

# How do kidneys help to keep bones healthy?

By | Ana Edjlali, RD

Keeping your bones healthy is an essential goal when dealing with kidney disease. Your kidneys play an important role in maintaining a healthy bone structure. They do this in three ways:

**Activating vitamin D:** Healthy kidneys help the body absorb calcium and turn the Vitamin D that our skin absorbs from sunlight into a form of Vitamin D the body needs to keep bones strong and healthy. When kidneys are not working, they no longer activate vitamin D and calcium is not absorbed well. This leads to a type of bone disease called CKD-MBD, causing your bones to get brittle and weak over time.

**Balancing phosphorous:** Healthy kidneys also control the level of phosphorous in your blood by removing extra phosphorous. In chronic kidney disease (CKD), phosphorous builds up in your blood and can reach toxic levels. High phosphorus levels cause the body to pull calcium out of your bones, making bones weak and more prone to injury. High blood levels of calcium and phosphorus can result in formation of bone like tissue (calcification) in tissues such as blood vessels, lungs, eyes, skin and heart, leading to cardiovascular disease or even death. Phosphorus and calcium control is very important for your overall health.

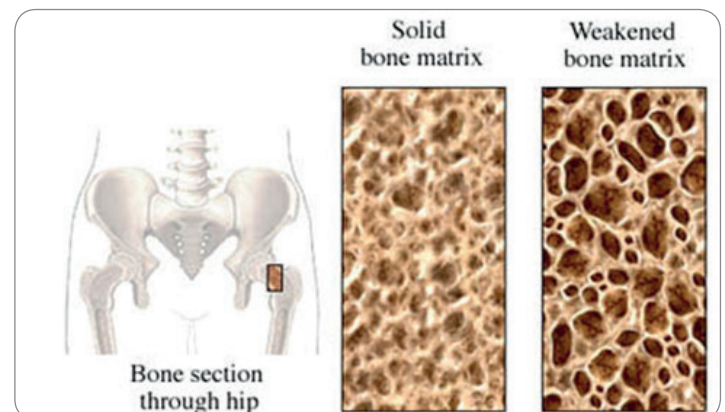
**Working with parathyroid glands:** Your kidneys work closely with four small glands called parathyroid glands, located in your neck near your thyroid gland. These glands work to keep a normal level of calcium and phosphorous in the blood. When kidneys fail, the body experiences many changes that phosphorous levels may get higher than normal. High phosphorous levels stimulate parathyroid glands to release a hormone called parathyroid hormone (PTH). In response, PTH pulls more calcium and phosphorous from bone. This makes the bone disease worse, and makes you much more prone to fractures.

## How do you know if you have bone disease?

Bone disease can start developing without any symptoms even before a patient begins dialysis. Therefore, it is very

important to diagnose it early and prevent or slow down its progress. Your doctor can check how healthy your bones are by:

- Running a blood test to check the levels of:
- Calcium
- Phosphorous
- Parathyroid hormone (PTH)
- Vitamin D
- Sometimes it may be necessary for you to get biopsy from your bone Bone density X-ray (DEXA)



Solid bone vs. weakened bone. <http://www.bidmc.org>

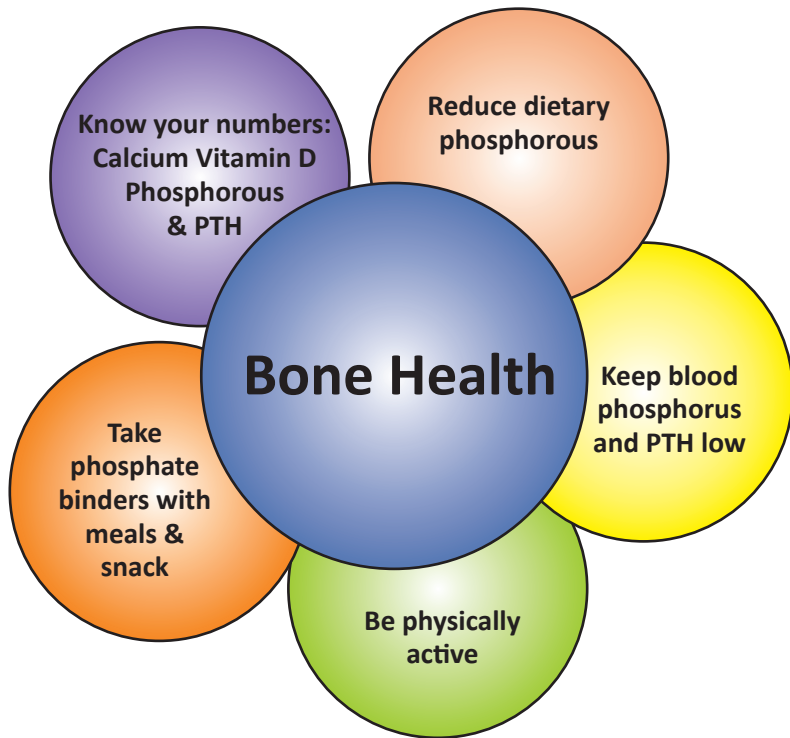
Common signs and symptoms of renal osteodystrophy bone disease include:

- High phosphorous and PTH levels
- Low calcium and vitamin D levels
- Bone and joint pain
- Bone deformation or fractures
- Poor mobility

Talk to your doctor if you experience any of these signs or symptoms.

## What can you do to help prevent or slow down bone disease?

Remember, despite the challenges of kidney disease, you have the power to lead a healthy life. With attention to your



diet, medications, and some physical activity in your daily routine, you can help your body reduce and repair any bone damage associated with kidney disease. The following gives you tips to prevent or slow bone disease:

**Keep your blood calcium and vitamin D levels in check:**

Get your calcium and vitamin D levels checked regularly, along with other labs. If your blood calcium is too low, your doctor may prescribe a calcium & vitamin D supplement to raise your blood levels.\* Any dietary supplements must be prescribed ONLY BY YOUR PHYSICIAN. AVOID taking any over-the-counter supplements.

**Maintain a low blood phosphorous level:**

Reduce your dietary sources of phosphorous to lower phosphorous levels. Phosphorous is especially high in dairy, dried beans, peas, nuts, and soft drinks. Talk to a dietitian to know what foods you can choose with lower phosphorous.

**Take your phosphate binders with each meal and snacks.**

**Be physically active:**

- \*Exercise may not be safe for you if your medical condition is not stable. So, always check with your doctor first.
- A simple 15-30 minute walk each day can strengthen your muscles, bones, and improve your emotional health. If you feel you can't commit to 30 minutes of exercise at one time, break it down into three ten minutes throughout the day.
- Start with small steps such as a 10 minute walk, gardening, or dance. Build it up gradually. Choose activities that give you joy. Remember, any activity is good.

“ Life can turn out much better than you think. So, never lose hope. ”