

What is End Stage Kidney Disease?



End stage kidney disease (ESKD) is the last stage (stage five) of chronic kidney disease (CKD). This means kidneys are only functioning at 10 to 15 percent of their normal capacity. Kidneys are important organs that contribute to your overall wellbeing. When kidney function is this low, they cannot effectively remove waste or excess fluid from your blood. Kidneys are also responsible for other functions that support the body, such as balancing electrolytes and producing certain hormones. When CKD develops into ESKD, dialysis or a kidney transplant is necessary to stay alive.

Urine Production

Fully functioning kidneys clean the blood of wastes and excess fluid. These items are eliminated through urine. Because kidneys with ESKD do a very poor job of removing these items, waste and fluid collect in the body to unhealthy levels. Accumulated waste in the bloodstream can make you feel sick. This is a condition called uremia. When fluid is not removed from the body, tissues will swell and lead to a condition called edema. Excess fluid in the bloodstream can also increase blood pressure.

Electrolytes

Electrolytes are minerals and salts such as magnesium, sodium, and potassium. They are found in foods you eat and are essential to good health. However, too much or too little of these electrolytes can make you sick. Healthy kidneys make sure these levels are balanced. But kidneys affected with ESKD cannot regulate the levels of electrolytes. When this happens, changes in your body's functions occur. Sodium can cause tissues to retain water. Excess potassium can cause an abnormal heart rhythm, which may lead to cardiac arrest. Too little magnesium can affect your heartbeat and cause changes in your mental state—too much can leave you feeling weak.

Hormones

Healthy kidneys make certain hormones. One is a parathyroid hormone that activates vitamin D into a substance called calcitriol. Calcitriol helps your body absorb calcium. If your body cannot absorb calcium, your bones become weak and may break. Another hormone your kidneys make is erythropoietin. Erythropoietin tells your body to make red blood cells, which carry oxygen to the cells throughout your body. If your red blood cell count is low, you may develop anemia, which will leave you feeling weak and fatigued.

Enzymes

Renin is an enzyme kidneys produce. Renin helps the body regulate sodium and potassium levels in the blood, as well as help regulate blood pressure. When blood pressure drops, renin is released and starts a chemical reaction in the body that will produce a substance called angiotensin. Angiotensin causes your blood vessels to narrow. This helps raise blood pressure. Angiotensin also signals the adrenal glands (found at the top of your kidneys) to release a hormone called aldosterone. Aldosterone tells the kidneys to retain salt (sodium) and excrete potassium. By retaining salt, the body keeps more water in the system. This water raises the blood volume and blood pressure. Kidneys affected by ESKD sometimes make too much renin, which keeps blood pressure levels high. This kind of high blood pressure can be difficult to treat. Regular dialysis treatment, following your renal diet and taking prescribed medications can go a long way in managing ESKD. If you have been diagnosed with end stage kidney disease, it is important to follow your health care team's advice regarding treatment.