

Kidney Health

by Sophia



WHAT'S COVERED

In this lesson, you will learn to identify common disorders of the kidneys. Specifically, this lesson will cover:

1. Kidney Stones

Kidney stones can develop from minerals or other substances that are found in urine. These can be things like uric acid or calcium salts that settle out of urine to form these kidney stones. Kidney stones can range in size from being pretty small to fairly large.

If a kidney stone is small enough, it'll end up just passing out of the body with the urine. If they're large enough, they can become very painful as they move through the urinary system and can clog up different parts of the urinary system. They may get clogged in a ureter, which connects a kidney to the urinary bladder. At that point, the person would have to go to the doctor and get some sort of treatment to break this kidney stone down into a size small enough to pass. This can be a very painful process and may also cause damage to the lining of ureters.



TERM TO KNOW

Kidney Stones

Deposits of acids and salts that accumulate in the kidneys and can obstruct the flow of urine; kidney stones are very painful to void.

2. Urinary Tract Infections

Urinary tract infections are caused when bacteria from outside the body make their way into the bladder and cause inflammation. They are actually more common in women because they have a much shorter urethra than men, so it's much easier for bacteria to travel up a short urethra and into the bladder than up a very long urethra and into the bladder.



TERM TO KNOW

Urinary Tract Infection (UTI)

Infections that enter the urethra and can climb as high as the kidneys, UTIs cause inflammation of the urinary bladder or kidneys.

3. Nephritis

Nephritis is the inflammation of the kidneys, which can be caused by bacterial infections, among other factors, and result in pressure build up around capillaries. Filtration of blood then becomes ineffective. Because of its hard outer covering, the kidney has a hard time swelling if fluid accumulates within it.

Remember that the renal arterioles are very narrow, so blood pressure is relatively high when it enters the glomerulus (just like when you put your thumb over the water stream of a hose, making the spray shoot harder and further). It's this pressure that forces the water and solutes of the blood plasma into the Bowman's capsule for filtration. If there's back-pressure (if there's inflammation of the kidneys pushing back on the pressure from the renal arterioles), the total pressure of the blood plasma on the capillaries of the glomerulus is less. The result is less fluid being forced from the blood into the Bowman's capsule, so filtration is far less effective.



TERM TO KNOW

Nephritis

Inflammation of the kidneys caused by infections or autoimmune disorders.

4. Kidney Cancer

Kidney cancer is a cancer of the kidney, as the name implies. This type of cancer can actually spread very easily through the bloodstream because kidneys filter the blood. If the kidneys have cancer, it can be fairly easy for some of those cancerous cells to basically flow with the blood and implant themselves in another part of the body. Kidney cancer can spread easily throughout the body due to its access to the bloodstream.

Bladder cancer is another cancer that is closely related to the kidneys. Both bladder cancer and kidney cancer are more common in men than they are in women.



TERM TO KNOW

Kidney Cancer

Cancer that occurs in the kidneys; it is more prevalent in males than in females.

5. Dialysis

Dialysis is a process in which a machine will clean the blood if the kidneys are unable to. If a person has some sort of kidney disorder, where kidneys are not properly functioning, they can't properly filter the blood. Dialysis is the process in which a machine will filter blood for them. A dialysis machine cleans the blood and helps maintain the volume and composition of extracellular fluids.



TERM TO KNOW

Dialysis

The process of artificially filtering a person's blood by pumping it out of their body and into a

machine; dialysis is a necessary procedure for a person whose kidneys are failing or completely gone (failed).

6. Alcohol Consumption

Consumption of alcohol is another factor that can have an effect on kidney health. Consumption of alcohol will inhibit ADH, which stands for anti-diuretic hormone. This causes the body to lose more water, and as the body loses more water, the concentration of ions will be upset, and balance will be altered. Alcohol causes the kidneys to increase urinary output, which will then lead to dehydration. If a person heavily drinks over a long period of time throughout their life, it can actually lead to much more serious kidney disorders in the future.



SUMMARY

This lesson has been an overview on kidney disorders and health. Specifically, you learned about **kidney stones**, **urinary tract infections**, **nephritis**, both **kidney cancer** and bladder cancer, the benefits of **dialysis** and the dangers of **alcohol consumption**.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



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Kidney Stones

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Nephritis

Inflammation of the kidneys caused by infections or autoimmune disorders.

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