

TOPIC: HOMEOSTASIS

- **Homeostasis:** maintenance of a stable _____ environment.
 - **Homeo:** Greek for “similar” or “the _____”.
 - **Stasis:** Greek for “standing _____”.
- Internal conditions are kept at a set-point / narrow _____.
 - _____ **equilibrium:** body is always changing—_____ a fixed state.
- Failure to maintain homeostasis: _____ (pathology).



EXAMPLE: Provide three examples of physiological variables that are under homeostatic control.

Variable	Range	Pathology — _____ of Range
Blood _____	7.35 to 7.45	_____ or alkalosis.
Internal Body _____	97 °F to 99.5 °F (36 °C to 37.5 °C)	_____ or _____ thermia.
Blood _____	70 mg/dL to 90 mg/dL (post fasting)	Hypoglycemia or hyperglycemia (symptoms of _____).

PRACTICE: Which example most clearly describes a system maintained by homeostasis?

- a) A growing child will deposit new bone rapidly until the endocrine system signals the end of puberty.
- b) During the “fight-or-flight” response, the sympathetic nervous system causes a change in many physiological factors from increased blood pressure to decreased pain response.
- c) Humans typically have 46 total chromosomes, 23 inherited from their biological mother and 23 from their biological father.
- d) Blood osmolality is maintained by the kidneys in a range from about 290 to 300 mOsm/kg.

PRACTICE: Which example below describes a system that is NOT able to maintain homeostasis?

- a) A person who is running breathes more rapidly in response to changing in O₂ and CO₂ levels.
- b) A person with diabetes will experience large spikes and crashes of blood glucose without proper monitoring.
- c) A person moving from the cold to inside a warm house, but their body temperature does not change.
- c) When fluid levels in the body are high, the kidneys will remove more water from the blood.