

📖 Topic Page: [Homeostasis](#)

Definition: **homeostasis** from *Philip's Encyclopedia*

In biology, processes that maintain constant conditions within a cell or organism in response to either internal or external changes. An example is the regulation of body temperature by the skin and liver.

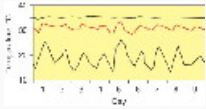


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Summary Article: **homeostasis**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

Maintenance of a constant environment within and around living cells, particularly with regard to pH, salt concentration, temperature, and blood sugar levels. Stable conditions are important for the efficient functioning of the enzyme reactions within the cells. In humans, homeostasis in the blood (which provides fluid for all tissues) is ensured by several organs. The kidneys regulate pH, urea, and water concentration. The lungs regulate oxygen and carbon dioxide (see breathing). Temperature is regulated by the liver and the skin (see temperature regulation). Glucose levels in the blood are regulated by the liver and the pancreas.

Body cells need to be in surroundings where the conditions do not change much and never reach extremes that are damaging to them. The surroundings of body cells inside the body can be called an 'internal environment'. Homeostasis is the keeping of this internal environment stable. Special processes are needed to keep things stable and these may be called homeostatic processes.

Conditions that are regulated in homeostasis include blood glucose level, temperature, water content of the body, and the amount of carbon dioxide and urea being carried by the blood. Body cells are surrounded and bathed in fluid. This fluid – tissue fluid – is made from blood. This supplies the cells with mineral salts, such as glucose. As glucose is needed by cells all the time as a fuel for respiration, the level of glucose must not be allowed to fall. It is also damaging if the level gets too high. The hormone insulin is used to help keep blood glucose levels constant, by increasing its uptake into cells and stimulating the conversion of glucose into glycogen in the liver.

The skin of humans is involved in maintaining a constant body temperature, using sweat glands, hairs, altering the blood flow to the skin, and shivering. The brain detects the internal temperature of the body and can send nerve impulses to the skin to cause it to lose more heat if the body temperature rises, and lose less heat if it falls. If the internal temperature of the body rises or falls by more than a few degrees, cells cannot function properly and death may result.

Waste products such as urea and excess salt are removed from the blood by the kidneys. Urea is made from protein that has been broken down. The kidneys also keep the water content of the body in balance. This is regulated by the hormone ADH from the brain, which increases the retention of water in the body.

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