

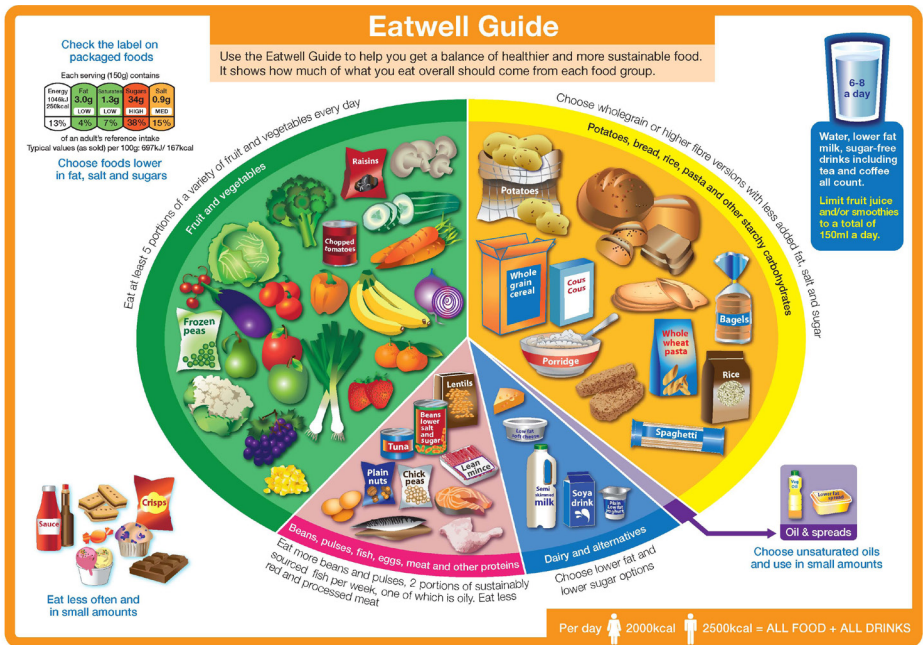
Eating well during and after your Stem Cell Transplant / CAR-T Therapy

Information for patients



During your stem cell treatment or chimeric antigen receptor t-cell (CAR-T) therapy, your immune system will be low. Your body will need more nutrients to repair itself and build your new cells.

Therefore, it is important you are as well-nourished as possible before your transplant. You can do this by trying to include foods from each of the main food groups shown below.



Source: Public Health England in association with the Welsh Government, Food Standards Scotland and the Food Standards Agency in Northern Ireland

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Food Safety

Many of the foods we eat contain small amounts of bacteria or mould. In health this is not a problem, however if your immune system is reduced foods containing bacteria or mould can cause an infection.

This is why you will be advised to avoid high-risk foods. Foods that are safe or low-risk can be discussed with you by your nursing staff and the dietetic team.

Please refer to the Food Safety Advice for Immuno-compromised Patient booklet.

Hospital food provision during your treatment

The duration of your stay in hospital depends on your treatment. Over time, the main hospital menu may start to feel repetitive. There are a variety of menus available, e.g., Multi-cultural, Kosher, Afro- Caribbean, children's, finger food menu, snack menu plus soft and puree menus. If you wish, visitors may bring in appropriate food and drinks that are allowed from the guidelines in the food safety booklet. Please talk to your dietitian or nurse for further information.

If you are staying in the hotel for part of your treatment here are some dietary tips that may help you:

- The hotel rooms have a fridge and a kettle. You can bring items to store in the fridge such as milk, yoghurts, sandwiches, cooked meats, cheese and desserts.
- You can also bring in your own high energy high protein snacks like flapjacks, cereal bars, malt loaf or peanut butter.
- On weekdays food vouchers are provided for breakfast and lunch which can be redeemed at the canteen in Bexley Wing and sandwiches are provided for your evening meal by J87.
- At the weekend, you will order breakfast, lunch and evening meals from a menu provided by the ward. Please speak with your clinical nurse specialist regarding this.

Managing the side-effects of treatments

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The dietary advice we give you may change during your treatment and recovery as it will depend on the side-effects you experience.

Some of the advice might seem to go against healthy eating but you can focus on this when your weight and energy levels are getting back to pre-transplant levels.

Although you may not feel like eating, it is important to remember that good nutrition will help you maintain your weight and muscle strength which are an important part of cancer care and recovery.

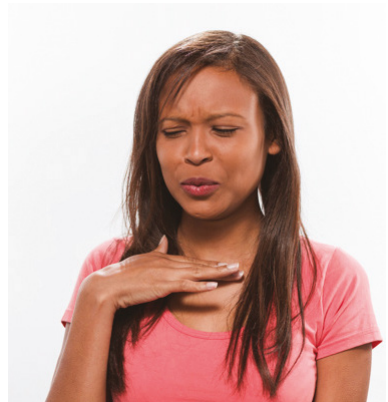
Eating well can also help you to cope better physically and emotionally with the effects of cancer and treatment.

Lack of appetite / reduced appetite

Lack of appetite/poor appetite/reduced appetite is a common side effect of treatment. Several side-effects of the treatment can lead you to having a poor appetite.

Examples are:

- Nausea and vomiting
- Mouth sores and mouth pain
- Dry mouth
- Difficulty with swallowing and chewing
- Changes in taste and smell
- Pain
- Fatigue
- Depression.



If you have a poor appetite you may be eating less than normal or not feeling hungry at all. You could feel full after only eating small amounts. Ongoing loss of appetite can lead to weight loss in particular a loss of muscle mass.

Treating the underlying cause of loss of appetite should be tried first for example, treating sore dry mouth, pain or depression/low mood.

Helpful hints:

- Relax at mealtimes and take your time eating.
- Have smaller and more frequent meals rather than three large meals.
- Have a variety of easily accessible snacks, e.g., yoghurts, cheeses, boiled eggs, milkshakes, ice cream, cereal, pudding and cereal bars.
- Increase the calorie content of the foods eaten (see weight loss section on page 15).
- Liquids may be better tolerated but try these before mealtimes.
- Make the most of the times when you feel better by trying to eat more.

Nausea and vomiting

Nausea and vomiting are common side effects of chemotherapy. It can prevent you from getting the nutrients that you need and make you dehydrated. It can be controlled by anti-sickness medication, which can be provided by your medical team if your nausea and vomiting is not controlled. It is normal to find it difficult to drink enough so you may require fluids intravenously whilst in hospital to prevent you from becoming dehydrated.

Nausea usually improves significantly once treatment finishes.

Helpful hints:

- Choose foods that are easy to chew, swallow, and digest.
- Avoid greasy fried foods, as these take longer to digest.
- Eat little and often.
- Try salty foods and snacks - nuts, crisps, crackers.
- Have any drinks half an hour before or after meals. Rather than alongside your meal.
- Drink slowly or sip liquids throughout the day and use a straw if necessary.
- Cold, bland foods may be better tolerated.
- If you feel nauseous during treatment wait a couple of hours before eating.
- Try starchy foods such as toast, plain and ginger biscuits, cereals.
- Avoid mixing hot and cold foods or eating too quickly.
- Try take anti-sickness medication 30mins before mealtimes.



Taste change

Taste change means the reduced ability to taste foods, changes in how food tastes and sometimes the complete loss of ability to taste any food.

Taste changes happen when the taste buds are damaged by cancer therapies or infection. Some medications can also affect your taste.

People with altered taste often state that food tastes like cardboard, cotton wool or often complain of a metallic taste. Foods most commonly effected by taste changes are tea, citrus fruit, chocolate and red meat. This is usually only temporary and should improve once your treatment is completed.

Helpful Hints:

- Eating small frequent meals and snacks.
- If food tastes too sweet - try choosing tart foods and citrus drinks.
- If red meat tastes metallic - try poultry, fish, eggs, lentils or pulses, and using plastic cutlery instead of metal.
- If food tastes bland - try adding spices into food or foods with stronger flavours.
- If food tastes too salty or acidic - adding a little sugar can help tone down these flavours.
- Ensure a good intake of liquids and moist foods - this may also help if you have a dry mouth and reduced saliva.
- Clean your teeth before eating to remove old tastes and refresh the mouth.



- Eating sugar free mints, chewing gum or lemon drops can help to overcome a metallic or bitter taste.

Sore mouth and throat (Mucositis)

Treatments can cause you to have a sore mouth and throat. This is called mucositis. It occurs because chemotherapy and radiotherapy break down the skin lining your mouth and digestive tract. This can lead to ulcers and infection in your mouth and throat which can make it very difficult to swallow.

Helpful hints:

- Take regular sips of fluid. This helps keep you hydrated, clean the mouth and sooth the affected area.
- It may be easier to eat small amounts at a time but you should aim to eat more often throughout the day to ensure you have enough calories and protein overall.
- Eat moist, soft foods like omelettes, mashed potatoes, nourishing soups, pasta salads, creamy yoghurts, ice cream and custards
- Add extra gravies or sauces where possible.
- Choose foods and snacks from a pureed or soft menu as this can make food easier to swallow.
- Avoid acidic, spicy, salty, coarse, and dry foods.
- Try nourishing drinks such as full cream milk, build up soups and shakes. These can be soothing and are easy to swallow. They can also be good items to use in between meals as snacks.



- Include foods rich in protein such as cheese, yoghurts, custards, beans, meat, poultry, fish or cooked eggs.
- Try artificial saliva or sucking sweets to stimulate saliva.
- Avoid very hot foods and drinks as these can irritate your mouth.

Lack of saliva / thick saliva

A dry mouth can occur due to radiotherapy or chemotherapy. It can lead to a sore throat, mouth/tongue burning, bad breath, and difficulty chewing, tasting and swallowing.

It is important to undertake regular 'mouth care' as advised by your doctor or nurse. This is because tooth decay and gum disease are more likely if you have less saliva to wash away the acids produced in your mouth from eating and drinking. The dryness can also increase the risk of ulcers which can lead to infection, such as thrush.

Artificial saliva sprays can be used /prescribed for you if a dry mouth remains a problem. Ask your medical team about these products.

If thick saliva becomes a severe problem, you may be recommended to use a saline nebuliser regularly to help break down and clear saliva. Your medical team can explain more about a saline nebuliser if required.

Helpful hints:

- Drink plenty of fluids.
- Try very sweet or tart foods and drinks to stimulate saliva.
- Choose foods that are easy to swallow. Use soft or pureed menus.

- Add additional sauce, gravy, and custard.
- Suck on sugar free sweets, chewing gum, mints or pineapple cubes to stimulate saliva.
- Use lip balm to keep your lips moist.
- Suck on ice lollies or iced sorbets. These can be brought in by visitors and stored in the freezer compartment of your fridge.
- Changing to a liquid diet can help with thick saliva.
- More dense liquids such as milk products can sometimes be more difficult to swallow when there is excess saliva.
- If mucous builds up overnight, then nausea may be a problem in the morning. Therefore, delay breakfast until you have cleared your mouth and throat well.
- Frequent rinsing with warm salted water will help clear the secretions and freshen your mouth.
- High moisture fruits such as melons may help.
- Ice pops and fizzy drinks can be brought in by visitors
- Undertake good mouth care.
- Avoid meals that require a lot of chewing i.e. red meat.



Diarrhoea

Diarrhoea can occur due to treatment (chemotherapy or radiotherapy), antibiotics or infections. Diarrhoea is when you have more than four bowel movements that are loose or watery in 24hrs.

Diarrhoea that lasts for more than one or two days can lead to loss of fluid and nutrients. This can make you dehydrated. Your doctors may be able to prescribe anti-diarrhoeal medication, if appropriate.

It is important you do not avoid eating to reduce the frequency of your bowel opening/motions.

Helpful hints:

- Drink plenty of nourishing drinks or fluids to replace what you lose with diarrhoea.
- Try small frequent meals during the day.
- Avoid high fibre foods like wholegrain cereals and breads.
- Choose options like white bread, cornflakes, rice crispies instead.
- Avoid high caffeine drinks: coffee, strong tea, full sugar energy drinks like Red Bull, Cola etc.
- Limit fried and high fat foods.

When diarrhoea continues for a long period of time you can occasionally develop a temporary condition known as secondary lactose intolerance. This means your gut finds it difficult to digest a sugar called lactose which is found in milk and milk products.

Helpful hints:

- Choose lactose free or low lactose foods. Your dietitian can help recommend suitable foods for you
- Choose low lactose dairy alternatives - like soya milk / yoghurts, oat milk.
- Dairy foods that are naturally lower in lactose such as hard cheeses, and yoghurts may be better tolerated.

- If you are struggling with your diet, talk to your dietitian who can advise you on suitable supplement drinks to try.

Weight loss

Weight loss can be a common problem during treatment for many reasons.

Causes of weight loss include:

- Cancer itself.
- Mucositis causing pain and, altering taste
- Infection
- Nausea and vomiting.
- Loss of appetite.
- Food safety guidelines may restrict types of food eaten.
- GvHD (Graft versus Host Disease).

Weight loss can occur at a time when you need extra calories to help repair and build cells. It is important to try and maximise your oral intake. This can be achieved by some of the following suggestions.

Helpful hints to maximise oral intake:

- Maintain a regular eating pattern, by eating frequent small meals and snacks. This can help stimulate your appetite.
- Add calories to food- by using butter or margarine generously to bread/ toast potatoes, vegetables, and soups/sauces.



- Choose calorie dense snacks from the menu. Such as full fat creamy yoghurts, high energy mousses, cheese and biscuits.
- Ask your visitors to bring suitable snacks that you might enjoy during your admission
- Nourishing drinks, e.g., hot chocolate with full fat milk. You may be prescribed nutritional supplement drinks.

Tube Feeding

Being well nourished is an important part of your treatment and can aid your recovery.

If swallowing becomes too painful, if there is a concern about the extent of weight loss, or how much you are managing to eat then the option of a feeding tube may be discussed with you. This is used to help support your nutritional intake.

A feeding tube may also be discussed with you before your treatment starts if your treatment plan is known to cause severe mucositis. This is so that the tube can be placed before your mouth and throat become too sore and painful. Whilst your mouth and throat are not too painful.

The tube passed is shown here and is called a nasogastric tube which passes up your nostril and then directly into the stomach. The tube can be removed very easily when it is no longer required.



Recovery at Home

During this period, you may find that your appetite is improving but not quite back to normal. It is important to try and maintain a good nutritional intake to help you maintain your weight, support your immune system and improve recovery

If you struggle with your nutritional intake, aim to take small frequent meals, snacks and nourishing drinks every few hours. Softer foods can often be less effort to eat. Some ideas for high energy high protein meals and snacks are suggested below to help increase your intake, alongside an example meal plan

Meal plan examples

Breakfast:

- Pure fruit juice
- Porridge made with full fat milk and added milk powder (*add 3-4 tbsp of milk powder to x1 pint full fat milk)
- Cereal with full fat milk and sugar or
- Scrambled eggs (could add extra ham/grated cheese) or
- Toast with spreads (butter/jam/honey etc).



Lunch/Main Meals:

- Sandwiches with generous filling of protein (ham/cheese/chicken/eggs) **and/or**
- Soups – with added cream, milk powder or grated cheese
- Meat or fish or vegetarian option with added potatoes/chips/vegetables (e.g. Curry/stews/hotpots/Sunday dinners).



Snack meal:

- Fish fingers/chicken nuggets/sausages.
- Eggs or cheese on toast.
- Crackers with cheese.
- Poached or boiled eggs.
- Sandwich with meat, fish, egg, salad or cheese.
- Add mayonnaise or salad cream.
- Soup - add cream, milk powder or grated cheese.



Desserts:

- Rice, sago, semolina (add extra cream)
- Sponge custards/ice cream
- Tinned or fresh fruit and cream e.g. peaches/pears/orange
- Full fat yogurt or trifles.



In additional, aim for a selection of 2-3 nourishing snacks a day (see examples below)

Light meals and nourishing snacks

Savoury



- Toast with additional toppings (e.g. butter/jam/cheese/baked beans/eggs/peanut butter)
- Assorted sandwiches with high protein fillings (meat/fish/egg/cheese) and condiments
- Jacket potato with fillings (tuna/cheese/baked beans/spaghetti hoops)
- Cereal with full fat milk
- Crackers with cheese.

Sweet

- High protein full fat yogurts/puddings
- Hot cross buns/waffles with added butter/syrups
- Tinned fruit and cream
- Croissants/pain-au-chocolat
- Assorted biscuits/chocolate and sweets.

Liquids

- Soups – condensed or creamed varieties
- Milky drinks inc. milkshakes, smoothies and hot chocolates
- Prescribed supplements (e.g. Fortisip, Complian etc)
- Adding 3-4 tablespoons of dried milk powder to one pint of full fat milk and use when cooking, or drink it as normal.

Nourishing drink recipes

You can make your own nourishing drink to have in between meals.

Milkshake

200mls full fat milk
2 tablespoons dried milk powder
1 scoop ice cream
2 tablespoons milkshake powder

Mix together and whisk well.
Chill and serve.

Fruit Smoothie

200mls full fat milk
2 tablespoons dried milk powder
Handful of your favourite fruit
1 banana
1 pot full fat yoghurt
50mls double cream

Liquidise/whisk all ingredients together.
Chill and serve.

Fortified Soup

200mls full fat milk
2 tablespoons dried milk powder
1 packet of instant soup
50mls double cream

Empty soup powder into mug.
Add dried milk powder.
Warm milk and mix with the powder.
Add cream and serve.

Fruit Yoghurt drink

200mls fresh fruit juice
1 pot (150g) full fat fruit yoghurt
50mls double cream

Mix together.
Chill and serve.

Foods that may help improve your electrolyte levels

Following your transplant, you may find that you have low levels of certain minerals in your blood.

Fluids

Having enough fluid, (around 2 litres daily) helps your body to function well with good hydration helping your recovery. This can be drunk as water, fruit juice or squash, or from foods such as fruits and vegetables, soups and stews. Drinks containing caffeine, such as tea, coffee and some fizzy drinks can dehydrate you more as they cause the body to produce more urine.

Symptoms of dehydration include headaches, constipation, dry mouth, dark urine and dizziness

Potassium

Potassium is a mineral found naturally in many foods. It is needed in the body for the normal functioning of the heart, nerves and muscles as well as regulating fluid and mineral balance in and out of body cells.

Low potassium levels can cause muscle weakness, constipation and problems with the heart rhythm too.

Following your treatment, you may find that your potassium levels are low due to side-effects, or certain medications.

To help increase your potassium you can try:

- Steam or microwave vegetables instead of boiling
- Eat the skins of potatoes of cooked/roasted vegetables
- Try to include some potassium rich foods each day

Sources of Potassium

- Dried apricots, sultanas, raisins, figs
- Crisps, chips, potatoes, wholemeal pasta, bran flakes
- Bananas, mango, papaya, spinach, tomatoes, mushrooms
- Milk chocolate, coffee
- Liquorice.

Magnesium

Magnesium is an important nutrient, responsible for many processes within the body including regulating muscle and nerve function, blood sugar levels, and blood pressure and making protein, bone, and DNA.

Symptoms of magnesium deficiency include loss of appetite, nausea, vomiting, fatigue and weakened bones. Extreme magnesium deficiency can cause numbness, tingling, muscle cramps, seizures, personality changes, and an abnormal heart rhythm.

Magnesium is found naturally in many foods and is added to some fortified foods. You can get recommended amounts of magnesium by eating a variety of foods, including:

- Legumes, nuts, seeds, whole grains, and green leafy vegetables (such as spinach)
- Fortified breakfast cereals and other fortified foods
- Milk, yogurt, and some other milk products
- Tuna
- Brown rice, oat bran and barley.

Calcium

Calcium is needed for strong bones and teeth, helping to prevent brittle bones later in life. It is also required for a normal heartbeat, blood pressure and muscle contraction. You need Vitamin D to help absorb the calcium in your diet.

Milk and dairy foods are the best sources of calcium. Calcium is absorbed better from these foods than non-dairy sources:

- Milk, yoghurt, hard cheese, tofu
- Milk puddings, ice cream, custard
- Tinned sardines/salmon/eggs/baked beans.

Phosphate

Phosphate (also known as phosphorus) is found in a variety of foods. It is needed for healthy bones. Our kidneys help control the level of phosphate in our blood. Phosphate not needed by the body is usually passed out in the urine. A low phosphate level can arise due to poor nutritional intake and chemotherapy treatments, leading to muscle weakness, heart arrhythmias and respiratory problems.

Many different types of foods contain phosphorus, including dairy products, meats and poultry, fish, eggs, nuts, legumes, vegetables, and grains:

- Milk, eggs, ice cream, yoghurts, cheese - especially hard cheeses
- Offal such as liver and kidney
- Fish, e.g. sardines, pilchards, salmon (containing small bones)
- Nuts, peanut butter, marzipan
- Soft drinks e.g. coca cola, fruit syrups beverages
- Chocolate.

Eating well and being active following cancer treatment

Once you are at home and recovering well after your treatment, dietary goals are likely to change. We will advise you on changes to achieve a healthy diet and lifestyle. This is in line with the current recommendations from the World Cancer Research Fund produced in 2018.

Steps to healthy eating

- Be physically active for at least 30 minutes a day.
- Avoid sugary drinks. Limit consumption of energy-dense foods (particularly processed foods high in added sugar, or low in fibre, or high in fat).
- Eat more of a variety of vegetables, fruits, wholegrains and pulses such as beans.
- Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats.
- If consumed at all, limit alcoholic drinks to two for men and one for women a day. Try to have 2-3 alcohol free days each week.
- Limit consumption of salty foods and foods processed with salt (sodium) e.g. powdered soups, ready meals, takeaways, sauces.



If you have any concerns about your eating or weight please ask your doctor or nurse to refer you to the dietitian.

Further information on specific cancers:

UK Lymphoma Portal - www.lymphoma.org.uk

The Lymphoma Society -
www.ils.org/diseaseinformation/lymphoma

Myeloma UK - www.myeloma.org.uk

Lymphoma Research -
www.leukaemia-lymphoma-research.org.uk

Further information on Cancer

Macmillan Cancer Support - www.macmillan.org.uk

Cancer Research UK - www.cancerhelp.org.uk

World Cancer Fund - www.wcrf.org

National Cancer Institute (US) - www.nci.nih.gov

Further Information on Diet:

British Dietetic Association (BDA) - www.bda.uk.com

Contact details

Nutrition and Dietetic Dept

Bexley Wing Tel: 0113 206 8165

If you have been discharged or would like further support then please contact the above number.

Dietetic outpatient clinics are available for on-going support as required.







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