

Cancer & Nutrition



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National Cancer
Centre Singapore
SingHealth

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Acknowledgement

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DISCLAIMER

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Introduction

The act of eating enhances the quality of our lives. By giving us pleasure and satisfaction, food nourishes our emotions while giving sustenance to our bodies. Can you imagine how it would feel if we were to lose our appetite and find eating no longer pleasurable?

For many cancer patients, this is a sad reality. Medications often cause nausea, while radiation treatment can make the mouth sore. The sense of taste can also disappear.

Eating well is one way to fight cancer. Although there is no one single food that can cure cancer, eating the right kinds of food before, during and after treatment can help make you feel better and stay stronger. A balanced diet provides you with all the essential nutrients so as to better tolerate the side effects of your treatment.

Suggestions about diet and eating for cancer patients may vary from the usual tips for healthy eating. Some of these suggestions may even seem to contradict what you have always known. Please feel free to contact us if you would like to discuss the points raised in this booklet. You can play an active role in your own treatment through proper nutrition.

This book can help make the treatment and recovery from cancer manageable. If you find this booklet useful, please share it with someone whom you think will benefit from it.

Enjoy the pleasure, comfort and healing power of eating.

*For information about cancer and nutrition, please call the
Cancer Helpline on 6225 5655.*

*For the electronic version of this booklet, please visit
National Cancer Centre Singapore's website:
www.nccs.com.sg*

Benefits of good nutrition



Good nutrition is important for everyone, and especially for you if you are being treated for cancer. This is because many factors related to the illness itself, as well as its treatments, may affect your appetite, and your body's ability to tolerate certain foods.

However, please note that nutritional needs of individuals undergoing cancer treatment vary from person to person. Nutrition suggestions for individuals with cancer focus on the maintenance or achievement of a healthy weight, and a balanced intake of nutrients. Essential nutrients found in food are proteins, carbohydrates, fats, water, vitamins and minerals.

Protein

Protein is essential for building muscles, repairing tissues, healing wounds and maintaining a healthy immune system. Inadequate protein intake slows recovery from illness and lowers resistance to infection. During illness, protein needs are often increased. Following surgery, chemotherapy, and radiation therapy, additional protein is usually needed to heal tissues and to help prevent infection. Quality sources of protein include lean meat, fish, poultry, eggs, dairy products, tauhu, taukwa, nuts, dried beans, dahl and chickpeas.

Carbohydrates and Fats

Carbohydrates and fats are the body's major energy (calorie) sources. Your calorie needs depends on your age, size, level of physical activity and health status. Sources of carbohydrates include rice, noodles, chapatti, bread, pasta, biscuits, oats, potatoes, corn, beans, dairy products, fruits and starchy vegetables. Sources of fats include butter, margarine, oils, nuts, seeds, and fat that which naturally occurs in meat, fish and poultry.

Vitamins and Minerals

Vitamins and minerals are essential for proper growth, body function and development. If you are eating a balanced diet with enough calories and protein, chances are you are getting enough vitamins and minerals. However, eating a balanced diet can be difficult if you are having side effects from cancer treatment eg. nausea and loss of appetite. This situation may continue for some time. In this case, the doctor may prescribe a daily multivitamin and mineral supplement.

Water

Water and fluids are very important. A large percentage of your body weight is made up of water. If you do not drink enough fluid or if you are vomiting or having diarrhoea, you may become dehydrated. Ask your doctor or nurse how much fluid you need each day to prevent dehydration. Fluids can be taken in the form of plain water, barley water, chrysanthemum tea, clear soup and fruit juices. You can also take nourishing beverages like milk, Milo, Horlicks, Ovaltine or soybean milk.

Nutrition goals for cancer patients

Any dietary problems you had before your diagnosis may be made worse by the cancer and its treatment. Sometimes, it may be difficult to distinguish between problems that are caused by cancer and its treatment, and problems that have nothing to do with cancer.

Severe weight loss and undernutrition can interfere with the functioning of the heart, liver, kidneys and other important organs of the body. You should take extra care to ensure that you are eating well, more so if you are recovering from surgery or having chemotherapy or radiation therapy. You must eat enough nutrients for your body to function at its best before, during and after treatment. This means eating foods with the proper balance of protein, carbohydrates, fats, vitamins, minerals and fiber.

Nutrition is an important aspect of total cancer treatment. Eating nutritiously while undergoing cancer therapy can help you to:

- feel better
- keep up your strength and energy level
- keep up your weight and your body's nutrition stores
- better tolerate treatment-related side effects
- recover and heal as quickly as possible.

Special nutritional needs of cancer patients

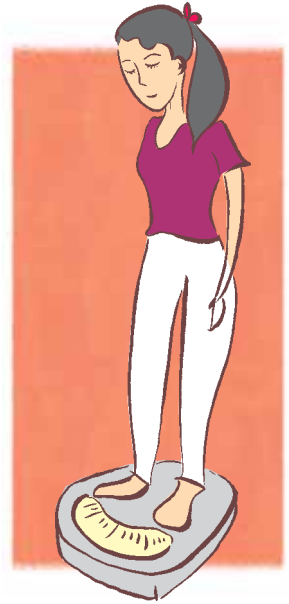
You may experience physical or mental changes as you undergo treatment for cancer. Cancer may interfere with the functioning of the parts of the body used for eating and digestion. It may also affect your body's ability to tolerate certain foods

and the way the body uses nutrients. Weight loss is very common in cancer patients. Sometimes it is caused by a loss of appetite due to the cancer itself, cancer treatment or feelings of depression. Eating the same types, and the same amounts of food you enjoyed before your diagnosis may sometimes be difficult.

Eating less is the usual response during these times, but eating more is not uncommon either. Indeed, weight gain is even more common than weight loss in certain kinds of cancer (e.g. during adjuvant therapy for primary breast cancer). Under these circumstances, a calorie restricted diet may help you to feel better.

Some foods may taste less appealing during cancer treatment, and as a result, you may eat less of them. Many cancer patients have told us “food just doesn’t taste the same”. You may also feel this way as cancer treatments can cause a bitter or metallic taste in the mouth. There are also those who lose their sense of taste. These people no longer enjoy their food and taste preferences can change from day to day. Common foods such as beef, chicken, vegetables or fruit may seem flavourless. Even salty or spicy foods may taste bland. Beef or pork, and foods containing caffeine may seem bitter and desserts may taste too sweet. You need to try and make changes to find what is palatable to you.

Your doctor, nurse or dietitian will advise you on your nutritional needs. You may be advised to eat more high calorie foods if you suffer from a poor appetite or you may be encouraged to eat less of certain high fiber foods when you are having diarrhoea.



How cancer treatment affects nutritional needs

Conventional treatments for cancer, such as surgery, radiation therapy and chemotherapy, usually affect your nutritional needs and your eating habits. Treatment side effects that may affect nutrition are:

- ❁ Soreness of the mouth, tongue and throat
- ❁ Diarrhoea
- ❁ Constipation
- ❁ Nausea
- ❁ Vomiting

- ☼ Taste changes
- ☼ Appetite changes
- ☼ Weight changes
- ☼ Milk intolerance
- ☼ Strong dislike for certain foods

Some of these problems are unique to one form of treatment while others are common to more than one.

Surgery

This is often the preferred treatment for “solid” tumours such as colon and breast cancer which are cancers other than those of the blood or lymph glands. Whether or not surgery is recommended depends on the type of cancer, its location, and if it has spread to other parts of the body. There is a possibility surgery may cause temporary or permanent nutritional problems. Long-term nutritional problems may also result when parts of the gastrointestinal tract are removed or altered. Undergoing an operation will also increase your need for calories to help in wound healing. You will be advised to rest after surgery for your wounds to heal.

Chemotherapy

Chemotherapy uses drugs to treat and control cancer. It can be used alone or in combination with radiation therapy or surgery. Unlike the other two treatments, chemotherapy affects the entire body rather than just part of it. When this happens, side effects may occur. For example, the cells lining the inside of the mouth, gullet and intestines are sensitive to chemotherapy. Therefore, side effects like diarrhoea, constipation or poor absorption of nutrients from food may result. Fortunately, these side effects last only a short time because normal cells are able to reproduce and replace themselves every 3 days. Some drugs may cause a strange taste in the mouth, making eating unpleasant. Other drugs, such as hormones, can cause water retention and bloating. So, although weight loss is the usual concern with cancer, weight gain and increased appetite is also common.

Radiation Therapy

Radiation therapy uses electromagnetic waves to kill and control cancer cells. It can either be used alone or in combination with surgery or chemotherapy. Sometimes it is used to reduce pressure, bleeding or pain caused by the cancer. Radiation treatments can lead to nutritional problems when the gastrointestinal

tract lies in the primary treatment area or near the cancerous area. Some problems occur early in treatment and last only a short time, while some appear after therapy and are longer lasting.

Preparing yourself for cancer treatment

Many people have few or no eating-related side effects. Until your treatment actually starts, you won't know exactly what side effects you may have or how they feel. Even if you do, they may be mild, and most go away after cancer treatment ends. There are new drugs now that can control these side effects. One way to prepare for them is to think of your treatment as a time for you to concentrate on yourself and on getting well. Here are some ways to get ready.

Think positively

- ✿ Have a positive attitude, talk about your feelings, be well informed about your cancer and treatment, and plan ways to cope. By doing these, you reduce your worry and anxiety, making you feel more in control and helping you maintain your appetite.
- ✿ Give food a chance. Even if you do have eating problems, you'll have days when eating is a pleasure.

Eat healthily

- ✿ A healthy diet is vital for a person's body to work at its best. This is even more important for people with cancer.
- ✿ If you've been eating a healthy diet, you'll go into treatment with reserves to help keep up your strength, prevent body tissue from breaking down, rebuild tissue, and maintain your defenses against infection.
- ✿ People who eat well may be better able to cope with side effects. In particular, it is important to maintain a balanced diet so that there is no possibility of becoming severely deficient in vitamins and nutrients.
- ✿ Don't be afraid to try new foods. Some things you may never have liked before may taste good to you during treatment.



Managing treatment side effects through diet

Eating a balanced diet means eating a variety of foods to make sure that you are getting the vitamins, minerals and nutrients necessary for good health. While there are no special foods that should be eaten or avoided during your treatment, eating a balanced diet or making some changes to your usual diet can help you overcome some of the nutrition-related problems that may occur. Sometimes, your diet may not be enough to meet your needs, in which case, a dietitian can help. Discuss this with your treating doctor.

Irritation & inflammation of the mouth, throat and tongue

“My mouth and throat are so sore” “My mouth is extremely dry”

The lining of the mouth and throat are among the most sensitive areas of the body and may be sensitive to some types of chemotherapy and radiation treatments. Soreness of the mouth and throat can occur within a week after chemotherapy and 2 or 3 weeks after radiation therapy. These treatments can also affect the salivary glands and may cause a dry mouth and painful swelling of the glands. In some cases, mouth ulcers may also develop. Healing will occur more rapidly with a healthy diet and good oral care.



Helpful Tips

- a. Speak with your doctor about the problem. He or she may prescribe an oral lubricant or anaesthetic to relieve the discomfort.
- b. Drink extra fluids each day (8 to 10 glasses) if you are not on a fluid restricted diet. If you prefer fruit juices instead of plain water, choose juices low in acid, such as apple, watermelon and honeydew to avoid irritation to the mouth. Barley and chrysanthemum drinks are light and refreshing and they do not irritate the throat and mouth.

- c. Moisten food with gravy, sauces or soups. Steamed or stewed dishes are easier to swallow. You can dip dry foods like biscuits and bread into beverages before eating them.
- d. Choose smooth, soft, creamy textured food like cream soups, mashed potatoes, porridge, yoghurt, puddings, custards, ice-cream and soupy noodles. They cause less irritation and reduce chewing time.
- e. Avoid foods that irritate the mouth. These may include:
 - ✿ Very spicy, sour or salty foods eg. curry, chilli, oranges, pure orange juice, pineapple, assam, tom yam soup, pepper, pickled fruits and vegetables.
 - ✿ Very hot or very cold foods and drinks. Extreme temperatures may irritate the mouth further. Eat your food lukewarm.
 - ✿ Caffeinated or highly sugared drinks as they may cause added dryness.
 - ✿ Hard, crunchy and rough foods such as raw vegetables and fruits, nuts, biscuits, crackers and wholemeal bread.
 - ✿ Foods that are deep-fried and grilled as these foods tend to be hard. You can try steaming, stewing or slow-cooking to obtain softer textured food.
 - ✿ Fizzy drinks and alcohol.
- f. Adjust the amount of seasoning and spices to suit your taste. Be careful not to over-flavour your food. Ask someone to help you taste.
- g. Use plastic or porcelain cutlery to reduce the metallic or bitter taste in your mouth.
- h. Practice good oral hygiene. Avoid commercial mouthwashes, as most of them are too harsh for a sore mouth. Use what your doctor prescribes or just simply gargle with salt water before and after meals to keep your mouth clean.
- i. Rinse your mouth often and suck ice-cubes to relieve mouth dryness. Avoid mouthwashes containing alcohol, as these will further dry your mouth.
- j. Avoid smoking as it can irritate your mouth and throat.

Taste Changes

"Food just doesn't taste the same"

Chemotherapy, radiotherapy, medication or infection can cause taste changes. Some people have a bitter or metallic taste in their mouth. Others may feel a numbness that blocks some taste. Sweet foods may be harder to taste and bitter foods may taste stronger than before. These taste changes are often temporary.

Helpful tips to overcome unpleasant, altered or reduced taste sensations

- a. Adjust the amount of flavourings, seasonings and spices used in cooking until you obtain the taste you desire.
- b. Experiment with soy sauce, fish sauce, vinegar, pepper, tumeric powder, honey, ketchup, herbs, lime juice, chilli sauce and other seasonings.
- c. Do not force yourself to eat foods that taste unpleasant. Instead, find substitutes for those foods. If red meat tastes bitter and metallic, have some white meat like chicken or fish instead. Eggs, tauhu, taukwa, dhal or beans are also good sources of protein and can be used as a substitute for meat.
- d. You can drink from a straw to bypass your tastebuds.
- e. Brush your teeth and rinse your mouth before meals.
- f. Chew sour plums, preserved orange peels, lemon drops or mints after meals to help get rid of any undesirable taste that lingers after eating.
- g. Allow hot food to cool a little before eating, high temperature can enhance the unpleasant taste.
- h. Encourage smaller , more frequent meals.



Changes in appetite

“I’m not hungry” “I feel so full after eating just a little”

Appetite can come and go. There may be times when you do feel like eating. Changes in appetite is a common problem for people receiving treatment for their cancer. If you really do not enjoy eating, you may want to concentrate on eating and drinking just for the nutritional value of the food. Your body needs the nutrition to fight the cancer and the side effects of treatment. Eat more when you can and when you feel like it.



Helpful tips to maintain or improve appetite

- a. Eat smaller amounts of food more frequently instead of eating three normal-sized meals.
- b. Place small servings of food on your plate so it does not seem to be such an impossible task to eat a whole meal.
- c. Keep to a pre-planned meal pattern as it may help to eat by the clock. For example, eat a small snack every 2 to 4 hours even if you are not hungry. Eat an additional snack before going to bed.
- d. Keep snacks handy for nibbling at any time. Carry a snack pack of easy to eat nibbles in your pocket or bag. Some ideas for your snack pack can include raisins, steamed pau, Japanese pancake, candy bars and wafers, bite-size sandwiches and buns, bananas, jelly and puddings, biscuits and crackers.
- e. Sometimes you may prefer to drink rather than eat. Nutritional supplements are good alternatives in providing you with a quick and convenient balanced diet in liquid form. Supplement drinks like Enercal Plus, Ensure and Resource Plus, Nutren Optimum and Complan are rich in nutrients and provide calories, protein, vitamins and minerals. You can also add the powdered supplement into your beverages like Milo, Ovaltine and Horlicks.
- f. Limit the amount of fluids 1 hour before meals so that your stomach has room for food. Also avoid gassy drinks. Drink water and other fluids in between and after meals.
- g. Eat with your family or friends so that meal times are enjoyable social occasions.
- h. Choose foods with attractive colours, texture and flavours. Use different spices and sauces in cooking; add garnishing to make food look more appealing. Food that looks and smells good is more appetizing.
- i. Help your appetite by eating food you enjoy rather than struggling with foods which you find distasteful or unpleasant. It is alright to indulge in your cravings and favourite foods when you desire.
- j. Do light exercises to help stimulate your appetite. Try exercising for ten minutes before meal times to increase your appetite.

Food substitutes & alternatives

When you are undergoing treatment for your cancer, you may not like eating some foods that you usually eat when you were well. However, you can still have a healthy balanced diet by making the right choices. Below are some nutritious food alternatives that you can choose from:

Rice alternatives

- ☼ porridge
- ☼ noodles
- ☼ macaroni
- ☼ potato
- ☼ thosai
- ☼ chappati
- ☼ spaghetti & pasta
- ☼ oats
- ☼ breads & cakes
- ☼ crackers & biscuits
- ☼ cereal

Meat alternatives

- ☼ chicken
- ☼ fish
- ☼ eggs
- ☼ cheese
- ☼ yoghurt
- ☼ tofu
- ☼ taukwa
- ☼ tempeh
- ☼ dahl
- ☼ beans

Fruit and vegetable alternatives

- ☼ canned fruits
- ☼ dried fruits
- ☼ fruit juices
- ☼ raw or uncooked vegetables eg. cucumbers, carrots
- ☼ vegetable soups e.g. tomato, pumpkin or corn soup



Snacks

- ☼ plain crackers or biscuits with a spread of jam, kaya, honey, peanut butter, margarine or cheese
- ☼ sandwiches with either tuna, ham, egg, sardine or cheese filling
- ☼ steamed buns eg. meat or vegetable pau, chee cheong fun, soon kueh
- ☼ desserts such as tau suan, tau huay, green or red bean soup, sweet potato soup
- ☼ nuts and beans
- ☼ dried fruits eg. apricots, raisins, guava
- ☼ yoghurt and ice-cream
- ☼ cereal bars

Beverages

- ☼ Milk
- ☼ Milo
- ☼ Horlicks
- ☼ Ovaltine
- ☼ Soyabean milk
- ☼ Barley water
- ☼ Chrysanthemum tea
- ☼ Nutritional supplements eg. Ensure, Resource, Complan, Nutren Optimum, Ensure Plus, Resource Plus, Enercal Plus

Nausea & vomiting

“I can't even stand the smell of food, it makes me feel nauseous”

Nausea, vomiting and a feeling of fullness can occur after chemotherapy and after radiation treatment of the head, abdominal and pelvic areas. Not everyone suffers from it, nor do those who experience it suffer to the same extent. Nausea and vomiting are often temporary conditions related to the treatments you are receiving. Other factors such as emotional stress and anxiety can also upset your stomach.



If you feel nauseous, see your doctor. Under these circumstances, it is usually best to eat very small, light meals. Ask your doctor to prescribe anti-nausea or anti-vomiting medicine and take them $\frac{1}{2}$ to 1 hour before eating. This will allow time for the medication to take effect. Remember to eat well when you feel better again so that you can make up for the nourishment you have missed.

Helpful tips to prevent nausea

- Eat small amounts of food often and slowly. Don't allow your stomach to get too full.
- Don't skip meals as an empty stomach can make nausea worse. If you are likely to be subjected to a long wait for your treatment or to see your doctor, take a nourishing drink or snack with you.
- Eat your largest meal of the day at the time you feel best; usually at breakfast.

- d. If you feel sick in the morning, have some dry foods such as crackers or toast before getting out of bed.
- e. Small amounts of salty or sour foods such as salted crackers, sour plums and pickled mangoes can help reduce nausea.
- f. Some traditional remedies such as ginger and orange peel can be helpful in relieving nausea. These can be taken as preserved ginger, preserved orange peel or ginger tea.
- g. If possible, stay out of the kitchen while food is being cooked as the smell of hot food may trigger nausea. Cold food or food at room temperature is more appealing.
- h. Don't eat your favourite foods when you feel sick as you might start to dislike them.
- i. Certain foods tend to trigger nausea. They are usually
 - ❁ Deep-fried, greasy and fatty foods eg. fried chicken, luncheon meat and fried kway teow
 - ❁ Spicy foods eg. curry, chilli
 - ❁ Very sweet foods eg. cake, nonya kueh
 - ❁ Food or drinks with strong odour eg. coffee

However, if these foods are tolerated, you can continue to enjoy them.

- j. Regular sips of clear beverages like barley water, ginger tea, carbonated drinks and clear soups between meals can help to reduce nausea and prevent dehydration.
- k. Rest after meals, but don't lie down flat for at least 2 hours after eating. Make sure you keep your head and shoulders propped up higher than your feet when you are resting after meals. Increased activity can slow down digestion and increase your discomfort.

Helpful tips to prevent vomiting

If you can avoid situations that make you feel nauseous, you will reduce the likelihood of vomiting.

- a. If persistent vomiting occurs, don't try to force down food. Start by sipping small amounts of fluid as often as possible. If you are not able to keep fluids down and this lasts for more than 24 hours, you should see a doctor.

- b. If your vomiting is controlled but you still feel nauseous and full, it is important that you try to eat very small, frequent meals. Hunger can often aggravate or prolong nausea. Start by drinking cold or iced drinks. Try drinking fluids such as juices and chrysanthemum or barley drinks. Avoid rich, sweet and strongly flavoured fluids like coffee.
- c. Once you are confident that you can manage fluids without discomfort, start eating small amounts of solid foods such as plain biscuits, toast and crackers or cereals. You can also try plain porridge with Marmite or Vegemite and fruits such as apples, pears and watermelon.
- d. Increase your food intake slowly until you are eating a normal well-balanced diet.

Constipation

“I have problems moving my bowels”

Constipation occurs when your bowel movements are irregular and infrequent and you have hard stools that are difficult to pass. Most people move their bowel once every day but just because you miss a day or two does not necessarily mean you are constipated. Constipation can result from certain types of chemotherapy drugs. It can also be caused by medication such as pain killers (particularly codeine or morphine), inactivity, inadequate fiber intake or drinking too little fluid.



Dietary fiber plays an important role in preventing constipation. Include some fiber in your daily diet. It is better to help your bowel movement with diet rather than depending on medication. However, if your symptoms persist, consult your doctor.

Helpful tips to prevent constipation

- a. Try to establish a regular meal pattern which will help to regulate your digestive processes.
- b. Include some fiber into your daily diet. Good sources of fiber include:
 - ✿ all leafy, non-leafy and starchy vegetables
 - ✿ fresh, tinned and dried fruits
 - ✿ wholegrain products eg. wholemeal bread, wholemeal crackers, weetabix, branflakes, oats, brown rice

- ☼ nuts, beans and lentils eg. dhal, red or green beans, baked beans, soya beans, chickpeas, peanuts, almonds
- c. Drink at least 8 to 10 cups of fluids a day. These can include juices, soups, water, milk and other beverages. Reduce your intake of caffeinated beverages such as colas and coffee as they tend to dehydrate the body.
 - d. Try some (1/2 glass) prune or apple juice as they contain sorbitol, a natural laxative.
 - e. Do light exercises such as walking as this will sometimes help stimulate bowel movements.
 - f. Remember to drink more fluids when taking fiber supplements if they have been recommended. High fiber with insufficient fluid intake may add to your problem of constipation.

Some suggestions of high fiber foods

Vegetables

- | | |
|-------------------|---------------------------------|
| ☼ asparagus | ☼ peas (green peas / snow peas) |
| ☼ broccoli | ☼ potatoes |
| ☼ brussel sprouts | ☼ pumpkin |
| ☼ carrots | ☼ spinach |
| ☼ cauliflower | ☼ sweet potatoes |
| ☼ celery | ☼ turnips |
| ☼ corn | |

Fruits

- | | |
|-------------------|--------------------------|
| ☼ apple with skin | ☼ fresh or dried mangoes |
| ☼ apricots | ☼ oranges |
| ☼ avocados | ☼ peaches |
| ☼ bananas | ☼ pears with skin |
| ☼ figs | ☼ prunes |
| ☼ guava | ☼ raisins & sultanas |
| ☼ kiwi fruit | ☼ strawberries |

Breads, Grains, Cereals & Beans

- | | |
|-------------------------------|----------------------------|
| ☼ whole grain bread | ☼ chick peas |
| ☼ whole grain crackers | ☼ brown rice |
| ☼ popcorn | ☼ branflakes, muesli, oats |
| ☼ red and green beans | ☼ weetbix |
| ☼ kidney and black-eyed beans | |

Diarrhoea

Diarrhoea is frequent passage of loose stools and may be caused by radiotherapy to the abdominal region, chemotherapy, an infection, a change in your diet, a food allergy or other drugs. If you have diarrhoea for more than 2 days or if it is causing you distress, see your doctor for further advice as this may cause dehydration. Please do not self-medicate.



Helpful tips to prevent diarrhoea

- a. Take a low fiber diet as it may help decrease cramps and gas. Foods high in fiber are vegetables, fruits, wholegrain products, brown rice, nuts and seeds. If they seem to make your diarrhoea worse, you can avoid them temporarily.
- b. Drink plenty of fluids between meals, eg. barley water, diluted fruit juice or clear soup to keep hydrated. Avoid prune juice and beverages containing caffeine (e.g. coffee and tea) as they tend to worsen diarrhoea.
- c. Avoid dried fruits such as apricots, raisins, dates and prunes.
- d. Avoid oily, deep-fried, hot or spicy foods as they tend to aggravate diarrhoea. Soft, bland and low-fat foods like porridge, bee hoon soup, fish, and eggs are better tolerated.
- e. You should also avoid eating raw fruit and vegetables with skins or seeds, and dishes with coconut milk, rich gravies and sauces and all types of spicy food.
- f. Have small meals with nutritious snacks in between if you need them. Relax before meals and snack times.
- g. Temporary lactose intolerance may occur with diarrhoea. If this occurs, change to low-lactose milk eg. HL, Anlene Plus, soybean or rice milk. Similarly, you may need to change from a lactose-containing nutritional supplement (eg. Complan) to lactose-free nutritional supplements such as Ensure, Resource, Enercal Plus and Nutren Optimum.
- h. Take yoghurt or yoghurt drinks as they contain beneficial acidophilus bacteria that help to restore good bacteria in the gut.
- i. Resume a balanced diet when you have stopped having diarrhoea.

Indigestion and bloatedness

You may experience episodes of indigestion or 'heartburn' during your treatment. Sometimes you may even feel bloated. Medication is available for heartburn. Ask your doctor for medication eg. antacids and take them before meals.

Helpful hints to prevent or relieve indigestion and bloatedness

- a. Avoid fried or greasy foods. Fat stays in your stomach longer and makes you feel full. Avoid spicy and hot food, coffee and alcohol as they may trigger heartburn. Milky drinks may help relieve it.
- b. Eat foods high in protein eg. meat, fish, eggs, tauhu. Proteins help the stomach empty quickly and reduce the feeling of fullness.
- c. Eat small frequent meals throughout the day. Drink your beverages between meals, rather than during meals.
- d. Avoid overeating and chew food thoroughly before swallowing.
- e. Certain foods tend to cause gas formation. They are
 - ✿ carbonated beverages e.g. soft drinks,
 - ✿ milk and milk products e.g. cheese, ice cream, etc
 - ✿ certain fruits e.g. apples, pears, peaches
 - ✿ legumes and lentils e.g. beans, peas
 - ✿ vegetables e.g. cabbage, cauliflower, garlic, onions

However, if these foods are tolerated, you can continue to enjoy them.

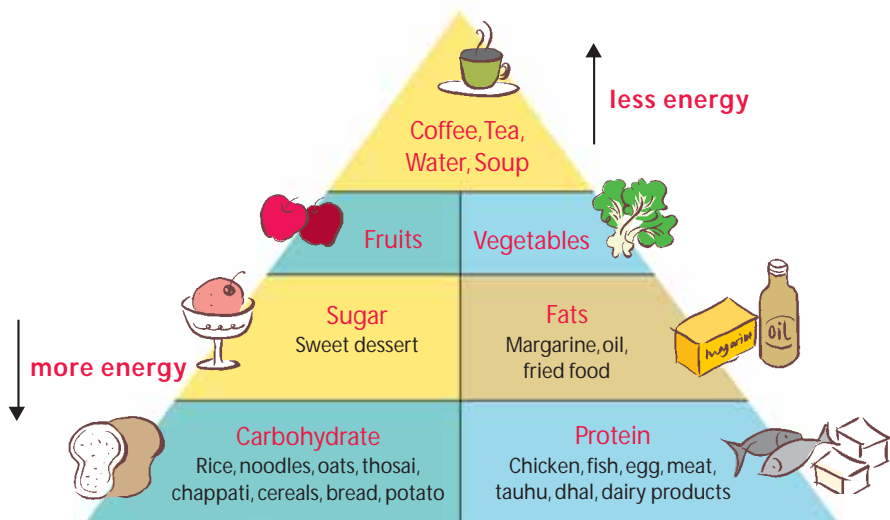
- f. Do mild exercises, eg. walking after meals may help relieve distension.



Weight loss

Weight loss results from not being able to eat enough food to meet your daily nutritional requirements. Early satiety, loss of appetite, nausea, vomiting and other nutrition-related problems can hinder food intake. If you are losing weight, you may find the following tips useful in helping you gain or maintain your weight.

Helpful tips to prevent weight loss



- The above food pyramid gives you a general guide on what food to consume more of as to boost your energy intake. Increase the amount of protein foods in your diet first, then the amount of carbohydrate foods and sugar, and lastly the amount of fat. Eating extra amount of fats and sugar is an easy way of boosting your calories but check with your doctor or dietitian first if you have diabetes or heart disease.
- Try to make every mouthful you eat and drink count. For example, drink nourishing fluids like Milo, milk and soybean milk instead of plain water or clear soup.
- Use the "adding" principle to enrich the foods you eat.
 - ✿ Add minced meat, fish, egg or tauhu to porridge
 - ✿ Beat an egg into your chicken soup
 - ✿ Spread margarine, cheese spread, peanut butter or kaya on crackers
 - ✿ Add Milo, Horlicks or Ovaltine to plain milk
 - ✿ Add condensed milk, sugar or raisins to oats
 - ✿ Add tuna, ham, sardine, cheese or eggs to bread
- If you do not feel hungry, have small frequent snacks throughout the day. Store up nutritious snacks in the house.
 - ✿ Biscuits with cream, cheese, jam or peanut butter filling
 - ✿ Sandwiches or buns with tuna, sardines, ham, cheese and egg filling
 - ✿ Soon kueh, steamed pau, Japanese pancake, fried popiah, goreng pisang, nonya kueh, waffles with spread e.g. kaya, jam
 - ✿ Red or green bean soup, tau huay, tau suan

- ❁ Fresh, tinned or dried fruits
 - ❁ Nuts and lentils eg. peanuts, cashew nuts, boiled chickpeas
 - ❁ Yoghurt, cheese, ice-cream
- e. You can also use nutritional supplements to boost your energy intake. They can be milk-based like Resource, Enercal Plus, Ensure, Nutren Optimum and Complan, or non-milk based like Resource fruit beverage. Most of the nutritional supplements taste better when chilled and if you find the milk-based ones too sweet, you can add coffee or cocoa powder.
- f. If weight loss persists, consult your doctor.

Nutrition after treatment ends

Most side effects due to cancer treatments usually subside after the treatment ends. If you have had side effects, you will gradually begin to feel better and your interest in food will return. Sometimes, side effects may persist, especially weight loss. If this happens, speak with your doctor and work out a plan to address the problem.

As you begin to feel better after the end of your treatment, you may want to go back to a normal healthy diet. This is an important time for you to eat well to help your body recover from the effects of cancer treatment. There's no study that suggests the foods you eat will prevent cancer from recurring but eating the right foods will help you regain your strength, repair damaged tissue and improve your general well-being.

Suggestions for healthy eating

- ❁ Eat a variety of foods every day. No one type of food contains all the nutrients you need.
- ❁ Try to eat at least 4 servings of fruits and vegetables a day including citrus fruits, dark green and deep yellow vegetables such as spinach, kai lan, carrots, tomatoes, pumpkin, etc.
- ❁ Include high fiber foods, such as whole grain breads and cereals, oats and brown rice. These foods are good sources of carbohydrates, vitamins and minerals and fiber.
- ❁ Substitute meat or chicken with tauhu, taukwa, dhal, chickpeas or tempeh once a week for more variety.
- ❁ Cut down on fat, salt, sugar, smoked and pickled foods, as well as alcohol. Choose low-fat milk products, small portions of lean meat and poultry without skin.
- ❁ Try low-fat cooking methods such as steaming, broiling, baking, roasting and stir-frying.

Complementary and alternative nutrition therapies

Many individuals are interested in making changes in diet and lifestyle, and in the use of alternative therapies that will help them fight their cancer. A therapy is called complementary when it is used in addition to conventional treatments; it is often called alternative when it is used instead of conventional cancer treatment such as surgery, chemotherapy and radiation therapy.

Although these types of therapies have been described by some people as cancer cures or therapies to prevent cancer, to date there is no scientific evidence to show that these therapies are effective as primary cancer treatments.

Megavitamin therapy



Some individuals with cancer take large amounts of vitamins and minerals because they believe these products can enhance their immune systems or even destroy cancer cells. The common vitamins taken are vitamins A, C, and E and the common minerals taken are selenium, zinc and iron. Many of these vitamins and minerals also act as anti-oxidants, which have been scientifically proven to interfere with chemotherapy when taken in large dosages. Drug toxicity can also happen with excessive vitamins and mineral intake especially in the form of supplements. We do not advise taking more than the recommended daily allowance.

Herbal or botanical therapies

Herbal or botanical medicine (the use of herbs to prevent or treat disease) has been practised for hundreds of years and many useful drugs have been purified from plants. The interest in herbal medicine or natural remedies continues today. Many use the word “herbals” to describe all types of therapy, but technically herbs are defined as the leaves of the plant and “botanicals” refer to the remainder of the plant including the flowers bark, stems roots and plant extracts. They are available in pill or liquid extract forms, teas and ointments. Many of these products have unknown properties and some may even be contaminated. Others may cause severe and harmful side effects and interfere with proven effective anti-cancer therapies like chemotherapy and radiation therapy.

Discuss with your doctor before taking or using any herbal or botanical remedies. He can share with you research that has been done and whether or not the treatment is safe or would interfere with your treatment.

Macrobiotic diet

This therapy believes that illnesses are due to the imbalance of yin and yang. The diet is made up of mainly unprocessed grains like brown rice, wholegrain bread and wholegrain cereals. It excludes red meat, refined food and sugar. A small amount of white fish and dairy product is allowed occasionally. To date there is no scientific evidence that this diet cures or prevents cancer and it has its own setbacks. This diet is very high in fibre and low in calories and therefore not recommended for people who experience loss of appetite, loss of weight and diarrhoea. Because the diet restricts protein food and dairy products it does not provide sufficient vitamins B2, B12, D, or minerals such as iron and calcium. We do not recommend this diet.

Raw foods diet

Raw foods have been claimed to be “living food” and the enzymes and chlorophyll found in raw foods are supposedly beneficial. This diet recommends only raw vegetables, fruits, seaweed, sprouted seeds, nuts and seeds and vast quantities of juices. The large amount of fibre and juice may cause diarrhoea.

Like the macrobiotic diet, this diet is unbalanced, lacking in calories, protein, vitamin B12, calcium and iron. The diet may also put you at risk of muscle wasting and decreased immunity against infections. We do not recommend this diet.

Safety considerations:

- ❁ Inform your doctor if you intend to use herbal products and supplements or have already started using them even before your conventional cancer treatment.
- ❁ Ask your doctor for reliable information on these products. He or she can discuss with you about any study that has been done and whether or not the treatment is safe or would interfere with your treatment.
- ❁ Check the product labels for both the quantity and concentration of active ingredients contained in each product.
- ❁ Stop taking the product immediately and alert your doctor if you experience side effects such as wheezing, itching, numbness, tingling in the limbs or unexplained effects.
- ❁ Discuss your nutritional needs with a dietitian. She can give you suggestions on how to modify your diet so that you can get all the nutrients that your body needs.

Special notes for caregivers

There is much that you can do to help your friend or loved one through the period of cancer treatment. Here are some things to remember that will help you cope:

- ❁ Be prepared for the patient's food preferences to change from day to day. Some days he won't want his favourite foods because they don't taste good. Other times, he will be able to eat a dish that couldn't be tolerated the day before.
- ❁ Be prepared for times when the patient is able to eat only one or two foods for a few days in a row, until side effects diminish. Even if he cannot eat, you can still encourage him to drink between 8 and 10 glasses of nourishing fluids a day.
- ❁ Try not to push the patient into eating and drinking. Encourage and support without being overwhelming. Be alert to the possibility of depression.
- ❁ Talk to the patient about needs and concerns and about ideas that might work best. Be flexible and supportive, as this will help the patient feel in control of the situation.



Other Cancer Resources on the Internet:

American Institute for Cancer Research (AICR)

<http://www.aicr.org>

Cancer Nutrition Center

<http://www.cancernutrition.com>

Food and Nutrition Information Center (FNIC)

<http://www.nal.usda.gov/fnic/etext/fnic.html>

International Food Information Council

<http://www.ificinfo.health.org>

National Cancer Institute

<http://www.cancernet.nih.gov>

Nutrition and Healthy Eating Advice

<http://www.nutrition.about.com/health/nutrition/>

References

1. "Cancer Survivors Cookbook" by Donna L. Weinofer, RD, MS and Christina Marina, MD, MPH, Chronimed Publishing, Minneapolis
2. 'Eating made easy. Nutrition tips for patients with cancer' by KK Women's and Children Hospital, Singapore
3. 'Eating Smart. Recipes for healthy living' by the American Cancer Society, Texas Division, Inc.
4. 'Eating Well. Tips for people with cancer and for their families' by the Anti-Cancer Council of Victoria, Australia
5. 'What to eat when you don't feel like eating' by James Haller, Robert Pope Foundation, Hantsport, Nova Scotia

For more information on cancer, call the
Cancer Helpline on 6225 5655 or
email cancerhelpline@nccs.com.sg

MONDAYS - FRIDAYS	8.30am to 5.30pm
SATURDAYS , SUNDAYS & PUBLIC HOLIDAYS	CLOSED

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