



Royal Berkshire
NHS Foundation Trust

Eating well on haemodialysis

Information for patients

This leaflet is for people on haemodialysis and their families or carers. It explains relevant food-related issues you may face and includes dietary advice and tips on how to eat well.

Reasons to think about what you eat

When your kidneys are not working well, there may be a build up of your body's waste products and certain minerals in your blood.

Many of these are harmful if present in excess (e.g. too much urea, phosphate or fluid). Haemodialysis (HD) removes a significant amount of waste products and excess minerals from your blood to help keep levels from rising too high.

Usually, however, it is also necessary to follow certain dietary guidelines to reduce the risk of other problems.

Eating and drinking sensibly can help to:

- Keep you well-nourished
- Keep you feeling as fit and strong as possible
- Maintain a healthy weight
- Keep your heart and blood vessels healthy
- Keep your bones healthy
- Control your blood pressure

The guidance on food and fluids that follows reflects the types of issues that are most likely to arise but bear in mind that there are many factors to take into account and dietary requirements will vary. Your dietitian will advise you on which parts of your diet to focus on most, according to your own particular needs, in order to help keep you as healthy as possible.

Protein

Protein is an essential part of your diet to help build and repair body tissue, especially muscle. During HD, a relatively small but significant amount of protein is lost from the body. To counteract this loss, it is important to have plenty of protein in your diet.

Try to include a good-sized portion of a food high in protein at two meals in the day. Your dietitian can advise you about the amounts of these foods you require.

Examples of high protein foods include:

- Animal proteins; *red meat, poultry, white fish, tuna, salmon, cottage cheese and eggs (see phosphate section).*
- Vegetable proteins; *pulses e.g. beans/lentils/chickpeas (see potassium section), soya products, Quorn, tofu.*

Although milk is a good source of protein, it is also high in potassium and phosphate. Therefore, the quantity often needs to be limited. Other dairy foods may also be limited for similar reasons.

Potassium

Potassium is a naturally occurring mineral found in many foods.

HD will filter and remove excess potassium from your blood, but in between HD sessions, potassium may build up in your body.

Some people, though a minority, have high blood potassium levels as a result, which can lead to an abnormal heart beat or even a heart attack.

It is recommended that your blood potassium levels stay between 3.5-6.0 mmol/litre.

If your potassium level is high, you can reduce it by avoiding or limiting foods high in potassium.

Reducing potassium intake

Foods high in potassium include: potatoes (especially chips and jacket potatoes), potato crisps, bananas, apricots, avocados, blackcurrants, dried fruit, fruit juice, mushrooms, spinach, parsnips, chocolate, nuts and seeds, coconut, bran, gram flour and cider.



More details are provided in the traffic light guide in the centre of this booklet. Your dietitian can also provide you with more detailed low potassium information if necessary.

Further tips to help reduce your potassium intake if necessary:

1. Avoid steaming or microwaving vegetables. Boil vegetables and potatoes in plenty of water and throw the water away to remove potassium. Pre-boil potatoes before using to make roast potatoes or chips. A limit of 150g of potatoes/day may be necessary.
2. Include rice, pasta, noodles, bread or chapattis more often with meals as an alternative to potato.
3. If a main meal is potato-free, a moderate amount (1/3 of a 400g tin) of tinned tomatoes or tomato-containing sauce can be used.
4. Fruit and vegetables are an important part of any diet. Some are rich sources of potassium but most are safe to eat (see green and amber sections in the traffic light guide).
5. Drain off juice from tinned fruit – this will remove a lot of potassium.
6. Some tinned vegetables also contain less potassium than fresh (drained of fluid), but try to get vegetables tinned without salt.
7. Avoid salt substitutes like Lo-Salt and Saxa So-Low as these are high in potassium.

Phosphate

Blood phosphate levels rise when your kidneys are failing, and dialysis only removes a moderate amount. Ideally, your phosphate level should be kept between 1.1-1.7mmol/l.

If you have high phosphate levels in your blood, this may cause:

- Damage to your heart and blood vessels, increasing the risk of heart disease, strokes and poor blood supply to your legs and skin
- Weakened/ brittle bones and aching joints
- Itchy skin and itchy eyes

If your phosphate level is high, you can reduce it by avoiding / limiting foods high in phosphate.

Limit milk:

Almost all high protein foods contain phosphate but milk is especially high so milk or yoghurt need to be limited to 1/3 pint or 200ml/day, though organic rice or oat milks are good low phosphate alternatives. Most cheeses are also high phosphate except cottage or cream cheese.

Other high phosphate foods to avoid include:

- Liver (and liver pate) and other offal meats
- Certain fish, especially where bones are edible, e.g. pilchards, sardines, seabass, whitebait, monkfish
- Fresh crab, crayfish, scampi, mussels, oysters
- Malted milk drinks
- Cola drinks
- Nuts and seeds
- Chocolate (all types)
- Foods containing lots of baking powder or self-raising flour, e.g. scones, crumpets, naan
- Foods using gram flour (e.g. Bombay mix, chevda, samosas & bhajis)
- Foods very high in bran
- Muesli, Readybrek
- Lagers, stout

Phosphate additives

Many additives containing phosphates are used in a variety of processed foods and can contribute significantly to your total phosphate intake. Ingredients lists on foods can indicate their presence but not the quantity. Some are easy to spot, e.g. 'phosphoric acid' or 'dicalcium phosphate' but others do not even contain the word 'phosphate'.

It is therefore advisable to eat fresh, unprocessed foods without additives as much as possible to reduce your intake of hidden phosphate.

For example, vacuum-packed ready-sliced meats, quiches, instant noodle products and cake mixes all usually have added phosphates.

Phosphate binders

In addition to a low phosphate diet, you may also require tablets known as *phosphate binders*. These tablets should be taken when you eat. They work by 'binding' to phosphate in your food and reducing the amount of phosphate your body can digest and absorb from it. The most commonly prescribed phosphate binders are shown below:

- Phosex or Renacet (calcium acetate) to be taken with food

- Calcichew (calcium carbonate) to be taken before food
- Renagel (sevelamer hydrochloride) to be taken with food
- Fosrenol (lanthanum carbonate) to be taken with or after food

Always make sure you have a supply of binders with you wherever you are and re-order well before you run out.

If you need more advice about lowering your phosphate level, your dietitian can give you more detail.

Salt (sodium chloride)

A low salt (or low sodium) diet is particularly important when your kidneys are no longer able to produce unlimited amounts of urine.

Salty foods make you more thirsty and can lead to fluid retention ('oedema') and high blood pressure. If you need to limit your fluid intake, a diet low in salt is essential.

- Cut back as much as you can on salt added during cooking and at the table. Your taste buds soon get used to less.
- Instead, use alternative flavourings such as herbs and spices, pepper, onions and garlic, chilli, honey, lemon or lime, vinegars, wine, apple sauce, redcurrant jelly, mustard powder.
- Avoid processed foods as much as possible, e.g.
 - Processed meat products such as bacon, ham, salami, tinned meats, sausages, meat pies and pasties
 - Smoked or salted fish
 - Many tinned and packet savoury foods, including foods tinned in brine, soups, meat and vegetable extracts (Bovril, Marmite)
 - Salted nuts, salted biscuits or crackers, crisps
 - Most stock cubes, gravy mixes and ready-made sauces, pickles and chutneys
 - Most cheeses
 - Many ready meals



Perhaps most importantly, check food labels for salt information.

You may need to aim for as little as 4g of salt per day, certainly no more than 6g per day.

Best foods to choose

Meat, fish and alternatives

All fresh, unprocessed, lean meat, e.g. beef, chicken, lamb, mutton, pork, turkey, venison.

Fresh, unprocessed white fish (e.g. cod, haddock, plaice, skate, sole), tuna – fresh or tinned in oil or spring water, fresh or no added salt tinned salmon.

Beans, lentils, chickpeas, soya mince/pieces, tofu.

Milk and dairy foods

Organic oat/rice milk, cottage cheese, cream cheese e.g. Philadelphia.

Starchy carbohydrate foods

Homemade reduced salt bread, chapattis, plain white pasta, white rice, rice noodles, porridge, Weetabix, Shredded Wheat, matzo crackers, no added salt rice cakes, wheat flour, cornflour.

Fruit

Apples, blueberries, clementines, cranberries, grapefruit, lemon, lime, lychees, nectarines, passion fruit, peaches, pears, satsumas or tangerines, most drained tinned fruit.

Vegetables

Boiled cabbage, carrots, cauliflower, corn on the cob, leeks, marrow, mixed vegetables, sugar snap peas, runner beans, swede

Raw cucumber, mustard cress, red/green peppers, sugar snap peas, fried beansprouts

Tinned mushrooms, peas, green beans (any tinned vegetables where no salt added).

Foods high in fat and/or sugar

Limited unless you need to gain weight.

Drinks

Tea (all types, including green tea, herbal teas), squashes, cordials and barley waters, mineral or tap water, flavoured waters.

Miscellaneous

All herbs and spices, garlic, pepper, mustard powder, vinegars, apple sauce, cranberry sauce, home-made or low salt vinaigrettes/dressings.

Low salt stock cubes e.g. Kallo very low salt range, Schwartz reduced salt seasonings, Natex savoury spread (in some health stores).

Foods in moderation

Meat, fish and alternatives

Fish in breadcrumbs/batter (but can be salty), prawns, shrimps, squid, cockles and winkles if not high salt.

Eggs – up to about 5/week (but egg whites unlimited) Houmous (check salt), Quorn products (check salt).

Milk and dairy foods

Cows' milk – up to 200ml (1/3 pint) or organic soya milk up to 300ml (1/2 pint) daily.

Custard, ice cream, milk puddings, yoghurt (include in milk allowance). Cream, crème fraîche.

Starchy carbohydrate foods

Corn Flakes, Frosties, Rice Krispies, Cheerios, Special K (preferably below 1.0g salt/100g), Breads - including pitta bread, rolls, croissants, tortilla wraps and bagels; wholewheat pasta, brown rice, English muffins, cream crackers, crispbreads, oatcakes, breadsticks (check salt). Potatoes, sweet potatoes, cassava, or yam – boiled or mashed (150g/5oz per day).

Fruit

Blackberries, cherries, mango, melon, papaya, pineapple, pomegranate, raspberries, strawberries, drained tinned apricots or blackcurrants.

Vegetables

Boiled asparagus, broad beans, broccoli, celery, courgettes, kale, green beans, mixed veg, spring greens, squash, sweetcorn, turnip; mushy peas.

Raw carrot, lettuce, mangetout, onion, yellow pepper, radish, watercress; fried aubergine.

Tinned tomatoes (can be used in sauces if no potato). Pickled beetroot, onions and gherkins.

Foods high in fat and/or sugar

Most oils (e.g. olive/sunflower), butter or spreads, rice/wheat/corn-based snacks (check salt), sugar, jam, marmalade, honey, most sweets, biscuits/cakes, desserts.

Drinks

Instant coffee, cranberry or pineapple juice, white/rosé wine (1 glass/day), spirits

Miscellaneous

Mayonnaise/salad dressings (check salt), reduced salt gravy/bouillon, mustard, horseradish sauce.

Foods to try to avoid where possible

Meat, fish and alternatives

Bacon, ham, gammon, tinned meats, sausages, salami, frankfurters, beefburgers, meat pies, processed/'formed' packet meat slices, sausage rolls/pasties, liver, kidneys, pate. Fish if smoked/salted/tinned in brine, pilchards, sardines, whitebait, seabass, mussels, crab, scampi, fish paste, taramasalata. Baked beans, quiche, pizza, most Quorn, nuts and seeds.

Milk and dairy foods

Hard cheese, soft cheese (e.g. Brie), processed cheese, cheese spreads (e.g. Dairylea), feta.

Condensed/evaporated milk, coconut cream/milk.

Starchy carbohydrate foods

Potatoes, sweet potatoes, cassava, or yam if baked, steamed, roasted or fried (unless pre-boiled), chips, croquettes, wedges, instant mash.

Couscous, instant noodle or pasta products, naan bread, crumpets, self-raising flour, gram flour, cereals containing bran, dried fruit, nuts or chocolate (e.g. All Bran, Sultana Bran, Branflakes, muesli), Readybrek.

Fruit

Apricots, avocados, bananas, coconut, dried fruit (all), grapes, kiwi fruit, plums, olives, rhubarb.

Vegetables

Brussels sprouts, butternut squash, okra, pak choi, parsnips, spinach, spring onions, fried courgettes, fresh mushrooms, raw tomatoes.

Foods high in fat and/or sugar

Chocolate, cereal bars, scones, pancakes, chocolate/fruit cake, Bombay mix, samosas, pakoras, bhajis, potato crisps and most other savoury snacks, inc. salted popcorn or crackers.

Drinks

Bovril, cola drinks, malted milk drinks, cocoa, hot chocolate, most coffee, milkshakes, most fruit juices, tomato juice, beers, cider, red wine.

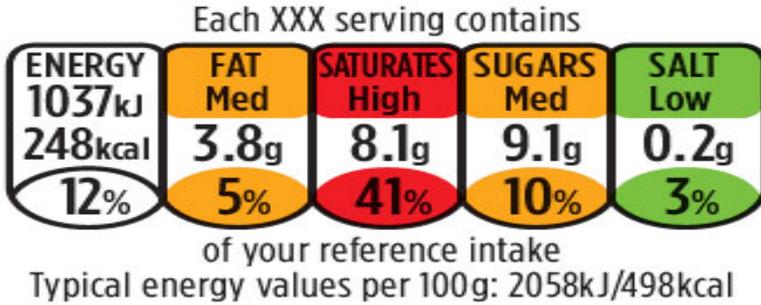
Miscellaneous

Baking powder, most soups, Marmite, tomato ketchup/puree, soy sauce, 'Losalt'/'Saxa So Low'.

If a food contains salt, you can check how much by looking at the 'nutrition information' on the food's packaging. As a guide, try to:

- a) choose foods with no more than 0.8g salt per 100g
- b) keep each meal no more than 1.7g total salt

Where food packaging uses a 'traffic light' system, try to choose foods that are 'green' for salt, indicating a low salt content.



Fluid (liquid)

On dialysis, you may need to limit your fluid or liquid intake to some degree. Fluid is removed from your body mainly when you pass urine and when you have dialysis. If you take in more fluid than your kidneys and dialysis can remove, you will become "overloaded" with fluid.



Drinking too much liquid can cause a rapid increase in weight, shortness of breath, swelling of feet and lower legs and high blood pressure. Over time, fluid overload gives your heart more work to do and eventually leads to heart failure, a very serious condition.

Try to keep your fluid intake toper day

If you continue to lose more kidney function and pass less urine as a result, you will need to drink less fluid to compensate.

If the weather is very hot you may need to drink more as you will lose more fluid than usual as sweat. Please follow any seasonal guidance given by your dialysis unit.

Dry weight

On haemodialysis you will have a “dry weight” or “target weight” set by the medical team. This is your weight without extra fluid in your body, when you are neither overloaded nor dehydrated, and is the weight you should be after you have finished a dialysis session.

Between dialysis sessions you will accumulate fluid from drinks and from food, which will take you above your dry weight. Aim not to gain more than.....kg between dialysis sessions. If you gain more than this then you are becoming fluid overloaded.

Your dry weight may change over time if you gain or lose ‘flesh weight’ (body fat or muscle); it is not fixed permanently.

Managing your fluid intake

When calculating your intake of fluids remember that many foods have a high fluid content. For example, sauces and gravies, milk puddings, jelly, ice cream and ice lollies may contribute significant amounts of fluid to your overall intake so try to allow for these 'hidden fluids'.

Try to monitor how much you are drinking as closely as you can.

One method is to start each day with a measuring jug of water equal to your fluid allowance. From this you can make ice cubes and drinks.

If you have hot drinks or other liquids not made from water then remove an equal volume from the jug and throw it away.

More top tips

- Use a small cup (perhaps ideally around $\frac{1}{4}$ pint/140ml maximum).
- Use an ice cube in place of a drink (try freezing a little lemon/lime juice in with the ice cube).
- Try freezing small pieces of fruit to suck on (e.g. mandarin segments, pineapple chunks or berries).
- Help to stimulate saliva and stop your mouth feeling dry by sucking a slice of lemon or lime, using sugar free gum/mints or boiled sweets.
- Try to take drinks that quench your thirst so avoid very sweet or salty drinks, which are less refreshing.
- Sip your drinks. Use a straw with cold drinks to slow you down.
- If you rinse your mouth out with cold water and spit it out rather than swallowing, this can help take the edge off your thirst.
- Clean your teeth between meals to freshen your mouth.
- If you are going out in the evening and are likely to want to drink more, try to drink less in the daytime to 'save up' your fluid allowance.

Useful measures to help you add up how much you are drinking:

	Average measure	Your home measure
Disposable plastic cup	150ml	
Tea cup	180ml	
Can of soft drink	330ml	
Glass	200ml	
Mug	200-250ml	
Ice cube	20ml	
Soup bowl	200ml	

750ml = $\frac{3}{4}$ litre = $1\frac{1}{3}$ pints

1000ml = 1 litre = $1\frac{3}{4}$ pints

1500ml = $1\frac{1}{2}$ litres = $2\frac{2}{3}$ pints

Vitamins and minerals

Some Vitamin C and various B vitamins are lost from the body during dialysis, so you may be advised to take a daily vitamin supplement called 'Renavit'.

Too much of some vitamins can be harmful to dialysis patients, so it is not advisable to take other supplements unless you have checked with your doctor, dietitian or pharmacist.

Maintaining a healthy body weight

Many people notice that their appetite improves once they start dialysis, and that their body weight starts to rise. For some people, this may be a welcome sign that they are eating better and regaining body weight that had previously been lost. For others, weight gain is unwanted.



If you find you are gaining unwanted 'flesh weight', you may need to look a little closer at your diet. Your dietitian can help give you some guidance on how to maintain or lose weight.

Poor appetite

Some people on dialysis find that their appetite is quite poor, leading to unplanned weight loss. It is important that you eat enough, especially high protein foods, to avoid malnutrition.

Malnutrition is associated with muscle loss, weakness and immobility and makes you more likely to pick up infections. It also delays recovery from illness and wound healing.

If you are worried that you are not eating enough, ask your dietitian for advice on increasing your calorie and protein intake. He/she can advise you about nutritional supplements that can be prescribed by a doctor.

Eating out

An occasional meal out is unlikely to make a major difference to your overall diet. However if you eat out regularly, you may need to choose your menu with a bit more care.

If eating in a restaurant, try to plan ahead. Some places may be happy to be flexible in offering you alternative choices or adapting recipes a little. You can ask for salad dressings, gravy, sauces etc to be served separately. It may be possible on request to replace a high potassium vegetable or fruit with a lower potassium alternative.

Fast food and takeaways are usually high in salt (not to mention fat) whether it's a curry, a pizza, a Chinese meal, burgers and fries or deep fried fish or chicken. Some of these meals will also be high in potassium (e.g. chips). Try to weigh up the pros and cons of eating foods that are not necessarily recommended.

Try to reduce the amount you drink during the 24 hours before a meal out or party where you know you may want to drink more than usual. You may also want to do this if you know you are having a salty meal, so you would be able to have an extra drink after eating.

Your dietitian can give you more suggestions/ advice about choices to make when eating out.

Remember to take your phosphate binders with you!

Some people forget to take their binders when eating outside the home, but you need them with every meal and most snacks, including food eaten on dialysis.

Example meal plan

Binders to take

Breakfast

Breakfast cereal and milk (from allowance)

Bread / toast with butter / spread and jam / marmalade

Tea

Mid-morning (if desired)

Tea or coffee

Snack meal

Bread

Butter / spread

Lean roast meat _____oz / _____g OR

_____oz / _____g tuna/salmon OR

_____tablespoons cottage cheese OR

_____eggs

Salad

Fruit

Mid-afternoon (if desired)

Tea

Main meal

Fresh meat/poultry _____oz / _____g OR

Fresh white fish _____oz / _____g white fish OR

_____vegetarian alternative

Potatoes / rice / pasta/chappatis

Vegetables / salad

Fresh / tinned fruit or yoghurt (from allowance)

Further information

National Kidney Federation

www.kidney.org.uk

The NKF is the National Kidney Patient charity in the United Kingdom. The charity is run by kidney patients for kidney patients

Kidney Research UK

www.kidneyresearchuk.org

Kidney Research UK is the leading UK charity funding research that focuses on the prevention, treatment and management of kidney disease. The charity also dedicates its work to improving patient care and raising awareness of kidney disease.

Kidney Patient Guide

www.kidneypatientguide.org.uk

This website provides information for renal patients, their partners and families, health care professionals and anyone else who is interested in kidney disease.

A variety of cookbooks are available. Ask your dietitian for more details.

For more information about the Trust visit www.royalberkshire.nhs.uk

Useful contacts

Dietitian _____

Telephone 0118 322 7116 or 01753 866008

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