

CALCIUM AND PHOSPHATE BALANCE

WHY ARE CALCIUM AND PHOSPHATE IMPORTANT?

Phosphate is a mineral which combines with calcium to form the hard structure of your bones and teeth. It comes from the food that you eat. Phosphate is found in all cells in your body and is absorbed with help from Vitamin D.

Calcium is stored in your bones, and is essential for building and keeping your bones healthy and strong. Many of the cells in your body need calcium to work properly. Your body gets most of its calcium from the food that you eat. If your calcium levels are too low, then your body will take the extra calcium it needs from your bones.

Your kidneys control the balance between calcium and phosphate in your body. It is important that the levels of phosphate and calcium in your blood remain normal.

HOW DOES CHRONIC KIDNEY DISEASE AFFECT PHOSPHATE AND CALCIUM?

When your kidney function declines, you are unable to get rid of excess phosphate. The phosphate builds up in your body and binds to calcium, which, in turn, lowers your calcium levels. When your calcium levels get too low, glands in your neck (called the parathyroid glands) pull the extra calcium your body needs out of your bones. This can make your bones easy to break.

The bound phosphate and calcium get deposited in your blood vessels. It can increase your risk of heart disease and stroke. It can also cause skin ulcers and lumps in your joints.

See the '*Heart disease and chronic kidney disease*' fact sheet for more information.

WHAT IS VITAMIN D?

Vitamin D is important for good health and strong and healthy bones. It is also important for making sure that your muscles, heart, lungs and brain work well and that your body can fight infection. Your body can make its own vitamin D from sunlight. You can also get vitamin D from supplements and, in small amounts, from foods you eat.

Vitamin D is needed to absorb calcium and phosphate into your body. Even if you eat foods that contain a lot of calcium and phosphate, they won't be absorbed into your body unless you have enough vitamin D.

For Vitamin D to work properly, it needs to be 'activated' or 'switched on' by the kidneys. If your kidney function is reduced, your ability to activate Vitamin D is decreased.

HOW DO YOU CHECK THE CALCIUM AND PHOSPHATE BALANCE?

If you have kidney disease, it is very important that your calcium and phosphate balance is checked regularly and managed appropriately to reduce the risk of developing serious problems. Treatment aims to:

- prevent phosphate levels increasing in the blood
- maintain calcium levels
- reduce the release of parathyroid hormone
- prevent bone disease caused by the loss of calcium

HOW IS THE CALCIUM AND PHOSPHATE BALANCE TREATED?

Reducing the amount of phosphate taken into the body is one way to stop phosphate levels rising. Phosphate is so common that it is impossible to have a phosphate-free diet. However, there are high phosphate foods that are best to be avoided. It is recommended that you speak to an Accredited Practising Dietitian for more information.

Often a phosphate-binding tablet is given to lower the amount of phosphate absorbed from food. Phosphate binders act like 'sponges', trapping the phosphate before it is absorbed. This means that less of the phosphate you eat will go into the bloodstream.

Usually phosphate binders are taken 5 to 10 minutes before or after meals and snacks. Your doctor and Accredited Practising Dietitian will tell you how many and when you should take your phosphate binders. There are several types of phosphate binders available in Australia. Your doctor will recommend the most suitable ones for you.



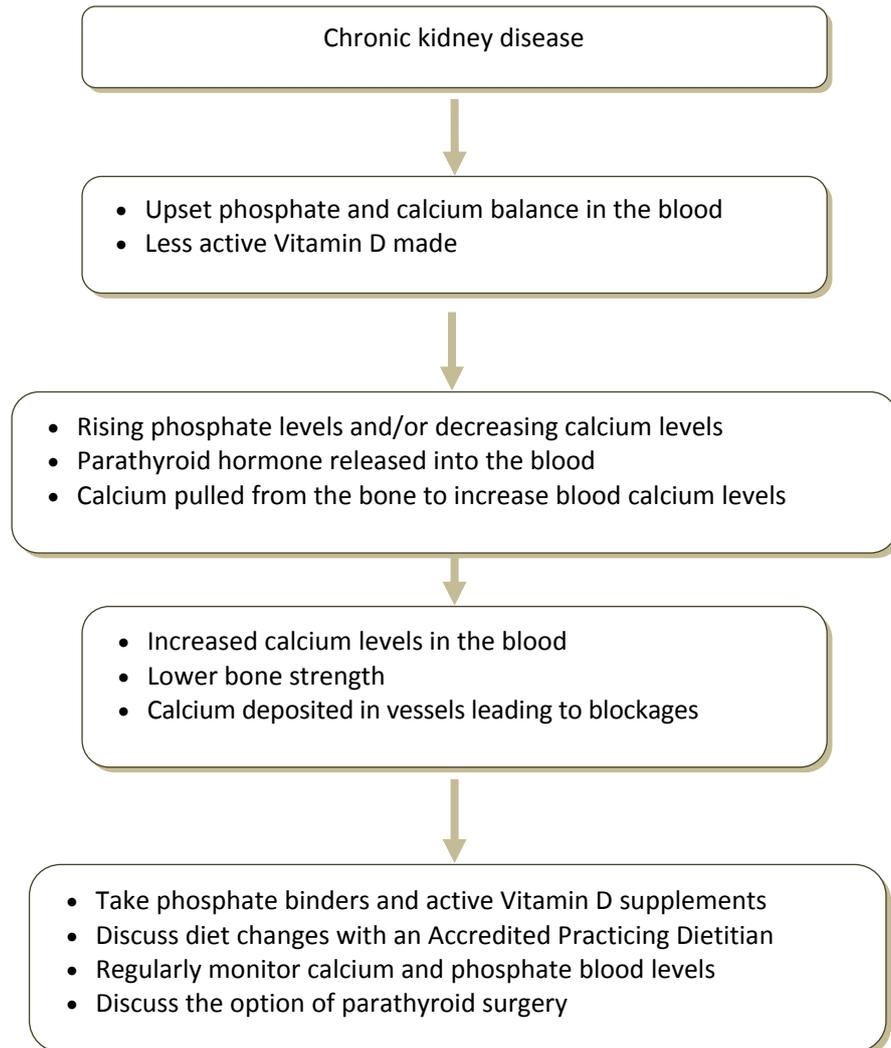
Your doctor may also prescribe calcitriol, which is active Vitamin D. This helps to absorb calcium into the blood.

If you are using dialysis, the length of time on dialysis and the dialysate fluid can be adjusted to help to bring your calcium and phosphate levels into balance. A form of dialysis called 'nocturnal haemodialysis' (haemodialysis done during the night) can help to balance your calcium and phosphate levels. See the '*Home haemodialysis*' fact sheet for more information.

WHAT IS PARATHYROID SURGERY?

Parathyroid surgery is a removal of parathyroid glands. This may be needed to help to control high phosphate and parathyroid hormone levels. As with any surgery, it is important that you talk to your health care team about the benefits and risks of parathyroid surgery. See the '*Making the most of your visit to the doctor*' fact sheet for tips on how to get the information you need from your health care team.

SUMMARY OF CALCIUM AND PHOSPHATE BALANCE



For more information about Kidney or Urinary health, please contact our free call Kidney Health Information Service (KHIS) on 1800 454 363. Alternatively, you may wish to email KHIS@kidney.org.au or visit our website www.kidney.org.au to access free health literature.

This is intended as a general introduction to this topic and is not meant to substitute for your doctor's or Health Professional's advice. All care is taken to ensure that the information is relevant to the reader and applicable to each state in Australia. It should be noted that Kidney Health Australia recognises that each person's experience is individual and that variations do occur in treatment and management due to personal circumstances, the health professional and the state one lives in. Should you require further information always consult your doctor or health professional.

Kidney Health Australia gratefully acknowledges the valuable contribution of staff from Princess Alexandra Hospital (Brisbane) in the development of this material.

Revised June 2015

If you have a hearing or speech impairment, contact the National Relay Service on 1800 555 677 or www.relayservice.com.au. For all types of services ask for 1800 454 363.