Homeostasis and temperature control by the skin

- Homeostasis = the maintenance of a constant internal environment (body temperature about 37 °C).
- Receptors in the skin detect a change → impulses to the **brain** (coordinates) → effectors: sweat glands, arterioles, muscles.
- Hot: arterioles dilate → **more** blood near the surface → **more** heat lost by radiation. Sweat evaporates and takes heat.
- Cold: arterioles constrict; less sweat; shivering (respiration releases heat); hairs raised.
- Blood vessels never move — only the arterioles change width.

Hot and cold compared

Too hot	Too cold
sweat glands make **more** sweat	sweat glands make **less** sweat
arterioles **dilate**: more blood flows near the surface	arterioles **constrict**: less blood flows near the surface
more heat lost by radiation and evaporation	**less** heat lost
no shivering	**shivering**: respiration in muscles releases heat
hairs lie flat	hairs raised: trap a layer of air