

Cancer and Nutrition

Good nutrition is important for everyone, and especially so if you are undergoing treatment for cancer. Cancer and its treatment can affect your nutritional needs or eating habits in various ways, for instance by:

- Interfering with the functioning parts of the body for tasting, eating or digestion
- Causing appetite loss from side effects (e.g. nausea, constipation)
- Causing loss of body nutrients and hydration (e.g. diarrhoea, vomiting)

As severe weight loss and malnutrition can interfere with the functioning of important body organs, you should take extra care to ensure that you are eating well, more so if you are recovering from surgery or having cancer treatment. Eating well can help you to maintain your energy levels, keep up your weight and body nutritional status, better tolerate side effects and aid in your recovery.

Your Nutritional Needs

The nutritional needs of individuals undergoing cancer treatment vary from person to person. For instance, you may be advised to eat more 'high calorie' foods if you suffer from a poor appetite, or you may be encouraged to take less fibre when you are having diarrhoea or blockage in your intestines. Otherwise, nutrition recommendations typically focus on the balanced intake of nutrients and fluids, which include proteins, carbohydrates, fats, vitamins, minerals and water. In general, you must take enough nutrients for your body to function at its best before, during and after treatment.



Nutrient sources

Proteins	Protein is essential for building muscles, healing wounds and maintaining a healthy immune system to prevent infections. During illness, protein needs are often increased. <ul style="list-style-type: none">• Examples: Lean meat, fish, poultry, eggs, dairy products, tofu, taukwa, nuts, dried beans, dhal, chickpeas
Carbohydrates	Carbohydrates provide most of the energy (calories) your body needs to function properly. Some carbohydrate-containing foods also provide vitamins, minerals and fibre.

	<p>Your caloric needs depend on your age, body size, level of activity and health status.</p> <ul style="list-style-type: none"> • Examples: Rice, noodles, chapatti, bread, pasta, biscuits, oats, dairy products, legumes, fruits, starchy vegetables like potatoes and corn - Sugars like honey, syrup and white or brown sugar are sources of concentrated carbohydrates which add calories to your diet.
Fats	<p>Fats are the most concentrated sources of energy. It also provides fatty acids that help to transport certain vitamins, produce hormones and build new cells.</p> <ul style="list-style-type: none"> • Examples: Butter, margarine, oils, nuts, seeds, cream and fat which naturally occur in meat, fish and poultry
Vitamins & Minerals	<p>Vitamins and minerals are essential for proper growth, body functions and development. If you are eating a balanced diet with enough calories and protein, chances are you will get enough vitamins and minerals.</p> <ul style="list-style-type: none"> • Vitamin A: Eggs, liver, dairy products, sweet potatoes, carrots, mangoes • Vitamin B1-12: Soy milk, watermelon, milk, yoghurt, meat, poultry, fish, mushrooms, potatoes, broccoli, avocados, bananas, eggs • Vitamin C: Citrus fruits, potatoes, broccoli, capsicum, tomatoes • Vitamin D: Fatty fish, fortified milk • Vitamin E: Vegetable oils, green leafy vegetables, nuts • Vitamin K: Cabbage, eggs, milk, spinach, broccoli • Calcium: Yoghurt, cheese, milk, sardines eaten with bones • Magnesium: Spinach, broccoli, nuts • Potassium: Meat, milk, vegetables, wholegrains, fruits, beans, nuts • Sodium: Salt, also present naturally in all foods including milk, fish, eggs, poultry



What you can do

Eating-related side effects may or may not occur in the course of your cancer treatment journey. Nevertheless, there are some things you can do to ensure that you keep up with your nutritional status:

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<p><i>Prepare yourself for treatment</i></p> <ul style="list-style-type: none">• Plan ways to cope. Keep a positive attitude, talk about your feelings, and be well-informed about your cancer and treatment. By doing these, you reduce your worry and anxiety; this will make you feel more in control and helps you maintain your appetite. • Eat a healthy, balanced diet so that you can go for treatment with enough nutritional reserves. Suggestions for healthy eating include:<ul style="list-style-type: none">○ Eat a variety of foods daily. No one type of food contains all the nutrients you need○ Try to eat at least 2 servings of each fruits and vegetables (e.g. dark green and deep yellow vegetables like spinach, kai lan, carrots, tomatoes, pumpkin, etc.) each day○ Take high fibre foods such as whole grain breads and cereals, oats and brown rice. These foods are good sources of carbohydrates, vitamins, minerals and fibre○ Substitute meat with tofu, taukwa, dhal, chickpeas or tempeh for more variety○ Choose low-fat milk products, lean meat and poultry without skin○ Try healthier cooking methods like steaming or stewing • Some cancer treatments may cause side effects and appetite loss which put you at an increased risk for malnutrition. The main goal is to try to keep your weight constant by taking a balanced diet. Talk to your healthcare providers to understand the anticipated nutrition-related	<ul style="list-style-type: none">○ Cut down on fat, salt, sugar, smoked and pickled foods, as well as alcohol

side effects of your treatment so that you know what to expect.

- Do note that depending on your condition and nutritional needs, your healthcare provider or dietitian may recommend you the appropriate dietary advice tailored to your treatment needs. You may clarify with your healthcare provider or dietitian the type of food you can take.

During treatment

- Be prepared that your food preferences may change from day to day. Even your favourite food may not taste good on some days.
- Try to drink plenty of nourishing fluids (e.g. beverages with milk, soybean milk or complete nutritional supplements), even when you are unable to eat much.
- Eat whenever you feel hungry or less tired. Even if eating problems occur, you will still have days when eating is a pleasure.
- Be patient with yourself. Treatment-related side effects usually subside after treatment ends. You will gradually begin to feel better and your interest in food will return. Get support from your loved ones, to help yourself cope better during this time.
- If you find yourself losing weight, the following are some tips to boost your energy intake:
 - Use the 'adding' principle to enrich the foods you eat. For instance, add minced meat, fish, egg or tofu to porridge and try to eat high protein foods at each meal. Apply more margarine, peanut butter or kaya on biscuits. Add tuna, sardine, or cheese to your bread, and beat additional eggs into your soup/dishes
 - Take small frequent meals or snacks throughout the day rather than three large meals, particularly if you feel full easily

- Do not be afraid to try new foods. Some things you may never have liked before may taste good to you during treatment

- Store nutritional snacks in the house and in your bag where you can reach for them anytime. These can be biscuits with cream, cheese, jam or peanut butter fillings, or nuts and lentils. Other nutritious snacks you can consider taking include soon kueh, steamed pau, waffles with spread, yoghurt, cheese or ice cream
- Make every mouthful of food and drinks count. For example, drink nourishing fluids like complete nutritional supplements or Milo, instead of plain water or clear soup
- Consider taking nutritional supplements* to boost your energy intake, for example Resource 2.0, Ensure, Ensure Plus, Enercal Plus or Resource Fruit Flavoured Beverage. Most of these supplements taste better when chilled, and you can add coffee or cocoa powder if you find them too sweet.

*** You may speak with your healthcare provider regarding a dietician referral for more information. The dietician will recommend you the most suitable type of nutritional supplements if necessary, based on your nutritional needs and medical condition.**

After treatment ends

- You may want to go back to your usual diet as you begin to feel better after your treatment completes.
- Resume a healthy, balanced diet to help yourself regain strength and improve general well-being; there is no evidence to suggest that any particular food you take will prevent cancer from recurring.

When to call your cancer care team

Please inform your doctor or nurse if your eating-related problems or weight loss worsens or do not improve after treatment. Your doctor may be able to prescribe you with medications to deal with side effects causing these problems, and/or refer you to a dietitian who can work out an individualised diet plan that best suits your nutritional needs.

If you have any questions regarding the above information, please call Cancer Helpline at **+65 6225 5655** or approach your doctor or nurse for further details.

Useful resources

For more information on nutrition, you may refer to the following:

- National Cancer Centre Singapore: Cancer & Nutrition
- Singapore Cancer Society: Eating Well During Cancer

The above contents are made available as part of TEMASEK FOUNDATION-ACCESS (Accessible Cancer Care to Enable Support for Survivors) PROGRAMME, a holistic care programme to support cancer patients during their care and recovery journey.

The contents have been reviewed by Ms. Lee Miaw Sim (Dietitian, Department of Dietetics, Singapore General Hospital), and approved by the Cancer Education Information Service, National Cancer Centre Singapore (NCCS), for people with cancer and their families and caregivers. However, this information serves only as a guide and should not be used as a substitute for medical diagnosis, treatment or advice. For specific medical conditions, please seek expert medical advice from your healthcare team.

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