

Human Biology Notes

For BIOL1003, BIOL1903, and BIOL1993

Excretion

Aims

- Identify different types of waste and where they are produced and excreted
- Discuss the function of the kidneys
- Describe the role of hormones in the regulation of urine volume and blood pressure

Waste

- Undigested food in the large intestines (faeces) – removed by defecation
- Excess ions and water – removed by kidneys
- Bilirubin – used to digest fat
- Metabolic waste
 - o Water
 - o Heat
 - o Carbon Dioxide
 - o Breakdown of amino acids to form toxic ammonia
 - Liver combines ammonia with CO_2 to form urea which is 100 times less toxic
 - o Breakdown of creatine phosphate into creatinine
 - o Breakdown of nitrogenous bases from RNA in the form of uric acid

Where waste is excreted

- Lungs – CO_2 , water and heat
- Skin – heat, water, some salts and nitrogenous waste
- Liver (prepares waste for removal)
 - o Bilirubin (becomes component of bile which allows the emulsification of fat)
 - o Converts NH_3 into less toxic urea
- Digestive system – Solid wastes, pigments, water, heat
- Kidneys

Kidney Functions

- Excretion
 - o Excretes urine, which contains
 - Urea
 - Creatinine
 - Uric acid
 - Poisons
 - Drugs
 - Excess water and solutes
 - o Homeostasis
 - Water level
 - Determines blood volume and blood pressure
 - o Blood pressure controlled by blood volume, ADH and aldosterone
 - Electrolytic balance in tissue fluid and blood
 - pH by excretion of H^+ and NH_4^+