

Phosphorus / Calcium

Almost everything you eat has phosphorus in it. Maintaining the correct balance between phosphorus and calcium in your bloodstream is the roll of the parathyroid gland and is done by the release of parathyroid hormone (PTH). Working kidneys maintain the delicate balance of calcium and phosphorus in your bloodstream.

However, when your kidneys no longer work well, phosphorus levels rise which causes the calcium level in your blood to decrease. Low calcium levels cause the parathyroid gland to release PTH. PTH tells your bones to break down to make more calcium available in your bloodstream. Over time, the calcium loss from your bones can lead to "renal osteodystrophy". Your bones are no longer solid and begin to have a "honeycomb" appearance, making them fragile and weak.

One way your dialysis team tries to help you control this cycle is with "binders". Many binders are available and most work to bind or grab on to extra phosphorus in your bloodstream so your parathyroid gland does not put out as much PTH.

For more information on how you can manage your phosphorus and calcium levels, speak with your dietitian.

Sodium

Sodium (or salt) is another mineral that plays an important role in your body. Sodium works with potassium in your nervous system and in the contraction of your muscles - including your heart.

When your kidneys fail, sodium levels can build up in your bloodstream. Higher levels of sodium can cause you to become thirsty, causing you to drink more and gain more fluid between treatments. This can cause high blood pressure and can make it harder for the dialysis treatment to remove your extra fluid.

To lower the risk of an increased sodium, try to avoid processed, smoked and canned foods. These usually contain high amounts of sodium (salt). Ask your dietitian for more information.



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Patient
Information
Series

UNDERSTANDING YOUR LABS



Promoting and facilitating high quality care standards for dialysis and kidney transplant patients in Iowa, Kansas, Missouri and Nebraska.

PATIENT EDUCATION SERIES

Background & Purpose

As a person with kidney failure, you are probably all too familiar with the many tubes of blood taken before and sometimes after dialysis. Your lab values provide key information to all members of the renal treatment team.

This brochure reviews basic dialysis labs. We encourage you to speak with your staff for more detailed information.

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LABS

Blood Urea Nitrogen (BUN)

This test, along with creatinine evaluate kidney function. As a person with kidney failure, this test can also evaluate whether or not you are receiving adequate dialysis.

What is Urea?

Nitrogen, in the form of ammonia, is made in the liver when protein is broken down. Nitrogen combines with other molecules in the liver to form the waste product **urea**. Urea is released into the blood stream and travels to your kidneys. Your kidneys filter the urea out of your blood and into your urine. Because urea is constantly made, you will usually have a small but stable amount in your blood. When you have kidney failure, urea is not removed by your kidneys and increases between dialysis treatments. Dialysis removes a portion of urea from your blood.

Creatinine

This test measures the amount of creatinine in your blood and/or urine. Creatinine is another waste product made in your muscles from the breakdown of a substance called creatine. Creatine helps make the energy your body needs to contract muscles. Like **BUN**, it is also constantly made; the amounts in your blood are usually stable. Almost all

creatinine is filtered from the blood and into the urine by the kidneys, so blood levels are a good measure of how well your kidneys are working. The amount made depends on the size of the person and their muscle mass. For this reason, creatinine levels will be slightly higher in men than in women and children.

Hemoglobin / Hematocrit

Hemoglobin (hgb)

Hemoglobin represents the oxygen carrying capacity of the blood. When this number is low, you may feel weak, tired, and out of breath (very easily). Oxygen is needed by all parts of your body. When you have a low hemoglobin not enough oxygen is delivered to meet the body's demands. The body then says "slow – down" in an effort to try and catch up with the oxygen demand. (This is the reason you feel tired or out-of-breath). Kidneys not only produce urine, they also produce a hormone called erythropoietin. This hormone tells the stem cells in the bone marrow to make red blood cells. For further information on anemia, please refer to the "Anemia" brochure.

Hematocrit (hct)

Hematocrit is the percent of red blood cells circulating in your body. This number, along with hgb, helps the dialysis team know if you are anemic or not.

Electrolytes

Electrolytes are minerals in your blood and other body fluids that carry an electric charge. There are many electrolytes in your body. We will only focus on potassium, phosphorus, calcium and sodium. For more information on electrolytes, please speak with your dietitian or Nephrologist.

Potassium

Potassium (also known as "K⁺"), is one of the main electrolytes that helps your muscles contract (including your heart) and plays a role in your nervous system.

Potassium carries a positive electrical charge. Too much potassium can cause your heart to beat irregularly or even can cause a heart attack. Normal kidneys remove extra potassium from your system to prevent these things. When your kidneys do not work or work well, extra potassium builds up in your blood and is removed during your dialysis treatment.

It is important to avoid foods high in potassium as much as possible. Some of these foods are: bananas, oranges, potatoes, nuts, greens, cantaloupe, tomatoes and salt substitutes.