



July-August 2012

## OUR AMAZING KIDNEYS

by Lanny and Marilyn Johnson

In order for us to live, God has designed our bodies with some very special organs that all have certain jobs to do ... the brain, the heart, the lungs, the kidneys, and many more. Every bit as important as our hearts are our two kidneys. You need at least one kidney to live!

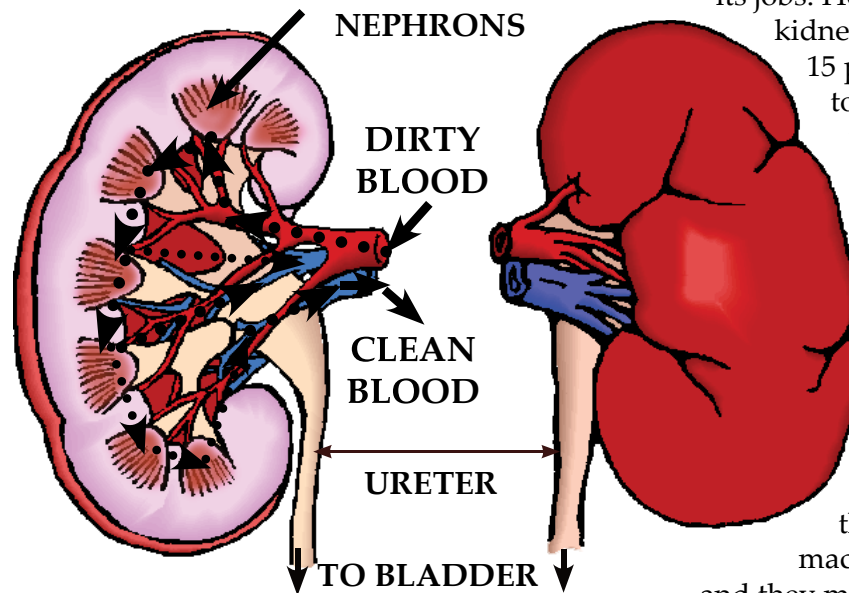
Our two dark red kidneys are bean-shaped (kidney beans have the same shape) and are each about the size of an adult fist. They are located just under our back ribs, on each side of our spine.

The kidneys do several important jobs which help keep our bodies healthy. One of the main jobs is to filter the wastes and poisons out of the blood. If the kidneys did not remove them, these wastes would build up to dangerous levels and harm our body. Some wastes in the blood come from cells and muscles wearing out. Other wastes come from food our bodies use for energy. After the body has taken the stuff it needs from food, the left-over wastes are sent to the blood which then goes to the kidneys to be cleaned up.

As the blood travels through the kidneys, it travels through tiny filters (so small you

can only see them with a high-powered microscope) called nephrons (nef-ronz). Each kidney has about a million nephrons which clean or purify about 200 quarts (189 liters) of blood each day, pulling out about 2 quarts (1.89 liters) of waste and extra water.

The filtered wastes and extra water become urine (pee). Tiny tubes collect the urine which then travels to the bladder through larger tubes called ureters (yu-ree-ters). The bladder is a sac that stores urine until releasing it through urination (peeing).



The kidneys have many other very important jobs to do besides filtering and purifying the blood:

- They balance the blood to be about 51% water – too much water could make blood too thin, causing our blood pressure to drop. Not enough water and the blood would be too thick and the heart could not pump it.
- They measure out the correct amounts of minerals, salts, acids, and bases in the blood that are needed for life.
- They make a hormone (special chemical)

that can make our blood vessels narrower. This causes a higher blood pressure when it is needed to make sure that blood gets to all parts of our body.

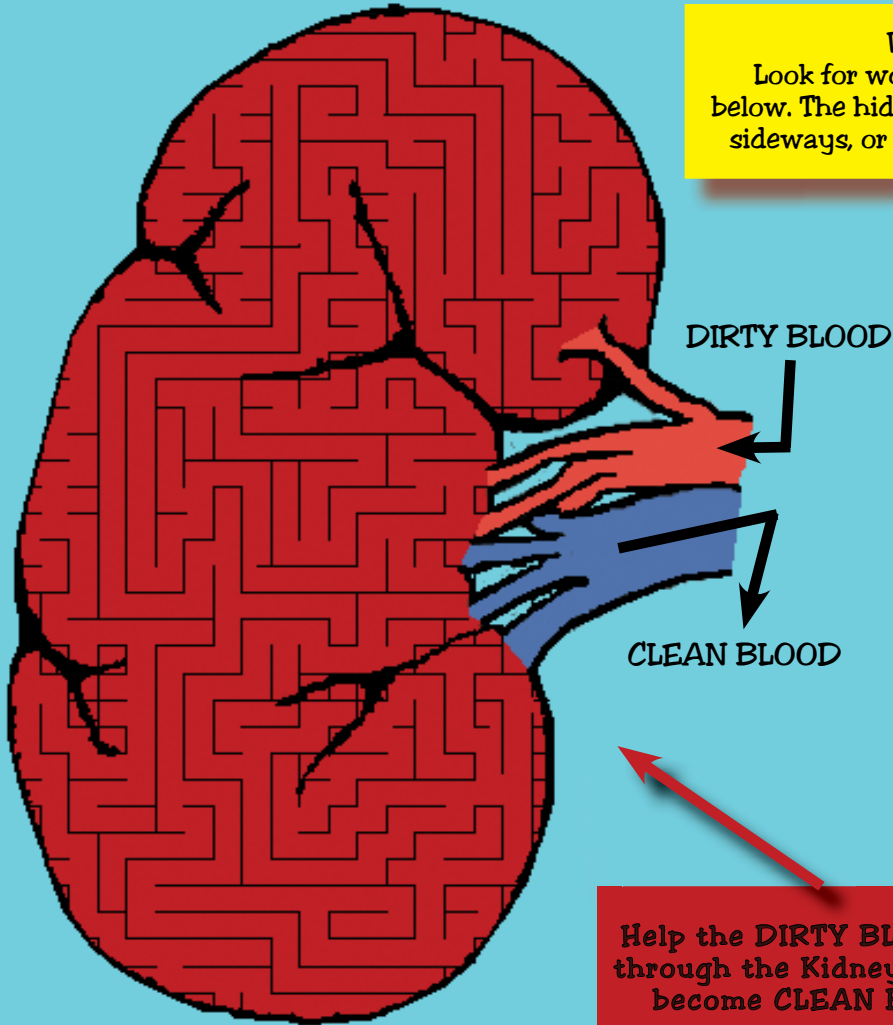
- They make a hormone that tells the body when to make more red blood cells.
- They make vitamin D that helps the body to absorb calcium it gets from dairy products and some other foods we eat. Calcium is important for making strong bones and teeth.

Amazingly, we can still live with only one kidney, even if that kidney is not doing all of its jobs. However, if a diseased or damaged kidney gets to where it is only doing 10 to 15 percent of its job, a person may need to be hooked up to a special machine, which like a kidney washes and cleans the blood. The person has to be hooked up to this machine for several hours a day and the treatment repeated about 3 days a week.

It took engineers a long time to design these special machines, yet they are not only hundreds of times bigger than our kidneys, but they work far less efficiently than the kidneys. Many times these special machines cannot keep a person healthy and they may need to have a kidney transplant in order to live. Doctors will take a healthy kidney from someone and put it into the person with the failing kidneys. This transplanted kidney works far better than the man-made machine.

These special machines did not happen by chance and accident. They took intelligent design. Do you think your kidneys, which work far, far better than anything man can design, happened by chance and accident? The kidneys also took an intelligent designer, and that designer is God!

**WORDSEARCH**  
 Look for words from the **WORD LIST** below. The hidden word might be up, down, sideways, or slanted, but not backwards.



Help the **DIRTY BLOOD** get through the **Kidney Maze** to become **CLEAN BLOOD**



**WORD LIST**  
 ACCIDENT ACID BASE BLADDER BLOOD BRAIN CALCIUM CELLS  
 CHANCE DESIGN ENGINEER FILTER FOOD HEART HORMONE INTELLIGENT  
 KIDNEY LIFE LUNG MACHINE MINERALS NEPHRONS POISONS PURIFY  
 SALTS URINE VITAMIN WASTES WATER

FOR ANSWERS GO TO: <http://www.discovercreation.org/kids/NewsletterAnswers.htm>