



Nutrition and Cancer

A guide for people with cancer,
their families and friends

Practical
and support
information

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13 11 20



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Note to reader

Always consult your doctor about matters that affect your health. This booklet is intended as a general introduction to the topic and should not be seen as a substitute for medical, legal or financial advice. You should obtain independent advice relevant to your specific situation from appropriate professionals, and you may wish to discuss issues raised in this book with them.

All care is taken to ensure that the information in this booklet is accurate at the time of publication. Please note that information on cancer, including the diagnosis, treatment and prevention of cancer, is constantly being updated and revised by medical professionals and the research community. Cancer Council Australia and its members exclude all liability for any injury, loss or damage incurred by use of or reliance on the information provided in this booklet.

Cancer Council

Cancer Council is Australia's peak non-government cancer control organisation. Through the eight state and territory Cancer Councils, we provide a broad range of programs and services to help improve the quality of life of people living with cancer, their families and friends. Cancer Councils also invest heavily in research and prevention. To make a donation and help us beat cancer, visit cancer.org.au or call your local Cancer Council.



Cancer Council Australia

Level 14, 477 Pitt Street, Sydney NSW 2000

Telephone 02 8063 4100 **Facsimile** 02 8063 4101

Email info@cancer.org.au **Website** cancer.org.au

ABN 91 130 793 725

About this booklet

This booklet has been prepared to help you understand more about nutrition and how to eat well before, during and after cancer treatment.

We cover the general guidelines for healthy eating and some of the common eating problems caused by cancer or its treatment. There are tips for managing these issues, as well as some simple recipes to make at home. We cannot give advice about the best diet for you. You need to discuss this with your doctors, nurses and dietitians. However, we hope this information will answer some of your questions and help you think about other questions to ask your treatment team or dietitian (see page 60 for a question checklist).

This booklet does not need to be read from cover to cover – just read the parts that are useful to you. Some terms that may be unfamiliar are explained in the glossary (see page 61). You may also like to pass this booklet to family and friends for their information.

How this booklet was developed

This information was developed with help from a range of health professionals and people affected by cancer. It is based on Australian and international nutrition guidelines.¹⁻²

If you or your family have any questions, call Cancer Council **13 11 20**. We can send you more information and connect you with support services in your area. You can also visit your local Cancer Council website (see back cover).



**Cancer
Council
13 11 20**

Contents

The importance of eating well.....	4
What to eat.....	4
What to drink.....	5
General guidelines for healthy eating.....	6
Eating well after a cancer diagnosis.....	8
Key questions	10
Can food cause cancer?	10
Should I avoid processed meats and red meat?.....	10
Is organic food better?	11
Should people with cancer follow a special diet?	12
Does sugar feed cancer?	13
Is fasting a good idea?	13
Why should I see a dentist before starting treatment?	14
How important is exercise?.....	14
Treatment side effects and nutrition.....	16
Lowered immunity.....	18
Fatigue.....	20
Loss of appetite.....	21
Changes in taste or smell.....	22
Dry mouth.....	24
Chewing and swallowing problems.....	25
Nausea and vomiting.....	28
Constipation	30
Diarrhoea.....	31
Other types of bowel irritation.....	32
Heartburn (indigestion).....	33

Nutrition concerns.....	34
Malnutrition.....	34
Eating after surgery	36
Weight loss	38
Weight gain.....	40
Food-type nutritional supplements	40
Vitamin and mineral supplements	41
Nutrition and advanced cancer.....	42
Nausea and vomiting.....	42
Mouth problems	42
Blockage in the bowel.....	43
Cachexia.....	43
Recipes and snacks	44
Simple meals.....	46
Nourishing drinks	48
Soups	50
Marinades.....	52
Caring for someone with cancer	53
Looking after yourself.....	55
Seeking support	56
Health professionals who can help	56
Question checklist.....	60
Glossary	61



The importance of eating well

Most people understand that eating well is important for overall health and wellbeing, but they may not be aware of all the benefits.

Good nutrition can:

- give you more energy and strength
- help you achieve or maintain a healthy weight
- improve your mood
- help prevent or reduce the risk of some conditions, such as heart disease, type 2 diabetes and even some cancers.

If you have been diagnosed with cancer, both the disease and treatment will place extra demands on your body. Research shows that eating well benefits people before, during and after cancer treatment. It can:

- improve quality of life by giving you more energy, keeping your muscles strong, helping you stay a healthy weight, and boosting mood
- help manage the side effects of treatment, improve response to treatment, reduce hospital stays, and speed up recovery
- help heal wounds and rebuild damaged tissues after surgery, radiation therapy, chemotherapy or other treatment
- improve your immune system and ability to fight infections
- reduce the risk of cancer coming back.

What to eat

The *Australian Dietary Guidelines*¹ provide advice on eating for health and wellbeing for the general population. They were developed by the National Health and Medical Research Council (NHMRC). Following these guidelines will help ensure your diet is healthy and may reduce

your risk of developing some cancers. The next two pages outline the key recommendations from the guidelines. It is also important to be as physically active as you can (see pages 14–15).

Eating well after a cancer diagnosis will help you prepare for and manage treatment and recovery. During this time, some people find it difficult to eat enough or they may have trouble eating some foods. You may need to be more flexible with your food choices so that you maintain your weight or regain weight you have lost. Pages 8–9 explain how your nutritional needs may vary from the *Australian Dietary Guidelines* before, during and after cancer treatment.

What to drink

Fluids are an essential part of any diet. All of the organs, tissues and cells in your body need fluids to keep working properly. As a general guide, you should aim to drink at least 8–10 glasses of fluid per day. Most of this should be plain water, but you can also get fluid from soups, smoothies, milk, fruit juices, fruit or ice cubes.

Many people drink alcohol to relax and socialise. However, drinking too much alcohol may lead to weight gain and increase the risk of heart disease, type 2 diabetes and some cancers. When it comes to cancer risk, there is no safe level of alcohol consumption. For healthy men and women who choose to drink alcohol, Cancer Council recommends you follow the NHMRC guidelines³ and limit your intake to two standard drinks a day (see alcohol.gov.au for standard drink sizes). Alcohol can interact with some medicines, so check with your doctors before drinking alcohol during cancer treatment.

General guidelines for healthy eating

The five key recommendations in the *Australian Dietary Guidelines* are outlined below. These are for the general adult population. People with cancer may need to be more flexible about their food choices – see pages 8–9.

1

Achieve and maintain a healthy weight by being physically active and choosing nutritious food and drinks to meet your energy needs.

2

Enjoy a wide variety of nutritious food from the five food groups every day (see diagram opposite).

3

Limit your intake of alcohol and food containing saturated fat, added salt and added sugars (see diagram opposite).

4

Encourage, support and promote breastfeeding.

5

Care for your food – prepare and store it safely (see pages 18–19).

Diagram on opposite page based on the National Health and Medical Research Council's "Australian Guide to Healthy Eating" diagram. For more details, see eatforhealth.gov.au.

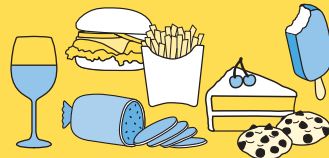
Grain (cereal) foods,
mostly wholegrains and/
or high fibre varieties

Plenty of vegetables
of different types
and colours, as well
as legumes/beans



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

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



Eat a variety of food
from the five groups
on the chart above.
Drink plenty of water.

Use small amounts
of fats such as butter
and cooking oils.

If you choose to eat fast food,
processed meats and sweets
and drink alcohol, only have them
sometimes and in small amounts.

Eating well after a cancer diagnosis

During cancer treatment and recovery, you may need to adapt what you eat to cope with your body's changing needs.

Preparing for treatment



- Once you have been diagnosed with cancer, try to eat as well as you can before starting treatment.
- Eat a variety of foods and do some physical activity to build muscle (if you are feeling well enough).
- If you have lost weight and/or you are not eating as well as usual, you may need food with more energy (kilojoules) and protein.
- Ask your general practitioner (GP) or oncologist for a referral to a dietitian for advice about diet. You can also be referred to other health professionals, such as physiotherapists, exercise physiologists and psychologists. These health professionals can work together to help prepare you for cancer treatment (see pages 56–57).

During treatment



- You may need food with more energy (kilojoules) and protein. If you don't have much appetite, eat small, frequent meals or snacks, rather than three large meals a day.
- If treatment affects what you can eat, see the tips on pages 16–33. If you are losing weight, pages 38–39 discuss how to avoid further weight loss. Ask for a referral to a dietitian if weight loss is ongoing or rapid.
- Do regular physical activity to improve appetite and mood, reduce fatigue, help digestion and prevent constipation. A physiotherapist or exercise physiologist can help you develop an exercise plan.
- Check with your doctor or dietitian before taking vitamin or mineral supplements or making major changes to your diet.

After treatment



- Try to maintain your weight to speed up recovery.
- Eat a variety of foods and do some physical activity to rebuild muscle and recover from the side effects of cancer treatment. You can ask to see a physiotherapist or exercise physiologist for help developing an exercise plan.
- If you continue to experience treatment side effects that affect what you can eat, see the suggestions on pages 16–33. You can also talk to a dietitian for further assistance.

Recovery



- Focus on healthy eating once you've recovered from the side effects of treatment. For general healthy eating guidelines, see pages 6–7.
- Maintain a healthy weight and be physically active to help lower the chance of cancer coming back. For information on physical activity guidelines for adults, see pages 14–15.
- Visit your doctor for regular check-ups.
 - See our *Living Well After Cancer* booklet.

Living with advanced cancer



- Good nutrition can improve quality of life.
- Adjust food choices and eating patterns to meet your changing nutritional needs.
- Talk to your doctor about medicines that may boost appetite.
- Relax usual dietary restrictions, e.g. use full-cream rather than low-fat milk.
- Consider nutritional supplements if you can't eat enough. Discuss options with your doctor, palliative care specialist or dietitian.
 - See *Nutrition and advanced cancer* on pages 42–43.



Key questions

Q: Can food cause cancer?

A: The link between food and cancer is complex. There are many different types of cancer and many different causes of cancer, only some of which are understood. Cancer starts when cells begin to grow out of control. The reason for this change is not always known, but lifestyle and diet sometimes play a part. Poor eating habits combined with other lifestyle factors (such as smoking, too little exercise, drinking too much, being overweight and too much sunlight exposure) may, over a long period of time, increase the risk of developing some cancers.

Q: Should I avoid processed meats and red meat?

A: The World Health Organization classifies processed meats such as bacon, ham and salami as Group 1 carcinogens. This means there is a definite link with cancer, and it puts processed meats in the same category as other causes of cancer such as tobacco, alcohol and ultraviolet radiation. Red meat is classified as a Group 2A carcinogen, which means it probably causes cancer, but the evidence isn't as strong. These classifications do not indicate the risk of getting cancer; they describe the strength of the evidence that these foods are linked to cancer.

To reduce cancer risk, Cancer Council recommends that you eat little, if any, processed meats such as bacon, ham and salami. Cancer Council also recommends eating no more than 455 g of cooked lean red meat (e.g. beef, lamb, pork, kangaroo, goat) per week – for example, you might have a 100 g serve 3–4 times per


week. Add extra vegetables to your plate, or try fish, chicken, eggs or legumes (such as chickpeas or lentils) instead of red meat. If you are losing weight or struggling to eat enough during cancer treatment, check with your dietitian what foods are right for you.

Q: Is organic food better?

A: Organic farmers and food producers grow and produce food without using synthetic pesticides or fertilisers. They also don't use seeds, plants or animals that have had their genetic make-up altered in a laboratory, or expose food to radiation to extend shelf life.

Some people believe it's better to eat organic food because they're not eating extra chemicals in their food. However, there is no strong evidence that organic food is better for you, or that it will help you recover faster or reduce the risk of cancer coming back.

Organic fruits and vegetables contain the same vitamins and minerals as those grown in the usual way and can be more expensive to buy. Focus on eating a variety of fruits and vegetables, rather than whether or not they're organic.



Before changing what you eat, following a specific diet, or taking a lot of vitamins or mineral supplements (see page 41), it is important to talk to your doctor or dietitian. They can discuss the advantages and disadvantages of different diets.

Q: Should people with cancer follow a special diet?

A: If you've been diagnosed with cancer, you may be thinking about changing your diet to help your body cope with the effects of cancer and its treatment, and to give yourself the best chance of recovery. After a cancer diagnosis, some people find that they give more attention to having a well-balanced diet, which can have many benefits. Others need to adjust their diet to make sure they are getting the nutrition they need (see pages 8–9).

Some people claim that a particular diet can cure or control cancer on its own. Often these diets are promoted on websites or in the media. However, there are no special foods, diets or vitamin and mineral supplements that have been scientifically proven to do this.

Many unproven diets encourage people to: eliminate one or more basic food groups (e.g. all dairy or all carbohydrates); include large amounts of specific fruits and vegetables or their juices; and take special supplements. These diets are often expensive and can be harmful.

Following one of these unproven diets can cause unwanted weight loss and fatigue, and weaken your immune system. This may make it harder for you to cope with treatment and lead to malnutrition. Diets that cut out whole food groups are likely to be low in energy, protein, fat, iron, calcium, zinc and vitamins, all of which are essential for your organs to work properly. Unusual diets can also make it hard to eat

at restaurants or other people's homes, which may prevent you from enjoying social occasions.

► See our *Understanding Complementary Therapies* booklet.

Q: Does sugar feed cancer?

A: While everyone should try to limit added sugar in their diet, sugar occurs naturally in many foods, and carbohydrates (such as potatoes, pasta and grains) break down into sugar in the body. You may hear that because cancer cells use sugar to grow, cutting out all sugar and carbohydrates from your diet will stop the cancer growing. This is a myth and can be harmful. The healthy cells in your body also use sugar to grow, so changing your diet in this way would mean missing out on the sugar that helps your vital organs work. If you are losing weight or struggling to eat enough, eating foods with sugar in them may help to keep your energy levels up. You can talk to a dietitian about what foods are right for you after a cancer diagnosis.

Q: Is fasting a good idea?

A: Some people think that eating very little (fasting) helps treat cancer, but there is not enough evidence to support this and it can be harmful. Not eating enough can leave you feeling tired, weaken your immune system and affect your ability to cope with treatment. This may lead to treatment delays or reduce the amount of treatment you receive. It is important to try to eat a wide variety of food, and to eat enough to meet your body's needs so you maintain strength during treatment.

Q: Why should I see a dentist before starting treatment?

A: Cancer treatment often causes side effects that affect your mouth and teeth, such as mouth ulcers, dry mouth, tooth decay and mouth infections (see pages 24–25). These problems can make it hard to eat, and poor oral health can make them worse. This is why it is important to have a check-up with your dentist before treatment starts, especially if your treatment includes radiation therapy to the head or neck, some types of chemotherapy, or the drugs known as bisphosphonates (used to treat bone disease).

Your dentist can check the health of your teeth and identify any problems early. You can also ask your dentist or your cancer treatment team for advice about caring for your teeth and mouth before, during and after treatment.

▶ See our *Mouth Health and Cancer Treatment* fact sheet.

Q: How important is exercise?

A: Along with eating well, physical activity is important for general health and wellbeing. Any activity that gets your body moving and speeds up your breathing and heartbeat can help you achieve or maintain a healthy body weight, improve your mood, and prevent some conditions, such as heart disease, type 2 diabetes and even some cancers.

*Australia's Physical Activity and Sedentary Behaviour Guidelines for Adults*⁴ encourage everyone to move more and sit less.

Adults should aim to be active on most, preferably all, days of the week. Any physical activity is better than none, so if you are not physically active at all, try to gradually build up to the recommended amount. The aim is to be as physically active as your abilities and condition allow. To find out more about the general guidelines, see health.gov.au/paguidelines.

Exercise is now recommended for most people during and after cancer treatment. Research shows that regular physical activity can:

- help manage fatigue and other common side effects of cancer treatment
- increase appetite
- speed up recovery
- strengthen muscles and bones
- improve circulation and energy levels
- reduce stress and improve your mood
- reduce the risk of the cancer coming back (for some cancer types) and of developing other health problems
- reduce isolation (if exercising with others)
- improve quality of life.

Check with your oncologist or GP before starting an exercise program, and see a physiotherapist or exercise physiologist to develop an exercise plan that suits your situation. A physiotherapist or exercise physiologist may be part of the team at your hospital or treatment centre, or your GP can refer you to one in private practice.

➤ See our *Exercise for People Living with Cancer* booklet.



Treatment side effects and nutrition

Cancer treatments kill cancer cells, but in the process they damage normal healthy cells and cause side effects. These side effects vary from person to person, depending on the type of treatment, the part of the body treated, and the length and dose of treatment. Most side effects are temporary and go away after treatment ends. There are ways to control and manage side effects.

The side effects of cancer treatment can affect what you can eat and how much. This chapter discusses some of the most common

How cancer treatments can affect nutrition

Treatment	Possible side effects
surgery the partial or total removal of a tumour or body part	difficulty chewing and swallowing, diarrhoea, difficulty absorbing nutrients, weight loss
chemotherapy the use of drugs that kill or slow the growth of cancer cells	loss of appetite, nausea, vomiting, constipation, diarrhoea, mouth sores, taste changes, difficulty swallowing, lowered immunity, fatigue, weight loss
radiation therapy the use of targeted radiation to kill or injure cancer cells; also known as radiotherapy	loss of appetite, fatigue, taste changes, nausea, vomiting, diarrhoea, dry mouth, difficulty swallowing, bowel obstruction, mouth sores, weight loss
steroid therapy drugs used to treat inflammation and some blood cancers	increased appetite, weight gain, increased risk of infection, stomach irritation

nutrition impacts of cancer treatment and offers a range of practical suggestions for coping with them.

Feeling anxious about the diagnosis and treatment can also affect your appetite. Talk to a family member or friend, the social worker at the hospital, your doctor or a psychologist if you are experiencing these feelings. You can also call Cancer Council 13 11 20.

- ▶ See our booklets on cancer treatments and the type of cancer you have, and listen to our “Appetite Loss and Nausea” podcast.

Treatment	Possible side effects
stem cell transplant the process of replacing stem cells destroyed by high-dose chemotherapy	lowered immunity, sore mouth and throat, nausea, vomiting, diarrhoea, fatigue, loss of appetite, weight loss
hormone therapy drugs that block the hormones that help some cancers grow	weight gain, increased cholesterol levels
targeted therapy drugs that attack specific particles within cells that allow cancer to grow and spread	diarrhoea, nausea, vomiting, constipation, taste changes, mouth sores, fever, increased risk of infection, weight loss
immunotherapy drugs that use the body's own immune system to fight cancer	diarrhoea, bloody stools, abdominal pain, bloating, weight loss or weight gain

Lowered immunity

Cancer and some treatments (such as chemotherapy and stem cell transplants) can weaken the body's immune system by affecting white blood cells that protect against infection. If you are having these treatments, you will be encouraged to take care preparing food, because this lowered immunity can make you more prone to foodborne illness.

Making safer food choices

Food type	Safe action	Precautions to take
chicken	cook thoroughly	<ul style="list-style-type: none">● refrigerate leftover chicken immediately – don't let it cool on the benchtop● eat within 24 hours; eat straight from the fridge or reheat until steaming hot● avoid purchased, ready-to-eat chicken
meat	cook thoroughly	<ul style="list-style-type: none">● refrigerate leftover meat immediately – don't let it cool on the benchtop● eat within 24 hours; eat straight from the fridge or reheat until steaming hot
seafood	eat well-cooked fresh seafood	<ul style="list-style-type: none">● refrigerate leftover seafood immediately, and eat within 24 hours● avoid raw seafood (e.g. oysters, sushi) and ready-to-eat peeled prawns● avoid ready-to-eat smoked seafood
cold meats	store home-cooked cold meats in fridge	<ul style="list-style-type: none">● avoid ready-to-eat cold meats from the deli counter and packaged, sliced ready-to-eat cold meats
sandwich	eat freshly made	<ul style="list-style-type: none">● avoid pre-made sandwiches

General precautions

- Wash your hands and knives, cutting boards and food preparation areas thoroughly with hot soapy water before and after cooking.
- Take care when eating out, as it can be difficult to know whether food safety guidelines are being followed. Where possible, ask for meals to be made fresh and avoid pre-prepared foods that have been sitting for unknown periods of time.

Food type	Safe action	Precautions to take
salad	wash thoroughly before preparing	<ul style="list-style-type: none"> • refrigerate leftover salad immediately, and eat within 24 hours • avoid ready-to-eat or pre-packaged deli salads (including pre-cut fruit salads)
eggs	store clean, uncracked eggs in fridge	<ul style="list-style-type: none"> • avoid cracked, dirty and raw eggs • avoid food containing raw eggs (e.g. homemade mayonnaise, raw cake mix and biscuit dough)
cheese and other dairy products	eat hard or processed cheese; store pasteurised dairy products in fridge	<ul style="list-style-type: none"> • store cheese in fridge • avoid soft, semi-soft and surface-ripened cheeses (e.g. brie, camembert, ricotta, fetta, blue) • avoid unpasteurised dairy products
packaged food	use within use-by dates	<ul style="list-style-type: none"> • store unused portions of perishable food in fridge in clean, sealed containers, and use within 24 hours
ice-cream	keep frozen	<ul style="list-style-type: none"> • avoid soft serve ice-cream

Fatigue

A common side effect of treatment is feeling extreme and constant tiredness. This is known as fatigue. It is different to normal tiredness because it usually doesn't improve with rest. Fatigue can be caused by treatment side effects that reduce the number of red blood cells (anaemia) or that affect your appetite.



How to manage fatigue

- Plan ahead for when you feel too tired to cook. Prepare food in advance and store in the freezer.
 - e.g. in your bag or car. This will allow you to keep your energy levels up if you have unexpected delays.
- Cook in the morning when you are less likely to be tired.
- Shop online for groceries instead of going to the shops.
- Ask for and accept offers of help with shopping and cooking from family and friends.
- Consider using apps such as CanDo (candoapp.com.au) and LOVLIST (lovlist.org) to coordinate offers of help.
- Do regular exercise to help improve fatigue and appetite (see pages 14–15).
- Keep snacks such as muesli bars, dried fruit, nuts and crackers in handy locations,
 - See page 45 for a list of quick snacks you can eat at home.
 - Use services such as Meals on Wheels or other home delivery meal companies that bring pre-prepared food to you. There are also companies that deliver prepared ingredients with recipes that you can cook at home yourself.
 - Eat with others to make meals as enjoyable as possible, particularly if you are feeling too tired to eat.
 - ▶ Listen to our “Managing Cancer Fatigue” podcast.

Loss of appetite

You may lose your appetite because of the effects of cancer itself, the treatment, or side effects such as feeling sick, not enjoying the smell of food, or feeling upset. This is a common issue for people diagnosed with cancer, but it is important to keep trying to eat well so your body gets the nourishment it needs to maintain your weight.



How to manage loss of appetite

- Eat small meals frequently, e.g. every 2–3 hours. Keep to a regular eating pattern rather than waiting until you're hungry.
- Use a smaller plate – a big plate of food may put you off eating.
- Eat what you feel like, when you feel like it, e.g. have cereal for dinner or a main meal at lunch. Some people prefer to prepare their own meals so they can eat whatever they feel like at the time.
- Include a variety of foods in your diet as this may help improve your overall intake.
- Sip fluids throughout the day, and replace water, tea and coffee with fluids that add energy (kilojoules) and protein, such as milk, milkshakes, smoothies or soup. These are also good if you find drinks or soups easier to manage than a meal. See the recipes on pages 48–51 for ideas.
- Relax dietary restrictions. During treatment, maintaining your weight or regaining weight you have lost is more important than avoiding full-fat and other high-energy or high-sugar foods.
- Gentle physical activity can stimulate appetite, e.g. take a short walk around the block.
- Make meals as enjoyable as possible to encourage your appetite, e.g. play music, light candles or eat with friends.
- ▶ Listen to our “Appetite Loss and Nausea” podcast.

Changes in taste or smell

Some treatments and their side effects can change the way some foods taste or smell. Chemotherapy can change the taste receptors in the mouth. Radiation therapy or surgery to the head, neck and mouth area can damage the salivary glands and tastebuds on the tongue. Food may taste bitter or metallic, or may not have as much flavour as before.

It's common to have taste changes during treatment and for a short time afterwards. People with cancer often say, "All food tastes the same", "Food tastes like cardboard", "Food tastes metallic", or "I no longer like the taste of my favourite food". If you lose most or all of your sense of taste, focus on other appealing aspects of food, such as the colours and presentation of the meal. You could try experimenting with different textures and temperatures to make food more enjoyable (e.g. hot apple pie with cold ice-cream). It may take several months for taste to return to normal. In some cases, taste changes may be permanent.

If you have a sore mouth, sore throat or swallowing difficulties, talk to your doctor, speech pathologist, dentist or dietitian – some of the suggestions in the table on the opposite page will not be suitable.

➤ See our *Understanding Taste and Smell Changes* fact sheet.

🗨️ During treatment, I developed an active sense of smell. I hated certain smells and did all I could to avoid them. My mouth felt very dry, which made food taste unappetising. Adding extra sauce helped. 🗨️ *Helen*



How to manage changes in taste or smell

Taste changes

- Add extra flavour to food if it tastes bland (e.g. fresh herbs, lemon, lime, ginger, garlic, soy sauce, honey, chilli, pepper, Worcestershire sauce or pickles). See page 52 for marinade ideas.
- Experiment with different foods, as your tastes may change. You may not like bitter drinks (e.g. tea, coffee, beer, wine) or sweet food (e.g. chocolate), even if you liked them before treatment. It is common to prefer savoury food.
- If meat tastes unpleasant during treatment, replace it with other protein sources (e.g. cheese, eggs, nuts, dairy foods, seafood, baked beans, lentils, chickpeas).
- Add small amounts of sugar to food if it tastes bitter or salty.
- Use bamboo or plastic cutlery if metal cutlery adds a metallic taste.
- Drink through a straw so the taste isn't as strong. Metal straws may add a metallic taste so paper or plastic straws may be better.

Smell changes

- Choose cold food or food at room temperature – hot food smells stronger.
- Try not to eat your favourite foods during chemotherapy. Some people find afterwards that they cannot tolerate the smell of foods associated with their treatment.
- Avoid using large amounts of strong-smelling ingredients (e.g. garlic, onion).
- If cooking smells bother you, ask family or friends to cook and stay out of the kitchen when food is being prepared.
- Turn on the exhaust fan, open a window and cover pots with lids to help reduce cooking smells, or cook outside on the barbecue.
- Avoid eating in stuffy or overly warm rooms.
- Practise good mouth care (see next page), as a bad taste in the mouth can make things smell unpleasant.

Dry mouth

Radiation therapy to the head or neck area, some chemotherapy drugs and some pain medicines can change the amount of saliva in your mouth and make your mouth dry. This is known as xerostomia. It can increase the risk of tooth decay and infections such as oral thrush, which will make eating harder.



How to relieve a dry mouth

- Use mouthwashes regularly to prevent infections. To avoid irritation, choose an alcohol-free mouthwash.
- Gargle with ½ tsp salt and/or 1 tsp bicarbonate of soda in a glass of water.
- Use a soft toothbrush when cleaning your teeth.
- Ask your dentist or health care team about suitable mouth rinses or oral lubricants.
- Avoid rough, crunchy or dry foods (e.g. chips, nuts, toast, dry biscuits); salty or spicy foods that sting your mouth; or very hot or cold food.
- Soften food by dipping it into milk, soup, tea or coffee, or moisten it with sauce, gravy, cream, custard, etc. You may find soup easier to eat (see pages 50–51 for recipes).
- Cut, mince or puree food with sauce or gravy to avoid it drying out when chewed.
- Sip fluids with meals and throughout the day.
- Limit alcohol and coffee as these remove fluids from the body, and avoid smoking.
- Chew sugar-free gum to stimulate the flow of saliva.
- Suck on ice cubes or frozen grapes to moisten your mouth.
- Moisten the inside of your mouth with a small amount of grapeseed oil, coconut oil or olive oil. This can help at night.
- Use a moisturising lip balm to keep your lips moist.

Chewing and swallowing problems

Cancer treatment can cause difficulties with chewing and swallowing. These are usually temporary, but can sometimes be permanent.

Problems chewing – People with dentures who lose weight may find their teeth become loose, making it hard to chew. Treatment for head and neck cancer sometimes involves removing teeth.

Sore mouth – Chemotherapy and radiation therapy can damage the cells lining the mouth and digestive tract, leading to ulcers and infections. This is known as mucositis and it can make it painful to eat and swallow. Mucositis usually gets better a few weeks or months after treatment ends, but you may need softer food until then.

Problems swallowing – If you're having difficulty swallowing (dysphagia), you may need to change the consistency of your food by chopping, mincing or pureeing (see table on the next two pages). Signs that the texture of food is causing problems include taking longer to chew and swallow; coughing or choking while eating or drinking; food sticking in your mouth or throat like a ball; or throat clearing after meals. A speech pathologist can monitor your ability to swallow, and a dietitian can suggest foods and make sure you are getting enough nutrition (see pages 56–57).

A person with severe difficulty swallowing will need a feeding tube to ensure adequate nutrition. This is rare for most people with cancer, but is more of a possibility with cancers affecting the head and neck, stomach or oesophagus (see pages 36–37). If a feeding tube is required, your treatment team will discuss this with you.

Suggestions for a texture-modified diet

If you need to adjust the texture of your food, this sample menu provides some ideas. Your speech pathologist and dietitian will be able to suggest many other options, and you can also try some of the recipes on pages 46–47.

Food texture	Breakfast	Lunch
<p>Soft</p> <p>Food can be chewed but not necessarily bitten. It should be easily broken up with a fork and need little cutting. Sauce or gravy can be added to make it softer.</p>	<ul style="list-style-type: none"> scrambled or poached eggs soft chopped fruit and yoghurt 	<ul style="list-style-type: none"> egg and commercial mayonnaise sandwich with crusts cut off baked beans
<p>Minced and moist</p> <p>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 by biting or chewing.</p>	<ul style="list-style-type: none"> oatmeal porridge or wheat biscuits with lots of milk and little texture well-cooked rice pudding congee (rice porridge) with little texture 	<ul style="list-style-type: none"> soup with vegetable or meat pieces (no bigger than 5 mm) well-cooked lentil dhal with very soft rice
<p>Smooth pureed</p> <p>The texture of smooth pureed food means it can be moulded, layered or piped to make it look more appealing. You can add sauce or extra liquid if you prefer.</p>	<ul style="list-style-type: none"> strained or pureed porridge (made with milk) strained or pureed congee 	<ul style="list-style-type: none"> well-cooked pasta that has been pureed in a blender with added sauce pureed canned tuna with commercial mayonnaise, pureed mashed potato pureed soup strained to remove lumps

Check with your dietitian if you have another health condition, such as diabetes, or if you have been told you need thickened fluid – you may not be able to have all of the foods suggested here, or you may need to modify them.

Dinner	Snacks, dessert and drinks	Avoid
<ul style="list-style-type: none"> ● casserole with small pieces of tender meat and well-cooked vegetables ● well-cooked rice or wheat noodles (not fried) with boiled vegetables and crumbled soft tofu or tender meat 	<ul style="list-style-type: none"> ● mango ● stewed fruit pieces ● yoghurt with soft fruit pieces ● soft cake with lots of custard ● fruit smoothie 	<ul style="list-style-type: none"> ● nuts ● dried fruit ● dry or gristly meat ● raw vegetables ● muesli ● hard cheeses (unless melted)
<ul style="list-style-type: none"> ● moist macaroni cheese ● mashed or scrambled tofu with small, soft vegetable pieces (no bigger than 5 mm) ● moist risotto 	<ul style="list-style-type: none"> ● mashed banana ● steamed egg pudding ● soft cheesecake without the crust ● semolina pudding ● creamed rice ● milkshake ● milk or soy milk 	<ul style="list-style-type: none"> ● nuts ● hard vegetables ● all bread and crackers ● dried food ● lollies (jubes, marshmallows)
<ul style="list-style-type: none"> ● pureed chicken blended with extra gravy or sauce and pureed noodles ● pureed lentil dhal or curry and pureed rice 	<ul style="list-style-type: none"> ● pureed pear or apple pushed through a sieve ● yoghurt with no fruit pieces/lumps ● ice-cream ● mousse ● milk or soy milk 	<ul style="list-style-type: none"> ● meat ● eggs ● cereals or vegetables that have not been pureed in a blender ● peanut butter

Nausea and vomiting

If you are having chemotherapy, you will be given anti-nausea medicine with your treatment and to take at home afterwards. In many cases, this will prevent severe nausea (feeling sick) and vomiting, but some people do still feel sick and may vomit. Radiation therapy, other medicines and the cancer itself can also cause nausea and vomiting.

How to cope with nausea and vomiting

Nausea

- Take anti-nausea medicines as prescribed, paying special attention to the timing (e.g. if your prescription says to take before food). Let the doctor know if the medicines don't seem to be working, as they can offer you a different one to try.
- Have a light snack before chemotherapy, and wait a few hours before eating again.
- Eat small meals frequently (every 2–3 hours) during the day. Going without food for long periods can make nausea worse.
- Snack on dry or bland foods, e.g. crackers, toast, dry cereals, bread sticks or pretzels. See page 45 for more ideas.
- Choose cold food or food at room temperature instead of hot, fried, greasy or spicy foods.
- Eat and drink slowly, and chew your food well.
- Try drinks and foods with ginger, e.g. non-alcoholic ginger beer, ginger biscuits.
- Avoid foods that are overly sweet, fatty, fried, spicy or oily, or that have strong smells.
- Brush teeth regularly and rinse mouth to help reduce unpleasant tastes that may make you feel nauseated.
- Don't eat your favourite food when feeling nauseated; otherwise, you may develop a permanent dislike.

Nausea and vomiting can also be triggered by stress, food odours, gas in the stomach or bowel, motion sickness or even the thought of having treatment. After a person has had a few treatments, they may connect certain sights, sounds or smells with treatment and feel nauseated when they experience them. This is known as anticipatory nausea or vomiting, and it is more common in people receiving chemotherapy.



Vomiting

- Sip small amounts of fluids as often as possible. Try dry ginger ale, cold flat lemonade, soda water, Lucozade, sports drinks or chilled tomato juice.
 - Try sucking on a hard lolly, crushed ice cubes or an iceblock – this can be soothing.
 - See your doctor if you are unable to keep fluids down, or if vomiting lasts for more than 24 hours, as there is a danger that you may become dehydrated.
 - Introduce drinks slowly once the vomiting has stopped, e.g. clear, cool drinks; diluted fruit drinks; Bonox/Bovril (beef extract rich in iron, minerals and vitamins); clear broth; and weak tea.
 - Start eating small amounts of plain foods once vomiting is under control, e.g. dry biscuits; pretzels; toast or bread; jelly; cooked cereals (such as lemon sago or boiled rice); and soft stewed fruits (such as apples, pears or peaches).
 - Introduce milk gradually and in small amounts, or have yoghurt, which is more easily digested.
 - Gradually increase your food intake until your eating returns to what is normal for you. Your doctor or dietitian may advise you to take a nutritional supplement on your good days to make up for the days when you can't eat properly.
- Listen to our “Appetite Loss and Nausea” podcast.

Constipation

Constipation is when your bowel motions (stools) are infrequent and difficult to pass. It can be caused by different factors including: some chemotherapy and anti-nausea drugs; strong pain medicines (opioids); eating less fibre; not moving around as much; not drinking enough (dehydration); or not eating enough.

Severe constipation accompanied by other symptoms such as abdominal pain and swelling, nausea and vomiting can indicate a blockage in the bowel (bowel obstruction). This needs urgent medical attention (see page 43).



How to manage constipation

- Soften stools by drinking 8–10 glasses of fluid a day (e.g. water, herbal tea, milk-based drinks, soup, prune juice).
- Eat foods that are high in insoluble fibre (e.g. wholegrain breads, cereals or pasta; raw and unpeeled fruits and vegetables; nuts and seeds; legumes and pulses).
- If you are increasing the amount of fibre in your diet, be sure to increase the amount of fluids to avoid the extra fibre making constipation worse.
- Ask your doctor about using a laxative, stool softener and/or fibre supplement.
- Aim to do some physical activity every day. Check with your doctor, exercise physiologist or physiotherapist about the amount and type of exercise that is right for you.
- If you have had surgery for bowel cancer, see page 36, and ask your health care team for specific dietary advice. They may advise a low-fibre diet to avoid constipation in your situation.

Diarrhoea

Diarrhoea is when your bowel motions become watery, urgent and frequent. You may also get abdominal cramping, wind and pain. Chemotherapy, radiation therapy to the abdomen or pelvis, some types of surgery (e.g. bowel), medicines, infections, reactions to certain foods, and anxiety can all cause diarrhoea.

If the tips below don't work, ask your doctor about anti-diarrhoea medicines. Having diarrhoea can be exhausting, so rest as much as possible. For further support, you can call the National Continence Helpline on 1800 33 00 66 or visit continence.org.au.



How to manage diarrhoea

- Drink plenty of fluids to avoid becoming dehydrated. Water, diluted cordials and oral hydration drinks (e.g. Gastrolyte) are better than high-sugar drinks, alcohol, strong caffeine or very hot/cold fluids.
- Watch for signs of dehydration such as dark yellow urine or less frequent urination.
- Avoid foods that are high in insoluble fibre (e.g. wholegrain breads, bran cereals, nuts and seeds, raw fruit, vegetable skins) and foods that increase bowel activity (e.g. spicy, fatty or oily foods; caffeine; alcohol or artificial sweeteners).
- Choose foods that are low in insoluble fibre (e.g. bananas, mashed potato, white rice, white pasta, white bread, steamed chicken without skin, white fish). It may also help to eat foods that are high in soluble fibre (e.g. oats, barley, rye, legumes, peeled fruits and vegetables, avocado, soy products).
- Try soy milk or lactose-free milk for a time if you develop a temporary intolerance to the natural sugar in milk (lactose).

Other types of bowel irritation

Radiation therapy to the pelvic area can make the bowel swollen and sore. This is called colitis when it affects the colon (the large bowel), and proctitis when it affects only the rectum (the last part of the bowel before the anus). You may feel the need to empty your bowels often, perhaps without much result. Straining can cause discomfort, and there may be blood or mucus in bowel motions. Diarrhoea, nausea and vomiting are also common, but can be managed with medicines.

The small bowel may become irritated after chemotherapy or radiation therapy to the abdomen or pelvic area. This is known as enteritis and it can cause abdominal discomfort (like cramps or wind pain), episodes of pale and fluid bowel motions, and more wind than usual.



How to manage bowel irritation

- Eat and drink slowly, take small mouthfuls and chew your food well to avoid swallowing air.
- Try a diet low in insoluble fibre (see previous page) to reduce bowel irritation in the short term.
- Avoid fatty, spicy or fried foods, and rich gravies and sauces.
- Reduce foods such as corn, beans, cabbage, onions, pickles and fizzy drinks, which can produce wind.
- Drink plenty of water, and eat soft or cooked peeled fruit, fine wholemeal bread and bran to provide soft bulk.
- Do some gentle exercise, such as walking, to encourage healthy bowel movement.
- Tell your doctor if symptoms don't improve. Bowel irritation is usually temporary, with colitis and proctitis lasting up to 8 weeks and enteritis lasting 1–2 weeks after treatment ends.

Heartburn (indigestion)

Some cancers and treatments can cause stomach contents to come back up into the oesophagus (food pipe). This is known as reflux and it can irritate the lining of the oesophagus, leading to a burning feeling in the upper chest, oesophagus and/or throat. This sensation is called heartburn or indigestion. It can be made worse by eating certain foods or lying down after eating.

Heartburn may make you feel too uncomfortable to eat much, which could lead to weight loss. Keeping a diary of the foods you eat and your symptoms can help you identify which foods trigger the heartburn. If the tips below don't relieve heartburn, let your doctor know. They may be able to prescribe medicines to help.



How to manage heartburn

- Avoid large meals; try to eat three small meals and three snacks throughout the day.
- Eat slowly and enjoy your meal. Avoid wearing tight clothing (especially belts) while eating.
- Sip fluids between meals, rather than drinking large amounts at mealtimes.
- Limit or avoid foods that may make heartburn worse: chocolate, very spicy foods, high-fat foods (e.g. fried food, pastries, cream), tomato and tomato products, citrus fruits, coffee (including decaf), strong tea, soft drinks and alcohol.
- After eating, sit upright for at least 30 minutes and avoid lying down or activities that involve bending over (e.g. gardening).
- Lift the head of the bed by 15–20 cm by putting blocks under the bed legs or using a wedge under the mattress.



Nutrition concerns

Cancer and treatment can affect how the body digests, absorbs and uses food, leading to a range of nutrition concerns.

Malnutrition

Malnutrition occurs when you eat less energy and protein than your body needs. This is most likely to occur in people with cancer during treatment or in the few weeks after treatment finishes. Factors that increase the risk of malnutrition include:

- surgery for cancers such as head and neck, lung and gastrointestinal cancers, which may make it hard to swallow and digest food
- increased nutritional needs caused by cancer and treatments such as chemotherapy, radiation therapy and surgery
- symptoms or side effects such as nausea, vomiting and dry mouth
- some medicines
- anxiety, stress and fatigue.

Many of the eating issues discussed in the previous chapter can contribute to, or be symptoms of, malnutrition. Other signs of malnutrition include weakness; significant weight loss; confusion; dry, brittle hair and nails; and pale or pigmented skin.

Malnutrition can increase your risk of infection and reduce your strength, ability to function and quality of life. It can also affect how your body responds to cancer treatment and recovery. A person can be malnourished at any shape or size – it is possible to be malnourished even if you are overweight. Talk to your doctor or dietitian if you think malnutrition may be an issue. It is important to do this early so that you can receive the right advice.

Managing your emotions

Changes to the way you eat may make you feel anxious, particularly when you know eating well is important. If you can't eat much because of treatment side effects, you may be worried about upsetting people who have prepared your food, or you may worry about eating in public. It may also be hard to adjust to your changing relationship with food – for example, if you previously loved cooking and eating, but have now lost your appetite. These strategies may help you cope.



Be active every day

Studies show that people feel better when they do some exercise each day. It can also help improve your appetite and manage your weight.



Try relaxation and meditation

Practising relaxation and meditation can help you feel calm and less stressed. There are many recordings, videos and smartphone apps to guide you through different exercises. Our relaxation and meditation recordings may be available as free CDs or on your local Cancer Council website.



Talk to someone

You may find it useful to talk to someone who is not a family member or friend. You could speak to a dietitian, social worker, psychologist, nurse or doctor or call Cancer Council **13 11 20**. Another option is to join a cancer support group. Cancer Council can put you in touch with others by phone, in person or online.

Eating after surgery

Surgery that removes part of the digestive system, such as the oesophagus, stomach or bowel, will change the way you eat and digest food. This section covers the effects of particular types of surgery on nutrition. Suggestions for coping with common dietary issues after surgery, such as poor appetite, change in taste or smell, diarrhoea or nausea, are covered in the *Treatment side effects and nutrition* chapter (see pages 16–33).

Surgery for bowel cancer – When part of the bowel is removed, many people have more frequent bowel motions (diarrhoea). This usually improves in a few months, but it may take longer for some people. Your doctor, nurse or dietitian might recommend a low-fibre diet that is easier to digest. In some cases, surgery for bowel cancer creates a temporary or permanent stoma, an opening in the abdomen that allows faeces to leave the body (a bag is attached to collect the faeces). If you have a stoma, you may need to make some dietary changes until your body adjusts.

- ▶ See our *Understanding Bowel Cancer* booklet. You can also call 1800 330 066 for the Australian Government's *Improving Bowel Function After Bowel Surgery* booklet or visit bladderbowel.gov.au.

Surgery to the head and neck area – Your ability to chew and swallow may be affected after surgery to the head and neck. If you are having difficulty eating or drinking, seek advice from your dietitian and speech pathologist. In some cases, you may be given a temporary or permanent feeding tube to help you maintain or gain weight during this time.

- ▶ See our *Understanding Head and Neck Cancers* booklet.

Surgery for stomach cancer – Removing part or all of the stomach will affect what you can eat and how you eat. The change in the structure of the stomach may mean that you require smaller quantities of food more often and you feel fuller more quickly. In addition, foods high in sugar move through the stomach faster. You may experience cramps, nausea, racing heart, sweating, bloating, diarrhoea or dizziness. This is called dumping syndrome, and it usually improves over time. Your treatment team can suggest dietary changes and medicines to help manage dumping syndrome.

➤ See our *Understanding Stomach and Oesophageal Cancers* booklet.

Surgery for oesophageal cancer – Surgery that removes the oesophagus will change how you eat. After surgery, you will usually have a feeding tube, then progress to a liquid diet, followed by a diet of soft or moist foods (see pages 26–27). If you cough while eating or feel like the food is getting stuck in your throat when you swallow, consult your doctor, dietitian or speech pathologist immediately.

➤ See our *Understanding Stomach and Oesophageal Cancers* booklet.

Surgery for pancreatic cancer – After surgery to remove part or all of the pancreas, your body may not be able to make enough enzymes to digest food and you may experience diarrhoea. If this occurs, your doctor and dietitian may advise you to take enzyme supplements with every meal. Some people develop diabetes before being diagnosed with pancreatic cancer or soon after surgery. The way diabetes is managed varies from person to person, but it usually includes a combination of dietary changes and medicines.

➤ See our *Understanding Pancreatic Cancer* booklet.

Weight loss

People with cancer commonly lose weight because cancer cells can burn a lot of energy, and treatment side effects can cause a loss of appetite (see page 21). Losing weight without trying may be a sign of malnutrition (see page 34). However, weight loss can often be prevented with the support of your cancer care team, and maintaining your weight will help you stay strong and recover faster. To help avoid weight loss during and straight after cancer treatment, eat more protein, fat and carbohydrates (see opposite). This approach is usually temporary – you can return to the usual guidelines for healthy eating (see pages 6–7) once you have recovered.



How to manage weight loss

- Treat food like medicine: something you have to have in order to feel better.
- Set times for meals and snacks rather than waiting until you're hungry.
- Carry snacks such as hard-boiled eggs, muesli bars, dried fruit and nuts, crackers and fruit buns.
- Try ready-to-use nutritional supplement drinks when you are travelling or on other occasions when it is difficult to prepare a meal. Examples include Sustagen, Ensure and Resource. See pages 40–41 for more information on food-type nutritional supplements.
- Choose nourishing fluids and snacks that are higher in protein and energy (kilojoules) – for example, drink milk rather than water and choose cheese and biscuits over lollies.
- Include high-energy and high-protein foods in every meal or snack.

Ways to add energy and protein

Add these ingredients	to these meals and snacks
full-cream cow's milk, cream, coconut milk or soy milk (liquid or powdered versions)	porridge, sauces, desserts, mashed vegetables, egg dishes, cream soups, scrambled eggs, congee, milkshakes, flavoured milk drinks (e.g. Milo, Akta-Vite)
yoghurt or sour cream	dips, salad dressings, fruit, potatoes, soups, rice dishes, lentil dhal
butter, margarine or olive oil	bread, toast, mashed potato, cooked vegetables, rice and pasta dishes
cheese (e.g. cheddar, cream cheese, fetta, haloumi)	scrambled eggs, sauces, soups, vegetables, casseroles, salads, toast, sandwich fillings, pasta sauce, crackers, tacos
mayonnaise (commercial)	egg or chicken sandwiches, potato salad, coleslaw, salad dressing, fish
peanut butter or other nut butters	bread, toast, porridge, crackers, pancakes, scones, fruit, smoothies
avocado	toast, sandwich fillings, dips, salads, crackers, smoothies
nuts and seeds	porridge, muesli, yoghurt, salads, baked goods, stir-fries, desserts
beans or legumes	rice dishes, toast toppings, salads, pasta dishes, soups
egg or tofu	toast, sandwich fillings, stir-fries, mashed potato, soups, pasta sauce, salads

Weight gain

Although it is more common to lose weight during treatment, some people gain weight. This can happen as a side effect of treatment. Some chemotherapy drugs and steroid medicines can cause your body to retain extra fluid in cells and tissues. This is called oedema, and it can cause weight gain and make you feel and look puffy. Hormone therapy lowers the amount of hormones in the body, which slows your metabolism. Steroid therapy can increase abdomen size, cause fluid retention, and lead to a rounded, puffy face. Feeling stressed or upset can also make some people eat more, and being tired because of the treatment may mean you exercise less.

If you gain weight during treatment and are concerned, speak to your doctor or dietitian about how to best manage it. It is important that your body gets enough food, so do not try a weight loss diet without guidance from a health professional.

Food-type nutritional supplements

If treatment side effects mean you cannot eat a balanced diet, or you are losing weight without trying, food-type nutritional supplements can increase nutrient intake and help maintain your strength and energy. They are best used as snacks between meals, or some can be added to drinks or meals.

Many pharmacies and supermarkets sell these specially formulated nutritional supplements. They come in different flavours and forms, including powdered (to sprinkle on food or into drinks or water), ready-to-drink liquids, and ready-made puddings, custards and

jellies. There are versions to suit different nutrition needs, e.g. high fibre, neutral taste, low lactose, gluten free, low glycaemic index.

Ask your doctor or dietitian which ones would be most suitable for you. Although many supplements do not require a prescription, a prescription will sometimes reduce the cost. If you are having difficulty swallowing, talk to a speech pathologist for directions on thickening the supplement.

You can also make your own nutritional supplement to add to food and drinks using the enriched milk recipe on page 48.

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. It's best to get your vitamins and minerals from eating whole foods, as these are easier for the body to absorb. If you are able to eat a variety of foods, you usually won't need to take vitamin and mineral supplements.

Some people believe that taking high doses of certain vitamins will strengthen the body's immune system during cancer treatment. However, there is little evidence to support this claim. In fact, many vitamins and mineral compounds can be toxic at high levels, and may affect how radiation therapy, chemotherapy and other medicines work.

If your appetite is poor, check with your doctor or dietitian before taking any vitamin or mineral supplements.



Nutrition and advanced cancer

Advanced cancer means the cancer has spread from where it started to other areas of the body.

Problems with eating and drinking may arise or worsen when the cancer is advanced. It's common for people with advanced cancer to lose their appetite. This often leads to weight loss and malnutrition. Controlling nutrition-related symptoms is important for quality of life. During this time, it's okay to focus on eating foods you enjoy. Soft food and clear liquids may be easier to digest.

▶ See our *Living with Advanced Cancer* booklet.

Nausea and vomiting

Many people with advanced cancer have problems with ongoing nausea and vomiting.

Nausea and vomiting may be caused by pain medicines, cancer growth, blockage of the bowel (see opposite), slower digestion, or high calcium levels in the blood (hypercalcaemia). Feeling tired or anxious may make the nausea worse. The suggestions listed on pages 28–29 may help reduce nausea and vomiting.

Mouth problems

People with advanced cancer may have a dry mouth or a sore mouth and throat. These problems may be caused by drinking less or by some types of treatment. See page 24 for ways to ease a dry mouth. If chewing and swallowing become difficult, it may be necessary to introduce a texture-modified diet (see pages 25–27).

Blockage in the bowel

Surgery in the abdominal area sometimes causes the bowel to become blocked (bowel obstruction). This can also happen if the cancer comes back. Because waste matter (faeces) cannot pass through the bowel easily, symptoms may include feeling sick, vomiting, or abdominal discomfort and pain. To relieve symptoms of a bowel obstruction, you may have a small tube (stent) put in that helps keep the bowel open. The stent is inserted through the rectum using a flexible tube called an endoscope.

Cachexia

People with advanced cancer may develop a muscle wasting syndrome known as cachexia. This means the body isn't using protein, carbohydrates and fats properly. Symptoms include:

- severe loss of weight, including loss of fat and muscle mass
- feeling sick (nausea)
- feeling full after eating small amounts
- anaemia
- weakness and fatigue.

Your doctor or dietitian will discuss the best way for you to manage cachexia. They may suggest a diet high in energy and protein, nutritional supplements, or medicines such as appetite stimulants. If you continue to have problems maintaining your nutrition, your treating team may recommend feeding via a tube in the nose (nasogastric or NG tube) or stomach (often known as a PEG tube). However, each person is different and, depending on your situation, tube feeding may not be recommended.



Recipes and snacks

The following quick meal and snack suggestions are for when you feel too tired or unwell to shop for food or cook, or if you're missing meals while having treatment. Some may not seem like healthy choices, but if you have a poor appetite it's important to focus on high-protein and high-energy food and fluids to ensure your body

Meal and snack ideas

Breakfast

- baked beans on toast with grated cheese
- crumpets or muffins toasted with cheese, and fruit
- scrambled or poached egg on toast and a glass of orange juice
- tuna or sardines on buttered toast with fresh tomato
- cheese and mushroom omelette with buttered bread
- toast with cheese, avocado or peanut butter, followed by sliced banana and yoghurt
- toasted muesli with full-fat milk and yoghurt
- porridge or rice pudding made with milk and cream

Main meals

- fresh or frozen fish with chips and salad
- grilled lamb cutlets, mashed potato with margarine or butter, and peas and carrots
- pasta with cheese and a ready-made sauce, e.g. pesto or bolognaise
- lentil dhal with chapatis or rice
- salmon, tuna or egg with commercial mayonnaise, salad and buttered bread roll
- frozen or fresh lasagne or moussaka
- frittata or quiche
- occasional takeaway such as noodles, stir-fry, curry and rice, hamburgers or pizza (ensure the food is freshly cooked)
- refrigerated leftover food from the previous day – reheat till steaming
- microwave potato with baked beans
- egg, tempeh and cooked vegetables with gado gado (peanut) dressing
- wrap with falafel, hummus and salad

gets all the energy it needs. You can return to the healthy eating guidelines (see pages 6–7) when your appetite improves. If you have another health condition, such as diabetes, the suggestions in this chapter may not be suitable. Check with your health professionals before changing your diet during cancer treatment.

Snacks

- cheese or hummus and crackers
- buttered pikelets, scones, muffins, fruit buns, finger buns or raisin toast
- celery with cream cheese or peanut butter
- hard-boiled eggs
- dried fruit and nuts
- jaffles and sandwiches – try fillings such as egg and commercial mayonnaise, cheese, peanut butter, avocado, canned salmon or tuna
- milk puddings, such as creamed rice/rice pudding, custard, mousse and instant puddings
- fresh or tinned fruit with custard, yoghurt, jelly, ice-cream, cream or condensed milk
- creamy soup made with milk, and buttered toast
- hot chips, chicken nuggets or fish fingers
- instant noodles with frozen vegetables
- potato crisps, pretzels or corn chips with dips
- yoghurt or ice-cream
- frozen sausage rolls, meat pies or samosas

Drinks

- enriched milk (see page 48) mixed with Akta-Vite, Milo or Horlicks
- milkshake (see page 49)
- banana smoothie (see page 49)
- mango or apricot lassi (see page 49)
- hot chocolate
- flavoured milk
- apricot lemon crush (see page 48)


Simple meals

These meal suggestions are simple to prepare, and some can be frozen to eat later. Most of these suggestions are suitable for a soft diet or can be minced or pureed, if needed.

Stewed fruit with custard or cream

- 3–4 pieces seasonal fruit (e.g. pear, apple, plum), peeled, cored, chopped
- 1 cup orange juice
- 1 cup full-cream custard or ice-cream (or 2 tbsp cream)


Place fruit and orange juice in a medium saucepan over low heat. Cook for about 20–30 minutes, stirring occasionally until fruit softens (the total time will depend on the hardness of the fruit).

-  Serve with the full-cream custard, ice-cream or cream.

Congee

- 1 cup long-grain white rice (uncooked)
- 7 cups chicken or vegetable stock
- 2 cm knob of ginger, peeled and thinly sliced
- salt, soy sauce or sesame oil (optional)
- 2 tbsp sliced green shallots (optional)

Add rice, stock and ginger to a large pot and bring to the boil, then reduce heat to low. Simmer for 1 hour, stirring occasionally to stop rice sticking to the pot, until the congee is thick and creamy. Add salt, soy sauce or sesame oil to taste and top with green shallots if preferred.


-  For protein, add 200 g diced chicken breast near the end of cooking. Leave for 5 minutes or until chicken is cooked.

Meatballs

500 g beef, lamb, pork or chicken mince
½ cup plain breadcrumbs
herbs and spices (optional)
1 egg, lightly beaten
salt and pepper, to taste
1 tbsp margarine/butter or olive oil
2 tbsp flour
1½ cups water or stock

Combine mince, breadcrumbs, herbs and spices (if using) and egg in a bowl. Season to taste with salt and pepper. Mix well with a fork and form into golf-sized balls. Heat the margarine or oil in a frying pan and cook meatballs until brown. Remove meatballs from pan.

Combine the pan juices, flour and water or stock and cook on a low heat until a thick gravy forms. Add the meatballs to the gravy and simmer for 1–1½ hours.


 Serve with mashed potato, rice or pasta.

Cheesy vegetable bake

oil, for greasing dish
400 g sweet potato or pumpkin, peeled and thinly sliced
1 parsnip and 1 carrot, peeled and thinly sliced
4 potatoes, peeled and thinly sliced
½ cup thickened cream
½ cup cheddar cheese, grated

Preheat oven to 180°C. Brush a medium ovenproof dish with oil. Layer the vegetables in the prepared dish. Drizzle each layer with a small amount of cream. Top with the remaining cream and sprinkle with cheese.

Bake for 1 hour or until vegetables are tender and top is golden brown.

 Use whatever vegetables you have.


Nourishing drinks

Nourishing drinks are high in protein, energy, vitamins and minerals. They include ready-to-drink nutritional supplements (see pages 40–41), as well as drinks that you can make at home.

Enriched milk

1 L full-cream milk
4 or more heaped tbsp milk powder
(increases nutrients and protein)

Thoroughly mix ingredients in a jug until powder is dissolved. Use straightaway, or keep refrigerated and use within 24 hours (stir before use).

-  Use this enriched milk in tea and coffee, cereal, soups, sauces, scrambled eggs, milkshakes and smoothies.

Apricot lemon crush

425 g can apricot halves
in natural juice
1 cup natural yoghurt
juice of 1 lemon
1 tbsp honey
2 tbsp wheatgerm
crushed ice

Place all ingredients in a blender and blend until smooth.

Milkshake


- 1 cup milk or milk alternative (e.g. soy milk)
- 1 heaped tbsp milk powder*
- 1 scoop ice-cream topping, e.g. chocolate, strawberry, coffee, vanilla

Place all ingredients in a blender or milkshake maker and blend until smooth.

Banana smoothie

- 1 cup milk or milk alternative (e.g. soy milk)
- 1 heaped tbsp milk powder*
- 1 ripe banana
- 1 scoop ice-cream
- 1 tsp honey (optional)


Place all ingredients in a blender and blend until smooth.

-  Use whatever fruit you have – fresh, frozen or tinned.

Mango lassi

- 1 cup canned mango slices in natural juice, with juice
- 1 heaped tbsp milk powder*
- 1 tsp honey
- ½ cup full-cream natural or vanilla yoghurt
- 3 ice cubes

Place all ingredients in a blender and blend until smooth.

-  Use 1 cup canned apricot halves instead of mango.

* *Instead of milk powder, you can use a powdered nutritional supplement such as Sustagen Hospital Formula, Ensure Powder, Fortisip Powder or Enprocal – for the amount per serve, refer to the packaging or follow the advice of your dietitian.*

Soups

Soup can be easy to digest, nourishing and versatile. You can:

- try clear soups to stimulate the appetite and provide extra fluid, but don't have them too often as they are low in protein and energy
- add energy and/or protein to soups with meat, chicken, legumes (lentils, chickpeas, beans), cereals (rice, pasta, noodles, barley), cheese, cream, butter, margarine and oil
- vary the taste with nutmeg, ground cumin or curry powder
- puree or blend soups if you have difficulty swallowing
- thicken soups with pureed vegetables, cream, eggs or enriched milk (see page 48).

Foundation broth

250 g meat on the bone (any cut)
600 mL water
30 g cereal (e.g. sago, rice or pearl barley), washed
1 stalk celery, finely chopped
1 carrot, peeled and finely chopped
1 onion, peeled and finely chopped
salt and pepper

Remove the fat from the meat and cut into small pieces. Soak meat and bones in cold water for 30 minutes, then bring slowly to the boil. Add cereal once soup is boiling. Simmer for 1 hour.

Add vegetables to soup and simmer for 30 minutes. Remove bones, and season to taste with salt and pepper.

Creamy potato and leek soup

1–2 tsp olive or vegetable oil
2 leeks, sliced
1 tsp cumin seeds
1 kg potatoes, peeled and chopped
5 cups vegetable or chicken stock
½ cup cream

Heat oil in a large saucepan and cook leek until soft. Add cumin seeds and cook for 2 minutes. Add potato and stock to the pan and bring to the boil.


Simmer for 25–30 minutes until potatoes are tender. Puree in a blender or food processor until smooth. Stir in cream.

Vegetable soup

1 tbsp olive or vegetable oil
3 cups diced vegetables
2 tbsp flour
2 chicken stock cubes
3 cups water
3 tbsp tomato paste
400 g can butter beans, drained
and rinsed
½ cup milk
½ cup cream
½ cup rice

Heat oil in a large saucepan and fry vegetables for 5 minutes. Add flour and stir. Add crumbled stock cubes, water, tomato paste and butter beans. Simmer for 30 minutes or until vegetables are tender.

Blend the soup in a blender or food processor until smooth. Return soup to saucepan and add milk, cream and rice. Simmer soup for 15–20 minutes until rice is cooked.

 Use potatoes, carrots or whatever vegetables you have.

Marinades

Marinating helps to tenderise, add flavour or change the taste of meat or tofu. The following marinades are enough for four serves of beef, pork, lamb, chicken or tofu. For best results:

- combine the marinade ingredients and whisk together before adding the meat or tofu
- marinate the meat or tofu in the fridge for at least 2 hours or overnight
- drain the marinade before cooking to prevent stewing and splattering
- cook the meat at a lower temperature than usual if the marinade contains honey or sugar – this will help stop the marinade charring.

Asian marinade

2 tbsp soy sauce
1 tbsp sesame oil
1 tbsp honey
2 tsp garlic
ground black pepper

BBQ marinade

3 tbsp tomato sauce
2 tbsp Worcestershire sauce
1 tbsp brown sugar
½ tsp mustard (optional)
1 tsp vinegar
squeeze lemon juice (optional)

Honey mint marinade

½ tsp sesame oil
1 tbsp lemon juice
½–1 tsp minced chilli
1 tbsp mint leaves, chopped
2 tsp honey

Lime marinade

¼ cup olive oil
½ cup lime juice
2 tbsp finely chopped coriander
1 tsp sugar
1 tsp sesame oil



Caring for someone with cancer

If you're caring for someone with cancer, you may need to deal with eating issues caused by the cancer and its treatment. It's natural for you to worry about the diet of the person you're caring for, but try to avoid conflict over food, as this may only increase their anxiety and yours. There are many reasons why someone may not feel like eating. You can read about different ways of coping with eating issues in the *Treatment side effects and nutrition* chapter (pages 16–33). If the person you are caring for agrees, it may be helpful to go with them to their dietitian appointments.

Try not to focus on how little the person is eating or drinking. Instead, gently encourage them to eat foods that are high in energy and protein when they are feeling well – this will help to make up for other times when they don't eat much. When a person is having cancer treatment, so much is out of their control and they may feel that choosing what and when they eat is important. These tips may help you to support them:

- Serve small amounts of food at a time, and freeze the leftovers.
- Have ready-to-eat food available for when they feel like eating (e.g. tinned fruit, yoghurt, frozen meals).
- Keep mealtimes flexible and be willing to try new ideas or recipes (see pages 44–52 for suggestions).
- Make meals as enjoyable as possible – eat together, play music, set the table with candles and flowers.
- Follow safe food-handling practices when preparing food (see pages 18–19).
- Accept that during treatment the focus of the person with cancer may need to be on simply eating something, rather than on eating nutritious food all of the time.

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. Work closely with your doctor and dietitian – they will monitor your child's weight and growth closely during treatment.



Be flexible

Let your child eat when they feel like it, not just at mealtimes. Be flexible in food choices, e.g. allow your child to have the same foods often or breakfast cereal for dinner if that's what they prefer.

Offer nutritious food

Try not to make an issue of your child's reluctance to eat. Instead, encourage them to eat nutritious, high-energy foods when they are feeling well.

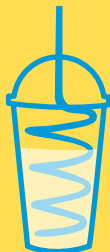


Allow occasional treats

During treatment, any nourishment is better than none. Allow your child to eat fatty or sugary foods like cake, chips, chocolate and takeaway occasionally.

Eat at the table

Discourage your child from eating in front of the television as it can be distracting.



Make mealtimes fun

Focus on making mealtimes as relaxed as possible and see them as an opportunity to come together to share stories and discuss any problems. Regular family meals also give a child a sense of stability.

Looking after yourself

Being a carer can bring a sense of satisfaction, but it can also be exhausting and stressful. Trying to prepare food for someone who is having trouble eating can be especially challenging.

It is important to look after your own wellbeing, so you also need to eat well (see pages 6–7) and get some exercise (see pages 14–15). Give yourself some time out and share your concerns with somebody neutral such as a counsellor or your doctor, or call Cancer Council 13 11 20. There is a wide range of support available to help you with both the practical and emotional aspects of your caring role.

Support services – Support services such as Meals on Wheels, home help or visiting nurses can help you in your caring role. You can find local services, as well as information and resources, through the Carer Gateway. Call 1800 422 737 or visit carergateway.gov.au.

Support groups and programs – Many cancer support groups and cancer education programs are open to carers as well as to people with cancer. Support groups and programs offer the chance to share experiences and ways of coping.

Carers Associations – Carers Australia works with the Carers Associations in each state and territory to provide information and services to carers. Call 1800 242 636 or visit carersaustralia.com.au.

Cancer Council – You can call Cancer Council 13 11 20 or visit your local Cancer Council website to find out more about carers' services.

➤ See our *Caring for Someone with Cancer* booklet.



Seeking support

Eating well and managing nutrition-related side effects can feel overwhelming, but there are many sources of support.

Health professionals who can help

Your GP, cancer specialists and cancer nurses can all help answer questions about nutrition and physical activity, but you may also need guidance from the following experts.

Dietitian

An accredited practising dietitian (APD) is a health professional with a university qualification in science, nutrition and dietetics. Using scientific evidence, they modify diets to help treat disease symptoms and to get the most out of food without the use of supplements.

Dietitians work in all public and most private hospitals. You can ask your cancer care team if they can arrange an appointment with the dietitian. The Dietitians Association of Australia (DAA) can also help you locate an accredited practising dietitian in your area who specialises in cancer. Call 1800 812 942 or visit daa.asn.au. Dietitians in private practice may also have their own website. If your doctor refers you to a dietitian as part of a Chronic Disease Management 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 the type and level of cover.

Nutritionist

The term nutritionist refers to both qualified nutrition scientists and naturopathic nutritionists. Some dietitians also call themselves

nutritionists. Nutritionists working in the natural health industry should have at least a diploma of nutrition, or equivalent, from a university or naturopathic college. Those working within a naturopathic framework are usually employed in private practice or in a holistic medical or complementary therapies centre. If you choose to see a nutritionist, it is important to know that they are qualified. The Nutrition Society of Australia keeps a register of accredited nutritionists – call 02 9431 8655 or visit nsa.asn.au.

Speech pathologist

A speech pathologist is a health professional who diagnoses and treats people having difficulties with speech, language, fluency and voice. Speech pathologists also help people who have problems swallowing food and drinks. They need a university degree and may work in hospitals or in the community. To find a speech pathologist, contact Speech Pathology Australia on 1300 368 835 (outside Victoria), 9642 4899 (Victoria only) or visit speechpathologyaustralia.org.au.

Exercise professionals

Physical activity is also important in managing your health and wellbeing. The most appropriate health professionals to design an exercise program for people with cancer are exercise physiologists and physiotherapists. You may be able to see an exercise professional at your cancer treatment centre, or your GP may be able to refer you to one as part of a Chronic Disease Management Plan. You can search for an accredited exercise physiologist (AEP) by name, location or specialty at Exercise & Sports Science Australia's website at essa.org.au/find-aep, or for a physiotherapist at the Australian Physiotherapy Association's website at choose.physio/findaphysio.

Support from Cancer Council

Cancer Council offers a range of services to support people affected by cancer, their families and friends. Services may vary depending on where you live.

Cancer Council 13 11 20

Trained professionals will answer any questions you have about your situation and link you to services in your area (see inside back cover).



Information resources

Cancer Council produces booklets and fact sheets on over 25 types of cancer, as well as treatments, emotional and practical issues, and recovery. Call **13 11 20** or visit your local Cancer Council website (see back cover).

Practical help

Your local Cancer Council can help you find services or offer guidance to manage the practical impact of a cancer diagnosis. This may include access to transport and accommodation services.



Legal and financial support

If you need advice on legal or financial issues, we can refer you to qualified professionals. These services are free for people who can't afford to pay. Financial assistance may also be available. Call Cancer Council **13 11 20** to ask if you are eligible.

Peer support services

You might find it helpful to share your thoughts and experiences with other people affected by cancer. Cancer Council can link you with individuals or support groups by phone, in person, or online. Call **13 11 20** or visit cancerCouncil.com.au/OC.



Useful websites

You can find many useful resources online, but not all websites are reliable. These websites are good sources of support and information.

Australian	
Cancer Council Australia	cancer.org.au
Cancer Council Online Community	cancercouncil.com.au/OC
<i>The Thing About Cancer</i> podcast	cancercouncil.com.au/podcasts
Cancer Australia	canceraustralia.gov.au
Healthdirect Australia	healthdirect.gov.au
Australian Dietary Guidelines	eatforhealth.gov.au
Australian Physiotherapy Association	choose.physio
Bladder and Bowel	bladderbowel.gov.au
Dietitians Association of Australia	daa.asn.au
Exercise & Sports Science Australia	essa.org.au
Nutrition Education Materials Online	health.qld.gov.au/nutrition/patients
Nutrition Society of Australia	nsa.asn.au
Speech Pathology Australia	speechpathologyaustralia.org.au
International	
American Cancer Society	cancer.org
Macmillan Cancer Support (UK)	macmillan.org.uk
National Cancer Institute (US)	cancer.gov
World Cancer Research Fund International	wcrf.org



Question checklist

Asking your doctor or dietitian questions will help you manage nutrition issues associated with your cancer treatment. You may want to include some of the questions below in your own list.

Diet during treatment

- Will this cancer treatment affect what I can eat?
- Should I be on a special diet? Should I eat only organic foods?
- Should I avoid any particular food during treatment?
- What other changes to my diet can I expect?
- Should I take vitamin supplements?
- I'd like to try a special diet I've heard might help. Is it likely to cause any harm?
- How can I stay strong during treatment?
- Should I see a dentist?
- Can you refer me to a dietitian?

Symptoms and side effects

- Why am I losing/gaining weight?
- Why am I feeling sick?
- Why am I so tired?
- How can I reduce nausea? Will medicine help? When should I be taking anti-nausea medicine?
- What can I do about the mouth ulcers? How long will they take to heal?
- Why has my sense of taste or smell changed? Will it return to normal?
- Will these symptoms go away and, if so, when?

After treatment

- Do I need to change my diet after treatment ends?
- Is there a diet that can help me stay cancer-free?
- How can I get my strength and fitness back?
- Can you refer me to a dietitian to help with ongoing side effects?



Glossary

abdomen

The part of the body between the chest and hips, which contains the stomach, spleen, pancreas, liver, gall bladder, bowel, bladder and kidneys.

anaemia

A reduction in the number or quality of red blood cells in the body.

balanced diet

A diet that includes a wide variety of food to give you the energy, protein, vitamins and minerals you need to stay healthy.

cachexia

Loss of body weight and muscle mass, causing weakness.

calories

See energy.

carbohydrate

The part of food made of sugar and starches. Main sources include grains such as rice, wheat, corn, barley, rye, oats; starchy vegetables (potato and sweet potato); lentils and peas; and products made from grains, such as breads, cereals and pasta.

chemotherapy

The use of drugs to treat cancer by killing cancer cells or slowing their growth.

colitis

Inflammation of the inner lining of the colon and rectum (large bowel).

constipation

When your stools (poo) are very hard and difficult to pass.

diabetes

A disorder in which sugars are not taken up in the body properly because the

pancreas does not produce enough of the necessary hormone (insulin), or the body has become resistant to the effect of insulin.

diarrhoea

When you have runny and watery stools (poo) and need to go to the toilet very frequently.

dietitian

A university-qualified health professional who supports and educates patients about nutrition and diet during treatment and recovery. Also called an accredited practising dietitian.

digestion

The breakdown of food in the stomach and bowel so the nutrients can be used by the body.

digestive system

The body system that processes food and drink, absorbs nutrients and disposes of solid waste. Also called the gastrointestinal (GI) tract or gut.

dumping syndrome

A condition that causes food to move too quickly from the stomach to the small bowel. Sometimes occurs after surgery for stomach or oesophageal cancer.

dysphagia

Difficulty swallowing.

energy (kilojoules/calories)

Energy is counted in kilojoules or calories and provides fuel for our daily activities. Energy is obtained from food and drink.

enteritis

Inflammation of the inner lining of the small bowel.

fatigue

An extreme feeling of tiredness and lack of energy.

feeding tube

A flexible tube used to provide nutrition to people unable to swallow.

fibre

The part of plant foods that cannot be digested. It helps the body move food through the digestive system.

foodborne illness

Illness caused by eating food that contains bacteria, viruses or parasites.

heartburn (indigestion)

A sensation of tightness or burning in the chest. It is caused by stomach acid backing up into the oesophagus and throat (reflux).

immune system

A network of cells and organs that defends the body against attacks by foreign invaders, such as viruses.

intolerance

Inability to digest a particular food properly.

kilojoules

See energy.

lactose

A type of sugar found in milk and some milk products. Lactose is digested by an enzyme found in the digestive system called lactase.

laxative

A medicine that stimulates bowel motions and relieves constipation.

malnutrition

An imbalance of energy, protein or other nutrients in the body that can affect health and how the body responds to treatment and recovery.

metabolism

The chemical process by which food is changed into energy in the body.

minerals

Components of food essential for the body (similar to vitamins). Examples include iron, calcium and magnesium.

mucositis

Sores in the mouth or throat.

nausea

Feeling sick or wanting to be sick.

nutrition

The process of eating and digesting food that the body needs.

nutritionist

A health professional who provides information and support about nutrition. May be a qualified nutrition scientist or naturopathic nutritionist.

nutritious/nourishing

Food that is a good source of energy (kilojoules/calories) and/or protein, as well as vitamins and minerals.

oesophagus

The passage that carries food from the throat into the stomach.

pelvis

The lower part of the trunk of the body: roughly, the area that extends from hip to hip and waist to groin.

proctitis

Inflammation of the rectum.

protein

An essential part of food that the body needs to repair itself and build muscle.

radiation therapy

The use of targeted radiation to kill or damage cancer cells so they cannot grow, multiply or spread. The radiation is usually in the form of x-ray beams. Also called radiotherapy.

side effect

Unintended effect of a drug or treatment.

speech pathologist

A health professional who helps with speech or swallowing difficulties.

stoma

A surgically created opening to the outside of the body.

surgery

An operation by a surgeon to remove or repair a part of the body affected by cancer, create a stoma, or insert a prosthesis.

symptoms

Changes in the body that a person feels or sees, which are caused by

an illness or treatment, e.g. pain, tiredness, rash or stomach-ache.

vitamins

Essential substances found in food. The body needs vitamins to burn energy, repair tissue, assist with metabolism and fight infection.

white blood cells

One of three types of cells found in the blood. They help fight infection. Types of white blood cells include neutrophils, lymphocytes and monocytes. Also called leucocytes.

xerostomia

Dry mouth.

Can't find a word here?

For more cancer-related words, visit:

- cancercouncil.com.au/words
- cancervic.org.au/glossary
- cancersa.org.au/glossary

References

1. National Health and Medical Research Council, *Australian Dietary Guidelines*, Commonwealth of Australia, Canberra, 2013.
2. J Arends et al., "ESPEN guidelines on nutrition in cancer patients", *Clinical Nutrition*, vol. 36, 2017, iss. 1, pp. 11–48.
3. National Health and Medical Research Council, *Australian Guidelines to Reduce Health Risks from Drinking Alcohol*, Commonwealth of Australia, Canberra, 2009.
4. Australian Government Department of Health, *Australia's Physical Activity and Sedentary Behaviour Guidelines for Adults (18–64 years)*, Commonwealth of Australia, Canberra, 2014.



How you can help

At Cancer Council, we're dedicated to improving cancer control. As well as funding millions of dollars in cancer research every year, we advocate for the highest quality care for cancer patients and their families. We create cancer-smart communities by educating people about cancer, its prevention and early detection. We offer a range of practical and support services for people and families affected by cancer. All these programs would not be possible without community support, great and small.

Join a Cancer Council event: Join one of our community fundraising events such as Daffodil Day, Australia's Biggest Morning Tea, Relay For Life, Girls' Night In and other Pink events, or hold your own fundraiser or become a volunteer.

Make a donation: Any gift, large or small, makes a meaningful contribution to our work in supporting people with cancer and their families now and in the future.

Buy Cancer Council sun protection products: Every purchase helps you prevent cancer and contribute financially to our goals.

Help us speak out for a cancer-smart community: We are a leading advocate for cancer prevention and improved patient services. You can help us speak out on important cancer issues and help us improve cancer awareness by living and promoting a cancer-smart lifestyle.

Join a research study: Cancer Council funds and carries out research investigating the causes, management, outcomes and impacts of different cancers. You may be able to join a study.

To find out more about how you, your family and friends can help, please call your local Cancer Council.



Cancer Council

13 11 20

Being diagnosed with cancer can be overwhelming. At Cancer Council, we understand it isn't just about the treatment or prognosis. Having cancer affects the way you live, work and think. It can also affect our most important relationships.

When disruption and change happen in our lives, talking to someone who understands can make a big difference. Cancer Council has been providing information and support to people affected by cancer for over 50 years.

Calling 13 11 20 gives you access to trustworthy information that is relevant to you. Our cancer nurses are available to answer your questions and link you to services in your area, such as transport, accommodation and home help. We can also help with other matters, such as legal and financial advice.

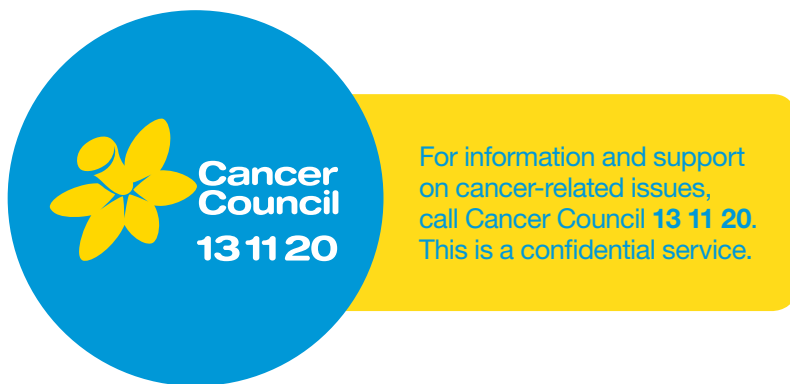
If you are finding it hard to navigate through the health care system, or just need someone to listen to your immediate concerns, call 13 11 20 and find out how we can support you, your family and friends.

Cancer Council services and programs vary in each area.
13 11 20 is charged at a local call rate throughout Australia (except from mobiles).



If you need information in a language other than English, an interpreting service is available. Call 13 14 50.

If you are deaf, or have a hearing or speech impairment, you can contact us through the National Relay Service. www.relayservice.gov.au



Visit your local Cancer Council website

Cancer Council ACT
actcancer.org

Cancer Council NSW
cancercouncil.com.au

Cancer Council NT
nt.cancer.org.au

Cancer Council Queensland
cancerqld.org.au

Cancer Council SA
cancersa.org.au

Cancer Council Tasmania
cancertas.org.au

Cancer Council Victoria
cancervic.org.au

Cancer Council WA
cancerwa.asn.au

Cancer Council Australia
cancer.org.au

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To support Cancer Council, call your local Cancer Council or visit your local website.*