

Nutrition and cancer

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People often ask what they should eat when they have cancer. There is no eating plan proven to cure cancer and there are no special foods to eat or avoid if you have cancer.

Treatment for cancer can place extra demands on your body, making eating well more important than ever. Good nutrition helps you get the most benefit from your treatment.

Eating well is something you can control during your cancer treatment and can enhance your quality of life.

Benefits of eating well

Eating well is important for everyone but especially for those who have been diagnosed with cancer.

Good nutrition can:

- Help you to cope better with treatment side effects and to recover sooner.
- Help wounds and damaged tissues to heal better. This is important before and after surgery, radiotherapy, chemotherapy or other medical treatment.
- Improve your body's immune system – its natural defence – so you are better able to fight infection.
- Help you to maintain muscle strength, stay a healthy weight, have enough energy for everyday tasks and to feel better in yourself.

How treatment affects eating

Cancer treatment often damages normal healthy cells at the same time as killing cancer cells. This may produce side effects that can affect eating such as:

- loss of appetite
- feeling sick (nausea)
- feeling tired (fatigue)
- having a sore mouth
- having a sore throat and trouble swallowing
- having a dry mouth
- changes in taste and smell
- constipation or diarrhoea.

Side effects vary from person to person. The part of the body treated, the length of treatment and the dose of treatment all determine whether side effects will occur. Most side effects are temporary and go away after treatment ends.

What should I eat?

Your body converts food into energy. This food energy is measured in kilojoules or calories. Everyone needs a certain number of kilojoules each day to fuel their body for energy, growth and repair. You need energy even if you are not very physically active.

Throughout the phases of cancer treatment and recovery, it is important to adapt what you eat to cope with your body's changing nutritional needs. Following is a summary of the key nutritional needs in each phase.

Phase one – cancer treatment

- You may need more energy (kilojoules/calories). Eat small, frequent meals or snacks, rather than three large meals a day.
- If you start to lose weight, try eating extra nutritious snacks or drinks.
- If possible, do some light physical activity, such as walking, to improve appetite, reduce fatigue, help digestion and prevent constipation.
- Check with your doctor or dietitian if you want to take vitamin or herbal supplements.

Phase two – recovering from treatment

- Continue to follow all the tips in phase one for weeks or even a month or two following treatment. Nutritional needs remain high following treatment and will differ depending on your cancer type and the treatment you've had. Your doctor or dietitian can advise you on your individual needs during this time.
- It is important to maintain a minimum weight during this time to ensure your recovery from treatment is as quick as possible.
- It is important to eat a variety of foods and to do some physical activity, as you're able, in order to rebuild muscles and recover from the side effects of treatment.
- If you are still experiencing treatment related side effects, you may need to follow some of the suggestions given during your treatment until they resolve. Your dietitian can advise you during this time.

Phase three – choose a healthy lifestyle and cut your cancer risk

- Once you've recovered from the side effects of treatment and you're eating well and physically active, you can switch the focus of nutrition to healthy eating.
- Healthy eating, maintaining a healthy weight and being physically active may help to lower the chance of cancer coming back.
- Try to eat at least two serves of fruit and five serves of vegetables every day.

Living with advanced cancer

- Good nutrition can help to maintain quality of life.
- You may need to adjust your food choices and eating patterns to meet changing nutritional needs.
- Medications and physical activity can boost appetite. Talk to your doctor about suitable options for your situation.
- Nutrition supplements may help if you can't eat enough. Talk to your doctor, palliative care specialist or dietitian.

Eating problems during treatment

The information here includes suggestions that may help you cope with eating problems. Don't be afraid to give them a try. Some tips may work for you but others may not.

Share your needs and concerns with your family and friends particularly those who prepare meals for you. Let them know that you appreciate their support. If your eating problems persist, and you need more help, see your dietitian, doctor or nurse.

Changes in your weight

You may lose or gain weight for various reasons including the effects of the cancer and cancer treatment.

Weight loss

If you are underweight or losing weight you may need to include more protein and more energy in your diet. Good sources of protein and energy include: meat, fish, poultry, milk and dairy products, eggs, legumes (e.g. baked beans, chickpeas, lentils) and nuts. For extra protein aim to include at least one high protein food at each meal. High protein foods and drinks should also be included as between meal snacks. Nutritional supplements such as nourishing drinks may be useful to help you gain weight.

You may also be encouraged to eat foods that are typically not considered as healthy foods as they can be high in fat and sugar. Including foods with extra protein, fat and sugar in your diet, for most people, will be for a relatively short period of time. If you have any concerns, discuss them with your doctor or dietitian.

Weight gain

Weight gain can happen for various reasons. People with certain types of cancer, especially those with breast cancer, are more likely to gain weight during and after treatment.

Certain types of chemotherapy, hormone therapy and some medicines such as steroids can cause weight gain. These treatments can also cause your body to retain water which can make you feel puffy and gain weight, or some treatments can increase your appetite so you feel hungry and eat more. Being tired because of the treatment may lead to decrease in activity. Being less active can also cause weight gain.

Generally during cancer treatment is not a good time to deliberately lose weight. Try to maintain your weight throughout treatment. If you gain weight during treatment and are concerned, speak first to your doctor about it to work out how to best manage it. In situations where you have lost weight without trying, regaining at least some of this weight can help you better tolerate treatment.

Malnutrition

Malnutrition occurs when there is an imbalance of energy, protein or other nutrients. Malnutrition is common in people with cancer and can impact your health and how your body responds to cancer treatment and recovery. It is possible to be malnourished even if you are overweight.

Many factors can increase your risk of malnutrition including:

- certain cancer types, such as head and neck, lung and gastrointestinal cancers
- increased nutritional needs from cancer and treatments such as chemotherapy, radiotherapy and surgery
- side effects from cancer treatments
- medications
- hospitalisation
- stress, anxiety and fatigue.

Malnutrition can also lessen your strength, function and quality of life. Eating well can assist your health and progress before, during and after cancer treatments.

Loss of appetite

Loss of appetite is a common problem caused by many things including the effects of cancer on the body, the effects of treatment or other side-effects such as feeling sick or the smell of food, or feeling down or upset. You may just not feel like eating.

There are many ways to make mealtimes more appealing if you have lost your appetite.

- Try to keep to a regular eating pattern. You may not feel hungry but your body still needs nourishment in order to maintain your weight.
- A very full plate of food may put you off eating – try having your food on a smaller plate to keep the portions small.
- Eat what you feel like, when you feel like it. For example have cereal at dinner time and a main meal at lunch.
- Try to keep a variety of foods in your diet as this may help improve your intake.
- Choose full-fat foods whenever possible. These may be labelled as 'thick and creamy' rather than 'light' or 'diet' or 'low fat'.
- Add high energy and protein foods to your fruit and vegetables. For example fruit with yoghurt, cut up vegetables with dip and roasting vegetables with olive oil.
- Have a range of readily prepared foods and snacks on hand for times when you don't feel like preparing food. Cook larger quantities in advance and store in the freezer or ask family and friends to prepare meals if you don't feel like cooking.
- Sip fluids throughout the day, choosing ones that add kilojoules and other nutrients such as milk, milkshakes or commercial supplements.
- Gentle physical activity can stimulate appetite. For example take a short walk around the block or even around your backyard.
- Make meals as enjoyable and social as possible – you may want to play music, turn off the TV, light candles or invite friends to join you.

Changes in taste or smell

People often report the flavour of food changes during cancer treatment. Common comments are 'all food tastes the same', 'food is like cardboard', 'food has a metallic taste' and 'I no longer like the taste of my favourite food'.

Usually this is a temporary issue experienced during the period of treatment and for a short time afterward but unfortunately taste changes can be long lasting in some people. It may also take some time to be able to resume enjoyment of foods you find you dislike during treatment.

Changes to the flavour of food are highly individual and can be unexpected and quite frustrating especially if food is a large part of your social life and a source of daily enjoyment.

If you have a sore mouth, sore throat or swallowing difficulties, talk to your doctor, speech pathologist, dentist or dietitian as some of the suggestions below will not be suitable.

The following information may be useful in preparing you for what to expect and for minimising symptoms. These tips also include suggestions for exploring new flavours during treatment.

- If food tastes bland, make use of seasonings such as fresh herbs, lemon, lime, ginger, garlic, soy sauce, honey, chilli, pepper, Worcestershire sauce or pickles or experiment with Asian style sauces.
- If you are overly sensitive to strong flavours minimise use of chilli, spices, carbonated drinks, mints or chewing gum. Choose subtly flavoured alternatives instead.
- It is common to go off meat during treatment. If you find meat less appetising, try and rely on other good protein sources such as cheese, eggs, nuts, dairy foods or baked beans, kidney beans, lentils or chickpeas.
- Beer, wine, coffee and tea may taste different or be off putting because of the smell, taste or texture. Try not to let this interfere with your social life – choose non-alcohol alternatives or try a milkshake, fresh juice or hot chocolate.
- If the smell of food is bothering you try cold foods or reheat prepared meals in the microwave so the cooking odour doesn't put you off eating. Stay out of the kitchen, if possible, when food is being prepared. Ask family or friends to cook.
- If you experience a bitter or metallic taste in the mouth, try refreshing food or liquids to combat this taste such as nibbling on moist fruit including berries or melon, or suck boiled lollies (try ginger flavoured) or sip flavoured drinks.
- Sometimes a bad taste in the mouth can be a result of an unhealthy or dry mouth. Keep your teeth and mouth clean by brushing and rinsing often.
- You may go off favourite foods but equally you may now tolerate (and even enjoy) foods you previously did not consume. It is common for preferences for sweet or savoury foods to reverse during treatment. If you are experiencing flavour problems, try different foods to see what you enjoy eating now.

Mouth problems

Some cancer treatments cause mouth ulcers or change the amount and thickness of saliva in your mouth. These changes can make your mouth feel hot, dry or uncomfortable, and chewing or swallowing may become difficult and painful. Tooth and gum problems can occur and your lips can become dry.

Chewing and swallowing problems

People who have cancer in or around the mouth and throat may experience chewing and swallowing problems. Sometimes radiotherapy and chemotherapy to this area can also cause temporary problems. If teeth are extracted chewing may be more difficult.

If you have pain when chewing or swallowing tell your doctor who will be able to give advice on suitable medications.

If you have severe difficulty swallowing for a considerable period of time, a feeding tube may be considered to ensure you get adequate nutrition. Your dietitian, speech pathologist and doctor can guide you through this.

Dry or coated mouth

When your mouth is dry you are at increased risk of getting infections such as oral thrush and tooth decay which will make eating harder.

Ensure good oral hygiene. Keep your mouth clean and prevent infections with regular mouthwashes and gargles. Make sure you use an alcohol-free mouthwash to avoid further irritation to the mouth. Speak with your dentist or health care team about mouth rinses or lubricants most suitable for you during treatment.

You may wish to avoid:

- Rough, crunchy or dry foods (chips, nuts, dry biscuits, toast). Soften foods by dipping them into milk, soups, tea or coffee.

- Foods that sting your mouth e.g. salty foods, spices, fruit juice, vinegar and alcohol.
- Very hot or very cold food or drinks. Extreme temperatures may irritate your mouth or throat.

To help your symptoms:

- Choose foods that are moist or moisten foods by adding sauces, gravies, margarine, cream, custard etc.
- Sip on fluids with all your meals and snacks.
- Try sugar-free chewing gum or sucking on mints to stimulate the flow of saliva.
- Suck on ice or have frequent sips of fluid (try different types).

Changing food textures

You may need to change the consistency of your foods by chopping, mincing or pureeing to make them easier to manage. Do not persist with a solid diet if it is taking you a lot longer to chew and swallow, or if you are experiencing coughing, choking or food sticking in your mouth or throat.

If you are having problems with your dentures, only wear them at meal times or take them out and try softer foods that do not need to be chewed. If you are receiving radiation therapy to the head or neck area you may need to discuss when to wear your dentures with your doctor or radiation therapist.

If you are experiencing problems swallowing normal foods and fluids notify your doctor who may refer you to a speech pathologist for assessment.

A speech pathologist can continue to monitor your swallowing after treatment and modify the texture of your food once the side effects affecting your ability to swallow and chew begin to diminish. Sometimes people may need to remain on a texture modified diet after their treatment; however this is different for everyone and will depend on the type of cancer, treatment or surgery received.

Different food textures

Soft diet

Soft foods can be chewed but not necessarily bitten. Foods should require minimal cutting and be easily broken up with a fork. Food should be moist or served with a sauce or gravy to increase moisture content. Food may be naturally soft or may be cooked or cut to alter its texture.

Minced and moist diet

Food should be soft and moist and easily form into a ball in the mouth. Small lumps can be broken up with the tongue rather than biting or chewing. Food should be easily mashed with a fork and may be presented as a thick puree with obvious lumps in it. Lumps are soft and rounded with no hard or sharp lumps.

Smooth pureed diet

Food is smooth, moist and lump free. It may have a grainy quality and is similar in consistency to commercial pudding. Food can be moulded, layered or piped.

For more suggestions about what foods can be included in a soft, minced or pureed diet, refer to the table below.

Texture modified diet

If you have been told you need to follow a texture modified diet, it can be difficult to think of foods to eat. Your dietitian can help to identify certain foods and fluids that will be easy to eat and drink. The following table provides some suggestions for foods from each of the different texture modification categories.

Food type	Soft	Minced and moist	Smooth pureed
Meat	Casseroles with small pieces of tender meat, stew, mince dishes, moist fish dishes.	Minced or well cooked meat, (lasagne, Shepherd's pie) chicken or fish. Serve with extra gravy or sauce.	Pureed meat, chicken or fish blended with gravy or sauce until smooth. Serve with extra gravy or sauce.
Meat alternatives	Omelettes, quiche, scrambled or poached eggs, baked beans or other cooked legumes, soft tofu.	Poached, scrambled or boiled eggs, soft tofu, minced or mashed baked beans, cottage cheese, soufflé (small pieces).	Pureed scrambled or poached eggs, pureed baked beans or legumes. Soft silken tofu.
Drinks	Commercial nutritional supplements . If you are having ongoing difficulties swallowing, your speech pathologist may suggest thickened fluids.		
Cereals	Soft bread without crusts, use mayonnaise, butter or wet topping to moisten bread. Breakfast cereals well moistened with milk (avoid dried fruit or nuts and crunchy breakfast cereals e.g. muesli). Soft pasta or noodles. Well cooked rice. Soft pastry. Other soft cooked grains.	Porridge. Well moistened dry breakfast cereals with little texture, e.g. Cornflakes, Weetbix, Rice Bubbles. Well cooked, moist pasta dishes e.g. macaroni cheese.	Strained or pureed porridge or semolina. Serve with extra milk and sugar. Pureed pasta, noodles or rice.
Fruit (avoid acidic fruits)	Fresh fruit that is naturally soft e.g. banana, pear, mango, pawpaw, watermelon. Canned and stewed fruits. Pureed fruit.	Soft, canned or cooked fruits without seeds or skins. Mashed soft fresh fruits e.g. banana. Pureed fruit.	Pureed fruit or mashed soft fruit pushed through a sieve (no pieces) or blender.
Vegetables, legumes	Well-cooked vegetables mashed or served in small pieces. Soft canned vegetables. Well-cooked legumes.	Soft well-cooked vegetables that can be mashed easily with a fork. Well cooked legumes, partially mashed or blended.	Pureed vegetables (blended until smooth with no lumps), pureed legumes, vegetable soups strained or blended to remove lumps.

Soup	Meat, chicken and/or beans with vegetables homemade or canned.	Soups with easy to chew meats or vegetables. Piece size should be less than 0.5 cm.	Blended homemade or canned soup. Smooth with no lumps. Add milk, cream or oil.
Dairy foods and desserts	All dairy and desserts except dry cakes or anything with nuts, seeds, dried fruits, coconut or pineapple or other hard fresh fruits such as apple.	Milk, milkshakes, custard, ice cream, creamed rice, blancmange, junket, baked egg custard, mousse, soft cheesecake (no crust), yoghurt.	Milk, milkshakes, thin custard, ice cream, blancmange, mousse, yoghurt (no pieces), fromage frais.

Food handling and infections

Cancer and cancer treatments weaken the body's immune system by affecting white blood cells that protect against disease. As a result your body cannot fight infection as well as a healthy person's body can.

Good food hygiene, such as the basic food safety guidelines below, is important for everybody. However if you have had a bone marrow transplant or your white cell count is low, particularly during chemotherapy, extra care needs to be taken with food preparation as you will be more susceptible to food borne illness. Most food poisoning results from improper handling and improper storage of food. Speak to your doctor or dietitian regarding any special food handling conditions that may apply to your stage of treatment.

Basic food safety guidelines

- Wash your hands thoroughly with soap and water before you prepare or eat food.
- Choose freshly cooked and freshly prepared foods. Take care when eating out, as it can be difficult to know whether food safety guidelines are being followed. When possible ask for meals to be made fresh and avoid foods that have been sitting for unknown periods of time.
- Always thaw frozen food in the fridge or defrost in the microwave, rather than on the bench and do not re-freeze thawed food.
- Keep raw meat covered and keep it separate from cooked food or ready-to-eat food. Use separate utensils and chopping boards for raw meat and vegetables.
- Thoroughly wash knives, cutting boards and food preparation areas with hot soapy water before preparing food.
- Thoroughly wash and dry all fruit and vegetables especially if eating them raw or juicing them.
- Make sure all meat, poultry, fish and eggs are very well cooked.
- Make sure foods are steaming hot when re-heated. Heat food for at least two to three minutes to above 70°C all the way through.
- Hot food should be kept above 70°C and cold food below 5°C.
- Keep hot foods hot and cold foods cold especially meat, chicken and seafood. Refrigerate leftover food immediately, don't let it cool on the benchtop, and consume within 24 hours.
- Check the use-by dates on packaged foods and dispose of any food that is out of date.

It is important to take care and potentially avoid the following high-risk foods, as they may contain bacteria or viruses that can cause food borne illnesses:

- Pre-made sandwiches or salads, sushi or food from food warmers or buffets.
- Raw and undercooked seafood, meats and poultry. Make sure these foods are cooked thoroughly and reheated until they're steaming hot.
- Cold deli meats and chicken – packaged or unpackaged – unless reheated to steaming hot.

- Foods containing raw or partially cooked eggs e.g. home-made mayonnaise, mousse, egg nog.
- Cold smoked seafood and 'ready-to-eat' peeled prawns.
- Raw sprouts and commercial 'ready-to-eat' deli salads including pre-cut fruit salads.
- Pate, liverwurst and meat spreads.
- Soft, semi-soft and surface ripened cheeses such as blue, brie, camembert, ricotta and feta.
- Soft-serve ice creams and drinks made with soft-serve ice cream.
- Unpasteurised dairy products such as raw goat's milk, cheeses and yoghurts made from raw milk.

Nausea and vomiting

Feeling sick (nausea), with or without vomiting, is a possible side effect of cancer or its treatment. Vomiting sometimes follows nausea and may be brought on by treatment, stress, food odours, gas in the stomach or bowel, or motion sickness. The following information may help.

Stage 1 Small sips

If you have persistent vomiting, don't try to force food down. Sip small amounts of liquid as often as possible. Try dry ginger ale, cold flat lemonade, soda water, Lucozade or chilled tomato juice. You might also find it helpful to suck a hard lolly, flavoured crushed ice cubes or an iceblock. If you can't keep fluids down and vomiting lasts for more than 24 hours, see your doctor because you may become dehydrated.

Stage 2 Introduce drinks slowly

If your vomiting has stopped but you still feel nauseated and full, it is important to eat small, frequent meals. Hunger, or an empty stomach, can aggravate or prolong nausea. Start by drinking cold or iced drinks. Make up drinks that are half milk (or skim milk) and half water (or soda water). These mixtures are surprisingly settling and soothing. If you like sweet drinks, try a spoonful of ice cream in a glass of lemonade. You can also try diluted fruit drinks, Bonox, clear broth and weak tea. Jellies can be satisfying too.

Stage 3 Introduce solid foods

When you feel you can drink without discomfort, eat small amounts of solid foods, such as plain dry biscuits, toast or bread with honey, jam, Vegemite or Marmite. Try jelly and cooked cereals (such as lemon sago or boiled rice), and then try soft stewed fruits such as apples, pears or peaches. Start drinking milk gradually and in small amounts, or try yoghurt, which is more easily digested. Have food in small amounts and have something to eat or drink at regular intervals.

Stage 4 Return to normal diet

As soon as you can, increase your food intake until your eating returns to a good level. Your doctor or dietitian may advise you to take additional nourishment (perhaps supplements) on your good days to make up for the days when you can't eat properly.

You may find the following foods difficult to tolerate when nauseous so you may need to limit them (however it's sometimes trial and error):

- Fatty or fried foods such as meats, fish, eggs or spicy stews and casseroles.
- Full-cream milk, cream, strong cheese, dripping, lard, oils, dressings or mayonnaise.
- Rich soup with cream or fat.
- Potatoes cooked in fat, roast potatoes or potato chips.
- Scones, pastry, rich cakes or cream cakes.
- Chocolate biscuits, chocolate-coated nuts or peanut butter.
- Filling foods such as pasta, especially with spicy or oily sauces.

Heartburn (indigestion)

Cancer and some treatments can cause heartburn which is a burning sensation in your oesophagus and throat due to reflux. The discomfort may cause you to reduce your food intake and lead to weight loss.

If you have heartburn, avoid or minimise foods that make it worse. Try not to eat large amounts of chocolate, highly seasoned spicy foods, high-fat foods (such as fried food, pastries, cream, butter and oils), tomato and tomato products, citrus fruits, coffee (including decaf), strong tea, soft drinks and alcohol.

- Avoid large meals, it is best to consume three small meals and three small snacks throughout the day.
- Eat slowly and take the time to enjoy your meal. Avoid wearing tight clothing while eating especially belts.
- You may be able to eat more if you sip fluids in between meals rather than drinking large amounts at meal time.
- Staying upright during and after eating and drinking can help. Sit upright for at least 30 minutes and avoid lying down or activities that involve bending over (e.g. gardening) directly after eating.
- Tell your doctor if indigestion or pain persists.

Constipation

Constipation is when your bowel motions are difficult to pass and infrequent. It may be caused by some medications, particularly strong pain medication, a diet low in fibre, lack of exercise or by not having enough fluids to drink (dehydration).

Things to consider when you have constipation:

- Drink plenty of fluids, at least eight to twelve glasses per day (two to three litres) e.g. water, fruit juice, herbal tea, milk-based drinks or soup. This will help to keep stools soft.
- Consume a variety of fibre-rich foods such as wholegrain breads, cereals, pasta, fruit, vegetables (especially raw and unpeeled), nuts and seeds, legumes and pulses such as baked beans, lentils and chickpeas.
- Consider fresh orange, apple, pear or prune juice as possible alternatives to a fibre rich diet especially for those people on fluid diets.
- Try to get into a regular routine with your meals which can help to regulate the digestive processes.
- Avoid or reduce constipation due to radiotherapy by completely emptying your bowels before each treatment.
- Try some gentle exercise such as walking each day. Talk to your doctor, physiotherapist or exercise physiologist about the amount and type of exercise that is right for you.

Important

When increasing the amount of fibre in your diet it is essential that you also increase fluids, to prevent the fibre making your constipation worse. Medication to help maintain comfortable bowel function is generally given to people taking codeine and morphine preparations. In these cases eating extra dietary fibre may not help and may make you feel overfull and uncomfortable. It is important that you discuss constipation with your doctor who can prescribe medication if needed to help you maintain regular bowel function (e.g. suitable fibre supplements or laxatives).

Diarrhoea

Diarrhoea means your bowel motions are watery, urgent and frequent. You may also get abdominal cramping. Diarrhoea may be caused by a number of different factors including treatment, medications, infections, food sensitivity or anxiety.

Diarrhoea induced by radiotherapy (usually to the pelvic area) does not necessarily require a change in diet. Dietary changes to help ease radiation induced diarrhoea have not been well established; however it is important to maintain an adequate diet and replace lost fluids to prevent dehydration.

Things to consider when you have diarrhoea:

- Take anti-diarrhoea medications as prescribed by your doctor.
- Drink plenty of fluids to prevent dehydration. Water and diluted cordials are better hydrating fluids compared to high sugar drinks, alcohol, strong caffeine or very hot/cold fluids which may worsen diarrhoea.
- Avoid highly spiced and fatty/oily foods.
- Oral rehydration drinks may be needed to replace lost electrolytes. See your pharmacist for information on these products.
- Talk to your dietitian about whether there are any individual dietary strategies that may help you if you have diarrhoea. Sometimes temporary intolerance to lactose (sugar found in milk) or fructose (sugar found in fruit) can cause diarrhoea. In such cases it may help to change to soy milk or low lactose milk until the diarrhoea resolves.
- Consult your doctor before making any changes to your diet, and if you have ongoing diarrhoea. Your doctor can determine the cause, prescribe medication or refer you to a dietitian to provide suitable alternatives.

Other types of bowel irritation

During chemotherapy or radiotherapy to your abdomen or pelvis, your intestines can become irritated leading to other problems such as abdominal discomfort or more flatus (wind) than usual. You may also need additional time to recover from surgery to the bowel area.

Irritation of the large bowel (colitis) and rectum (proctitis) may be experienced after radiotherapy to the pelvis. Some people feel the need to empty their bowels more often, perhaps without much result. Straining can cause discomfort and there may be some blood or mucus in motions. These changes are usually temporary and will correct themselves.

In the short term symptoms may be relieved by reducing your fibre intake and avoiding fatty or fried foods, rich gravies and sauces, sausages and spicy foods. Eat soft or cooked fruit, fine wholemeal bread (without coarse pieces of grain or seeds) and bran to provide soft bulk. Drink plenty of fluids.

Irritation of the small bowel (enteritis) may occur because of chemotherapy or radiotherapy to the abdomen or pelvis. You may experience some abdominal discomfort (like cramps or wind pain), episodes of fluid and pale bowel motions and more flatulence (wind) than usual. These changes usually correct themselves within a week or so after treatment. Speak to your doctor if you experience symptoms for more than a week.

- Eat and drink slowly, take small mouthfuls and chew your food well to avoid swallowing air.
- A low fibre diet may reduce bowel movement and irritation in the short term.
- Reduce foods such as corn, beans, cabbage, onions, pickles and fizzy drinks, which can produce wind.
- Try some gentle exercise, such as walking, to encourage healthy bowel action.

Getting the most from food

There are many treatment side effects that can affect your food intake and your appetite. A lot of time can be spent travelling to the hospital, waiting around for appointments and staying in temporary accommodation with limited cooking facilities. Having a range of quick and easy snacks suitable to eat when you are away from home, or when you don't feel like preparing a meal, is important to prevent weight loss and malnutrition.

If you are not able to eat your usual amount of food, or you need to gain or maintain your weight, it is helpful to take in more energy (kilojoules) without having to eat more. Try adding extras to your basic foods at mealtimes such as protein, fats and sugar.

How to gain and maintain weight

Increasing the amount of energy or kilojoules (e.g. protein, fat and sugar) in your diet is usually a temporary measure to keep you eating well during and after treatment. It is important to understand eating extra fat and sugar while you are underweight, or struggling to maintain your weight because of treatment side effects, will not hurt you and is often only needed for a short period of time.

Speak with your doctor and dietitian about relaxing low-cholesterol or diabetes dietary restrictions that may prevent you from eating extra fat and sugar.

- Treat food like medicine: something you have to have. Set times for meals and snacks.
- Make sure your meal or drink is nourishing e.g. drink milk rather than water and choose cheese and biscuits over lollies.
- Aim to have a small snack and/or nourishing drink, such as a milkshake or smoothie, if you can't manage larger quantities.
- Use full cream milk and dairy products, or enrich milk with milk powder.
- Add milk, cream, butter, margarine or yoghurt to porridge, sauces, desserts, mashed vegetables, egg dishes and soups.
- Add cheese to sauces, soup, vegetables, casseroles, salads and sandwiches.
- Fry or roast meat, chicken, seafood and vegetables in oil, butter or margarine.
- Spread bread, toast, scones, muffins, biscuits or fruit buns with butter or margarine and add honey or jam for extra energy. You can also use avocado, hummus or light cream cheese if you prefer a low fat option.
- Use egg or mayonnaise, cheese, cold meats, canned salmon or tuna, peanut butter, banana, baked beans, avocado on bread, toast, crumpets or muffins.
- Carry snacks such as hard boiled eggs, chocolate bars, muesli bars, sweet biscuits, cakes and slices. Look for those with fruits and nuts for added energy.
- Ready-to-use drinks are handy for travel and are useful if preparation is difficult. Examples include Sustagen, Ensure and Resource Fruit Beverage.

Food-type nutritional supplements

If you cannot manage to eat a balanced and varied diet, or are experiencing unintentional weight loss, then it is recommended that you use nourishing fluids and/or nutritional supplements.

Nutritional supplements such as Sustagen Hospital Formula, Ensure and Resource contain energy, protein and other nutrients in a concentrated source. Glucose powder supplements can also provide energy but they don't provide protein, vitamins or minerals, so they have a particular function and shouldn't be used as a meal replacement. You can sprinkle glucose powder on food or stir it through to give meals and snacks extra energy. Nutritional supplements and/or nourishing fluids should be taken in addition to eating your usual meals i.e. try them as between meal snacks.

A dietitian can suggest the most appropriate supplement for you, and where it can be purchased. Your choice of supplement should be based on your nutritional needs, on availability and on the cost of the supplement.

If you have been assessed by a speech pathologist as having swallowing difficulties and need thickened fluids, the nutritional supplements need to be thickened to the advised consistency. Discuss this with your speech pathologist.

The following tables provide some suggested nutritional supplements which you may be able to try. However it should not be considered a complete list of those available.

Powders		
Product name	Flavour	Description

Boost Powder™ (500g or 1.5kg can)	vanilla, chocolate, banana, strawberry, coffee	gluten free, low GI, low fat, low salt, contains fibre
Enprocal Powder™ (540g can or 2.1kg can)	neutral	gluten free, low GI, contains fibre
Ensure Powder™ (900g can)	vanilla, chocolate	low lactose, gluten free, low GI, contains fibre
Fortisip Powder™ (900g can)	vanilla	low lactose, gluten free, low GI
Proform Powder™ (1kg can)	neutral, vanilla, white chocolate	gluten free, low GI
Sustagen Hospital Formula™ (900g can)	neutral, vanilla, chocolate	gluten free, low GI
Sustagen Hospital Formula™ (3kg bag)	neutral	gluten free, low GI
Sustagen Plus Fibre™ (900g can)	vanilla, chocolate	gluten free, low GI, contains fibre
NB: When using powders, prepare as per directions on the can.		

Milk-based drinks		
Product name	Flavour	Description
Enrich Plus™ (200ml tetrapak)	chocolate, raspberry, vanilla	ready-to-drink, low lactose, gluten free, low GI, contains fibre
Ensure Ready-to-drink™ (237ml can)	vanilla, chocolate, banana, fruits of the forest	ready-to-drink, low lactose, gluten free, low GI

Ensure Plus™ (200ml tetrapak)	vanilla	low lactose, gluten free, low GI
Ensure Plus™ (250ml can)	vanilla, chocolate	ready-to-drink, lactose free, gluten free, low GI
Fortisip™ (200ml bottle)	neutral, vanilla, white chocolate	gluten free, low GI
Fortisip Multifibre™ (200ml bottle)	vanilla, banana, chocolate, strawberry, orange	ready-to-drink, low lactose, gluten free, low GI, contains fibre
Resource Plus™ (237ml tetrapak)	vanilla, chocolate, strawberry	ready-to-drink, low lactose, gluten free, low GI
Resource Protein™ (200ml bottle)	vanilla, coffee, forest fruits, chocolate, apricot	gluten free, high protein
Resource 2.0™ (237mL tetrapak)	vanilla	ready-to-drink, lactose free, gluten free
Sustagen Ready-to-drink™ (250ml tetrapak)	chocolate, vanilla, mocha chocolate	ready-to-drink, gluten free, low GI, available from supermarkets

Specialised drinks (with added fish oil – use as recommended by your dietitian)		
Product name	Flavour	Description
Forticare™ (125ml tetrapak)	peach-ginger	ready-to-drink, lactose free, gluten free, high protein, contains fibre, enriched with fish oil (EPA)
Impact Advanced Recovery™ (237ml tetrapak)	vanilla, chocolate	low lactose, gluten free, contains fibre, enriched with fish oil (EPA/DHA)

Prosure™ (240ml tetrapak)	vanilla	ready-to-drink, low lactose, gluten free, low fat, high protein, high energy, contains fibre, enriched with fish oil (EPA)
Prosure™ (380g can – powder)	vanilla	low lactose, gluten free, contains fibre, low fat, high protein, high energy, enriched with fish oil (EPA)
There is also a range of capsules and liquids containing fish oil available from pharmacies that may be used on the recommendation of a dietitian or doctor		

Fruit-based drinks		
Product name	Flavour	Description
Enlive Plus™ (220ml tetrapak)	apple, strawberry, orange	ready-to-drink, lactose free, gluten free
Fortijuice™ (200ml tetrapak)	forest fruits, apple, tropical	ready-to-drink, lactose free, gluten free, fat free
Resource Fruit Beverage™ (237ml tetrapak)	orange, peach, wild berry	ready-to-drink, lactose free, gluten free, low GI, fat free

Soups		
Product name	Flavour	Description
Dr MacLeod's Boost Soup Powder™ (400g or 1kg can)	beef and mushroom, chicken, pumpkin	low GI, contains fibre

Flavour Creations Not Just Soup™ (185ml cup)	beef and vegetable, chicken and vegetable, tomato, pumpkin	gluten free, high fibre
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Desserts and snacks		
Product name	Flavour	Description
Boost Dessert Powder™ (500g or 1.5kg can)	vanilla, mango	gluten free, low GI, low fat, contains fibre
Boost Jelly Powder™ (560g can)	lime, pineapple, raspberry	lactose free, low GI, low fat, low sodium, contains fibre
Ensure Pudding™ (113g tub)	vanilla, chocolate	ready-to-eat, gluten free, low GI, contains fibre
Flavour Creations Just Desserts Custard™ (110ml cup)	vanilla, banana, chocolate	ready-to-eat, gluten free, low fat
Forticreme Pudding™ (125g tub)	chocolate, vanilla, forest fruits, banana	ready-to-eat, gluten free, low GI
Resource Dessert Fruit™ (125g snackpack)	apple-prune, apple-strawberry	gluten free, contains fibre
Sustagen Instant Pudding Powder™ (450g can)	vanilla	gluten free, low GI

Vitamin and mineral supplements

Vitamins and minerals are an essential part of a healthy diet and play an important role in the body's immune system. If you are managing to eat a balanced diet through eating a variety of foods then the use of vitamin and mineral supplements is not usually necessary.

Some people believe taking high-dose vitamin supplements will strengthen the body's immune system but there is little evidence to support this. In fact many vitamins and herb compounds can be toxic at high levels and may interfere with chemotherapy, radiotherapy and other medications. Therefore high doses of vitamin or mineral supplements are usually not recommended for use during treatment.

Dietary supplements cannot replace whole foods which are still the best source of vitamins and minerals.

Many dietary supplements contain levels of antioxidants (such as vitamins C and E) that are much higher than the recommended Dietary Reference Intakes for optimal health. Whether antioxidants or other vitamin supplements are helpful or harmful during chemotherapy or radiation treatment is a major question without a clear science-based answer right now. Until more evidence is available it's best for people having these treatments to avoid dietary supplements, except to treat a known deficiency of a certain nutrient and to avoid supplements that exceed the recommended daily intake.

Talking to your doctor, dietitian or cancer pharmacist before taking vitamin and mineral supplements or before starting treatment is encouraged.

Unproven dietary treatments

Complementary therapies are treatments that may help you cope better with side effects such as pain. They may also increase your sense of control over what is happening to you, decrease your stress and anxiety, and improve your mood. There are many types of complementary therapies such as herbal medicine, acupuncture, massage, relaxation and meditation.

By contrast alternative therapies, which include unproven diets, are often defined as those used instead of conventional medical treatments. These therapies may be harmful if people with cancer delay or stop using medical treatment in favour of them.

There are no special foods, diets or vitamin and mineral supplements that have been scientifically proven to cure cancer or to stop it from recurring. Unproven diets are often expensive, restrictive and repetitive. It is important to enjoy a wide variety of foods to keep you well nourished.

Many unproven dietary treatments, particularly those that cut out food groups such as meat or dairy products, are likely to be low in energy (kilojoules), protein, fat, iron, calcium and zinc as well as vitamins. This can cause unwanted weight loss, tiredness and decrease your immune function. Your recovery and quality of life can improve if your diet includes adequate amounts from each food group.

Some alternative therapies can be harmful even when used in combination with conventional therapy. It is important that your doctor, dietitian, nurses and pharmacist are aware of all the treatments you are taking.

The checklist below will help you assess any diet therapy you are thinking of undertaking. Is the diet likely to:

- exclude one or more of the basic food groups?
- include large amounts of specific fruits, vegetables or their juices?
- exclude cooked foods or limit the cooking methods allowed?
- exclude or limit protein foods like meat, fish and chicken?
- completely change the way you choose, prepare and cook your foods?
- result in weight loss during your cancer therapy?
- prevent you enjoying social occasions with family and friends?
- include large amounts of special supplements?
- cost you a lot of money and time?

If you answer yes to any of these questions the diet could affect your recovery and compromise your health. Some eating patterns and nutrition supplements or pills can be harmful and may interfere with the success of your medical treatment.

Before radically changing the foods you eat, or taking vitamin/mineral pills or herbal remedies, talk to your doctor or dietitian.

Juice therapies

Juice therapies involve using fresh fruit and vegetable juices as the main source of food. Supporters of juice therapy believe it strengthens the immune system, reduces blood pressure and helps to

clean out (detoxify) the body. However while the health benefits of fruit and vegetables are well documented, the benefits of juice therapy are not.

Juice only contains a fraction of the fibre of whole fruit or vegetables. The protective effect of fruit and vegetables may be related to many factors in the whole fruit and vegetables not just the juice. Use fresh fruit and vegetable juices as part of a varied eating plan.

Recipes and snacks

It is often difficult to eat well when you don't feel like shopping for food or cooking because you are tired or unwell. You may miss meals while having treatment or waiting for appointments.

The following meal and snack ideas may not all seem like healthy choices, but if you have a poor appetite it's important to boost your intake of food and focus on high protein and energy foods and fluids.

Meal and snack ideas

- baked beans on toast with grated cheese
- fried fish (bought prepared) or fish fingers with chips and salad
- canned creamy soup made with milk, served with buttered toast
- grilled lamb cutlets, mashed potato with margarine or butter, and peas and carrots
- crumpets or muffins toasted with cheese, and some fruit
- a sandwich and a glass of high-protein milk with Aktavite, Milo or Horlicks
- pasta with cheese or a ready-made sauce
- salmon, tuna or egg with salad and mayonnaise, served with a buttered bread roll
- occasionally takeaway food such as barbecue chicken, a hamburger, pizza (ensure the food is fresh and hasn't been kept at a warm temperature for a long time)
- scrambled or poached egg on toast and a glass of orange juice
- tuna or sardines on buttered toast with fresh tomato
- a ham and cheese omelette with salad and buttered bread
- toast with cheese or peanut butter, followed by sliced banana and yoghurt
- frozen prepared casseroles, desserts and soups that can be defrosted in portions and eaten on days you don't feel like cooking
- cheese and crackers
- celery and cream cheese or peanut butter
- cheese or peanut butter on toast or bread
- hard-boiled eggs
- dried fruit and nuts
- toasted sandwiches and sandwiches – good fillings are peanut butter, cheese, avocado, egg and mayonnaise, cold meats, salmon and tuna
- milk puddings, such as creamed rice, custard, mousse and instant puddings
- leftover foods from the previous day – make sure foods are properly reheated
- fruit cake, muesli and health food bars, sweet biscuits, cakes and slices
- fresh or tinned fruit with custard, yoghurt, jelly, ice cream or cream
- creamy soup
- hot chips
- instant noodles
- potato crisps or corn chips with dips
- buttered pikelets, scones, muffins, fruit buns, finger buns and raisin toast
- yoghurt or ice cream
- milkshakes.

[Click here for a range of suitable recipes.](#)

Help for carers

Preparing food for someone with cancer can be difficult and sometimes frustrating.

There are many reasons why the person may not be able to eat what you have prepared. Some people just don't feel like eating.

To understand your feelings a little better, remember we often express our love or feelings for someone by giving food. If this food is not accepted, for whatever reason, it is natural to feel upset. If you try to make food less of an issue, it can reduce stress for everyone.

- Become involved and understand the nutritional needs of your loved one or friend. Go to appointments with the dietitian if appropriate.
- Encourage and support, but try not to focus on lack of eating and drinking.
- Be prepared for your loved one or friend to experience taste changes from day-to-day, particularly during treatment periods.
- Make sure there is food at home that is ready-to-eat for when they feel like eating. For example, tinned fruit in the cupboard or yoghurts in the fridge, and a frozen meal in the freezer.
- Be flexible and willing to try new ideas or recipes.
- Eat together as often as possible as people often eat better with company.
- Accept a well-balanced diet may not be achievable and your loved one or friend may only want a small range of foods. Try not to worry, as it is often for a short period of time. A dietitian will be able to advise you of useful supplements.

If your child has cancer

The nutritional needs of children with cancer are different to adults, as children continue to grow and develop during treatment. Maintaining a healthy weight is also important as becoming overweight can affect children's tolerance of treatment and long-term health. Your doctor and dietitian will monitor your child's weight and growth closely during treatment.

It is hard as a parent to watch your child struggle to eat and drink but try not to make an issue of your child's reluctance to eat. Instead, maximise their nutrition by encouraging nutritious, high energy foods when they are feeling well.

A child may use food to express anger, despair or frustration at being sick or being different from others. It may help to:

- Continue normal daily routines as much as possible, as these will help your child and the rest of the family feel more stable.
- Consider sitting down at the table for a family meal at least once daily.
- Make mealtimes as relaxed as possible – your child can sit with the family even if he or she doesn't eat or chooses to eat something different.

Regular mealtimes are important times for families to share and it will help your child feel part of the family.

Following are a few further tips to help you balance family life and the nutritional needs of your child with cancer.

- Let your child have food any time, not just at meal times, so that nourishing snacks supplement small meals.
- Be flexible in meal patterns and food choices – allow your child to have breakfast cereal for dinner if that's what they prefer.
- Allow your child to occasionally have fatty or sugary foods like chips and chocolate. These foods may be useful high energy snacks if they are all your child wants to eat. Any nourishment is better than none but don't let these foods become a habit.
- Use the time between treatments, while there are no side effects, to make up for any nourishment your child may have missed during treatment.
- Have takeaway food occasionally, to tempt fussy eaters.
- Avoid eating in front of the television as it can be distracting.
- Encourage your child to make mealtimes special by letting her or him plan the table setting, using decorated paper cups, coloured drinks, centrepieces or other features.
- Introduce novelties such as fancy drinking straws, patterned plates, coloured eggs or vegetables cut into interesting shapes. For a younger child who is kept home from school, try a picnic or brown paper lunch bag.
- Try to avoid food becoming a bargaining tool or a source of anxiety for either you or your child.

- Explain the reasons for good nutrition to older children. This may encourage them to eat when they feel up to it.

After treatment

Most side effects go away after treatment ends but some can take time to resolve.

It is important to continue eating well (as per advice during treatment) until your side effects are resolved and no longer affecting your ability to eat. Some people who have had cancer change their diet dramatically in an attempt to stop the cancer coming back. Unfortunately no specific foods have been proven to prevent cancer recurring.

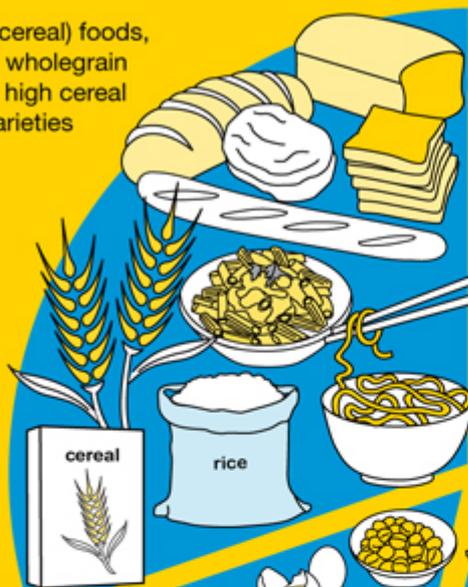
However healthy habits, like eating well and doing regular physical activity, may help to reduce the chance of some cancers returning. For more information about leading a healthy lifestyle, call Cancer Council [13 11 20](tel:131120) or talk to a dietitian.

After treatment finishes and your eating has returned to usual patterns, it is safe to change to a healthy-eating focus (your dietitian can advise you on this) and the following information may help.

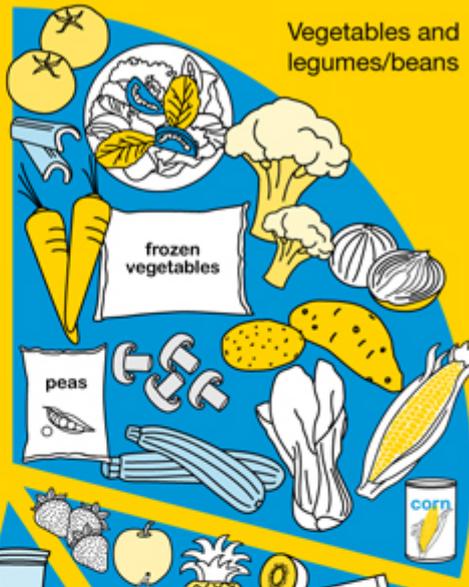
You may like to print the diagram below and attach it to your fridge as a guideline.

Healthy eating after treatment

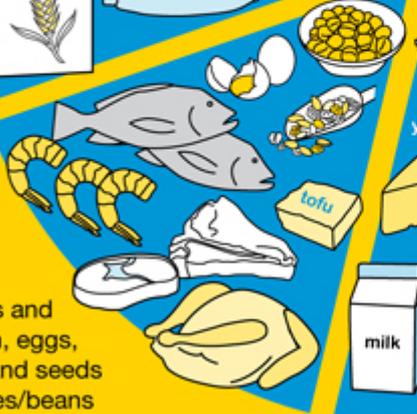
Grain (cereal) foods,
mostly wholegrain
and/or high cereal
fibre varieties



Vegetables and
legumes/beans



Lean meats and
poultry, fish, eggs,
tofu, nuts and seeds
and legumes/beans



Milk, yoghurt, cheese and/or
alternatives, mostly reduced fat



Drink plenty
of water



Use small amounts



Only sometimes and in small amounts

Based on the National Health and Medical Research Council's *Australian Guide to Healthy Eating* diagram.

The Australian Dietary Guidelines have been developed by the National Health and Medical Research Council to help people choose a healthy diet using a variety of foods. The guidelines provide general information about the amounts and kinds of food you need each day to get enough of the nutrients that are essential for overall good health and well-being.

To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs. Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be

checked regularly. Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight.

Enjoy a wide variety of nutritious foods from these five groups every day:

- Plenty of vegetables, of different types and colours.
- Fruit.
- Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley.
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans.
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under two years).
- Plenty of water.

Following are a few tips to help you build your health after treatment.

- Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.
- Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks.
- Replace high fat foods - which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil - with foods that contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado. (Low fat diets are not suitable for children under two years.)
- Limit intake of foods and drinks containing added salt. Read labels to choose lower sodium options among similar foods. Avoid adding salt to foods in cooking or at the table.
- Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.
- If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.
- Encourage, support and promote breastfeeding.
- Care for your food: prepare and store it safely.

Practical help and information

If you need more information about any of the content included in this article contact your doctor, nurse or dietitian.

Dietitians are available to help you in all public hospitals and most private hospitals. Ask your doctor or nurse to arrange an appointment. The Dietitians Association of Australia (DAA) can direct you to an Accredited Practising Dietitian in your area or to one who specialises in cancer or has experience with particular clinical conditions. Visit the website at www.daa.asn.au or call them on [1800 812 942](tel:1800812942).

Dietitians in private practice may also be listed in the Yellow Pages. If your doctor refers you to a dietitian as part of your Enhanced Primary Care (EPC) plan, you may be eligible for a Medicare rebate for up to five visits per calendar year. Most private health insurers provide a rebate depending on your type and level of cover.

Answer the following questions to help you determine if you need to see a dietitian:

- Have you lost weight recently (in the past 6 months) without trying?
- Have you been eating poorly because of decreased appetite?

If you answer yes to one or both of these questions it is important to be referred to a dietitian for individualised advice.

Question checklist

You may find this checklist helpful when thinking about the questions you want to ask your doctor about your disease and treatment.

If your doctor gives you answers that you don't understand, ask for clarification.

- Should I be on a special diet?
- Should I avoid any particular food during treatment?
- Why am I not eating normally?
- What other changes to my diet can I expect?
- Why am I losing/gaining weight?
- Why am I feeling sick?
- Why am I so tired?
- How long will mouth ulcers take to heal?
- How can I reduce nausea?
- Will medication help?
- Should I take vitamin supplements?
- What else can I do to help?
- Will these symptoms go and, if so, when?
- What types of foods will I be able to eat once my treatment is finished?

Information reviewed by: Jenelle Loeliger, Head – Nutrition Department, Peter MacCallum Cancer Centre, VIC; Kate Aigner, Cancer Information Consultant, Cancer Council Helpline ACT; Ian Anderson, Consumer; Anna Boltong, PhD Candidate (Dietitian), Department of Cancer Experiences Research, Peter MacCallum Cancer Centre, VIC; Clare Hughes, Nutrition Program Manager, Cancer Council NSW; Bridget Kehoe, Public Health Coordinator (Nutrition and Physical Activity), Cancer Council QLD; Steve Pratt, Nutrition and Physical Activity Manager, Cancer Council WA; and Roswitha Stegmann, Helpline Nurse, Cancer Council WA.

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