

Homeostasis

Homeostasis is defined as the maintenance of constant internal conditions within organisms. The principle can be developed in a wide range of contexts, including the maintenance of balanced water levels in the blood, the regulation of body temperature in mammals, the regulation of blood glucose levels and the removal of excretory products, such as urea.

Osmoregulation: the regulation of water levels by the kidney

Low water level in blood water is reabsorbed from the kidney nephron into the blood concentrated urine produced

high water levels in the blood less water is reabsorbed from filtrate in the kidney nephron dilute urine produced

Excretion: is the removal of waste products of metabolic reactions made inside the body cells

The kidney Purpose removal of nitrogenous waste (urea) production of urine osmoregulation

Removal of Urea urea is made in liver amino acids -> ammonia -> urea -> blood transports it to the kidney

Production of Urine kidney has filtration units called nephrons (they clean the blood)

Types

Ultrafiltration: small molecules are filtered through the nephrons, large molecules, such as red blood cells and proteins are not filtered.

Selective Reabsorption: useful molecules are returned to the blood. The rest is sent to the bladder as urine.

Humans are endothermic, warm blooded. Have body temperature of 36.7 C.

Homeostasis: the maintenance of internal conditions within an organism

balance of water levels (osmoregulation) regulation of body temperature regulation of blood glucose level removal of excretory products

Regulation of body temperature

Sweating - sweat glands - lets out a solution of urea, salt and water

Vasodilation & Vasoconstriction

Hot Weather - Vasodilation capillaries close the skin dilate increased blood flow through skin heat loss by radiation skin feels warmer and looks redder

Cold Weather - Vasoconstriction capillaries close to skin constrict reduced blood supply to the skin less heat lost through skin skin feels cold and looks pale

Regulation of Glucose levels

Carbohydrate (stimulus): Pancreas (receptor) -> stimulated and secretes hormone insulin -> insulin decreases glucose levels to normal

Insulin causes body cells to absorb more glucose and change it into glycogen

Diabetes: when pancreas doesn't create insulin. Diabetics take insulin shots. It is not taken orally because it is a protein and would be digested by protease

About the Author

Source: <http://crampuppy.com>