

Body Temperature

Dr. Mariam Al-Ashbal

MBChB

MSc of Community Medicine

What is body temperature?

- Body temperature is a measure of the body's ability to **generate** and **get rid** of heat.
- The body is very good at keeping its temperature within a narrow, safe range in spite of large variations in temperatures outside the body.

How to maintain body temperature?

- When you are **too hot**, the blood vessels in your skin **expand (dilate)** to carry the excess heat to your **skin's surface**. You may begin to **sweat**, and as the **sweat evaporates**, it helps **cool** your body.
- When you are **too cold**, your blood vessels **narrow (contract)** so that blood flow to your skin is **reduced** to **conserve** body heat.
- You may start **shivering**, which is an involuntary, **rapid contraction** of the **muscles**. This extra muscle activity helps generate more heat. Under normal conditions, this keeps your body temperature within a **narrow, safe range**.

Perioperative thermoregulation and heat balance

- **General anesthetics** greatly **impair thermoregulation**, synchronously reducing the thresholds for **vasoconstriction** and **shivering**.
- **Neuraxial anaesthesia** also **impairs** central thermoregulatory control, and **prevents** vasoconstriction and shivering in blocked areas.
- Consequently, un-warmed anaesthetized patients become **hypothermic**, typically by **1-2°C**. Hypothermia results initially from an internal redistribution of body heat from the core to



Complications of perioperative hypothermia include

- **Coagulopathy and increased transfusion requirement, surgical site infection, delayed drug metabolism, prolonged recovery, shivering, and thermal discomfort.**

Body temperature measurements

- Our body temperature can be measured in many locations on your body:
- The **mouth, ear, armpit, and rectum** are the most commonly used places.
- Temperature can also be measured on your **forehead**.
- **Normal body temperature:**
- **Oral temperature:**
- **Fahrenheit: 98.6°F**, more above or below by (1°F).
- **Celsius: 37°C** more above or below by (0.6°C).



Causes of fever

- **Infection:** This is the **most common cause of a fever.**
- **Medicines:** such as antibiotics, narcotics, barbiturates, antihistamines, and many others.
- **Severe trauma or injury:** such as a heart attack, stroke, heat exhaustion or heatstroke, or burns.
- **Other medical conditions:** such as arthritis, hyperthyroidism, and even some cancers, such as leukemia.

Low body temperature:

An abnormally low body temperature (**hypothermia**) can be serious, even life-threatening.

Causes of hypothermia:

- Cold exposure.
- Shock.
- Alcohol or Drug use.
- Certain metabolic disorders, such as diabetes or hypothyroidism.