



# Dietary advice for patients with kidney failure

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## Dialysis and food

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### What do the kidneys normally do?

Their main work includes:

- Removing waste that builds up in the blood. This results from the food and drink we take each day and from the constant breakdown of our body tissues
- Control of blood pressure by regulating fluid and salt balance
- Making several hormones; two of these help to:
  - a) make red blood cells
  - b) keep bones healthy

Therefore, when the kidneys are not working properly, the body can be affected in many different ways.

### How can dialysis help?

Dialysis replaces some of the work normally done by the kidneys. It helps by:

- Removing waste from the blood
- Helping to control blood pressure by removing fluid

### How can food help?

Dialysis does not completely replace the work of the normal kidneys. Therefore to stay fit and well it will be necessary to alter the amounts of some of the food and drinks that you usually have.

Your intake of some, or all, of the following may need to be considered:

- Protein
- Sodium (salt)
- Potassium
- Fluid
- Phosphate

These are all found in a variety of different foods.

This series of fact sheets has been designed to help you choose and enjoy the foods that are best for you.



## Foods to enjoy

<p><b>Starchy foods</b></p>	<p>All types of bread, croissants, pikelets, chapatti, pitta bread. Rice, pasta, noodles.</p> <p>Plain breakfast cereals (avoid those with nuts, fruit and chocolate) plain biscuits, crackers.</p>
<p><b>Meat, fish, alternatives</b></p>	<p>Fresh and frozen meat, e.g. beef, lamb, pork, poultry.</p> <p>All fish. If tinned, choose those in water/oil and avoid eating any bones.</p> <p>Fish fingers, fish cakes, fish in batter or breadcrumbs.</p> <p>Cream cheese, cottage cheese, dahl/pulses e.g. lentils, chickpeas, Tofu – as an alternative to meat or fish.</p>
<p><b>Milk and milk products</b></p>	<p>Enjoy these as part of your diet but speak to your dietitian about portion sizes and non dairy products.</p>
<p><b>Fats</b></p>	<p>Margarines (preferably those high in polyunsaturates and monounsaturates).</p> <p>Vegetable oil, corn oil, olive oil, sunflower oil, rapeseed oil. Butter.</p>
<p><b>Vegetables</b></p>	<p>Enjoy these as part of your diet but speak to your dietitian about specific portion sizes.</p> <p>All vegetables should be boiled where possible.</p>
<p><b>Fruit</b></p>	<p>Enjoy these as part of your diet but speak to your dietitian about portion sizes.</p>
<p><b>Drinks</b></p>	<p>Tea, Camp Coffee*, squash* (avoid Ribena and Hi Juice), fizzy drinks* e.g. lemonade and ginger beer. (*Avoid dark coloured fizzy drinks).</p> <p><b>Count in fluid allowance.</b></p>



## Miscellaneous

Herbs, spices, pepper, mustard, vinegar.

\*Honey, \*jam, \*marmalade, \*sugar, artificial sweeteners.

\*Boiled sweets, \*mints, \*marshmallows, \*plain Turkish Delight, chewing gum.

Maize or corn snacks e.g. Skips, Wotsits, Sunbites, plain popcorn, rice cakes, Monster Munch, Skips, Snack a Jacks.

\*High in sugar



## Protein

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Protein is essential for the growth and repair of healthy body tissues.

If you eat too little protein you are more at risk of becoming unwell. If you eat too much protein you will find that some waste products, e.g. urea, may rise too high.

The following are good sources of protein and you should aim to include these as part of your meals:

- Meat
- Poultry
- Fish
- Milk
- Cheese
- Eggs
- Pulses
- Dahl

If you do not eat good sources of protein every day ask your dietitian for advice.



## Protein exchanges

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Protein is important to build muscles and for the overall well-being of your body. Low levels of protein can contribute to problems such as ankle swelling, weight loss and make you feel generally unwell.

Each of the following foods are all are all high protein.

These portions all contain the same amount of protein so can be exchanged for one another

You should aim to eat ..... protein portions/exchanges each day

25g (1oz) red meat cooked

25g (1oz) poultry cooked

38g (1½ oz) cooked fish

38g (1½ oz) tinned fish

25g (1oz) hard cheese

38g (1½ oz) cottage cheese

200ml (1/3 pint) milk

125g/1 small pot of yoghurt

1 portion of milk pudding

2 fish fingers

1 large meat or vegetarian sausage

1 egg

100g (7oz) Hummus

50g (2oz) Quorn

38g (1½ oz) cooked tofu

110g (4oz) cooked pulses e.g. lentils/dhal and beans



## Some examples of how you can calculate your exchanges

1 slice of ham = 1 exchange

1 small chicken breast = 4 exchanges

1 lamb chop = 3 exchanges

3 tbsp of baked beans = 1 exchange

Mince used for stew/bolognaise/shepherds pie = 4 exchanges

Fish piece cooked in batter = 4 exchanges

1 thick slice corned beef = 2 exchanges

Tuna used in a sandwich = 1 exchange

3 tbsp cooked dhal/lentils = 1 exchange



## Eat more fibre

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Constipation can be a problem, if you are on peritoneal dialysis (PD), it can stop the dialysis fluid draining in and out properly and potentially dislodge your catheter.

A high fibre diet can help prevent constipation. Fibre can help soften motions, bulk stools, and make food easier to pass. This can also help your bowel motions to be more regular.

You may be prescribed laxatives e.g. Lactulose, Movicol, Senna, to make your bowels regular

The foods high in fibre that you should eat are:

- Wholemeal bread or granary bread instead of white. Alternatively, try white bread with added vegetable fibre – '50/50'
- Choose wholewheat breakfast cereals e.g. Weetabix, Shredded Wheat, Puffed Wheat, Branflakes
- Choose brown rice and wholemeal pasta
- When baking consider wholemeal flour in pastries, biscuits, cakes, and chappati.
- Try and have at least one meal a week using pulses e.g. lentils, chickpeas, beans.
- Eat at least 2 portions of fresh fruit and vegetables every day - Please refer to the potassium section for advice regarding appropriate portion sizes
- High fibre fruit and vegetable options include those with skins, stalks, pips and seeds. If you've been advised to follow a low potassium diet, please remember to boil all vegetables where possible.

**Some of these suggestions may conflict with low potassium advice so please consult your dietitian.**





## Cut down on sugar

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Peritoneal Dialysis (PD) bags contain glucose. Therefore, if you are diabetic you may find that your blood sugars rise as you may absorb some sugar when you exchange. The amount you absorb varies from person to person. Try to keep your fluid restriction. This should prevent you having to use stronger bags which contain more glucose.

### Different bags:

**Yellow** – These are isotonic, which means that they have a similar concentration of sugar to your body so will drain off fluid slowly.

**Green** – These are hypertonic. Meaning that the sugar content of the bag is higher than your body's which will draw more fluid off your body.

**Purple** – These are the strongest bags and should draw off the most fluid. However, these bags do not contain sugar in the form of glucose so are suitable for patients with diabetes.

You can limit your sugar intake by:

Food/Drink	Healthier choices	Tips
<b>Drinks</b>	'Diet'/sugar free' and 'no added' sugar squash and fizzy drinks.	Cola is high in phosphate.
<b>Preserves</b>	Reduced/no added sugar jams. Marmalade and pure fruit spreads.	Spread ordinary jam or marmalade thinly, not diabetic jam.
<b>Snack foods</b>	Plain and semi sweet biscuits e.g. Rich tea, Digestives, limit to 1-2 per day. Plain scone, plain muffin, crumpet, bagel, rice cakes.	If you are trying to lose weight, cut down on snack foods. Spread margarine thinly, use toppings sparingly.



Food/Drink	Healthier choices	Tips
<b>Desserts</b>	Tinned fruit in natural juice, Low fat natural yoghurt. 'Diet'/'Light' yoghurts/fromage frais, low sugar milk puddings. 'Sugar free' jelly/low sugar instant whip.	Use a sweetener and semi-skimmed milk to make home-made desserts. Add fruit to 'sugar free' jelly. Read the labels and choose low sugar options.



## Potassium (K<sup>+</sup>)

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Potassium is a mineral found in the blood and body cells. It is also found in many foods and normally the kidneys remove any excess potassium eaten. If your kidneys are not working properly, they will not be able to remove the excess potassium and the levels of potassium in your blood may rise too high. This can be dangerous and can affect your heart and cause cardiac arrest. Therefore, it is very important to limit the amount of potassium you eat if you are advised by your dietitian.

### Top Tips

#### Cooking methods

- **Always** peel and boil vegetables and potatoes in a large pan with plenty of water. Throw the cooking water away. Do not use this water to make gravy or stock
- Before adding vegetables and potatoes to casseroles, curries or soup, boil first as described above, discard the water and then add them to the dish
- **Do not** steam or stir fry vegetables
- **Do not** use a microwave or pressure cooker for lentils and vegetables
- Tinned or cooked fruit is lower in potassium than fresh fruit, however **always** drain the juice before eating

#### Salt

- Avoid salt substitutes such as Lo Salt as this contains potassium
- Some supermarkets are now adding salt substitutes (potassium chloride) to their healthy eating range/low sodium (salt) ranges, including bread, dips, ready meals and sausages. These should be avoided. **Read all labels carefully**



## Potassium

To reduce your potassium levels you should choose more low potassium foods. The following table should help you with your food choices.

	Best foods to choose	Foods to limit or avoid
<b>Potato</b>	Boiled potatoes, par boiled roast or chipped potatoes, mashed potatoes, bubble and squeak.	Jacket potato, chips, potato products e.g. potato waffles, sauté potatoes, hash browns, potato crisps, sweet potato, steamed yam, cassava, taro & instant mashed potato.
<b>Milk and milk products</b>	All types of pasteurised or UHT milks. Yoghurt*, custard*, milk pudding*. Ask your dietitian about non-dairy alternatives.	Evaporated and condensed milk.
<b>Starchy foods</b>	Cereals, bread, crumpets, pasta, rice, couscous, chapatti, noodles, plain crackers, Yorkshire puddings and Dumplings.	All Bran, Branflakes, muesli, cereals containing dried fruit, nuts or chocolate. Rye crispbread, Naan bread.
<b>Fruit</b> For more information speak to your Dietitian	Apples, pears, clementines, plums, satsumas, raspberries, blackberries, strawberries. Tinned fruit drained of juice.	Bananas, grapes, oranges, dried fruit, mango, pineapple, grapefruit, avocados, coconut.



	Best foods to choose	Foods to limit or avoid
<p><b>Vegetables</b></p> <p>For more information speak to your Dietitian</p>	<p>Carrots, frozen peas, cauliflower, green beans, mangetout, cabbage, bean sprouts, cucumber, lettuce, celery, onion, broccoli.</p> <p><b>All vegetables should be boiled and the water discarded.</b></p>	<p>Tomatoes, baked beans, fresh peas, mushrooms, parsnips, red kidney beans, spinach (saag), turnip, beetroot, aubergine.</p>
<p><b>Sweet snacks</b></p>	<p>Boiled sweets*, jelly babies*, fruit pastilles*, fruit gums*, marshmallows*, mints*, Turkish delight*, chewing gum, plain cake and biscuits.</p>	<p>Chocolate, fudge, toffee, liquorice, marzipan, carob, biscuit/cake containing dried fruit, nuts or chocolate.</p>
<p><b>Savoury snacks</b></p>	<p>Maize, corn and wheat snacks e.g Skips, Wotsits, Sunbites, Snack-a-jacks, Monster Munch. Popcorn. Rice cakes, bread sticks, Pretzels. Nik naks, Space Raiders, Frazzles, tortilla chips e.g. Doritos.</p>	<p>Potato crisps, nuts, seeds, peanut butter, Marmite, Twiglets.</p>



	Best foods to choose	Foods to limit or avoid
<b>Miscellaneous</b>	Use herbs/spices instead.	Soups, pickles, chutney, soy sauce. dried instant meals, Lo Salt/salt substitutes. Tomato Ketchup, brown sauce may be used in small quantities.
<b>Drinks</b>	Tea (all types), Camp coffee*, Squash/ cordial*, Lemonade*, Ginger beer/Ale*, Flavored water, Soda water, Bitter lemon*.	All fruit and vegetable juices, smoothies, fruit juice based squashes (Hi juice, Ribena etc), coconut water. Coffee and pre-made coffee drinks. Malted milk drinks e.g Ovaltine and Horlicks, Drinking chocolate, Cocoa.
<b>Alcoholic drinks (within fluid restriction)</b>	Bailey's, Martini/ Vermouth, Gin, Rum, Vodka, Whiskey, Bacardi, Brandy and liqueur (in small amounts).	Beer/Lager, Ale/ Stout/Bitter, Red/ White Wine, Prosecco, Sherry/ Port and Cider. If you are on a potassium restriction, you will need to swap them for your usual fruit & veg. eg. 1 apple for 1 glass of wine

\*If you have diabetes choose lower sugar options.

Additional information on fruit and vegetables is available from your Dietitian.



## Fruit options

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Fruits are a valuable source of fibre, vitamins and minerals. However, they also contain potassium and need to be eaten in moderation. Have up to ..... of the following fruit options daily:

- 1 Medium eating apple
- ½ **Small** banana
- 20 Blackberries
- 10 Strawberries
- 30 Blueberries
- 20 Raspberries
- 5 Cherries
- 2 Clementines
- 10 Gooseberries
- 10 Grapes
- 1 Kiwi fruit
- 10 Kumquats
- 2 Thin slices of mango
- 2 Satsumas
- 2 Tangerines
- 1 Small nectarine
- ½ Medium orange
- 1 Medium pear
- 1 Small peach
- 1 Slice of pineapple
- 2 Small plums
- 3 Tablespoons of stewed rhubarb
- ½ Sharon fruit/Persimmon
- ½ Small slice of cantaloupe melon
- 1 Slice of water melon
- 1 Small slice of honeydew melon



¼ Average can of any fruit (drain off juice/syrup)

4 Canned prunes (drain off juice/syrup)

¼ Average can of fruit pie filling

4 Tablespoons stewed apples

4 Tablespoons stewed blackberries

4 Tablespoons of stewed cranberries

**\*Some medications may interact with grapefruit and starfruit**





## Vegetables and salad options

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Vegetables and salads are valuable sources of fibre, vitamins and minerals. However, they also contain potassium and need to be eaten in moderation.

Have up to ..... of the following vegetable options daily:

### Boiled

- 6 Asparagus spears
- 1 Moderate helping of french beans/green beans
- 4 Whole runner beans
- 1 Small beetroot (whole)
- 1 Small helping of broccoli (4 florets)
- 4 Brussel sprouts
- 5 Tablespoons of chopped cabbage
- 6 Tablespoons of carrots
- 5 Large florets of cauliflower
- 1 Medium sized courgette
- 1 Moderate helping of cho-cho
- 1 Moderate helping of gourds (e.g. tinda, turia, ½ karela)
- ½ Large leek
- 15 Mangétout
- ½ Large marrow
- 6 Tablespoons of frozen mixed vegetables
- ½ Parsnip
- 2 Tablespoons of frozen peas
- 5 Tablespoons of pumpkin
- 1 Moderate helping of kale
- 1 Moderate helping of spring greens
- 6 Tablespoons of swede
- 1 Small corn on the cob



## Raw (not boiled)

- ¼ Aubergine
  - ½ Bag of beansprouts
  - ½ Tomato
  - 4 Cherry tomatoes
  - 1 Medium onion
  - 1 Whole green/red pepper
  - 1 Small helping of chicory
  - 8 Leaves of lettuce
  - 1 Small helping of water chestnuts
  - 1 Small helping of watercress
  - 1 Stick of celery
  - 10 Cocktail silverskin onions
  - 15 Slices of cucumber
  - 3 Tablespoons of canned sweetcorn (drained)
  - 2-3 Canned baby corn
  - 3 Spring onions
  - 4 Okra (lady finger)
  - 7 Pickled onions
  - 8 Red radishes
  - 8 Slices pickled beetroot
- Garlic in moderation
- Chilli in moderation



## Vegetable and salad options continued

In addition to your fruit and vegetable options you can have **one** daily helping (5oz/140g) of well boiled:

Potato (3 egg size)

Or plantain

Or sweet potato

Or yam

Or 3oz/85g parboiled roast potato

Or 2oz/60g parboiled chipped potato



## Phosphate

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Phosphate is a mineral found in the blood. The kidneys normally remove phosphate. If your kidneys are not working properly, they will not be able to remove the excess phosphate and the levels of phosphate in your blood might rise too high.

High bloods levels of phosphate can affect your heart and bones and may make your skin itch.

Phosphate is found in many foods. If your phosphate levels are continuously raised, it is a good idea to limit the following:

- Milk – Maximum of ½ pint or 300mls per day
- Yoghurts, custard, milk puddings, ice cream, should be counted as part of your milk allowance.
- Cheese – 4oz or 120g per week eg. two cheese sandwiches a week
- Eggs – max 4 per week

Some other high phosphate foods to avoid and suitable alternatives are listed in the table below.

Foods high in phosphate	Alternatives you can have
<b>Dairy:</b> milk, cheese, eggs, yoghurt, ice cream, custard, milk puddings, processed cheese (for example Dairylea, Laughing Cow and supermarket branded cheese spreads).	Soft/cream cheeses such as Philadelphia, cottage cheese or supermarket branded cream cheese. Single and double cream.
<b>Fish:</b> shell fish, kippers, fish with edible bones for example tinned sardines and mackerel. They can be eaten if the bones are removed.	White fish, fish fingers, tuna, salmon.



Foods high in phosphate	Alternatives you can have
<b>Breakfast cereals:</b> All cereals containing bran, nuts or chocolate.	All other cereals.
<b>Biscuits and cakes:</b> Flapjacks*, oatcakes, crumpets, chocolate biscuits*, scones, rye crispbread, pancakes, waffles, chocolate cake/muffins*.	Shortbread*, fresh cream cakes*, rich tea biscuits, doughnuts*, cream crackers, water biscuits, cream/jam biscuits*, digestives.
<b>Others:</b> Plain/white/milk chocolate*, dried instant snacks (such as instant noodles), marzipan, bombay mix, twiglets, seeds, nuts.	Boiled sweets*, mints*, chewing gum. Ice-lollies*, jellies*.
<b>Meat and meat alternatives:</b> Liver, kidney, liver paté, ham, quorn®, soya mince, quinoa, aduki beans.	Beef, pork, lamb, chicken, turkey, duck, butterbeans, chickpeas, hummous, lentils, tofu, mung beans.
<b>Drinks:</b> Dark coloured fizzy drinks eg. cola*, chocolate and malted drinks eg. Horlicks*, Ovaltine*, milkshakes*, lager and stouts.	Light coloured fizzy drinks eg. sprite*, lemonade*, squash/cordial*, tea, water including tonic and flavoured water, cider, sherry, spirits, wine.

\* High in sugar, choose lower sugar alternatives if you have diabetes.



## Phosphate binders

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You may be prescribed phosphate binding medication to help lower the amount of phosphate in your blood.

These medications work by attaching themselves to any phosphate in your gut, so that the phosphate is not absorbed and does not build up in your bloodstream.

If you are on iron tablets do not take these at the same time as your phosphate binder.

**REMEMBER to take your phosphate binders with you if you plan to eat away from home or when on dialysis.**

Medication	Method of administration	When to take
<b>Calcichew (calcium carbonate)</b>	Chew	Just before meals
<b>Adcal (calcium carbonate)</b>	Chew	Just before meals
<b>Phosex (calcium acetate)</b>	Swallow whole	With meals
<b>Renacet (950mg or 475mg) (calcium acetate)</b>	Swallow whole (the 950mg tablet can be broken in half)	With meals
<b>Osvaren (calcium acetate/ magnesium carbonate)</b>	Swallow whole or break in half	With meals
<b>Renagel (sevelamer hydrochloride)</b>	Swallow whole	During meals



<b>Renvela (sevelamer carbonate)</b> <b>Available in tablet or powder sachets</b>	Swallow tablet whole or dissolve powder sachet in 60mls of water and drink	With meals
<b>Fosrenol (lanthanum carbonate)</b> <b>Available in tablet or powder</b>	Chew tablets or mix powder thoroughly with a small amount of food	During or just after meals
<b>Velphoro (Sucroferric oxyhydroxide)</b>	Chew	with meals



## Milk Alternatives for People with Chronic Kidney Disease

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Dairy milk is a good source of protein but is high in potassium and phosphate which is why it is advised to limit the amount taken. Milk alternatives are becoming increasingly popular; however some of these are also high in potassium and phosphate and are lower in protein.

The following is a guide to help you make an appropriate choice for you whether you are allergic, intolerant, vegan or simply do not like the taste of cow's milk.

### What should I consider in choosing a milk alternative?

You need to consider potassium, phosphate, calcium and protein content when choosing a milk alternative. Unfortunately not all of these are on the nutritional label. The ingredient list often gives clues to help; it may state "fortified with calcium" which would be best avoided or have phosphate additives in the ingredient list such as dipotassium phosphate. It is also advisable to check the label even if you have been using the same product for years as companies do change the ingredients.





Milk alternative	Description	Advice
<b>Soya</b>	These can come in many different varieties: original, light, flavoured, fortified.	Best to avoid the calcium fortified varieties as calcium can be too high in kidney patients. Soya milk is similar to cow's milk for potassium and phosphate so should be limited to ½ pint. It is also the closest milk alternative in protein content to cow's milk.
<b>Rice drink/ milk</b>	Usually contains just water, rice, oil and salt.	Low in both potassium and phosphate but also very low in protein.
<b>Almond</b>	Made from roasted almonds and water. Despite being called almond milk, very little of it is almonds.	Low in potassium and phosphate but also much lower in protein compared to cow's milk.
<b>Oat milk</b>	Oats are blended with water.	Much lower in protein compared to Cow's milk.
<b>Coconut</b>	Made from pressed flesh of coconuts.	Very low in protein and potassium.
<b>Hazelnut</b>	Similar to almond milk, it is made from ground hazelnuts and water.	Very low in protein, phosphate and potassium.



<b>Hemp</b>	Made from ground hemp seeds.	Lower in protein than cow's milk and high in potassium.
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You will also need to take into account what you are using the milk alternative, for example you may not like coconut milk in your tea but may like it as a cold drink.

**Please speak with your dietitian for more information.**



## Salt

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If you have high blood pressure or you are on a fluid restriction, having less salt is very important. Even if you don't have a high blood pressure or following a fluid restrictions, we should all limit our salt intake.

- Try to avoid adding salt during cooking or at the table
- Salt substitutes e.g. Lo-Salt should **NOT** be used because they contain potassium
- The following foods are high in salt. Only eat them occasionally:
  - Processed meat e.g. sausages, burgers
  - Cured meat e.g. bacon, gammon, ham
  - Tinned meat e.g. luncheon meat, chopped pork
  - Processed cheese, cheese spread
  - Smoked fish
  - Food tinned in brine
  - Dried instant snacks e.g. instant noodles
  - Salty snacks and salty biscuits
  - Tinned and packet soup, Bovril, Marmite
- Hints for flavouring

Instead of salt try using herbs and spices to flavour your food.

Food	Suggested flavouring
Fish	Lemon, parsley, allspice, bay leaf, red cayenne pepper, tartare sauce, dill
Roast meat	Pork: cloves, apple Lamb: marjoram, rosemary Chicken: tarragon, dill Beef: mustard, horseradish
Stews	Basil, bay leaf, dill, garlic, bouquet garni, marjoram, oregano, sage, thyme, red cayenne pepper



Food	Suggested flavouring
<b>Rice</b>	Bay leaf, nutmeg, coriander, cardamom, peppercorns, turmeric
<b>Potatoes</b>	Parsley, bay leaf, nutmeg, chives, garlic, chopped spring onion, mint, dill
<b>Scrambled eggs</b>	Chilli, chives, red paprika, pepper
<b>Omelette</b>	Chives, chervil, tarragon, garlic
<b>All dishes</b>	Freshly ground black and white pepper



## Salt and food labelling

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### How much salt?

Adults should consume no more than 6g salt per day; that's around one full teaspoon.

### Salt and sodium

Salt is made up of sodium and chloride. It's the sodium in salt that can be bad for your health.

Sodium is usually listed in the nutritional information on food labels. Salt is also listed on some foods, but not all.

Salt = sodium x2.5

If you know how much sodium is in a food, you can work out roughly the amount of salt it contains by multiplying the sodium by 2.5. So if a portion of food contains 1.2g sodium then it contains about 3g salt.

### Food labels

Look at the figure for salt per 100g:

- High is more than 1.5g salt per 100g (or 0.6g sodium). May display a red traffic light
- Low is 0.3g salt or less per 100g (or 0.1g sodium). May display a green traffic light

**For a main meal you should aim for less than 0.8g of sodium per serving. (Or less than 2g salt).**

Use this as a guide when buying processed foods, to help you determine the lowest salt options.



## Fluid

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If you drink too much fluid you may find that your ankles swell, you become short of breath and your blood pressure is increased. Between dialysis you will have gained too much fluid weight. Too little fluid will make you dehydrated.

To help prevent these problems you will be advised on how much fluid to drink each day. Count all liquids e.g. tea, squash, water, fizzy drinks, milk.

Your daily fluid allowance is.....ml

Find out how much your usual cup holds.....ml

### A few examples:

1 teacup	180ml
1 mug	300ml
1 ice cube	25ml
1 measure spirits	25ml
1 tumbler	250ml
1 can of fizzy drink	330ml
1 small glass of wine	125ml

## Hints for fluid control

- Spread your allowance out through the whole day
- Eat a few canned pineapple or mandarin segments that have been chilled in the fridge if your potassium is well controlled
- Suck on cold fresh lemon or lime slices, they will help stimulate saliva
- Use sugar free chewing gum to moisten your mouth
- Try sucking ice cubes – they last longer than water. Try flavouring them with fruit squash
- Try sucking on boiled sweets, mints or Aquadrops
- Soups should be counted within your fluid restriction and may



be high in salt (as well as potassium)

- Remember that salty or spicy foods may make you thirsty
- Brush your teeth



## Eating on dialysis

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Before you eat on dialysis, check with the nurse first as this does not suit everyone and may make you feel ill.

### MYTH

High potassium foods may be eaten on dialysis as the potassium can be dialysed out whilst you are on the unit.

### FACT

**The potassium in foods eaten on dialysis does not have time to enter your bloodstream and be dialysed out. It is therefore not recommended that you take high potassium treats on dialysis.**

If you do eat whilst on dialysis please bring in your phosphate binders e.g. Calcichew, Phosex, Renagel or Fosrenol to take with your food.





## Eating out

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Everyone enjoys a meal out and this can still be the case for renal patients. A little planning can make all the difference and the following ideas will help you to have an enjoyable and healthy time.

- Take less fluid during the day if you wish to drink more with your meal
- Spicy and salty foods are likely to make you thirsty and encourage you to drink more, so should be avoided
- Cut down on high potassium foods earlier in the day to allow yourself more choice at the restaurant or take-away
- Try to balance the potassium content of your meal. For example, if having chips, which are high in potassium, avoid having mushrooms or tomatoes with them. If having a tomato rich meal, such as bolognaise, have pasta or rice with it, not potatoes
- Try to choose the lower potassium rice, pasta, garlic bread, chapatti, bread rather than chips and jacket potatoes
- It is safer to indulge in phosphate rich foods rather than those high in potassium
- **Remember – you will still need to take your phosphate binders with your meal so make sure you take them with you!**

## Alcohol

- Spirits tend to be lower in potassium than wine and beer
- Try them with mixers such as lemonade, soda water, ginger beer or lime cordial. Avoid fruit juices due to their high potassium content. Avoid cola due to phosphate
- If choosing beer limit your intake to half a pint to avoid excess fluid and potassium and phosphate
- White wine tends to be a little lower in potassium than red wine
- Remember to include all drinks in your fluid allowance

If you would like further information please speak to your dietitian.



## Here are a few food ideas to help you decide what to eat when eating out:

### Pub grub

- Most grilled, roast or fried meat, poultry and fish will be suitable
- Roast dinners with boiled or mashed potatoes, Yorkshire pudding and vegetables with mint or apple sauce are suitable. If choosing roast potatoes keep it to a small portion as they may not have been pre-boiled
- Avoid having mushroom or tomato sauces if having potatoes (especially chips)
- Avoid soup as a starter as this can be high in both salt and potassium and will need to be included as part of your fluid allowance
- Prawn cocktail, melon and pate make suitable starters

### Indian meals

- Try to avoid very spicy dishes as these are likely to make you thirsty
- Avoid dishes containing spinach (saag) as this is very high in potassium
- Choose balti, rogan josh, bhuna. Have with rice or chapattis. Avoid naan bread. Choose plain breads rather than Peshwari or Keema which are higher in potassium and salt
- Avoid Korma as this is often made with coconut milk, which is high in potassium
- Biryani are drier curries and may be useful in avoiding excess fluid

### Chinese

- Meat and poultry dishes such as sweet and sour, in lemon sauce and chow mein would be suitable. Eat with rice or noodles
- Avoid dishes containing mushrooms and nuts
- Lots of dishes contain monosodium glutamate which may make you very thirsty so cut down on fluid before your meal



## Italian

- Pasta is low in potassium and phosphate and a great choice. Enjoy with carbonara, bolognaise or other sauces. Try to avoid those with both tomatoes and mushrooms
- Pizza is suitable but try to avoid mushrooms as a topping. Instead, choose meat, poultry, onion, sweetcorn or pineapple
- Choose garlic bread as an accompaniment rather than chips

## Desserts

- Ice-cream, gateaux, meringue, cheesecake, apple pie or crumble are all suitable
- Avoid desserts containing chocolate, coffee, dried fruit or nuts

**If you would like further information please speak to your dietitian.**



# Diabetes

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## What is Diabetes?

It is a condition in which the amount of sugar in the blood is too high.

## Symptoms?

You may have been feeling extra tired and thirsty. You may have been losing weight.

## Treatment?

You should follow a healthy eating plan to control blood sugar levels. You may need tablets or insulin injections as well. Renal diabetic patients should have an annual diabetic review by either their GP or diabetes speciality doctor.

## What is a healthy eating plan for someone with kidney problems?

1. Make sure you eat regularly – have something at breakfast, lunch and evening meal. Snacks may be necessary, ask your dietitian.
2. Have a starchy carbohydrate food e.g. bread, potatoes, rice, pasta, cereals or chapattis, at each meal. Try to choose wholemeal varieties.
3. Include meat, chicken, fish, eggs, cheese or dahl at least twice every day.
4. Try to avoid sweet and sugary foods and drinks.
5. Include fruit and vegetables as advised by your dietitian.
6. Try to take some exercise that you enjoy every day, such as walking, gardening. Ask your doctor about what exercise is safe for you to do.



## Foods to enjoy if you have Diabetes

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The following may be enjoyed as a regular part of your food intake. Talk to your dietitian if you have any queries about altering your choice of foods in order to help control your diabetes.

<b>Starchy foods</b>	All types of bread, croissants, crumpets, pikelets, chapati, pitta bread Rice, pasta, noodles Plain breakfast cereals (avoid those with nuts, fruit, chocolate, honey or added sugar) Plain biscuits, crackers Potato – ensure potatoes are boiled before roasting, mashing Yam, sweet potato – prepare as potato
<b>Meat, fish, alternative</b>	Fresh and frozen meat e.g. beef, lamb, pork, poultry All fish, if tinned, chose those tinned in water/oil and avoid eating any bones Tinned salmon (in oil), fish fingers, fish cakes, fish in batter or breadcrumbs Cheese, cream cheese, cottage cheese Eggs Dahl/pulses e.g. lentils, chick peas Textured and vegetable protein (TVP), tofu
<b>Milk &amp; milk products</b>	Semi-skimmed or skimmed milk, diet/light yoghurt, reduced sugar milk pudding, e.g. rice pudding, sago, semolina, tapioca, custard, ice cream.
<b>Fats</b>	Margarines (preferably those high in polyunsaturates and monounsaturates) Vegetable oil e.g. corn oil, olive oil, sunflower oil.



<b>Vegetables</b>	Enjoy these as part of your diet but speak to your dietitian about specific portion sizes. All vegetables should be boiled where possible.
<b>Fruit</b>	Enjoy these as part of your diet but speak to your dietitian about portion sizes.
<b>Drinks</b>	Tea, sugar free squash, sugar free fizzy drinks. Count in fluid allowance.
<b>Miscellaneous</b>	Herbs, spices, pepper, mustard, vinegar. Reduced sugar jam and marmalade. Artificial sweeteners. Sugar free chewing gum. Maize or corn snacks e.g. Skips, Wotsits, rice cakes, Sunbites. Use sparingly: gravy powder or granules, oxo or stock cubes.



## About low blood glucose levels ('hypos')

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### A 'hypo' occurs when

Blood glucose levels fall below 4mmol/l or if you have symptoms of hypoglycemia (sweating, feeling anxious, tingling lips, going pale, hunger, trembling/shaking, palpitations).

### To prevent 'hypos' occurring

- Follow the advice given by your Dietitian/Diabetes team
- Do not miss meals or snacks
- Eat immediately or within 20-30 minutes of injecting your insulin depending on the type of insulin
- Eat extra 'starchy' food before exercising
- Always eat some 'starchy' food when drinking alcohol

### To treat a 'hypo'

**If you feel hypoglycaemic, immediately take rapid acting glucose (sugar) such as:**

- 60ml Glucojuice®
- 1/2 can (150ml) of full sugar pop
- 5-7 glucose or dextrose tablets
- 4-5 teaspoons of sugar in warm water
- 4 jelly babies

If you do not feel better or your blood glucose level is still less than 4mmol/l after 10-15 minutes, repeat above.

Once your blood sugar level is above 4mmol/l, and if your next meal is not yet due eat some longer acting carbohydrate such as:

- 3 Rich tea/2 digestives
- 300ml milk
- 1 slice of medium sliced bread
- Small bowl of cereal



**Or if your meal is due then have your meal instead.**

Having a snack or a meal following a hypo will help prevent you having another hypo later in the day.

**If you become unconscious, you will need emergency treatment**

**Dial 999 for an ambulance**

**Glucose treatments should NOT be put in your mouth**





## Poor appetite

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If you are eating less food it is very important to eat as nourishing a diet as possible to prevent weight loss and becoming unwell.

It is common for patients on dialysis to experience periods of poor appetite. If you are eating less than previous, dietary restrictions can be relaxed. Please discuss with your dietitian.

Try to include the following:

- Eat 3 small meals daily as well as 2-3 snacks
- Fats and sugars provide energy and help food taste good – use them generously
- Have a pudding once or twice a day, such as yoghurt, milk pudding, trifle, ice cream, cake, sponge pudding with custard or cream
- If you feel full easily try taking drinks after meals rather than before or with them

### Quick and nourishing snack ideas:

- **Sandwiches**
  - Filled with cold meat, tinned fish (in oil), cheese, egg
  - Trial different types of breads and rolls
- **Toast**
  - With scrambled egg, cheese or tinned fish (in oil)
- **Snacks**
  - Crackers or plain biscuits with butter and cheese
  - Toasted crumpets/plain teacakes with butter and jam/honey
  - Sausage roll
  - Full fat yoghurt and fruit
  - Breakfast cereal and whole milk
  - Jam doughnuts, egg custard, iced buns, jam tarts, cream cakes



- **Desserts**

- Yoghurt, tinned fruit (no juice) with cream, cake, ice cream, mousse, milk pudding, milk jelly, custard, pancakes

(Some of these do include sugar, if you have diabetes please discuss with your Dietitian).

## Light meals

- Eggs with toast
- Sausages with frozen peas and bread or tinned potatoes
- Oven ready fish/fish fingers with peas and fresh bread
- Macaroni cheese, cauliflower cheese
- Corned beef hash
- Tinned stew or casserole with boiled potatoes
- Boil in the bag fish and sauce with mashed potatoes



## Hints for enriching your diet

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- Use full fat milk or cream
- Add grated cheese/butter/cream/mayonnaise to savouries, e.g. mashed potatoes/vegetables/casseroles
- Add ice-cream/jam/honey/cream/custard/yoghurt/sugar to pies and puddings
- Fry foods e.g. meat/fish/eggs/sauté potatoes in oil

## Making meals easier

1. If you are finding cooking difficult or tiring do not be afraid to use convenience foods. Supermarkets and some large stores have a range of frozen or chilled ready meals. They may seem expensive but you will not have to prepare foods yourself and will save time, energy, food wastage and cooking fuel. Discuss with the dietitian which convenience foods are suitable.
2. You may also be entitled to have Meals-on-Wheels or frozen meals delivered. Ask your dietitian about this.
3. If you have dental problems or dentures that don't fit properly, contact your local dentist who may be able to visit you at home. Ask the dietitian for advice about a softer diet.

## Store cupboard ideas

- Tinned milk puddings and custard
- Tinned sponges
- Packets of Angel Delight
- Tinned corned beef, mince, stew, fish (in oil)
- Tinned fruit (drain off juice) and vegetables/potatoes (rinse well)
- Breakfast cereals
- Crackers, crispbreads, biscuits
- Pasta and rice



## Freezer ideas

- Frozen meats
- Frozen vegetables
- Ready meals (see dietitian)
- Fish portions, fish fingers
- Bread and rolls
- Ice-cream

## Supplement drinks

Ask your dietitian about these.



## Soft food

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If you are having difficulties chewing or swallowing, softer foods may be easier to manage.

Try the following:

- Use full fat milk on breakfast cereals
- Tinned or stewed fruit is softer than fresh
- Tinned or minced meats/fish tend to be softer
- Add a small amount of gravy or savoury sauce e.g. white/butter/cheese/parsley to main meals
- Mash potatoes with cream, butter or mayonnaise
- Cook pasta/rice well

NB: if you have a food processor or liquidiser, normal foods can be turned into a minced or pureed texture.

## Soft meal ideas

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### Breakfast:

- Porridge or Ready brek made with full fat milk and sugar/honey
- Weetabix and warm milk
- Thick and creamy yoghurt
- Scrambled egg with soft bread and butter

### Light meals:

- Cauliflower cheese (with soft bread and butter)
- Scrambled egg (with soft bread and butter)
- Melted cheese and ½ tomato (with soft bread and butter)
- Tinned meat/stew with mashed potato/rice/pasta e.g. corned beef hash, spaghetti bolognaise
- Grated cheese mixed with mashed potato



## Main meals:

- **Meats/poultry**

- Mince: chop up, cook until tender
- Add a little gravy or creamy sauce to soften

- **Fish**

- Fresh/frozen/tinned in oil
- Poach or steam to soften
- Add sauce, e.g. parsley/butter/white/cheese, to soften

- **Potatoes**

- Boil/mash
- Add cream/margarine/butter/cream cheese to soften

- **Pasta/rice**

- Cook well
- Add creamy sauce if you wish

- **Vegetables (from potassium diet sheet)**

- Cook well to soften
- Add butter/margarine

- **Eggs**

- Scrambled or poached

## Desserts:

- Full fat yoghurts, fromage frais, milk puddings, mousses, ice-cream, jelly, trifle, custard are all soft and easy to swallow. Add warm custard to cake or pies to soften.



## Further sources of information

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You should only follow dietary advice given to you by a Registered Dietitian who has experience in advising patients with kidney disease. In addition, the following websites and links provide additional information.

### General information on kidney disease

**NHS** – advice for people with kidney disease

[www.nhs.uk/Conditions/Kidney-disease-chronic](http://www.nhs.uk/Conditions/Kidney-disease-chronic)

**National Kidney Federation** - The largest kidney patient charity in the UK. Run by kidney patients, for kidney patients

[www.kidney.org.uk](http://www.kidney.org.uk)

**The Kidney Patient Guide** provides web-based patient information for kidney failure patients, their families, health professionals and others interested in kidney disease. The site includes information not only on physical aspects of kidney failure - how the kidneys function, what happens when they don't, and the treatments available - but also on wider issues such as emotional, social and financial implications

[www.kidneypatientguide.org.uk](http://www.kidneypatientguide.org.uk)

**Kidney Care UK** is a well established charity working to improve the quality of life for adults and children with kidney disease

[www.kidneycareuk.org](http://www.kidneycareuk.org)



## Cookbooks & recipes

**Renal Diet Cookbook:** The Low Sodium, Low Potassium, Healthy Kidney Cookbook. By Susan Zogheib

**Eating Well with Kidney Failure:** A Practical Guide and Cookbook written by Helena Jackson

**Truly Tasty:** Over 100 Special Recipes Created by Irelands Top Chefs for Adults Living with Kidney Disease. By Valerie Twomey

**Eating Well for Kidney Health:** Expert Guidance and Delicious Recipes. By Helena Jackson

### UK websites:

[www.kidney.org.uk/documentlibrary/food\\_with\\_thought.pdf](http://www.kidney.org.uk/documentlibrary/food_with_thought.pdf)

[www.guysandstthomas.nhs.uk/resources/patient-information/kidney/everyday-eating-recipe-book-for-kidney-patients.pdf](http://www.guysandstthomas.nhs.uk/resources/patient-information/kidney/everyday-eating-recipe-book-for-kidney-patients.pdf)

[www.nephrocare.com/patients-home/nutrition/good-food-recipe-library.html](http://www.nephrocare.com/patients-home/nutrition/good-food-recipe-library.html)

[www.kidneycareuk.org/about\\_kindey\\_health/Living\\_kidney\\_disease/lifestyle/](http://www.kidneycareuk.org/about_kindey_health/Living_kidney_disease/lifestyle/)

### American websites:

[www.davita.com/recipes](http://www.davita.com/recipes)

[www.kidney.org/sites/default/files/docs/kidney\\_cookbook\\_lr.pdf](http://www.kidney.org/sites/default/files/docs/kidney_cookbook_lr.pdf)





## Smart phone Apps

There are several apps that are available to help you monitor your diet. If you are interested in using any of these apps please discuss this with your renal dietitian first.

'Renalbuddy'

'My Food Coach from National Kidney Foundation'

'KidneyDiet'

'FoodSwitch UK'

## Fitness and activities

Keeping active is very important when you have kidney disease. The following websites are useful starting points. Remember to check with your doctor before starting any new activity or exercise regime:

[www.nhs.uk/livewell/fitness](http://www.nhs.uk/livewell/fitness)

You can search for local free activities on these webpages:

[www.beactivebirmingham.co.uk](http://www.beactivebirmingham.co.uk)

[www.parklives.com](http://www.parklives.com)

[www.walkingforhealth.org.uk](http://www.walkingforhealth.org.uk)



## Glossary of terms

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- CKD:** Chronic Kidney Disease. A condition which occurs when the kidneys can not do their job of cleaning the blood of toxins and waste products.
- Urea:** The main breakdown product of protein metabolism. Urea is excreted from the body via the urine. In CKD, the urea level will rise in your blood and cause symptoms such as itching and nausea.
- Creatinine:** Is a breakdown product of muscle, and is usually produced at a fairly constant rate by the body (depending on muscle mass), however in CKD this level will rise.
- Potassium:** A mineral which you get from your food. Usually excess amounts of it will be excreted by your kidneys into your urine. In CKD the ability to do this is reduced or even nonexistent as you may no longer pass urine. A high blood potassium level is controlled by making dietary changes to ensure the amount of potassium you consume is kept to a good level.
- Phosphate:** Another mineral found in your food. As it is not excreted in the urine due to CKD, the level can build up in your blood.
- Albumin:** A protein found in your blood and which is made by your liver. If you are told it is too low it may be because you have got an infection such as a chest infection.
- GFR:** Glomerular Filtration Rate. The rate at which substances are filtered from the blood by the kidneys.
- PTH:** Parathyroid Hormone. A hormone produced from a gland in your neck in response to changes in your calcium and phosphate levels.



**Calcium:** Another mineral which we get from our food but also from some of the medication you may be taking. When you have CKD your calcium level can go too high or too low, if this happens your Dr will most likely change certain medication.

**Cholesterol:** A fat-like substance found in the blood.









The Trust provides free monthly health talks on a variety of medical conditions and treatments. For more information visit [www.uhb.nhs.uk/health-talks.htm](http://www.uhb.nhs.uk/health-talks.htm)

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