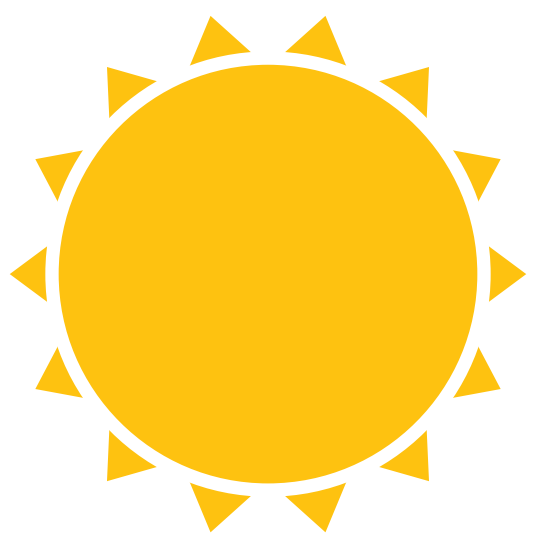


# Mineral and Bone Disorder

## How can kidney disease lead to bone and heart disease?

Calcium, phosphorus, and vitamin D are important for bone health.

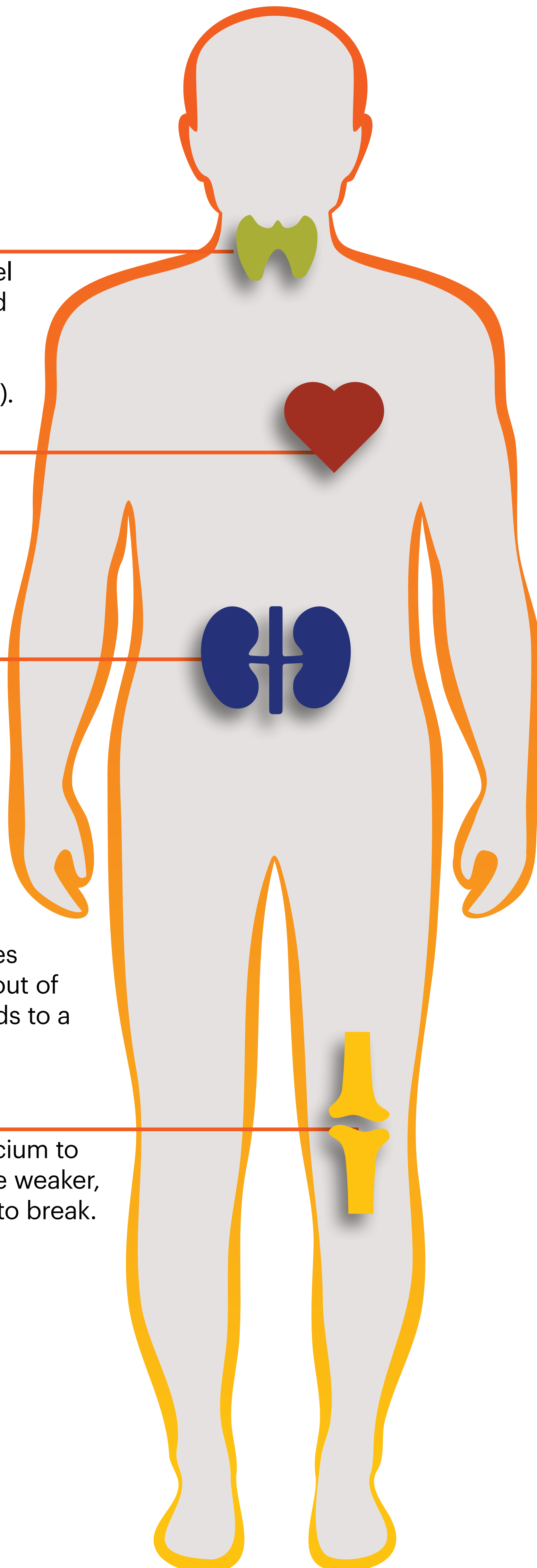


When the blood phosphorus level goes up and blood vitamin D and calcium levels go down, your parathyroid glands make too much parathyroid hormone (PTH).

Some calcium may also end up in the heart and blood vessels. This may cause or worsen heart disease and increase chances of dying.

Kidneys help to keep the right amount of calcium and phosphorus in your blood. Kidneys also change vitamin D from sunlight and the foods you eat into active vitamin D that your body can use. When you have kidney disease, your kidneys can no longer filter out extra phosphorus. This causes calcium and phosphorus to get out of balance. Kidney disease also leads to a short supply of active vitamin D.

High blood PTH levels cause calcium to leave your bones. Bones become weaker, more brittle, and are more likely to break.



### HOW DO YOU FIND AND TREAT MINERAL AND BONE DISORDER?



#### Know your blood test results and what the normal range is:

BLOOD TEST	NORMAL
Calcium	9.0 – 10.5
Phosphorus	3.0 – 4.5
PTH	10 – 65
Vitamin D [25(OH)D]	30 or greater

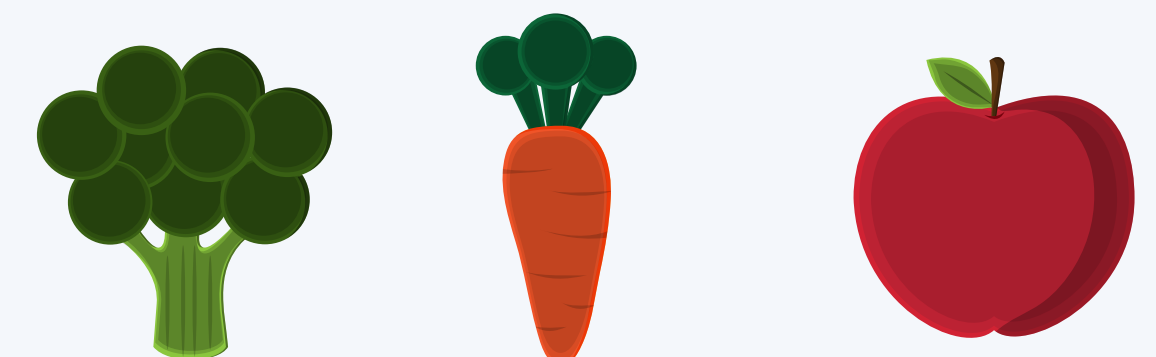
#### Vitamin D

Your body needs the active form of vitamin D. There are several different types of vitamin D available:

- » **Nutritional Vitamin D**  
This is the type of vitamin D you can buy in drug stores or vitamin shops. The effect it has will depend on your level of kidney disease.
- » **Active Vitamin D**  
This type of vitamin D is already active. The kidneys do not need to change it into the active form, but it may increase blood calcium levels.
- » **Extended Release Vitamin D Prohormone**  
This vitamin D is a *prohormone* that is changed to the active form of vitamin D. It works to gradually increase blood vitamin D levels and lower blood PTH.

Your healthcare professional will tell you which type of vitamin D medicine is right for you.

### TIPS FOR EATING A LOWER PHOSPHORUS DIET



A diet lower in phosphorus can help to keep your blood phosphorus in the right range.

- » Eat fresh foods that have not been processed
- » Avoid phosphorus additives, look for the letters 'PHOS' on food labels
- » Limit foods naturally high in phosphorus, such as milk and milk products