

# Excretion

## Definition & Basics

Excretion is the process of removing toxic materials, metabolic waste products, and excess substances from the body. For example:

- **Kidneys** excrete urea, excess water, and salts as urine.
- **Lungs** excrete carbon dioxide.

- Urea is formed in the liver by **deamination**\* (removal of nitrogen from excess amino acids).

## Urinary System:

- Kidneys produce urine by filtering blood.
- Ureter transports urine to the bladder for storage, and it's eventually excreted through the urethra.
- Urine volume and concentration depend on factors like hydration and temperature.

## Kidneys and Nephrons:

- The kidneys contain tubules called nephrons, which filter water, glucose, urea, and salts from the blood.
- Most water, glucose, and salts are reabsorbed; the rest forms urine.

## Kidney Machines:

- For kidney dysfunction, dialysis removes urea from blood by diffusion. Blood passes through tubes with semi-permeable membranes, allowing urea to diffuse into a bathing liquid with lower urea concentration.
- Kidney transplants provide a more permanent solution, but require a suitable donor and pose risks of tissue rejection.