

Understanding Taste and Smell Changes

Information for people affected by cancer

This fact sheet has been prepared to help you understand more about the possible effects of cancer treatments on your experience of eating. Some treatments can change the taste or smell of food, or the feeling of food in your mouth.

Up to 80% of people receiving cancer treatment report changes in the flavour of food. These can affect the way they enjoy food, and could lead to a less nutritious diet.

How do we experience flavour?

Three senses work together to enable you to experience flavour. These are taste, smell and touch (the way food feels in your mouth), and these senses can change as a result of cancer treatment.

Other factors such as your emotions or the place where you eat (e.g. the hospital) can influence the way you experience flavour and your enjoyment of food. Changes in appetite and food enjoyment, while not changing the actual taste or smell of food, can result in the flavour no longer being experienced as pleasant.

The sense of taste

Taste is experienced when food or drink, mixed with saliva, reaches tastebuds located all over the tongue and inside the mouth. Tastebuds detect five basic tastes: sweet, salty, sour, bitter, and savoury (umami). These tastes are the building blocks of flavour, and they combine with the senses of smell and touch to give rise to many flavours.

The sense of smell

Smell is experienced when odour particles are detected in the air and enter the nose either through the nostrils or the mouth. Chewing and swallowing food can release aromas that travel through the back of the mouth and up into the nasal passage.

The sense of touch (feeling of food)

The feeling of food in the mouth, or on the tongue, is important in the enjoyment of eating. During cancer treatment, food can feel 'rough' or 'claggy' and is sometimes described as 'tasting like cardboard'. Because they are so closely linked with taste, problems with the senses of smell or touch can be mistaken as a taste problem. This can be confusing and make the actual problem difficult to identify and treat. For example, a dry mouth or an offensive odour experienced in the mouth could be incorrectly described as a problem with the tastebuds.

Why are the senses affected?

The physical senses of taste, smell and touch are experienced when signals are sent from sensory cells in the mouth or nose to the brain. Many types of cancer treatment can interfere with the function of these sensory cells. Some treatments can also damage the nerves responsible for sending signals to the brain.

Chemotherapy - Although the purpose of chemotherapy is to kill or slow the growth of cancer cells, it may also damage some healthy cells, including tastebuds. After chemotherapy, tastebuds begin to grow back quickly and this can confuse the taste processing centre in the brain, causing a change in the taste experience. Some types of chemotherapy can also affect nerve endings, which can change sensitivity to heat and cold.

Radiotherapy - Radiation to the head or neck area can cause direct damage to the surface of the tongue, mouth, nose or throat, resulting in changes to taste, smell or feeling.

Surgery - Some operations involve the physical removal of structures needed to experience taste or smell. For example, part of the tongue (including tastebuds), salivary glands, or parts of the nose or nasal passage may be removed or affected by surgery.

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Surgery, chemotherapy and radiotherapy can all interfere with normal saliva flow. Saliva helps tastebuds to detect taste. Having a dry mouth over a long period of time can also result in mouth infections or tooth decay, which can cause further problems with taste, smell or feeling.

What changes could I experience?

The following problems are commonly experienced during cancer treatment:

The sense of taste

You might have problems identifying certain tastes during treatment, and for some people this may extend for some time after treatment. You might describe food as “not tasting like it used to”. For example, if you have trouble tasting salty, savoury or sour foods, then sweet and bitter tastes might be overpowering. It is common for many people to find bitter foods (e.g. tea, coffee, beer, wine) or sweet foods (e.g. chocolate, sweetened breakfast cereals) unappealing during treatment. Many people start to prefer savoury foods over sweet foods, even if they usually have a sweet tooth.

The sense of smell

You may find it difficult to smell things at all, and this, in turn, will make it harder to taste. Or you might become very sensitive to smells that now seem stronger or different, or may make you feel nauseated. Some people may smell things when there is no odour present.

The sense of touch

If your sense of touch becomes highly sensitive, chilli or peppermints might feel too hot; fizzy drinks, including sparkling mineral water, might feel too abrasive; or you might not be able to tolerate the feeling or taste of very cold things, like cold drinks or ice-cream. If your sensitivity is reduced, you might find yourself adding lots of chilli or spice to food.



Keep a diary noting the symptoms you are experiencing and when they occur, particularly the time of day, the stage of treatment cycle, and with what food and drink. This will assist your treatment team to identify the causes and to find ways for you to manage the changes.

The importance of a healthy diet

Eating well is important for anyone who has been diagnosed with cancer. Good nutrition helps the body cope with treatment and the healing process, and boosts energy levels and the immune system.

Changes in your enjoyment of food may lead you to choose less healthy food and drink options. You might find it difficult to follow your regular diet or the eating plan suggested by your treatment team.

If this occurs, let your treatment team know and ask for a referral to a dietitian, who can discuss strategies to make your eating plan easier to follow.

Changes in appetite or food preferences

Your motivation to eat or drink might change during cancer treatment. You may not be able to tolerate food you previously liked, or you might start to like foods you previously didn't enjoy. Because cancer treatment can be stressful or associated with unpleasant feelings, such as nausea, certain foods or drinks can become associated with negative feelings. For example, if you associate the smell of pumpkin soup at the hospital with feelings of nausea, you might find it difficult to enjoy pumpkin soup again.

You may lose interest in food in general and find it hard to eat as much as you should. On the other hand, you might find you are craving particular types of food or are hungrier than usual.

How long do changes last?

Changes are rarely permanent, so most will resolve with time.

You might notice that symptoms change within the course of a single chemotherapy cycle. For example, flavour problems are usually worse in the first week after chemotherapy and then gradually improve until the next chemotherapy cycle.

Studies have shown that when people receive chemotherapy as the only type of cancer treatment, taste and food enjoyment usually returns to normal two months after treatment has finished. People who receive radiotherapy to the head or neck area can experience longer lasting problems, particularly if it causes ongoing problems with saliva flow.

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How can these changes be managed?

There are many strategies available to help relieve unwanted changes to the senses of taste, smell and touch. A dietitian can work with you to identify the causes and to develop a plan for managing the changes.

Here are a few suggestions:

- Experiment with foods and drinks. You may no longer enjoy your favourite foods, but find that you can tolerate or enjoy foods you previously didn't.

For instance, a preference for sweet or savoury foods often reverses during treatment.

- If your food preferences impact on the quality of your diet, look for alternatives. For example, it is common to no longer enjoy meat during treatment. However, meat is a good source of protein, which is an important nutrient to enable your body to cope with the demands of cancer and treatment. If you find meat less appealing, try other good protein sources such as cheese, eggs, nuts, dairy foods, baked beans, kidney beans, lentils or chickpeas.

Tips for managing flavour changes

Many people describe common changes to the taste of food and drink during treatment. Here are suggestions of how to manage these changes. If food tastes:

bland	Sometimes food may seem tasteless. Make use of seasonings such as fresh herbs, lemon, lime, ginger, garlic, soy sauce, honey, chilli, pepper, Worcestershire sauce, pickles or Asian-style sauces.
overpowering	As you may be overly sensitive to strong flavours, spicy or hot foods might become overpowering. Minimise the use of chilli and spices. You may also need to avoid carbonated drinks, mints or chewing gum. Choose subtly flavoured alternatives instead.
too salty	Some people describe food tasting too salty. Avoid adding salt to your cooking and try lower-salt alternatives in place of your usual foods. For example, try white cheeses, such as mozzarella, cream cheese, fresh pecorino or ricotta cheese, instead of highly processed cheese slices or tasty cheese. Try roast meats in sandwiches instead of processed meats such as cured ham or salami.
too sweet	Many foods you would not normally describe as sweet-tasting may start to taste too sweet. Try plain breakfast cereals with less added sugar, such as porridge or bran flakes, instead of cereals with added dried fruit, honey or other sweeteners.
too bitter or metallic	A bitter or metallic taste in the mouth is a common problem. Certain foods can taste bitter or metallic, so avoid these foods for a time and try refreshing food or liquids instead. Nibbling on moist fruit, such as berries or melon, or sucking boiled sweets may help overcome unpleasant tastes in the mouth. Ginger-flavoured lollies may be helpful, as may small sips of flavoured drinks. Artificially sweetened food and drinks, rather than those with natural sugar added, are recommended for good dental health.
like "cardboard", "straw" or "sand"	Some people experience a dry mouth during treatment, which can make food feel like "cardboard", "straw" or "sand". If this occurs, choose soft, moist foods and add moist condiments and accompaniments to dishes. Make sure you drink enough fluid and keep your mouth hydrated and lubricated. Your treatment team can recommend products to stimulate or replace saliva.

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- The smell of food can bother some people during treatment. To manage this change try to:
 - remove yourself from food preparation areas and choose plainer, cold or room temperature foods. Use exhaust fans, cover pots with lids or cook outdoors
 - ask friends and family to prepare food for you so you don't need to be exposed to cooking smells
 - avoid strong-smelling foods or your favourite foods just before or during chemotherapy treatment. It is common to develop an aversion to foods eaten at this time
 - ensure nausea is well controlled. Your treatment team can suggest options to help relieve nausea.
- A bad taste in the mouth can be a result of experiencing an unpleasant odour or from an unhealthy or dry mouth. Test whether the sensation can be rinsed away, even briefly, or minimised by blocking the nose or consuming specific foods or drinks.
- Practicing good oral hygiene is very important during and after treatment. Clean your teeth with a soft toothbrush after each meal, and regularly rinse your mouth with salt water or the mouthwash suggested by your treatment team.

Where to get help and more information

Call Cancer Council 13 11 20 for more information about changes to taste and smell.

Trained health professionals can listen to your concerns, provide additional information, and put you in touch with local services. Ask for a free copy of *Nutrition and Cancer, Understanding Surgery, Understanding Chemotherapy or Understanding Radiotherapy*.

Acknowledgements

This information is based on the expertise of clinicians who work in the area and consumer experience. It was reviewed by Dr Anna Boltong, Head of Cancer Information and Support Services, Cancer Council Victoria, VIC; Rosemarie Bartholomeusz, Registered Nurse, Chemotherapy Day Unit, Peter MacCallum Cancer Centre, VIC; Katherine Lane, Nurse Manager, Cancer Council Victoria, VIC; Wolfgang Marx, Dietitian and Nutritionist, and Senior Research Officer, University of Queensland, QLD; Chris Pidd, Consumer, NSW; Steve Pratt, Nutrition and Physical Activity Manager, Cancer Council WA, WA; Claire Smith, Chief Radiation Therapist, Oceania Oncology, QLD.

Note to reader

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For information and support on cancer-related issues, call Cancer Council 13 11 20. This is a confidential service.