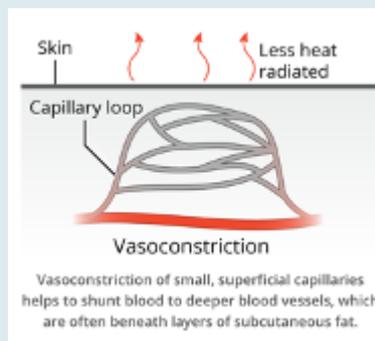


## ▼ Physiological mechanisms of heat gain

### ▼ Vasoconstriction

- Sympathetically mediated vasoconstriction of superficial arterioles & vasodilation of shunt vessels beneath the skin moves blood away from surface so heat is conserved
- Aided by layer of subcutaneous fat



### ▼ Shivering

- Involuntary contractions of skeletal muscle, which expands energy and helps to warm the body
- Can increase heat production in the skeletal muscles up to 2-5x

### ▼ Piloerection

- Sympathetic nervous system triggers contraction of the arrector pili muscle which causes body hair to stand erect; traps insulating layer of air between the bumps which reduces heat loss;
- however, since much of body hair has been lost through evolution this is not as effective

## Hot Environments

### ▼ Integumentary structures involved in heat loss