

What I tell my patients about renal diets

What do patients need to know about food and diet when they are progressing through the various stages of renal failure? Asking people to change the eating habits of a lifetime is far from easy. It is hard to learn new behaviour and habits around food, especially when food plays such an integral role in our social and family life and one cannot 'give up' eating in the same way as one can potentially give up smoking or alcohol.

Renal patients need a well-balanced diet that can meet their requirements for energy, protein, vitamins, trace elements and minerals.

Most renal patients can eat anything and everything, they just have to control the quantities of certain foods. They should not need lists of foods to avoid. Although many patients say they prefer to work in that way, it gives an unnecessarily restrictive impression of renal diets.

Dietitians cannot assume they are starting with a blank sheet of paper when we begin to explain the impact of renal failure on dietary intake. Many patients will have had previous dietary advice, particularly if they are diabetic, have high blood pressure, raised cholesterol or if they are overweight. Much of the advice they are given may appear to contradict what they have been told, and what they have come to understand as healthy eating.

Patients are more likely to follow advice if they understand the reasons for making the changes suggested. Straightforward ways of conveying quite complex information need to be practised.

It can be helpful to reassure patients that the dietary changes are going to help control the consequences of their renal failure. Having eaten bananas or other high potassium foods in the past will not have caused their kidney damage.

What a pity that the main nutrients that patients have to learn to control all begin with 'P'. The following pages deal with each of these in turn and there is a fun quiz, right, for you to attempt. It will help you to learn about the potassium content in foods and drinks ■

Quiz: The rough guide to a potassium-conscious evening out

For the first two questions, select the drink that you think contains the lowest potassium content

1. (a) Champagne (b) Dry white wine (c) Fruity red wine
2. (a) Bitter (b) Stout (c) Lager

3. Rank the following nibbles from lowest to highest in terms of potassium content

- (a) Peanuts (b) Crisps (c) Olives (d) Pretzels

4. Now rank the nibbles from lowest to highest in terms of salt content

- (a) Peanuts (b) Crisps (c) Olives (d) Pretzels

5. State whether you think the drinks listed below are low or high in potassium

- (a) Fizzy orange (b) Pineapple juice (c) Cola
(d) Apple juice (e) Squash

6. Which of the following drinks is likely to be the highest in potassium content?

- Gin and tonic Alcopop Cocktail

7. How many units of alcohol are there in these servings of the following alcoholic drinks?

- (a) 125 ml champagne 1, 2, 3 or 4
(b) 250 ml wine 1, 2, 3 or 4
(c) One pint of beer 1, 2, 3 or 4
(d) Half a pint of cider 1, 2, 3 or 4
(e) One shot of spirits 1, 2, 3 or 4
(f) Alcopops 1, 2, 3 or 4
(g) One 500 ml can of extra strong lager 1, 2, 3 or 4

If you can still think straight after all those units, you might also like to calculate the effect it has all had on your waistline. One unit of alcohol equals 8 g of alcohol. One gram of alcohol equals seven calories, so therefore one unit equals 56 calories. So, how many calories do you *really* get from your drinks?

Quiz answers:

1. (a) 2. (c) 3. (c), (d), (a), (b) 4. (b), (a), (d), (c)
5. (a)=low (b)=high (c)=low (d)=highest (e)=low
6. Gin and tonic and alcopops are generally OK since they are all colour and flavour. With cocktails, however, you should look carefully at the ingredients.
7. (a)=1, (b)=3, (c)=2, (d)=3, (e)=1, (f)=2 and (g)=4

Debbie Sutton
BSc(Hons) Renal
Research Dietitian,
Portsmouth
Hospital NHS
Trust, Portsmouth



Frances Przygodzka BSc
Renal Dietitian,
Department of
Dietetics and
Nutrition,
Nottingham
University
Hospitals,
Nottingham

What I tell my patients about potassium

Potassium is a mineral that is vital to all cells in our body, in particular to those in our heart and our nerves. The kidneys control the level of potassium in the blood and will excrete any excess. As the function of the kidney deteriorates, the level of potassium in the blood can rise. High levels, known as hyperkalaemia, can be dangerous, causing abnormal heart rhythms and cardiac arrest.

High blood potassium can be caused by eating lots of foods containing high amounts of potassium but other causes include a drug used to control high blood pressure, known as an angiotensin-converting enzyme (ACE) inhibitor, also constipation, blood transfusions, muscle breakdown or poorly controlled diabetes. Even a delay in getting your blood sample to the laboratories can cause your potassium result to be falsely high.

Monitoring potassium in your blood

As the function of your kidneys deteriorates, your blood results will be monitored closely when you attend the nephrology clinic. Your normal nutritional intake will be assessed by a renal dietitian who will know the results of your blood tests. If your potassium starts to rise you will be advised to restrict your intake of foods containing high amounts of potassium. Dangerously high blood potassium needs immediate medical treatment. If blood levels are very high and kidney function has deteriorated, then dialysis may be necessary.

Potassium in your diet

Dietitians are able to advise you how to avoid and reduce your dietary intake of foods that are high in potassium. They will always try to tailor the advice to your way of life in order not to restrict your nutritional intake too much. They will also consider any other dietary restrictions you may have.

Certain fruit and vegetables contain high levels of potassium but as these are part of a healthy diet

it is important that patients are aware that cooking methods are important. Potassium leaches out of vegetables into the cooking water, so it is important that vegetables are boiled. Potatoes need to be parboiled before roasting or adding to curries or stews. All water from boiled vegetables must be thrown away and not used to make gravy. Raw vegetables can only be eaten in small quantities, especially tomatoes.

Fruit needs to be limited to two-to-four portions per day, depending on your blood results. Some large fruit, such as banana and mango, may need to be avoided completely or eaten in very small quantities. Tinned fruit can be eaten but it is better to throw away the juice and only eat the drained fruit. The drying process concentrates the amount of potassium in a food and, therefore, dried fruits, such as sultanas, prunes and figs, need to be restricted. Fruit juice made from fruit concentrate also contains a lot of potassium.

Dietitians will also assess patients' nutritional intake from snacks and drinks. Chocolate, liquorice, crisps, nuts, coffee and milk will add to the total amount of potassium in an average diet. Smaller amounts of these foods in your daily intake may have to be advised.

Food labelling

The manufacturers are not obliged to list the amount of potassium on the product label, making the selection of convenience foods a little difficult. Manufacturers do have to list the ingredients in the order of the amount in the finished product, so you should avoid manufactured foods where ingredients that you know are high in potassium come high in the list of ingredients.

There are a few salt substitutes on the market. These should be avoided as about half the sodium salt has been replaced with a potassium salt. Some products have these salt substitutes added to them, and these products need to be avoided.

Foods low in potassium

There are many foods that are low in potassium and are essential to a healthy diet. We encourage bread, meats, most fish, rice and pasta freely. Fats, oils, sweet products and plainer cakes and biscuits will be included in varying amounts depending on other medical conditions. We may suggest that tomato-based meat dishes are served with rice or pasta rather than potato. It is also important to understand that your potassium intake does not need to be restricted until you are advised to do so by your doctor or dietitian ■

Key points

- Potassium is vital to our heart and our nerves.
- Foods that are low in potassium include bread, meats, most fish, rice and pasta.

What I tell my patients about phosphate

Phosphate is an important nutrient that comes from the food we eat. It is used in the body along with calcium to give strength to bones and teeth. Phosphate is also necessary to provide energy for most cell functions in the body. When our kidneys are working well, their role is to remove any excess phosphate from the blood. When our kidney function deteriorates, they can no longer do this efficiently. At this stage, phosphate builds up in the blood. If phosphate stays high in the long term it has many detrimental consequences. Renal bone disease, caused by high phosphate, high parathyroid hormones (PTH) and low vitamin D levels, can result in bone fractures later in life. High phosphate is also associated with calcium build-up in the blood vessels, causing damage to the heart. This can result in cardiovascular disease. Some experts also believe that eating less phosphate can slow down the rate of decline in your kidney function.

In the short term you are unlikely to notice any symptoms of raised phosphate, although some people do experience itching. The benefits of controlling phosphate will be felt in the long term. You can help your kidneys control blood phosphate levels by reducing the amount of phosphate in your diet and ensuring that you take your phosphate binders correctly.

Phosphate in your diet

If your phosphate is high, you may be referred to the dietitian. The dietitian will normally ask you about your eating habits. Dietitians call this a diet history and use it to assess whether your diet provides all the nutrition your body requires, in addition to working out where any excess phosphate (in this case) is coming from.

Dietitians attempt to inform you which foods are high in phosphate and try to suggest alternatives to these without making unnecessary changes from your diet. This way you receive tailor-made advice that is specific to you. Often, people worry that the dietitian will tell them off for eating the 'wrong food'; however the more information you provide your dietitian, the more accurate the advice you will receive.

Phosphate is present in a wide variety of foods. Although low phosphate advice will be different for everybody, there are some general rules of thumb that everybody can follow.

- Cheese is rich in phosphate, particularly hard cheeses (for example, Cheddar, Edam, Gouda and Parmesan) and processed cheese such as cheese spread. Try cottage cheese, cream cheese or feta cheese instead, which contain up to half as much phosphate.
- Liver, pâté, highly processed (tinned) meats and wild fowl should be largely avoided. All other meat is fine in moderation.
- Stick to white fish, as oily fish and shellfish are much higher in phosphate. Anchovies, herring, kippers, sardines, crab, mussels and prawns are particularly rich in phosphate.
- Peanut butter and nuts (brazil nuts, almonds, pine nuts and peanuts) are high in phosphate. Chestnuts and coconut are not high in phosphate and can be used as alternatives.
- Wholegrain breakfast cereals are high in phosphate. All other breakfast cereals, including porridge, are low in phosphate.



DAVID MUNN/SCIENCE PHOTO LIBRARY

Feta cheese is a good alternative to hard cheeses, which are rich in phosphate

Phosphate binders

If your phosphate is too high (as judged by your doctor) you will be started on phosphate binders. This medication binds with the phosphate from food before the body has a chance to digest it and it is removed in the stool.

In order for your phosphate binders to work they must be eaten with meals and snacks. If this medication is taken without food it has no role. The way in which you distribute your binders is particularly important. Most people have a smaller meal at breakfast than their main meal and the tablets should be distributed accordingly. Your dietitian can advise you on how to distribute your binders. If you do not tolerate one type of binder, there are others that you can try ■

Key points

- Phosphate is used in the body to give strength to bones and teeth.
- In order for phosphate binders to work they must be eaten with meals and snacks.

Mhairi Sigrist PhD
Renal Research
Dietitian, Derby
City General
Hospital



Diane Green BSc
Dietetic Manager,
Salford Royal
Hospital, Salford

What I tell my patients about protein

Protein helps with growth and the maintenance of body tissue and prevents loss of muscle mass. It helps to fight infection, heal wounds and provides a source of energy to the body.

What are the sources of protein?

High-quality sources of protein include lean meat, poultry, fish and eggs. Lower-quality sources of protein include grains, pulses and vegetables, which are not as well used by the body but are still an important part of the diet.

Protein and renal patients

Most people with severe kidney failure reach a point where their kidneys can no longer effectively remove toxins from the body. The person will then be suffering from 'uraemia' and considered 'uraemic'. Eating a low-protein diet can help alleviate some of the symptoms of uraemia. Regular monitoring and supervision is needed to ensure that uraemic symptoms are controlled but bodyweight and good nutrition are maintained. However, conversely, once dialysis is initiated, dietitians educate patients on ways to increase their protein intake.

Patients receiving haemodialysis (HD) should take in about 1.2 g of protein per kilogram of their ideal bodyweight. Of that, 60% or more should come from high-quality animal sources. This means a patient who weighs 65 kg should consume 78 g (65 x 1.2) of protein daily. Patients who are overweight should have their requirements calculated for their ideal weight. Every patient's needs are different, however. Peritoneal dialysis (PD) patients need to follow a diet higher in protein (1.2–1.5 g protein/kg base weight) than those on HD, as protein is lost through the peritoneal membrane with every dialysis exchange.

Key points

- High quality sources of protein include lean meat, poultry, fish and eggs.
- Though the renal diet may seem restrictive at times, there is much to be enjoyed in the way of protein.

Consequences of low protein

Adequate protein intake is essential in the maintenance of good health. Lacking sufficient dietary protein, patients with chronic kidney disease or undergoing dialysis may become weak and may lose their ability to fight infections effectively. Unfortunately, there is an association between malnutrition and an increased risk of illness in HD and PD patients. Some experts believe this risk is caused by a loss of amino acids, which are the building blocks of protein, during the actual dialysis treatments.

Meeting protein needs through diet

Dialysis patients sometimes complain of loss of appetite, particularly on the days of the week that they receive their treatments. This may lead to an inadequate intake of protein. Patients are encouraged to discuss this with their dietitian. A poor protein intake may be revealed by a change in a patient's appearance, weight or blood results.

Dietitians should be trained to look out for patients who keep having their target weight adjusted downwards, as this can indicate muscle wasting. Albumin, creatinine and pre- and post-blood urea (protein indicators) are assessed monthly to see how patients are doing.

If a patient cannot meet the recommended protein intake from food alone, dietitians will find alternative solutions. Protein powders are one option, as are oral supplements. There are supplements designed specifically for the dialysis patient containing only necessary nutrients.

What can I eat?

In terms of protein there are many choices. If you are supposed to be consuming 70 g of protein per day, then one ounce of meat provides roughly six grams of protein. Patients should try to have protein with each meal, every day.

Try to avoid processed meats, as they are often higher in sodium than fresh meats. Choose lean cuts of fresh beef, pork, lamb and poultry. The phosphorus content can be high in certain types of fish, so try eating cod, haddock, salmon or trout.

For vegetarians, adhering to a renal diet can be difficult but protein can be obtained from soya protein and dairy products. Though the renal diet can seem very restrictive at times, there is much to be enjoyed in the way of protein ■



What I tell my patients about ... is a patient information service specifically designed for renal units to use with their patients. You can now view this, and all of the previous *What I tell my patients about ...* articles online and download them free of charge via www.bjrm.co.uk

Supported by Shire