MM in cancer, with the overall aim of minimizing muscle loss during anti-cancer therapy and maximizing muscle anabolism during recovery. It is anticipated that this will, in turn, improve overall health and prognostication including tolerance to treatment and survival. However, oncology-specific interventions with more robust study designs are needed to facilitate these goals."

Haskins, C.P., Champ, C.E., Miller, R., Vyfhuis, M.A.L. 2020.

Purpose: Poor nutrition is highly implicated in the pathogenesis of cancer and affects the survival of patients during and after completion of definitive therapies. Mechanistic evidence accumulated over the last century now firmly places dysregulated cellular energetics within the emerging hallmarks of cancer. Nutritional intervention studies often aim to either enhance treatment effect or treat nutritional deficiencies that portend poor prognoses. Patients living within food priority areas have a high risk of nutritional need and are more likely to develop comorbidities, including diabetes, hypertension, renal disease, and cardiovascular risk factors. Unfortunately, there is currently a paucity of data analyzing the impact of food priority areas on cancer outcomes.

Methods: Therefore, we performed a review of the literature focusing on the molecular and clinical interplay of cancer and nutrition, the importance of clinical trials in elucidating how to intervene in this setting and the significance of including citizens who live in food priority areas in these future prospective studies.

Conclusions: Given the importance of nutrition as an emerging hallmark of cancer, further research must be aimed at directing the optimal nutrition strategy throughout oncologic treatments, including the supplementation of nutritious foods to those that are otherwise unable to attain them.

How Illness and Cancer Can Affect Eating and Drinking

When one is healthy, eating enough food to get the nutrients and kilojoules one need is not usually a problem. Most nutrition guidelines stress eating lots of vegetables, fresh fruits (in season), and whole-grain products; limiting the amount of red meat; avoiding those that are processed or high in fat; cutting back on fat, sugar, and salt; maintaining a healthy weight; and avoiding alcohol. But when one is being treated for cancer, these things can be hard to do, especially if one has side effects from the cancer itself, or the cancer treatment. It may be a case of just not feeling well.

Loss of appetite (anorexia) - Many people with cancer experience loss of appetite. It occurs because cancer or its treatments can affect the way food smells, or tastes, or one does not feel like eating. If one does not take in sufficient kilojoules from the right foodstuffs, one can lose weight. Weight loss is one of the most common side effects of cancer and its treatment. Weight loss can weaken the immune system, affect how wounds heal and make one tired and feeling uncomfortable. During cancer treatment, one needs to stay well-nourished to help the body deal with cancer and its

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treatment. This is also true for children with cancer who need to stay well-nourished to withstand their disease as well as for normal growth and development.

- Try not to skip meals. Make an effort to eat regularly even if it is only a few bites. Try eating small meals and snacks throughout the day. Some people may have a better appetite in the morning, so eat a large breakfast. Try eating a bedtime snack.
- If caring for someone with cancer, try not to blame them for not eating. Do not bribe or threaten them to get them to eat.
- Appetite is very much affected by how food looks and by the eating environment. Try to help make meals appealing and fun. Explore different ways of presenting food. Put small portions on the plate.
- One should eat whatever one wants, whenever one wants it. Eat breakfast food at suppertime if that is most appealing. Eat small snacks and meals every 1–2 hours throughout the day. Eat well during times when appetite returns.
- Check with a doctor or Registered Dietician about taking vitamin or mineral supplements to help improve overall nutrition. They may recommend commercial nutritional supplements if one cannot meet one's nutritional needs from food or drink alone.

Sore mouth and/or throat - during cancer treatment, one's mouth or throat may feel very dry, sore, or raw. This may be a side effect of surgery, some chemotherapy drugs or radiation therapy treatments.

- Rinse the mouth with a mixture of ½ teaspoon of table salt in a glass of water or ½ teaspoon of baking soda (sodium bicarbonate) in a glass of water. Always rinse after every meal and at bed time. For severe mouth sores, it may be advisable to rinse every 1 to 2 hours during the day and 1 or more times during the night. Consult the oncologist in severe cases.
- Avoid mouth washes that contain alcohol as this may itself be a cause of dryness and may sting when used as a mouth rinse
- If one's mouth or throat is dry, try taking regular sips of water or other soothing fluids throughout the day. Carry a water bottle when travelling away from home. Try sucking on sugarless hard candy or chewing sugarless gum. Ask a health professional about artificial saliva to moisten the mouth
- Drink through a straw. This helps liquids to bypass sores and other tender areas of the mouth
- Keep the lips moist. If the lips have no open areas, one can use a moisturiser that has an oil base. If the lips have open areas, use only moisturisers that are water soluble
- Continue to clean teeth even when one's mouth is sore. If using a tooth brush is problematic or causes pain and discomfort, buy disposable sponge swabs. Use the swabs to gently massage the gums, tongue, and soft tissue
- Avoid flossing if it makes the gums hurt or bleed or if one's platelet count is low

- Do not wear dentures or dental plates that do not fit well. Have a dentist adjust or repair them. Do not wear dentures or dental plates while sleeping. To clean dentures and dental plates, use denture cleaners that bubble (are effervescent). Rinse the dentures and dental plates well before wearing them
- Do not use tobacco in any form. This includes cigarettes, cigars, or pipes. Do not chew tobacco. This also applies to e-cigarettes and hubbly bubbly.

- Do not drink alcohol; it will irritate a sore or tender mouth and throat. According to the International Agency for Research on Cancer (IARC), alcohol is a Group 1 cancer causing chemical
- See a dentist for regular check-ups. Tell the dentist about the cancer treatment. Give the dentist the name and phone number of the oncologist



[Picture Credit: Dental Care]

- Before having any dental work done, it is very important to discuss it with one's oncologist. This includes cleaning, fillings, extraction of teeth, insertion of dental implants, and special gum treatments
- In severe cases, request a doctor to prescribe something to help numb the mouth and throat. These medicines are available as lozenges, sprays, or liquids
- The doctor may also decide to prescribe medicine for pain. Take the medicine 1 to 2 hours before meals. If pain is constant, take pain medicine at regular times spaced evenly around the clock. Always take it, for example, every 4 to 6 hours, or as ordered by the doctor. If the pain is not relieved, ask for help from a doctor or nurse
- If there is an infection in the mouth or throat, one may need to take antibiotics. These antibiotics come in different forms. Some are liquids swished in the mouth and throat, and others are applied directly to the mouth and throat. Some are pills taken by mouth. Use these medicines exactly as prescribed. Always consult an oncologist before taking any medicine
- If there is any bleeding in the mouth, apply pressure with a piece of gauze dipped in ice water. Rinsing the mouth and throat with ice water - this may help to stop the bleeding
- Eat foods that are soft, are bland, and are cold or at room temperature
- Beverages: try milk, instant breakfast drinks, nutritional supplement drinks, milk shakes, smoothies, store-bought eggnog, warm Rooibos tea with sugar, apple juice, or something soothing
- Soups: rather drink creamed soups – check the sodium content to ensure that not too much sodium is consumed
- Cheese: cottage cheese; any cheese sprinkled over eggs, vegetables, or meat; macaroni and cheese – rather make use of grated hard cheeses
- Eggs: only eat well done eggs – egg shells are porous. Bacteria including the human pathogen salmonellae can readily penetrate the shell and membranes of an intact egg and can lead to infections.
- Meats and fish: eat well cooked chicken, turkey, or fish that is soft and moist. Add broth, soup, sauces, or gravy to make them moist. If experiencing trouble chewing, try meat that is ground or pureed. Limit red meat intake
- Fruits: eat fresh fruits (in season) like bananas, peaches, pears, apples, apple sauce. It can be softened or pureed in a blender. Try frozen fruits such as grapes, banana pieces, melon balls, peach slices, or mandarin orange slices
- Vegetables: only eat well cooked carrots, peas, string beans, broccoli crowns, spinach, and other cooked vegetables that are soft. Add sauces, margarine, or butter to make them moist
- Other: try cooked cereal, moist casseroles, mashed potatoes, pasta, noodles
- Desserts: eat any pudding, frozen pops, custard, unsweetened yogurt, ice cream, or gelatine (jelly)

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Certain foods and drinks may irritate, burn or scratch the mouth when the mouth is sore or tender. To help prevent this problem, do not eat or drink anything while it is hot. Only eat and drink cold or lukewarm foods and drinks. Preferably avoid the following foods and drinks:

- Tomatoes; citrus fruits and juices, such as orange, lemon, lime.
Always avoid grapefruit as it negatively impacts on various chemotherapy medicines
- Pepper, chili powder, cloves, nutmeg or any other irritating condiments
- Salsa, hot pepper sauces, horseradish
- Rough, dry, or coarse foods
- All alcoholic drinks.



[Picture Credit: No Grapefruit]

Dry mouth - Dry mouth (xerostomia) can be a troubling side effect and can be caused by a number of factors that persons being treated for cancer can be exposed to such as:

- Medications: Chemotherapy, pain medications, anti-depressants, diuretics (water pills)
- Radiation therapy: this can cause dry mouth when the salivary glands have been exposed to radiation. The salivary glands produce saliva - the moisture in one's mouth or spit. Sometimes, over a period of time, the salivary glands will start to work again but they rarely return to full normal function. Dry mouth caused by radiation to the salivary glands can be a lifelong problem
- Other conditions: conditions such as dehydration, or fungal infection of the mouth (candidiasis) may also lead to xerostomia.

Treating dry mouth may be relieved by treating the underlying cause(s) such as dehydration or infection. In cases where medications that can cause dry mouth, and the benefits of taking the medication outweigh the side effects, consult a health professional for advice. Dry mouth caused by damage to the salivary glands may be a lifelong problem and requires patience when treating. There are many treatments that may assist in alleviating xerostomia and one should try them until one finds a remedy that works.

Things that one can do for a dry mouth - keep mouth and lips moist:

- Rinse the mouth with water frequently (every 2 hrs while awake & when awake during the night). One could add salt, baking soda ($\frac{1}{2}$ to 1 teaspoon in 250ml of water), or $\frac{1}{2}$ to 1 teaspoon lemon juice in 250ml water to the rinse the mouth
- Use a saliva substitute that is commercially available – Biotene dry mouth mouthwash can be purchased without a prescription. Products available for treating dry mouth are; mouthwash, toothpaste, as well as sugar-free chewing gum that has the pH of saliva
- Use an oral balanced moisturising gel which can be applied to the mouth or tongue - it acts as a moisturising coat – ask the pharmacist for assistance
- Apply a non-irritating lip moisturiser as often as required
- Suck on tart hard candies (lemon drops), however, watch the sugar content with candy as it could contribute to dental caries – rather use sugar-free candies
- Use a cool mist room humidifier at night in the bedroom. A humidifier on a furnace does not provide enough humidity for treating a dry mouth

Keep the mouth and teeth clean:

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- Use a soft-bristle toothbrush (it can be softened even more by placing the brush in very warm water), cotton swabs, mouth swabs (popsicle stick covered with gauze) to clean teeth after each meal and at bedtime. Repeat this 3 or more times a day

[Picture Credit: Flossing]



- Clean dentures and/or bridge after eating. Leave out dentures if experiencing any discomfort caused by xerostomia (dry mouth)
- Floss gently with un-waxed floss (if platelet count not too low)
- Use a water flosser, e.g. Water-Pik® water flosser
- Use a non-alcohol based mouthwash - avoid mouthwashes with an alcohol base
- Avoid lemon glycerine swabs - it may contribute to dryness of the mouth

[Picture Credit: Water-Pik water flosser]



Increase fluid intake:

Drink enough liquids - the average adult needs 25-30 ml of fluid per kg of body weight per day to maintain hydration, unless advised not to by your doctor. This helps to thin and loosen mucous. 60% of fluid intake should be clean safe (potable) water.

- Carry a water bottle and sip small amounts frequently during the day to help alleviate dry mouth
- Limit coffee and tea intake. These contribute to dry mouth. Caffeine containing products such as coffee, tea and colas act as diuretics
- Avoid alcohol
- Try Ovaltine® - it contains kilojoules and vitamins - as a substitute for tea and coffee

[Picture Credit: No Alcohol]



[Picture Credit: Ovaltine]



Diet:

- Eat a soft, high protein moist diet
- Rather eat moist fish, eggs, cheese instead of red meat
- Serve food lukewarm, hot food can burn one's mouth
- Avoid dry foods (bread, dry meat, pastries, toast and crackers, or snack foods that are dry and salty).
- Soak bread and or rolls in milk or sauces – check sauces for sodium content
- Eat moistened casseroles and meats with gravies, sauces, soups, stews – check sodium content
- Use sour cream, and half & half cream as sauce bases (it adds kilojoules)
- Avoid citric foods, juices such as tomato, orange, grapefruit based products and sauces
- Blenderise foods
- Try unsweetened yogurt, fresh fruit, and powdered milk

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- Fruit slushies
- Enjoy milk shakes with or without fresh fruit
- Avoid sodas that are fizzy
- Milk is high in protein but may produce thick saliva. If this occurs, try soy or rice milk

Medications that may be prescribed by a health care provider for treating dry mouth:

If dehydration is present then treating of the condition leading to dehydration such as nausea, vomiting or diarrhoea would be in order. Depending on the degree of dehydration, a health professional may recommend intravenous (IV) fluids. Sometimes this may be done as an outpatient. In severe cases, hospitalisation could be required.

If dry mouth is due to infection, request a doctor to prescribe medications for treating the infection

When to call your doctor or healthcare professional:

- Temperature greater than 38° C
- Nausea (interferes with ability to eat and unrelieved with prescribed medication)
- Vomiting (vomiting more than 4-5 times in a 24 hour period)
- Diarrhoea (4-6 episodes in a 24-hour period)



[Picture Credit: Hyperpyrexia]

- Unable to eat or drink for 24 hours or have signs of dehydration: tiredness, thirst, dry mouth, dark and decreased amount of urine, or dizziness
- Pain or any sign of infection (such as heavily coated tongue)

Dental and oral problems - dental and oral health refers to the well-being of one's entire mouth, which includes the teeth, gums, mucosa (lining of the mouth) and salivary glands. Cancer or not, many people tend to overlook dental health, but it is a critical component of overall health, and especially when diagnosed with cancer.

When most people think about the side effects of cancer treatment, they conjure images of nausea and hair loss—but there are a variety of other common side effects, including oral complications such as mouth sores (mucositis) and dry mouth (xerostomia). These seemingly small complications can have serious consequences because they can interfere with planned cancer treatment, reduce quality of life and even lead to life-threatening infections.

Several types of cancer treatments are associated with oral side effects, including chemotherapy, bone marrow transplantation and radiation to the head and neck. These treatments can slow or stop the growth of new cells, limiting the ability of oral tissue to repair itself. What's more, some cancer treatments can upset the healthy balance of bacteria in the mouth, which can lead to mouth sores, infections and tooth decay. Finally, radiation to the head and neck can directly damage and break down oral tissue, salivary glands and bone.

Dental health is important all of the time but especially during cancer treatment. It is recommended to:

- Regularly clean teeth

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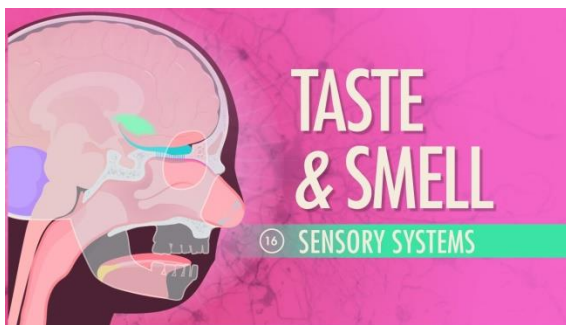
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- Floss if there are no broken mucosa on gums
- Scrape the tongue
- Stay hydrated
- Eat a healthy diet low in sugar and sodium

Dental health issues arising during cancer treatment:

One should always consult one's oncologist before undergoing any dental procedures. Many health care providers do not recommend any type of oral invasive treatment done while a patient is undergoing cancer treatment. Often cancer treatment can compromise the immune system, and an invasive oral procedure could be risky in terms of infection. If dental treatment is absolutely necessary during cancer treatment, to reduce the risk of infection it is important to coordinate it between chemotherapy cycles and at a time when white blood cell counts are high.

Changes in taste or smell - Taste and smell are part of the body's alarm system, detecting warning messages that can prevent against the intake of food-borne or environmental toxins. These senses are also key to stimulating food intake to feed the body's nutritional and energy needs. That is why changes to taste or smell can have repercussions that significantly alter a cancer patient's quality of life.



[Picture Credit: Taste and Smell]

Cancer treatments such as radiation therapy, surgical oncology and chemotherapy may damage taste buds, resulting in loss of appetite and weight loss, or in more severe cases, in malnutrition. Distorted senses may also produce a metallic or bitter taste, or impair the patient's ability to detect certain odours. Alterations in the sense of smell

may also affect the ability to taste many foods.

A Registered Dietitian (RD) may help patients with changes in taste and smell, also called altered sensory perception. Using plastic or wooden utensils rather than metal ones may help, particularly when patients experience a metallic taste.

Patients may also be advised to avoid canned foods, microwaved foods and artificial sweeteners, to use non-meat protein sources, marinades, different herbs and spices, and to eat more tart foods.

In some cases, a Registered Dietitian may recommend zinc supplements, which may improve taste alterations. For those experiencing sensitivity to smells, avoiding cafeterias and restaurants with overwhelming odours may prevent nausea.

Similarly, patients may find that they can tolerate cold foods better than hot foods, since hot-plated foods typically carry a stronger aroma.

Be Wary of Quack Cancer Diets

One of the difficult things about science-based medicine is determining what is and is not quackery. While it is quite obvious that modalities such as homeopathy, acupuncture, reflexology, craniosacral

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therapy, Hulda Clark's "zapper," the Gerson therapy and Gonzalez protocol for cancer, ketogenic diet, and reiki (not to mention every other "energy healing" therapy) are the rankest quackery, there are lots of treatments that are harder to classify. Much of the time, these treatments, that seemingly fall into a "grey area", are treatments that have shown promise in animals but have never been tested rigorously in humans or are based on scientific principles that sound reasonable but, again, have never been tested rigorously in humans.

Often these therapies are promoted by true believers whose enthusiasm greatly outstrips the evidence base for their preferred treatment.

Whenever one comes across any claims about a cancer diet, the first reaction should be: "Show me the evidence".

Consultation with a Registered Dietitian

Patients on any type of cancer treatment (oncology surgery, radiation therapy and/or chemotherapy) should, if at all possible, consult a Registered Dietitian (RD) whenever they experience any issues with nutrition or diet. The same applies to cancer survivors between cancer treatments and upon completion of their cancer treatment.

[Picture Credit: Ask the Dietitian]



For individualised nutritional advice, consult a Registered Dietitian (RD) in your area by visiting:
<http://www.adsa.org.za/Public/FindARegisteredDietitian.aspx>

Medical Disclaimer

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific condition or situation. Readers of this document should seek appropriate medical advice prior to taking or refraining from taking any action resulting from the contents of this Fact Sheet. As far as permissible by South African law, the Cancer Association of South Africa (CASNA) accepts no responsibility or liability to any person (or his/her dependants/estate/heirs) as a result of using any information contained in this Fact Sheet.

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Water-Pik Water Flosser

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