



# Guide to a LOW PHOSPHATE DIET

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Name:  
Date:  
Dietitian:  
Contact number:

## **Additional Information**

### **Your key points:**

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2.

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5.

## Types of Phosphate Binders

Name of the binder	When to take	How to take
Calcichew (Calcium Carbonate) 	Before meals	Chew
Phosex (Calcium Acetate) 	With meals	Swallow
PhosLo (Calcium Acetate) 	Before meals	Swallow
Adcal (Calcium Carbonate)	Before meals	Chew
Renagel (Sevelamer Hydrochloride) 	With meals	Swallow
Renvela (Sevelamer Carbonate)	With meals	Swallow (Also available as a powder)
Fosrenol (Lanthanum Carbonate) 	Just after meals	Chew (Also available as a powder)
Osvaren (Calcium Acetate & Magnesium carbonate)	Before meals	Swallow Can be broken into halves
Alucaps (Aluminium Hydroxide) 	With meals	Swallow

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## **What is phosphate?**

Phosphate is a mineral found in a range of different foods. It helps maintain healthy bones.

## **Why is the amount of phosphate in my blood too high?**

Healthy kidneys usually filter and get rid of excess phosphate from the blood. If your kidneys are not working properly, phosphate can build up in your blood.

The recommended range for your blood phosphate is:

\_\_\_\_\_ mmol/L

## **Why does it matter if my phosphate level is too high?**

High blood phosphate levels can initially cause:

- Red eyes and itchy skin

Prolonged high phosphate levels can lead to:

- Weaker bones and aching joints
- Hardened blood vessels, increasing your risk of heart disease

## **What should I do to control my blood phosphate levels?**

- The first step is to follow a low phosphate diet
- If your phosphate remains high you may then be prescribed a tablet called a phosphate binder

Your diet and phosphate binders may change, depending on your appetite and any other medications and treatment for your kidneys.

## **Miscellaneous**

Spices, garlic, herbs, pepper and condiments such as mustard, tomato ketchup, brown sauce, salad cream, mayonnaise and vinegar are low in phosphate.

Most soups are low in phosphate and protein but high in salt; discuss with the dietitian if you wish to have soup often.

Sauces such as white sauce and cheese sauce contain a lot of phosphate.

Bovril and marmite are high in both phosphate and salt and are best used sparingly.

## **Phosphate Binders**

### **Why might I need phosphate binders?**

In addition to a low phosphate diet, phosphate binders may be prescribed (see next page).

Binders combine with some of the phosphate in your food, allowing it to pass out of your body with your stool.

**It is essential for phosphate binders to be taken with meals and snacks that contain phosphate, as prescribed.**

You may find that the dose and type of your binders may change depending on your blood levels of calcium and phosphate.

**Remember** to take your binders with you if you are eating out.

**Avoid taking an iron supplement such as ferrous sulphate, at the same time as your phosphate binder. You may also need to be careful of the timing of any antibiotics that you take, so it may be advisable to discuss this with your nurse or doctor.**

## Drinks

Most drinks are fairly low in phosphate. However there are some drinks that are much higher.

Some dark fizzy drinks contain significant amounts of phosphate (phosphoric acid) that are easily absorbed by the body. Keep these to a minimum and choose light coloured fizzy drinks instead.

If you need to watch your fluid intake, ensure that you count all these drinks as part of your daily fluid allowance.

Speak to your Dietitian if you are taking supplement drinks such as Complan or Build Up.

## Alcohol

To drink within sensible limits, men should not drink more than 3-4 units of alcohol per day and women no more than 2-3 units of alcohol per day. Try to have some alcohol free days.

Low Phosphate	Medium Phosphate	High Phosphate
Coffee (little milk) Fruit Juice Light coloured fizzy drinks eg lemonade, Fanta, Tizer Red Bull Oxo Squash/ Cordial Tea Water (incl. flavoured/ tonic)		Bovril Dark fizzy drinks eg Coca Cola/ Pepsi, Dr Pepper Malted milk drinks eg * Horlicks, Ovaltine * Hot chocolate* Milky Coffee Milkshake Supplement Drinks eg Build up, Complan, Nurishment  *See page 5 for tips.
Cider Sherry Spirits Wine	Ale Bitter	Lager Stout

## How to achieve a Low Phosphate Diet

The dietary advice in this booklet has been developed by registered Dietitians. Using this guide can help you to choose the foods that you enjoy whilst keeping your phosphate well controlled.

A balanced diet consists of having a variety of foods from different food groups as shown in the following pages.

**Within each food group, this guide shows which foods are low, medium or high in phosphate. Try to choose mainly from those foods that are low in phosphate. Foods that are medium in phosphate content can be eaten in moderation, but try to limit high phosphate foods to occasional use only.**

Your Dietitian will give you individualised advice on any changes which will be of benefit to you.

Please remember that any other diets you may be following still apply when you are on a low phosphate diet and your Dietitian will support and guide you in order to achieve this. Keeping to a low salt diet is also important in a healthy diet, especially for people with kidney disease.

## Processed foods

Processed foods often have phosphate and salt added to them.

Have a look at the labels on processed foods and try to limit those that contain the words phosphate or phosphoric acid including pyrophosphate, polyphosphate and sodium phosphate. Look out in particular for ham, breaded chicken, cake mixes, instant sauces and dark carbonated drinks as they often contain these. This type of phosphate is very easily absorbed from your food.

Most of the salt that we eat is from processed foods. This is another good reason to try and reduce the amount of processed foods eaten. Try to choose fresh, unprocessed food as much as possible, and reduce the amount of salt added to cooking or at the table.

## Dairy Foods

Dairy foods are a major source of protein, vitamins and minerals. However, they are higher in phosphate than meat and fish.

**In order to have enough protein but not too much phosphate, choose 2 or 3 points from the list below each day**

One point	Two points
100ml (½ cup) Cows milk (full cream, semi skimmed, skimmed, pasteurised, sterilised or UHT milk) 100ml Soya Milk (fortified) 200ml Rice / Oat / Soya milk (unfortified)	200ml (⅓pt) Cows milk or Soya Milk (fortified) <b>30g (1oz) of the following hard cheeses:</b> Cheddar, Edam, Wensleydale, Red Leicester 15g (½ oz) Parmesan cheese 150ml (¼ pint) Custard 200g (½ tin) Milk pudding 1 pot (150g) Yoghurt
60g (2oz) of the following: Cottage cheese, Ricotta	
30g (1oz) of the following: Brie, Feta, Mozzarella, Stilton	
1 pot (100g) Fromage frais 1 pot (125g) Soya yoghurt 2 scoops (120g) Ice cream 1 pot (90g) Crème Caramel 3tsp (10g) Dried milk powder 8 heaped tsp / 4 servings (26g) Non dairy creamer	<p><b>Note:</b> <b>30g (1 oz) cheese is the size of a small matchbox</b></p>
Three points	300ml (½ pint) Cows milk or Soya milk (fortified)

## Sugar and Confectionary

Low Phosphate	Medium Phosphate	High Phosphate
Sugar Jam, marmalade, Honey, lemon curd Sweets, jellies Fruit gums, mints Marshmallows Turkish delight	Kitkat, Bounty Mars Bar, Twix Snickers Cream Egg Toffees Liquorice Allsorts	Plain, white or milk chocolate Sweets containing nuts Fudge

## Biscuits and Cakes

Low Phosphate	Medium Phosphate	High Phosphate
Cream cakes Doughnuts Jaffa cakes Jam tarts Shortcake Cream/jam biscuits Ginger biscuits Rich tea/ Nice Digestive biscuits	Battenburg Blueberry Muffins Chocolate biscuits Danish pastry Flapjack (plain) Fruit cake Oat based biscuits Sponge cake Swiss Roll Tea cakes	Cake mixes Cereal bars Coconut cake Chocolate cake Chocolate muffins Oatcakes Rock cakes Scones Scotch Pancakes Waffles

## Puddings

Low Phosphate	Medium Phosphate	High Phosphate
Fruit crumble/ pie Fresh fruit salad Tinned fruit Meringue/pavlova Jelly Sorbet Lemon meringue pie Treacle tart	Trifle Mousse Cheesecake Ice cream * Fromage frais * Crème caramel*	Bread & butter pudding Pancakes Sponge pudding Yoghurt * Custard * Rice pudding *

\* Refer to Dairy section

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## Tips

Extra snacks between meals and puddings may be useful for those with a poor appetite who are only managing small meals. Puddings are often served with custard or icecream. Cream or crème fraîche are lower phosphate alternatives.

## Foods High in Fat and/or Sugar

These foods can affect your weight and heart, and some are high in phosphate. Many baked goods contain some phosphate; the main sources being baking powder, self raising flour, eggs and milk.

**Aim to use these foods sparingly, unless you have a poor appetite or have lost weight recently. Ask to speak to the Dietitian for further advice on these foods.**

### Fats and Oils

Most fats/oils are low in phosphate. Those marked ♥ are better for your heart.

Monounsaturated fats ♥	Olive oil, rapeseed oil, olive oil based spreads
Polyunsaturated fats ♥	Sunflower, soya, corn oils and margarines made from these oils
Saturated fats	Butter, cream, lard and visible fat on meat, coconut oil, palm oil, ghee

### Savoury Snacks

Low Phosphate	Medium Phosphate	High Phosphate
Breadsticks Corn snacks (Wotsits, Skips) Cream Crackers Crisps (potato, taro) Popcorn Prawn crackers	Pretzels Tortilla Chips	Bombay mix Nuts Seeds Twiglets

Try to avoid eating too many savoury snacks as they are also high in salt.

### Low Phosphate Dairy Foods (No dairy points per average portion)

Cream cheese  
Crème fraîche  
Cream and soured cream

### High Phosphate Dairy foods (At least 3 dairy points per average portion)

Cheese spread (Dairylea, Primula) Processed cheese Condensed milk Evaporated milk Milk based sauces Cheese sauce Coconut milk / cream Instant pastas and sauces	Ready made meals such as: Macaroni cheese Lasagne Quiche Pizza
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### Tips:

- If you need to use extra milk in a day, try two measures of double cream to one measure of water as a substitute.
- Unfortified rice milk, soya milk and oat milk are lower in phosphate than cow's milk. However, check the label as fortified varieties often add phosphate.
- When using hard cheese, grate cheese to make it go further. Use mature cheese, as a small amount still adds plenty of flavour, or use a small amount of parmesan cheese in cooked dishes.
- Bedtime drinks: make using  $\frac{1}{2}$  milk to  $\frac{1}{2}$  water with 1-2 tsp of malted milk or drinking chocolate powder as this halves the phosphate content and provides 1 dairy point.

## Meat, Fish and Protein alternatives

These foods are good sources of protein, which is important for building and maintaining muscle and for fighting infection. However, protein foods also contain phosphate, although the amount of phosphate they contain vary. Use the following tables to make suitable choices. Check that your serving sizes are similar to the ones described below each table.

### Meat and Meat Products

Low Phosphate	Medium Phosphate	High Phosphate
Bacon	Kidneys	Ham
Beef	Sausages	Liver
Beef Burger	Sausage roll	Offal
Chicken		Paté
Corned beef		
Duck		
Gammon		
Lamb		
Pork		
Rabbit		
Salami		
Turkey		
Pork pie		
Meat pie		
Veal		
Venison		

### Average Serving Size:

#### Light meal:

- 1 - 2 slices cold meat: 30-60g (1-2oz)

#### Main meal: cooked weight 90-120g (3-4oz)

- 3 slices roast meat / 1 average sized chop / 1 chicken breast or meat (size of the palm of your hand)

## Fruit and Vegetables

Fruit and vegetables are naturally low in phosphate but also contain some potassium, so please check with your dietitian if you are currently on a low potassium diet.

Fruit and vegetables are an important source of vitamins, minerals and fibre and help to keep your bowel healthy. It is recommended to have five 80g portions per day. Try to have a variety of fruit and vegetables.

An 80g (3oz) portion of fruit is about a handful of small fruit (strawberries, raspberries, grapes etc) **or** a portion of fruit about the size of a small apple, peach or tangerine

An 80g portion of vegetables is about 3 heaped tablespoons or a small bowl of salad.

80g portions are quite small. If you have a large apple for instance, it may weigh about 160g (6oz) so this is 2 portions of fruit.

If you enjoy eating plenty of fruits and vegetables the above guidelines will help you to continue to enjoy variety in your diet and meet your "5 a day".

As fruit and vegetables (except beans and pulses) are low in phosphate, they don't need limiting, apart from those listed below:

- Star fruit may cause dangerous side effects for those with kidney problems; it is therefore recommended that you avoid this.
- You may be advised not to have grapefruit if you are taking certain medications

## Breakfast Cereals

Low Phosphate	Medium Phosphate	High Phosphate
Cornflakes	Fruit & Fibre	All Bran
Rice Krispies	Grapenuts	Branflakes
Special K	Porridge oats	Muesli
Sugar Puffs	Puffed Wheat	Readybrek
	Shredded Wheat	
	Shreddies	
	Weetabix	

### Tips

- Use a small amount of milk with breakfast cereals
- Plain flour contains very little phosphate. Baking powder and self raising flour contain more. Use these in moderation.

### Fibre

Very little of the phosphate found in high fibre foods is absorbed by the body. Hence most of these foods can be eaten as part of a healthy diet.

### Examples of High Fibre Foods

- Wholemeal bread
- Wholegrain cereals eg Weetabix, Shredded Wheat
- Oats
- Lentils
- Beans
- Nuts
- Fruit and vegetables

## Fish, Seafood and Shellfish

Low Phosphate	Medium Phosphate	High Phosphate
Crab sticks	Anchovies	Carp
Salted fish	Catfish	Clams
Scallops	Cockles	Crab (fresh)
Tinned crab	Cod	Crayfish
Tuna fresh *	Fish fingers	Fish paste
Tuna tinned	Haddock	Fish Roe
Tinned salmon *	Herring *	Monkfish
Winkles	Kippers *	Mussels
	Lemon sole	Oysters
	Mackerel *	Pilchards *
	Plaice	Sardines *
	Prawns	Scampi
	Salmon *	Sea bass
	Shrimps	Taramasalata
	Squid	Whitebait
	Skate	
	Trout *	

\* Oily fish is good for your heart

### Average serving size:

**Light meal: tinned tuna/salmon/mackerel 30-60g (1-2oz)**

**Main meal: 1 fillet of fish (size of the palm of your hand)**

### Tips:

- Meat and fish are major sources of protein, vitamins and minerals and most have less phosphate than most of the dairy foods, so are excellent food choices.
- Fish bones contain a lot of phosphate, so limit bony fish and remove edible bones before eating.
- Cured, smoked and tinned meats and fish are high in salt. Choose tinned fish in spring water, not brine.

## Non-meat sources of Protein

Low Phosphate	Medium Phosphate	High Phosphate
Egg white	Black eyed beans Chickpeas Dried soya mince Egg (see allowance) Lentils Mung Beans Peanut butter Tofu	Aduki beans Baked beans Hummus Nuts – all types Red Kidney beans Pinto beans Seeds – all types Soya beans Quorn

### Average Serving Size:

1- 2 eggs  
3 tablespoons of cooked beans/ pulses: 90g (3oz)

### Tips:

- Aim to have no more than 4 eggs/ week. Egg whites can be eaten freely, as the phosphate is found in the egg yolk.
- A portion of beans such as chickpeas or lentils can replace a portion of meat or fish as they are good sources of protein without containing too much phosphate.
- If you are vegetarian, continue having beans and lentils as usual.
- Though nuts are high in phosphate, they are also high in protein. If you wish to include these in your diet, please discuss with the dietitian.

## Bread, Rice, Potatoes, Pasta & other starchy foods

Starchy foods provide energy, some vitamins and may contain fibre. Fibre helps to keep your bowels regular. Include something from this group at each meal. Starchy foods are often low in phosphate but phosphate may be added in the manufacturing process (see page 3 for further information).

### Bread, Flour and Alternatives

Low Phosphate	Medium Phosphate	High Phosphate
Corn flour Cream crackers Croissant English muffins Pitta bread Water biscuits White bread Plain flour	Bagel Chapatti Granary bread Oat cakes Rice cakes Rye bread Rye Crispbread Wheat Crispbread Wholemeal bread Wholemeal flour	Baking powder Crumpets Naan Rye flour Self raising flour Soya flour

### Rice, Potatoes, Pasta and Grains

Low Phosphate	Medium Phosphate	High Phosphate
Cassava, boiled Potatoes (boiled, baked, mashed, roast) Rice Noodles Sweet potato, boiled White rice Yam, boiled	Couscous Pearl barley Instant mashed potatoes Noodles, plain & egg Potato croquettes Yorkshire pudding Thick cut chips White pasta	Brown rice Dumplings Macaroni cheese Frozen / oven chips Thin cut chips Potato waffles Pot Noodle Quinoa Wholemeal pasta