

Name _____

Nephrons: The Kidney's Filtering Units

Short Answer Key

1. The renal corpuscle, consisting of the glomerulus and the Bowman's capsule, is responsible for the initial filtration of blood in a nephron. The glomerulus allows high-pressure blood to enter, and plasma is filtered into the nephron while retaining blood cells and larger molecules.
2. In the proximal convoluted tubule, essential substances like water, glucose, and amino acids are selectively reabsorbed back into the bloodstream. Simultaneously, waste products and excess substances continue to be processed for elimination in urine.
3. The loop of Henle plays a crucial role in concentrating urine by reabsorbing additional water from the urine. As the urine flows through the loop, more water is reabsorbed into the bloodstream, resulting in concentrated urine.
4. Nephrons are essential for maintaining the body's water balance because they can adjust the reabsorption of water based on the body's hydration level. When the body is well-hydrated, nephrons reabsorb less water to produce more dilute urine. In times of dehydration, they reabsorb more water to conserve it, producing concentrated urine.
5. Nephrons play a significant role in regulating the body's acid-base balance by selectively excreting excess hydrogen ions to lower blood acidity or retaining them to increase alkalinity. This helps maintain the body's pH level within a healthy range and prevent acid-base imbalances.

