



## **Bone Health and Chronic Kidney Disease (CKD)**

The kidneys play an important role in keeping your bones healthy. Bones need a balanced level of calcium and phosphorus in the blood in order to stay strong. When kidney function gets lower, **phosphorus** from the food we eat builds up in the blood, causing **calcium** levels in the blood to become too low. When this happens, the parathyroid gland (located in your neck near your thyroid gland) puts out too much parathyroid hormone (**PTH**) into the blood. The purpose of PTH is to keep calcium levels normal in the blood. When calcium levels are low, PTH makes calcium move out of the bones. Over time, as more calcium leaves the bones, the bones become brittle and can break easily, leading to fractures or broken bones. **Vitamin D** is also important for keeping healthy bones.

Bone disease can happen in the early stages of CKD. However, most patients do not have symptoms or feelings of bone disease in the early stages. As phosphorus builds up in your body in late kidney disease, symptoms may include itching, bone pain, muscle weakness, fractures and joint pain. The best treatment for bone disease is **prevention**. Screening for early signs of bone disease involves blood tests such as calcium, phosphorus, PTH and Vitamin D levels.

You can help keep your bones healthy by **limiting the amount of high-phosphorus foods** that you eat in your diet. A low phosphorus diet is usually recommended for patients with CKD. Foods high in phosphorus include dairy products, beans (except green beans), dark-colored sodas, bran products, nuts, peanut butter, oatmeal, brown and wild rice, lentils, and processed meats. You should limit your portion sizes to only small amounts once or twice weekly.

Even if you limit the amount of phosphorus in your diet, your phosphorus level in your blood may become elevated from low kidney function. If this happens, your doctor may start you on a special medicine to help with your bone health. One type of medicine is called a **phosphate binder** that binds to and gets rid of some of the extra phosphorus in the foods that you eat. Examples of phosphate binders include Renvela, Fosrenol, Phos-Lo and Tums. Phosphate binders should be taken at mealtime and with snacks within the first 10 minutes of eating to bind to the phosphorus in foods eaten. If your Vitamin D levels are low, your doctor may put you on a special **Vitamin D supplement** such as Drisdol or Calcitriol to help keep your calcium levels normal. These medications should be taken only if advised by your doctor.