



Quality
Insights

Renal Network 4



Network 4 Patient Representatives

June Monthly Meeting

June 6th 2:00 PM

June 7th 2:00 PM

What is in your Patient Representative Tool
box?

Question:

Calcium and Phosphorus -

What is the big Deal?

Calcium and Phosphorus

What is the big Deal?

- Calcium and phosphorus are essential minerals found in the bone blood and soft tissue of the body
- They have a role in numerous body functions
- Phosphorus levels can affect calcium levels in the body, and vice versa – They work together
 - When your phosphorus is high, calcium is pulled out of the bones making your bones weak

Is there more to it then just

Phosphorus and Calcium?

- In a health kidney; Parathyroid hormone, vitamin D and the kidneys work together to regulate calcium and phosphorus levels in the blood
- When the kidneys do not function well, there can be problems regulating calcium and phosphorus

Calcium, Phosphorus and the Kidneys

- Healthy kidneys eliminate excess phosphorus and calcium in the blood.
- If kidney function is impaired, the body will not be able to get rid of extra phosphorus.
- High phosphorus levels stimulate the release of parathyroid hormone, which can cause complications when the normal mechanism for bone mineral management does not work correctly.

Why would I have High Phosphorus?

- A When you are on dialysis, phosphorus can build up in your blood because it is a large molecule and is not easily dialyzed out
- A high phosphorus level may also result in a low calcium level
 - Calcium binds with phosphate and is deposited in the tissue
- Having too much phosphorus is called hyperphosphatemia.
 - This can lead to [bone disease](#), which causes weak bones that break easily
 - causes calcification in the tissue, which can disrupt normal organ function
 - Calcifications can occur in Blood vessels, eyes, lungs and heart

Normal Blood Levels

- People on Dialysis should strive to maintain as normal of a phosphorus level as possible
- Normal is 2.5 to 4.5 mg/dL.
- You need to work closely with your dietitian and doctor to control phosphorus, calcium and parathyroid levels.

The Role of PTH and Vitamin D

- The body must maintain certain levels of calcium and phosphorus in the blood.
- Parathyroid hormone, or PTH, and vitamin D work to keep these levels in balance.
- Calcium and phosphorus are absorbed into the blood through the small intestine after eating foods that contain these nutrients.
- The bones will also release the nutrients to help maintain necessary blood levels.
- The parathyroid gland can sense an imbalance of calcium or phosphorus.
 - If the calcium level is low, the parathyroid gland will release PTH, which tells the kidneys to produce more active vitamin D.
 - This helps the body to absorb more dietary calcium and phosphorus through the intestine, tells the bone to release calcium and phosphorus into the blood and tells the kidneys to excrete more phosphorus in the urine.

What foods contain Phosphorus?

- Phosphorus can be found naturally in foods (organic phosphorus) and is naturally found in protein-rich foods such as meats, poultry, fish, nuts, beans and dairy products.
- Phosphorus found in animal foods is absorbed more easily than phosphorus found in plant foods.

What Foods Contain Phosphorus?

- Phosphorus that has been added to food in the form of an additive or preservative (inorganic phosphorus) is found in foods such as fast foods, ready to eat foods, canned and bottle beverages, enhanced meats, and most processed foods.
- Phosphorus from food additives is completely absorbed.
- Avoiding phosphorus additives can lower your intake of phosphorus.
- Phosphorus additives are found on the list of ingredients on the nutrition facts label. Look for “PHOS” to find phosphorus additives in the food

Additives in Foods that are Phosphorus

- Dicalcium phosphate
- Disodium phosphate
- Monosodium phosphate
- Phosphoric acid
- Sodium hexameta-phosphate
- Trisodium phosphate
- Sodium tripolyphosphate
- Tetrasodium pyrophosphate

What are low-phosphorus foods?

- Fresh fruits such as apples, apricots, blackberries, grapes, tangerines, pears, peaches, pineapple, plums and strawberries
- Fresh vegetables such as cauliflower, carrots, cucumber, celery, green beans and broccoli
- Popcorn, crackers, and Rice cereal
- Sherbert, sorbet
- Coffee or tea without milk
- Light-colored sodas (such as ginger ale)
- Fruit juices

What are High-Phosphorus foods to avoid

- Dairy products such as milk, cheese, custard, cottage cheese, yogurt, ice cream, pudding
- Nuts, seeds, peanut butter
- Dried beans and peas such as baked beans, black beans, chick peas, garbanzo beans, kidney beans, lentils, lima, northern beans, pork and beans, split peas and soybeans
- Bran cereals
- Whole grain products
- Certain Beverages such as cocoa, ale, beer, chocolate drinks, and **dark cola drinks**

Eating at Home

- Use nondairy creamers and milk substitutes in place of milk in cereals, coffee, and many sauces.
- Serving size is very important because most foods have phosphorus. Remember, a large amount of a low-phosphorus food can turn into a high-phosphorus food.
- Watch out for food additives containing phosphorus. They are often found in baking powder, cake donuts, cake mixes, pasta products, and puddings.

Eating at Restaurants

- Choose restaurants best suited to your diet or where food is made to order. Call ahead and explain that you are following a special diet. Ask about the menu and how their food is prepared. Many restaurants have websites with menus posted.
- Avoid mixed dishes or casseroles, which are usually higher in sodium and phosphorus.
- For desserts, choose from those that have simple preparations to avoid “hidden” phosphorus and potassium.
- Avoid desserts with chocolate, cream cheese, ice cream or nuts. They will be much higher in potassium and phosphorus.

Choices: Ethnic Foods

For French food

- Be careful – French foods can be high in phosphorus.
- Avoid foods prepared in heavy butter, cheese, or cream sauces.

For Mexican food

- Order a la carte or select entrees that are not served with beans or excess cheese.

For Asian and Indian food

- Be careful – Asian and Indian foods can be high in phosphorus.
- Avoid the yogurt, and remember that many Indian desserts contain milk and will be high in phosphorus.

For Soul food

- Be careful – Soul food is often high in phosphorus.
- Limit the phosphorus-rich foods like dried beans, black-eyed peas and organ meats, such as chitterlings/chitlins.

Do you need to limit phosphorus?

Here is the best approach

- ***The best approach: Check with your doctor to find out if you need to limit phosphorus***
 - ***Phosphorus*** is a mineral found in bones. Along with calcium, phosphorus helps build strong, healthy bones, and keeps other parts of your body healthy.
- ***Some patients need to limit phosphorus?***
 - Too much phosphorus in your blood can cause changes that pull calcium out of your bones, making them weak. High phosphorus and calcium levels also lead to dangerous calcium deposits in your blood vessels, lungs, eyes and heart.
- ***How much is okay to eat?***
 - Ask your doctor to recommend the total limited
 - Ask him what your target is:
 - Eat less than _____ mg per day.

Word on Calcium in Foods

- Sometimes, your medications can cause your calcium levels to get low and other times your calcium to be high
- It is important to know what your calcium levels are too!
- Dialysis patients should maintain their Calcium levels between 8.5 and 10.2 mg/dL
- Sources of calcium include
 - Dairy products
 - Soy
 - Vegetables such as bok choy, broccoli and kale and
 - Beans such as pinto and red.

Make sure you know your lab values

- Check with your dietitian to get your Phosphorus and Calcium Levels
- Speak with your provider on what lab values are right for your situation
- Learn what you can do to control these values
- Encourage all of your patients to be aware of their lab values