

Nephrology Associates, Chattanooga



KEEPING YOUR BONES HEALTHY WHEN YOU HAVE CHRONIC KIDNEY DISEASE

People with chronic kidney disease (CKD) often develop problems with their bones. Sometimes there are no bone disease symptoms, but without treatment, the bones can become painful and break easily. The heart, blood vessels, and skin can also be affected. You should be checked for bone disease (by simple blood tests) in the early stages of chronic kidney disease and continue as CKD progresses.

How does CKD affect my bones?

Calcium and phosphorus are two important minerals for healthy bones. These minerals are found in many foods you eat. In chronic kidney disease, calcium and phosphorus get out of balance. If the kidneys are not working at full capacity, they may not be able to get rid of enough phosphorus to keep the balance. Over time, phosphorus can build up in the blood and calcium can get too low.

When this happens, the parathyroid glands make too much of a hormone called PTH. High PTH pulls calcium out of the bones making them weak and some of the calcium may end up in the heart and blood vessels which may lead to heart and blood vessel disease. At the same time levels of vitamin D can drop, which can contribute to abnormal levels of calcium, phosphorus, and parathyroid hormone.

What are the symptoms of bone disease in CKD?

Most people do not have symptoms in the early stages of CKD. Even though no symptoms are felt, bone disease needs to be treated. Itching may be a sign that phosphorus levels are too high. With more advanced disease, other symptoms may appear:

- Bone pain
- Muscle weakness
- Fractures
- Joint pain



How do I know if my bones have been affected by CKD?

Simple blood tests will tell us. This should be done every 1-12 months depending on your stage of CKD. Phosphorus levels should range from 2.7 to 4.6. The normal range for calcium will vary at different labs. Your parathyroid hormone (PTH) levels are evaluated on an individual basis.

Will I need treatment if my numbers are not in the right range?

You may. If your phosphorus or PTH numbers are too high, you will need to follow a diet that is low in phosphorus. We can refer you to a registered dietician who has special training in diets for kidney disease.

What if diet is not enough to control my phosphorus and PTH?

If your phosphorus and PTH are still too high, your doctor may also ask you to take a medication called a phosphate binder. These pills (some examples are Phoslo, TUMS, Fosrenol, and Renvela) help keep phosphorus from going into your blood by binding to the phosphorus in the foods you eat. The bound phosphorus cannot get into your blood and is passed out of your body in the stool when you have a bowel movement. To work best, phosphate binders should be taken with food or within 10-15 minutes of eating. If you take the phosphate binders between meals, they will not work.

Will I need to take vitamin D?

You may. Vitamin D is very important in affecting your calcium and parathyroid hormone balance. Your doctor or nurse practitioner will help to decide which form of Vitamin D is right for you.

Is exercise important?

Yes. Exercise is important to overall good health and to bone health, too. Many people with kidney disease find that a simple exercise program can increase strength and energy in addition to protecting your bones and helping your blood pressure. Please speak to your doctor or nurse practitioner before beginning an exercise program.



How is bone disease related to heart & blood vessel problems?

When calcium and phosphorus are not in balance and the bone is diseased, calcium can be deposited in body tissues where it does not belong. Some deposits may be in the heart and blood vessels. Over time, this can increase your chances of developing heart disease.

Is osteoporosis similar to bone disease in CKD?

Both cause bones to become weak and break more easily. However the cause and treatment are different. Osteoporosis happens to some people as they age. It is common in women after menopause. Some medications commonly used for osteoporosis may not be the right or may need to be adjusted if you have CKD.

Adapted from the National Kidney Foundation publication "Keeping Your Bones Healthy"