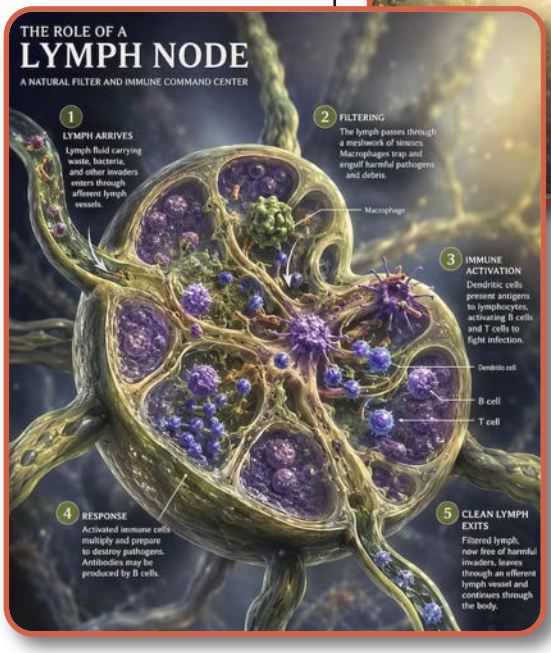
GRATITUDE FOR OUR BODILY SYSTEMS:

THE URINARY & LYMPHATIC SYSTEMS

Arnie Shapiro, M.D.

Can the ***Urinary System and Lymphatic Systems*** be discussed together? Yes. They are both filtering and cleansing systems. These functions are vital to all complex animals. The metabolism of daily life produces byproducts. Removing them is essential. Also, there might be invaders.

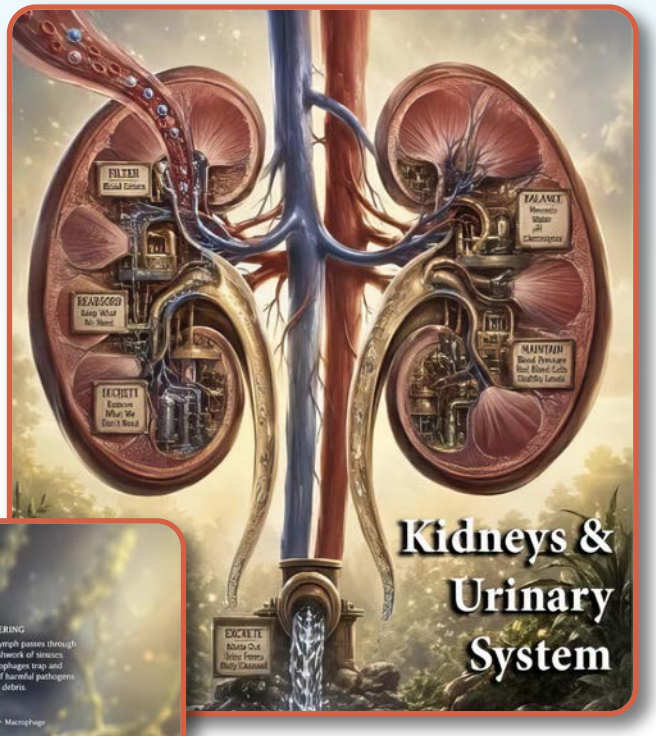
Invaders (pathogens) are generally dealt with by the ***Immune System***, as described in a previous article (link is HERE). Immune System encounters can thwart invaders, and there is often debris left over from the encounter. Nature's wisdom produces "check-points" in the lymph vessels, in the form of ***Lymph Nodes***. If pathogens gain access to the body they are effectively opposed by these defense stations.



The other essential job of the Lymphatic System is to manage the body's water that leaks out of capillaries and guide it back into the Circulatory System, thus avoiding edema. The movement of lymph is aided by routine body movements and activity. Muscular work "squeezes" on the lymph vessels. Valves within the vessels allow inward-directed flow and oppose backflow. This is similar to our veins.

Our Brain has its own filtering and cleaning system. This has been dubbed the ***"Glymphatic System."*** It involves the Glial Cells and the Cerebrospinal Fluid. The Glial cells, of which there are four types, number a staggering 100 billion, which is about equal to the number of brain neurons. The Glial Cells have been referred to as "nurse cells," because they tend to the neurons they surround. The cerebrospinal fluid gathers metabolic wastes during deep sleep, and returns them to the general circulation, which are then excreted by the Urinary System.

The Urinary System is another important filtration system that all mammals and all complex life forms have.

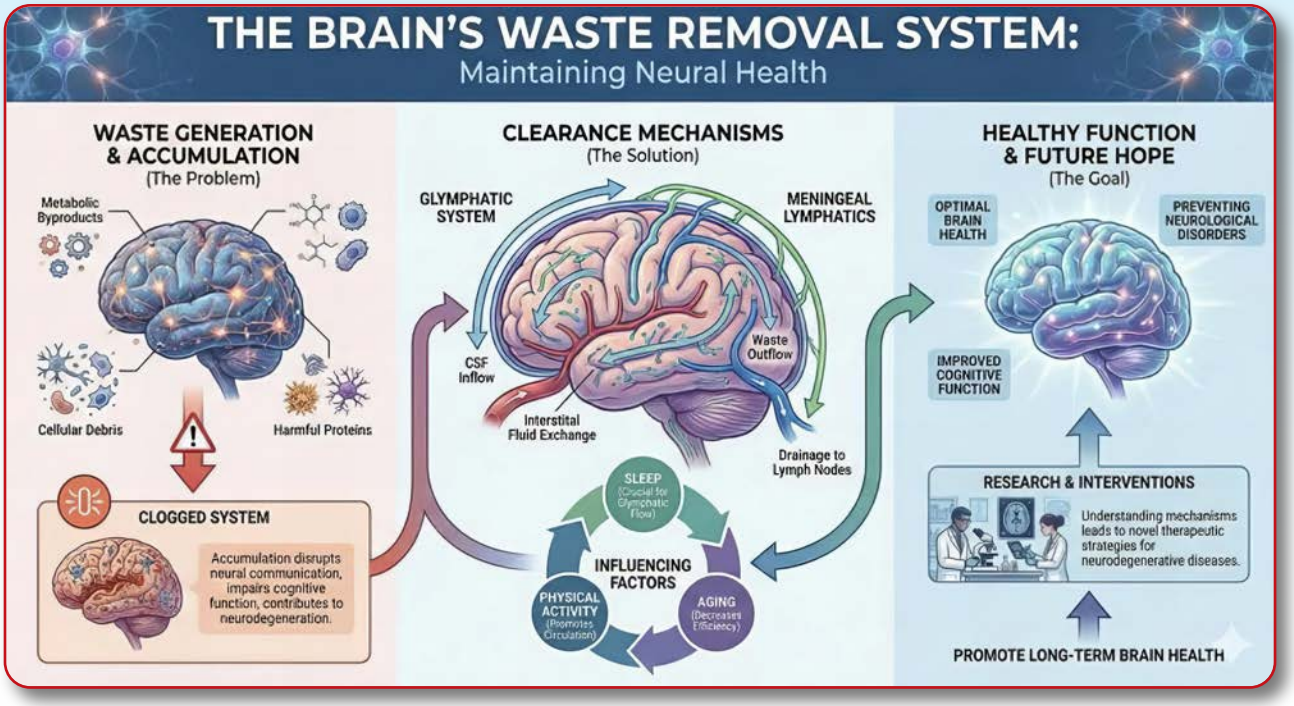


Urine is formed in the kidneys. The kidneys receive about 20% to 25% of the body's blood circulation. They do crucial removal of "waste molecules" in the blood, i.e. byproducts of all the body's systems. These byproducts are the broken-down output of proteins and fats after they have done their "work."

The filtration work of each kidney is done by a million or so microscopic units called Nephrons. The Nephrons remove byproducts of the body's metabolism, such as urea and uric acid. These fragments pass into the urine. Useful substances pass through the kidneys, and back into the general circulation.

The kidneys also remove excess fluids from the body, and maintain a healthy balance of water, salts, and minerals in the blood.

The ***Urinary Bladder*** is a remarkable structure that can hold up to 2 cups of urine before the urge to urinate occurs. "Full" status signals the brain via the pelvic nerves. The Urethral Sphincter is what relaxes to let urine flow, subject to medications, hormonal changes, and a healthy bladder.



There is an important Pituitary hormone, ADH (Anti-Diuretic Hormone), that keeps the urine in proper concentration to prevent excess water loss. If the blood gets too concentrated, ADH signals retention of water. Popular human substances, like caffeine and alcohol, inhibit ADH, and allow extra water to be lost. Thus, they interfere with hydration of the body.

The appearance of urine should be pale, with only a slight tinge of yellow. Pale indicates good hydration. In general, hydration should be guided by our activity levels. In low activity, six 8 oz glasses of water per day is ideal. In high activity or high sweating, that number could be doubled or more. High sugar or salt content in liquids is not recommended. Electrolytes, like those found in Gatorade, should be added only if there are intense amounts of sweating. Thirst indicates the need for more water. Dark urine indicates poor hydration. Lightheadedness, fast pulse at rest, and headache might be other indicators of dehydration.

HOW CAN WE BEST TAKE CARE OF OUR LYMPHATIC SYSTEM AND OUR URINARY SYSTEM?

1) Stay well-hydrated. Pale light yellow urine is an indicator of good hydration.
2) Avoid excess sugar and salt. Limit processed foods (chips, canned soups, deli meats).
3) Moderate protein intake. Excess protein can overwork the kidneys. Focus on high quality protein sources, such as lean meats, fish, eggs, lean poultry, and plant proteins.
4) Choose heart-healthy foods, which translates to kidney-healthy foods: fruits and vegetables (variety of colors), whole grains (brown rice, oats), healthy fats (olive oil, nuts, seeds).
5) Limit added sugar: reduce sugary drinks, desserts, and processed snacks.
6) Avoid excesses of caffeine and alcohol. Avoid smoking.
7) Stay physically active every day. Prolonged sitting should be mixed with physical activity. Take a 10-minute walk for each 50 minutes of sitting.
8) Seek medical advice if you have urinary discomfort/dysfunction, or swelling of the extremities or lymph nodes.

In summary, the Urinary and Lymphatic Systems perform essential roles every day of our lives. They are the body's "cleansers." They work 24/7/365. They help all the other bodily systems do their work. The design work has been done by DNA and the Tree of Life. We are the recipients of millions of years of advances. Every bodily system deserves our sincerest gratitude and wisest care. ■

— Namaste!

Dr. Shapiro is a career clinic physician who has utilized relaxation techniques with many of his patients. Prior articles by Dr. Shapiro can be found in the Archives at NaturalLifeews.com. His YouTube channel is: "Arnie Shapiro, MD • Breathing Easy." Email Dr. Shapiro at: alloydshapiro@gmail.com.