

Dietary advice for people with Chronic Kidney Disease

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Introduction

Who is this leaflet for?

This leaflet has been designed for people living with chronic kidney disease (CKD); if you also have diabetes, then the following information is still relevant to you.

What is CKD?

CKD is a chronic condition in which your kidney function is reduced and can slowly decline. It is classified into stages. Stage 1 is the earliest stage and stage 5 is the most advanced. The stage of your CKD is mostly determined by your 'Estimated Glomerular Filtration Rate', also called eGFR, see the table below. When CKD progresses beyond stage 5, then this is known as kidney failure (also called renal failure), and dialysis or a kidney transplant will be needed to sustain life. If you would like further information you can read more information about CKD and eGFR at: <https://www.nhs.uk/conditions/kidney-disease>.

Stage of chronic kidney disease	eGFR	Description
1	90 or higher	Normal kidney function with other signs of kidney damage
2	89-60	Kidney damage with mild loss of kidney function
3a	59-45	Mild to moderate loss of kidney function
3b	44-30	Moderate to severe loss of kidney function
4	29-15	Severe loss of kidney function
5	Less than 15	Kidney failure

What do the kidneys do?

Kidneys do a lot of very important jobs, including controlling your blood pressure and fluid, and balancing vital minerals in the body. One of the kidneys main jobs is to remove waste products from the blood. Having CKD, may mean that your kidneys are unable to remove these waste products as well as they should. These waste products can start to build up in your blood and may cause unpleasant side effects such as tiredness. CKD can also cause other health problems such as heart disease and problems with your bones.

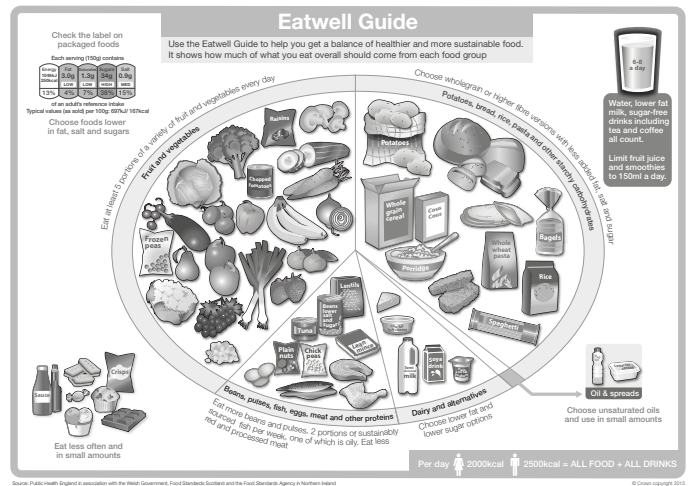
Within this leaflet you will find advice on:

1. Eating a healthy diet for CKD
2. Protein and CKD
3. Why and how to cut down on salt
4. Lowering phosphate, if needed
5. Lowering potassium, if needed
6. Your weight and appetite
7. Vitamin and mineral supplements
8. Useful resources

1. Eating a healthy diet for CKD

There are lots of different reasons for someone to lose kidney function, however, the risk of CKD progressing to kidney failure is closely linked to having high blood pressure, uncontrolled diabetes, obesity, smoking, and cardiovascular disease. Cardiovascular disease is a condition that affects the heart and blood vessels and is common in people with CKD. Managing these conditions well, may help slow down the progression of CKD. Eating a healthy well-balanced diet can help manage high blood pressure, diabetes and reduce the risk of developing type 2 diabetes and cardiovascular disease. It can also help with reaching and maintaining a healthy weight.

A healthy balanced diet for CKD is based on the NHS Eatwell Guide. The Eatwell Guide includes plenty of plant-based foods such as fruits, vegetables, beans, pulses, lentils and wholegrain starchy foods. The Eatwell Guide best explains what a healthy diet looks like. The picture below shows the proportions of foods needed over a period of a day or even a week, not necessarily at each meal time.



The 'Eatwell Guide' explained see also www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide

Download the booklet @
www.gov.uk/government/publications/the-eatwell-guide

Fruit and Vegetables

Eat a variety of vegetables and fruit every day, aiming for at least 5 portions every day, more if possible. Ideally, vegetables and fruit should make up a third of the food you eat every day. Fresh, frozen, tinned, dried, juice and smoothies all count but limit dried fruit to 30g a day a juice or smoothies to 150ml a day.

Note: it is advisable that you avoid star fruit. Star fruit has a toxin that can build-up in the body and become harmful to those with kidney disease.

Starchy carbohydrates

Eat a variety of starchy foods, aiming for a third of your daily diet from these foods. Ideally choose whole grain, high fibre varieties such as whole wheat pasta, brown rice, and wholemeal breads or chapatis. Or you could choose grains such as oats, barley, quinoa, buckwheat, bulgur wheat, millet, or whole wheat couscous. You could also eat potato, sweet potato, plantains or yams, but limit ultra-processed potatoes such as chips, potato waffles or croquets. For breakfast, porridge or cereals such as wheat biscuits, shredded wholegrains, or a no-added sugar muesli are healthy options

Protein (Beans, pulses, fish, eggs, meat and other protein)

Beans, peas and lentils are a good, cheap alternative to meat because they are naturally low in fat and high in fibre, protein, vitamins and minerals. Try using lentils, chickpeas, beans and peas as well as other vegetable-based sources of protein, such as tofu and mycoprotein (Quorn) in place of meat more often.

Aim for 2 portions of fish a week and include 1 oily fish per week, such as salmon and mackerel to get essential omega-3 fats. For vegetarians, use linseed, chia seed or walnuts daily, approximately 1 tablespoon a day for omega-3.

Nuts and seeds are also a source of healthy protein but choose plain, unsalted where possible and limit to a small handful per day (around 30g).

Other proteins include eggs with minimal fat and lean mince and meat (such as skinless chicken or turkey).

Limit red and processed meat to no more than 70g a day

Dairy or dairy alternatives

Include some low-fat dairy or dairy alternative milks, such as skimmed, 1% or semi-skimmed milk. For non-dairy alternatives try an unsweetened plant milk, such as almond, oat, soya, or rice milk.

Include low fat and lower sugar dairy yoghurt, or an alternative such as a soya, oat or almond yoghurt.

Choose low-fat soft cheese more often than hard cheese. When eating hard cheese use in small amounts, and consider a reduced fat option. Avoid ultraprocessed cheese, such as DairyLea, Laughing Cow or Primula.

Fats and spreads

For cooking choose a vegetable oil such as rapeseed or olive oil but only use small amounts. Limit palm oil and coconut oils, as these are high in saturated fats which are less healthy.

Foods high in sugar, fat and salt

Healthy diets limit processed foods that are high sugar, fat and salt such as cakes, pastries, biscuits, sweets, ice cream, chocolate, and crisps. That doesn't mean you can never have these foods, just only have them in small amounts and less frequently.

Fluids

Drink adequate amounts of fluid so that you stay hydrated. In most circumstances you will not need to drink excessive amounts, just enough to keep your urine a pale straw colour.

As your kidney function reduces, you may become less able to remove any excess fluid. If this happens, then your kidney team will advise you on the amount of fluid you can drink.

The type of fluid you drink is important. It is best to limit sugary drinks (particularly cola style drinks) and avoid adding sugar to your drinks. If you drink fruit juice or smoothies then limit to 150ml a day. Tea, herbal tea and coffee all contribute to fluid but it is advisable to limit caffeine to 300mg a day or consider decaffeinated drinks as caffeine can increase your blood pressure. 300mg is approximately 2-3 coffees depending on strength or 5-6 teas

Alcohol

Alcohol can still be consumed, however, there is no safe level of drinking. If you do consume alcohol, then to lower your risk of harm you should keep within the government guidance of no more than 14 units per week.

2. Protein and CKD

Protein is an important nutrient needed for the repair of body tissues and to keep your immune system healthy, as well as other important roles.

- Protein can be found in both **animal-based and plant-based foods**. Animal protein is found in meat, poultry, fish, eggs, dairy products (milk, yoghurt, and cheese). Plant-based protein is present in beans, pulses, lentils, nuts, seeds, and vegetarian alternatives to meat such as Quorn, tofu, and soya products. Plant proteins contain less protein than animal sources.
- Although the amount of protein a person needs will vary between individuals, most adults with CKD will need approximately 45g (for a woman) and 56g (for a man) each day. This is based on body weights of 60-75kg respectively. It is thought that the average amount of protein normally eaten each day is approximately 67-76g which is too much.

Reducing your protein intake may have the following benefits:

- Reduce any nausea (feelings of sickness)
- Reduce tiredness
- Reduce metallic taste or taste changes if you have these
- Possibly slow down the rate at which your kidney disease progresses
- Possibly delay the need for dialysis

It is still important to include protein foods in your diet once or twice per day but you should have fairly small portions. It often happens that the appetite for protein foods reduces naturally as kidney function declines.

Practical tips to reducing your protein:

Here are some practical ways to reduce the amount of protein you are eating. You may wish to discuss these suggestions with your dietitian.

Use less of these foods	Alternatives to high protein foods
Mince meat dishes	<ul style="list-style-type: none"> ■ Use Quorn, soya mince or lentils in place of meat ■ Reduce the amount of mince used in dishes such as Bolognese, cottage pie and chilli and replace with some dried or tinned lentils (e.g. half meat and half lentils).
Chicken dishes	<ul style="list-style-type: none"> ■ Use Quorn pieces in place of chicken for example in curries or fajitas ■ Reduce the amount of chicken in recipes such as curries and replace with a drained tin of chick peas ■ Use pulses instead of chicken in meals e.g. Use lentils, chick peas to replace the chicken in recipes such as pies, casseroles, and curries.
Cow's milk on cereal or in porridge, custard or cheese sauces	<ul style="list-style-type: none"> ■ Use organic (unfortified) rice, almond or oat milk

Hard cheese	<ul style="list-style-type: none"> ■ Use a soft white cream cheese or cottage cheese more often than hard cheese
Sandwiches with meat, fish or egg filling	<ul style="list-style-type: none"> ■ Hummus with pittas and salad ■ Bean and salad wraps ■ Vegetable and/or lentil soups and a roll ■ Use only a small amount of meat, fish or egg, such as 50-75g
Dairy or soya yoghurts	<ul style="list-style-type: none"> ■ Oat or almond based yoghurts
Ready meals with 20g of protein or more per portion.	<ul style="list-style-type: none"> ■ Choose ready meals with less than 20g of protein per portion

If you would like more information about lowering your protein then please ask for individualised advice from your kidney dietitian.

3. Why and how to cut down on salt

Limiting salt and salty foods may help to lower your blood pressure and slow down the progression of your kidney disease. Eating less salt can also help if you need to reduce the amount of fluid you drink, this is because salty foods can make you thirsty. It is best to eat no more than 5g (one teaspoon) of salt a day; this includes salt already present in foods.

Tips to reducing salt in your diet include:

- Limit processed, convenience, and take away foods
- Limit tinned soups, cooking sauces and salty condiments
- Cook meals from scratch where possible
- Reduce or avoid adding salt to home cooking or at the table, this includes all types of salt, eg. rock, sea, Himalayan pink, garlic and kosher.
- Where recipes require stock or sauces, choose zero salt, low salt or the reduced salt alternatives that are widely available.
- Add flavour to food using a variety of spices, herbs (dried and fresh), lemon or lime juice. Be careful with seasoning mixes as these can contain a lot of salt.

- Give your taste buds time to adapt to less salt, this may take 4-6 weeks.
- Check and compare food packaging and labels to find those with the lowest amount of added salt.
- Cooking from scratch where possible can help to lower your intake of phosphate additives.

Step 2 Limit foods and drinks high in phosphate, such as:

- Coca cola.
- Condensed, evaporated and dried milk.
- Chocolate of all kinds and foods containing it.
- Toffee and fudge.
- Dried milk and foods containing it (instant desserts, coffees, hot chocolates, custards).

Step 3 If your phosphate remains high, limit foods and drinks naturally high in phosphate:

- Cow's milk (all kinds) and yogurt are high in phosphate so limit to 300ml (½ pint) daily, or 150ml plus a small carton of yoghurt. This includes skimmed, semi-skimmed and full cream varieties.
- Unfortified (organic) rice and soya milks are lower in phosphate and up to 1 pint per day can be used to replace (300ml) ½ pint of cow's milk.
- Unfortified (organic) almond milk, oat, coconut milk or cashew milk are also lower in phosphate and up to ¾ pint per day can be used to replace (300 ml) ½ pint of cow's milk.
- Limit hard cheese to 100g (4 oz) a week. Consider having cottage cheese and cream cheese (e.g. Philadelphia) which are lower in phosphate.
- Limit eggs to 6 per week.
- Offal and foods containing offal (liver, heart, brain and faggots).
- Game (goose, pheasant, venison).
- Shellfish, roe, crab, whitebait, sprats.
- Oily fish with edible bones (such as tinned sardines, pilchards, etc).

If your blood phosphate level remains high despite dietary changes, then you may need to take a medication called a phosphate binder, your kidney dietitian can discuss the various medication options available.

Note: there are several reduced sodium salts, such as 'LoSalt', and reduced salt sauces and stocks available in supermarkets. However, some of these products contain an additive called '**potassium chloride**'; these should be avoided if you have been told to limit your potassium intake (see section 5 of this booklet for further information).

4. Reducing high phosphate foods, if needed

What is phosphate?

Phosphate is a mineral found naturally in protein and wholegrain foods. It is also added to many processed foods as an additive. Phosphate is used, along with calcium, to maintain healthy bones. Our kidneys help to manage the phosphate balance in our body. As your kidney function declines phosphate may start to build up and this is harmful to your bones and blood vessels.

It can be beneficial to avoid foods containing phosphate additives, and/or reduce high phosphate foods in your diet.

Steps to reduce your phosphate, if needed:

Step1 Limit processed foods with phosphate additives:

- Limit processed food with phosphate additives.
 - Check the ingredients list; additives will either be shown as the chemical name or as an E-number, or sometimes both. Look for '**phosph**' in the word, for example Phosphoric acid or Sodium Hydrogen Phosphate. The E-numbers for the main phosphate additives are **E338- E341, E343, E450- E452**.
 - Phosphate additives are commonly found in processed meats, ice cream, pizza, battered fish, fish fingers, processed cheese spreads, cola style drinks, cakes, sweets, pancake mixes, and instant soups to name just a few.

5. Lowering potassium, if needed

What is potassium?

Potassium is a mineral naturally present in many foods, as well as an additive added to processed foods. The body needs some potassium for normal day to day function. Our kidneys help to manage the potassium balance in our body, but as kidney function declines potassium may start to build up and too much potassium in the blood can be dangerous because it interferes with the working of muscles, including your heart. **Please note, there is no benefit to lowering the potassium in your diet unless you have been informed to do so by a health professional, as it may restrict some healthy foods.**

Steps to reduce your potassium, if needed:

Step 1: Healthy bowels

- Regular bowel movements can help prevent potassium building up in the blood. If you are struggling with constipation, you may benefit from eating more fibre or discussing a fibre supplement with your dietitian. Fibre is found in fruit, vegetables, wholegrains, beans, pulses, lentils, nuts and seeds. Some people find a tablespoon (15g) of linseed a day helpful in relieving constipation.

Step 2 Blood sugar control (for those with diabetes)

- If you have diabetes and your blood sugars are regularly high, then this is linked with increased levels of potassium in the blood. If you have high blood sugar levels, seek help from your dietitian or diabetes team.

Step 3 Potassium additives

- Many foods now have potassium added to them. These include ready meals, crisps, reduced salt sauces, tinned soups, stocks, and condiments. Try to avoid or limit your intake of these. To identify foods containing potassium additives, look for '**potassium**' in the ingredients list. Cooking from scratch can help to lower your intake of potassium additives.

Step 4 Reduce less healthy foods high in potassium

- If you regularly eat or drink the following foods, then you may need to cut back: coffee, fruit juice (except cranberry juice up to 150ml per day), All Bran (this is high in salt), chocolate, and dried fruit (high in sugar).

Step 5 Adjust cooking methods and limit healthy foods high in potassium

- If your potassium remains high, despite making the above changes, then you will need to boil all potatoes and vegetables in a good quantity of water to help reduce their potassium content (potassium is water soluble). Where possible, par-boil potatoes before roasting or frying. After boiling, discard the cooking water. Do not use to make gravy or stock as this contains the potassium which has been removed.
- You may need to limit nuts
- You may need to limit bananas and avocados.

Note: There are other potassium containing additives (in addition to potassium chloride) – please contact your kidney dietitian team if you are wanting further information regarding potassium additives.

If after making the above changes you still have a high potassium level in your blood, then you should receive personalised dietary advice from a kidney dietitian.

6. Your weight and appetite

Your weight: If you are an individual with a higher weight or living with obesity, then reaching and maintaining a healthier weight may delay the progression of your kidney disease. Incorporating a varied and balanced diet (as described above) and participating in exercise to tolerance, aiming to lose 0.5-1kg (1-2lb) a week is the recommended approach. Your dietitian can provide advice on health promoting behaviours if needed.

If you have a poor appetite: If you notice your appetite has reduced, you have nausea, vomiting or taste changes, or you have lost

weight unintentionally, then you may need some advice from a kidney dietitian. Do not buy any nutritional supplements, 'protein shakes', build-up drinks or slimming aid products from chemists or supermarkets without checking on their suitability with your dietitian.

7. Vitamin and mineral supplements

Unless advised otherwise, there are no specific vitamin and mineral supplements required for CKD. If you wish to take a supplement or herbal remedy, then you should first discuss this with your kidney team or GP.

8. Useful resources



Kidney Kitchen: See Kidney Care UK, Kidney Kitchen for a range of suitable recipes supported by instructional videos
www.kidneycareuk.org/about-kidney-health/living-kidney-disease/kidney-kitchen



Kidney Beam: See Kidney Beam for a range of exercise classes designed for those with CKD, where you'll find exercises suitable for a range of abilities.
<https://beamfeelgood.com/kidnedisease>

Written information cannot replace personalised recommendations. For further advice please seek a dietetic referral from your consultant or GP.

"We would really appreciate it if you could provide anonymous feedback on this information leaflet by visiting the following website <https://www.smartsurvey.co.uk/s/LNTWXR/>. This website can also be accessed via this QR code:"



Notes

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