The Leeds Teaching Hospitals NHS Trust

A guide for people with chronic kidney disease who follow a vegetarian or vegan diet

Adult Therapies

This booklet provides information on how to achieve a balanced diet when you are following a plant based diet and have kidney disease.

What is protein?

Protein is a nutrient which plays an important role in the growth and repair of the body. Some proteins are made by the body and others are provided through food. Protein is therefore an essential part of our diet and it is important to eat a variety of protein rich foods.

Vegetarian and vegan sources of protein

It is important to include a variety of protein foods in the diet and there are many vegetarian and vegan protein rich food options available, such as:

- Dairy for vegetarians (e.g. milk, cheese, yoghurts, milky puddings)
- Dairy free milks (soya milk is a good source of protein. Other alternative milks such as oat, rice, almond and coconut milk)
- Meat free protein alternatives (e.g. mince , burgers , meat free fillets)
- Eggs
- Soya products (e.g. tofu, soya yoghurts and desserts)
- Quinoa

- Beans and pulses (e.g. butter beans, chickpeas and lentils)
- Nuts, seeds and their butters (e.g. cashew, tahini, peanut, almond and brazil)
- Bread and pasta contain some protein but in smaller amounts

How much protein do I need?

People with kidney disease, who are not receiving dialysis, may need to reduce the amount of protein they eat.This is because the kidney plays an important role in the removal of waste products which are formed during the breakdown of protein. As kidney function declines waste products can accumulate. This might make a person feel unwell with symptoms such as nausea and vomiting, taste changes and a loss of appetite.

People who receive haemodialysis or peritioneal dialysis have higher protein requirements. This is due to a small amount of protein being lost during the treatment and therefore they may need to eat more protein rich foods to replace this.

Your dietitian can advise on how how much protein you need.

You should aim to have		protein per day

A guide to meeting your protein needs

The following lists show the amount of protein in common vegetarian and vegan foods:

Dairy products and dairy free alternatives

Protein content per suggested serving

Low (0-3g)
Coconut, almond, oat and rice milk (⅓ pint or 200ml)
Vegan cheese (30g or 1oz)
Coconut yoghurt (120g or 4oz)
Cream cheese (30g or 1oz)

Medium (3-10g)
Cow's milk (⅓ pint or 200ml)
Soya milk (⅓ pint or 200ml)
Plain yoghurt (120g or 4oz)
Soya yoghurt/dessert (120g or 4oz)
Milk pudding (210g or 7oz)
Hard cheese (30g or 1oz)

High (above 10g)
Quark (100g or 3.5oz)
Cottage cheese (100g or 3.5oz)

Pulses, eggs, nuts and seeds

Protein content per suggested serving

Low (0-3g)
Brazil nut/pine nut/pecans (30g or 1oz)

Medium (3-10g)
Cashew/peanuts/pistachio nuts (30g or 1oz)
Nut butter (30g or 2 tablespoons)
Hemp/flax/chia seed (30g or 1oz)
Baked beans (½ large tin - 210g or 7oz)
Pulses e.g. chickpeas, kidney/cannellini beans (¼ large tin - 90g or 3oz)
Lentils (3 tablespoons cooked - 120g or 4oz)
Hummus (½ an average tub - 90g or 3oz)
Nut Roast (100g or one serving suggestion)
Falafels (4 balls -70g or 2.5oz)
Quinoa (80g or 3oz)
Egg (1 medium)

High (above 10g)
Edamame beans (80g or 3oz)

Meat free alternatives

Protein content per suggested serving

Low (0-3g)
Meat free ham slices (Quorn, soya or vegetable protein - ¼ of a 100g pack or 2 slices)

Medium (3-10g)
Meat free chicken slices (Quorn or soya - ¼ of a 100g pack or 2 slices)
Savoury eggs (Quorn or soya - 2 or 3 eggs)
Meat free sausage roll (Quorn, soya, vegetable or wheat protein - 1 or 2 rolls)
Meat free nuggets (Quorn or soya - 4 nuggets)
Meat free bacon rashers (Quorn or soya - 2 rashers)
Meat free chicken fillet (Quorn, soya or wheat protein - 1 fillet)
Meat free sausages (Quorn, soya or vegetable protein - 2 sausages)
Fish free fillet (Quorn, soya or vegetable protein - 1 fillet)
Tofu (70g or 2.5oz)
Vegetable based burger or sausages (1 burger or 2 sausages)
Vegetarian/vegan ready meal*

** The amount of protein in vegetarian and vegan ready meals can vary so you may want to check the label*

Meat free alternatives

Protein content per suggested serving

High (above 10g)	
Quarter pounder burger (Quorn or soya - 1 burger)	
Meat free mince (Quorn or soya - 100g or 3.5oz)	
Meat style chicken pieces (Quorn, soya or vegetable protein - 5 or 6 pieces)	
Meat free steak (Quorn or soya - 1 steak)	
Meat free meat balls (Quorn, soya or wheat and pea protein - 4 balls)	
Vegetarian/vegan ready meal*	** The amount of protein in vegetarian and vegan ready meals can vary so you may want to check the label*

Meal plans

The following meal plans give examples of how you can include protein rich foods in your diet. You can adjust the amount of protein you need based on your individual requirements which your dietitian will advise you on. Please speak with your dietitian if you are following a low potassium or low phosphate diet.

Vegetarian example	Meal
Breakfast	Porridge made with 200ml milk, a handful or approximately 30g of mixed berries and nuts or seeds
Mid-morning	Apple with peanut butter (30g) to dip
Midday meal	Egg salad sandwich (2 eggs), 2 satsumas and 120g yoghurt
Mid-afternoon	Cottage cheese (60g) and crackers
Evening meal	Meat free spaghetti bolognese (made with 100g meat free mince)
Supper	Milky drink such as hot chocolate, latte or a glass of milk (200ml milk) or hummus (100g) with toast

Vegan example	Meal
Breakfast	Porridge made with 200ml soya milk and a handful of seeds
Mid-morning	A handful or approximately 30g of nuts
Midday meal	Baked beans (½ large tin or 200g) with 2 slices of toast
Mid-afternoon	Quinoa salad with edamame beans (80g quinoa and 100g edamame beans)
Evening meal	Tofu Thai curry with mixed vegetables and rice (70g tofu) and soya dessert (120g)
Supper	Hummus (½ tub or 100g) and vegetables

Energy

It is important that you eat enough energy (calories) to enable your body to use protein for the functions mentioned previously. If you do not eat enough energy, protein will be used as an energy source and over time this may cause weight loss and muscle break down. If you are not meeting your energy requirements your dietitian can advise about calorie rich foods to increase your intake.

Do I need nutritional supplements?

If you are not meeting your protein or energy requirements your dietitian may suggest you start taking a nutritional supplement. There are several varieties available that are suitable for vegetarians , depending on your dietary needs.

These include:

- Milk style drinks
- Yoghurt drinks
- Juice style drinks
- High energy liquids and powders
- High protein powders and puddings

There are very few vegan supplements available on prescription. Therefore, if you are following a vegan diet and are not meeting your protein needs, you may wish to supplement your diet by purchasing a vegan protein powder or speak to the dietitian about suitable supplements.

Protein powders are available to buy online or in some shops and are usually a mix of pea, bean, grain, seed, milk or soya protein. They can be mixed with water or milk to create a drink, or added to food. They can provide a good source of protein and will also contain some carbohydrate. As long as you are eating a mixture of different proteins you should be eating adequate protein and and may not need a protein powder.

Vitamins and minerals

Potassium

Potassium is a mineral that is essential for the normal function of our nerves and muscles, including the heart.

When your kidneys are not working well your potassium level can increase. If your potassium blood level becomes too high it can cause an abnormal heart beat. This increases the risk of a heart attack. If your potassium level increases you may be advised to follow a diet with low potassium foods.

Potassium levels in the blood can also decrease below normal in those with kidney disease. This can affect the function of the muscles and heart. If your potassium level is too low you may require a diet with foods that are rich in potassium.

The nursing staff or doctors will ask you to speak with one of the kidney dietititans for individualised dietary advice if required. If you have been advised to follow a low potassium or potassium rich diet, continue to do so until told otherwise.

Phosphate

Phosphate is a mineral found in our food. It helps our bodies to build strong bones. When the kidneys are not working properly the level of phosphate in the blood can become too high. High phosphate in the short term can sometimes lead to itchy eyes or skin. In the long term, it will lead to weakened or brittle bones which can cause fractures to occur more easily. It can also increase your risk of developing cardiovascular disease.

Controlling the phosphate level in the blood will help to prevent these problems. Phosphate can be lowered in the blood by:

1. Reducing the phosphate in your diet
2. Taking a tablet called a "phosphate binder"

If your phosphate level goes too high the nursing staff or doctors will ask you to speak with one of the kidney dietitians for individualized dietary advice to assess your phosphate intake.

Calcium

Calcium is needed to help build and maintain strong, healthy bones and teeth. It is also needed for muscle contraction and blood clotting. We are unable to produce calcium in the body, so it is important that we consume enough through our diet or through supplementation.

Dairy products including milk, cheese and yoghurt are rich sources of calcium. If you are following a vegan diet alternative sources of calcium include soya foods, tofu, green leafy vegetables, nuts, dried fruit and fortified breads, cereals and dairy free alternatives.

Vitamin D

Vitamin D is needed to help your body absorb calcium and to regulate the amount of phosphate and calcium in your body. The kidneys play a role in helping to convert vitamin D into a form that can be used by the body.

You can get vitamin D through exposure to sunlight. Vitamin D is also added to certain foods like some breakfast cereals, spreads or soya products.

People with kidney disease are at risk of low vitamin D levels as they are less able to convert it into a form that can be used by the body. The doctor may check your vitamin D levels and prescribe a supplement to correct your levels if necessary.

Vitamin B12

This is a water soluble vitamin that is naturally present in some foods and is added to others. It is needed to help make red blood cells, for a healthy functioning nervous system and to help release energy from fat and protein breakdown.

Vitamin B12 is found in dairy products and eggs. If you are following a vegan diet you should try to choose foods that are fortified with vitamin B12, for example: breakfast cereals, some nutritional yeast, some non-dairy milks and soya products.

If you are on haemodialysis you should be prescribed a vitamin tablet called Renavit. This contains vitamin B12 and water soluble vitamins such as vitamin C, which are lost through filtering the blood during the haemodialysis process.

Iron

The kidney plays an important role in making red blood cells, which carry oxygen around the body to provide energy for daily activities. Iron is a mineral which is important to help make healthy red blood cells.

People with kidney disease may have low iron levels, which can lead to Anaemia. This means there are not enough red blood cells in the body. If your iron levels are low the doctor may prescribe medication or treatment alongside dietary changes to help.

Eating foods rich in iron can help to prevent low iron levels. Iron can be found in nuts, lentils and pulses, dried fruit, leafy green vegetables and some fortified breads and cereals. Your body also needs vitamin C to help absorb iron. You should try to include a source of Vitamin C with each meal, for example fruit or vegetables.

Vegetarian and vegan meal ideas

*Please speak with your dietitian if you are following a low potassium or low phosphate diet as there may be foods that you are required to limit in quantity or frequency.

Breakfast

- Nut and seed breakfast bar
- Scrambled tofu on toast
- Beans on toast
- Scrambled eggs on toast
- Omelette
- Porridge with milk- topping options such as soya yoghurt, nuts, seeds, flaxseed
- Cereal with milk
- Yoghurt with fruit and granola
- Vegetarian or vegan fry up
- Pancakes

Midday meal

- Bean burrito
- Falafel wrap
- Hummus, pitta and vegetables
- Lentil salad
- Bean burger with salad
- Couscous salad with added pulses
- Gnocchi with pesto and pine nuts
- Black bean and avocado salad
- Butterbean, spinach and sundried tomato wrap
- Vegetable and bean soup
- Tofu vegetable kebabs
- Vegan or vegetarian sausage sandwich
- Risotto stuffed peppers with edamame beans
- Vegetable quinoa
- Vegetable stir-fry with cashew nuts
- Quesadillas

Evening meal

- Vegan chilli con carne
- Chickpea curry
- Lentil and tomato dhal with roti
- Black bean and soya mince chilli in taco shells
- Lentil lasagne
- Spaghetti bolognese with soya mince
- Shepherd's pie with soya mince
- Tofu and vegetable stir fry
- Sausage and bean casserole
- Nut roast with potatoes and vegetables
- Stuffed butternut squash
- Butterbean pie
- Cashew nut paella
- Butternut squash, orzo and cannellini bean bake

Snack ideas

- Rice cakes with peanut butter or jam
- Granola
- Vegetable sticks and pitta with hummus
- Trail mix
- Vegetarian or vegan yoghurt
- Fruit and nut butter to dip
- Fruit or vegetable smoothie with flax or chia seeds
- Fruit and nut bars or flapjack bar
- Bean dip - white or cannellini beans with vegetable sticks to dip
- Baked nut balls
- Beans or egg with toast
- Roasted chickpeas
- Fava (broad) beans
- Edamame beans
- Vegan or vegetarian sausage roll

Useful websites

- The Vegetarian Society https://www.vegsoc.org/
- The Vegan Society https://www.vegansociety.com/
- The British Dietetic Association https://www.bda.uk.com/
- Meat Free Monday https://www.meatfreemondays.com/
- Kidney Kitchen https://www.kidneycareuk.org/

Your key points

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Personal notes

If you have any suggestions or comments regarding this leaflet please let your dietitian know.

The information contained within this leaflet is intended for your specific needs and should not be passed on to any one else.

If you have any queries, please contact:

Dietitian	
Contact Number	

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