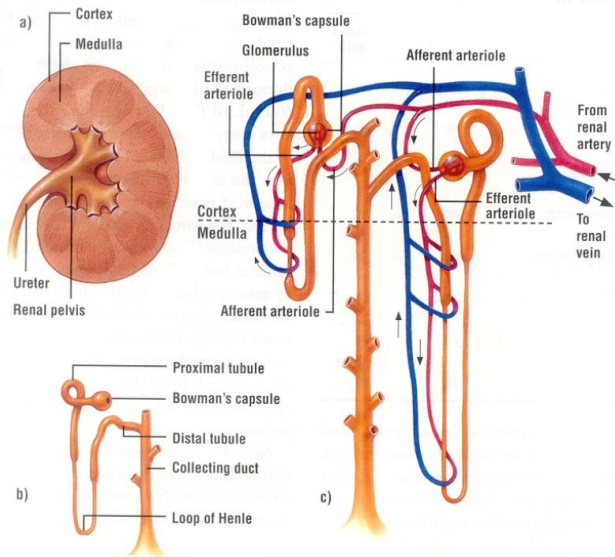


Describe the anatomy of a nephron.

The nephron is the major functioning unit of the kidney, and there are approximately one million per kidney, so they are pretty small. As you can see from the visual, a nephron is a pretty weird looking thing. It starts with the renal corpuscle, composed of an afferent arteriole, the glomerulus (“little ball”) and an efferent arteriole, and then continues with the proximal convoluted tube, the loop of Henle (which ducks down quite a bit below the rest), the distal convoluted tube and the collecting duct, where waste is pushed out into the cavity of the kidney.



Describe the internal blood flow of the kidneys. How is it different from a venous portal system?

I wasn't sure if this question was asking about the blood flow of the whole kidney or the nephrons, so I did both. For the kidney as a whole, blood flows in from the renal arteries, which branch out to create internal collateral circulation, and then flows out through the renal veins. Each nephron has its own blood supply, however, which loops around the structure and allows for molecules to be shared between the blood and the nephron, either sending waste to be excreted or pulling back things the body needs. In the glomerulus of each nephron, blood is forced through a arterial capillary bed into arterioles, which is different from portal systems because they are venous capillaries to venules.