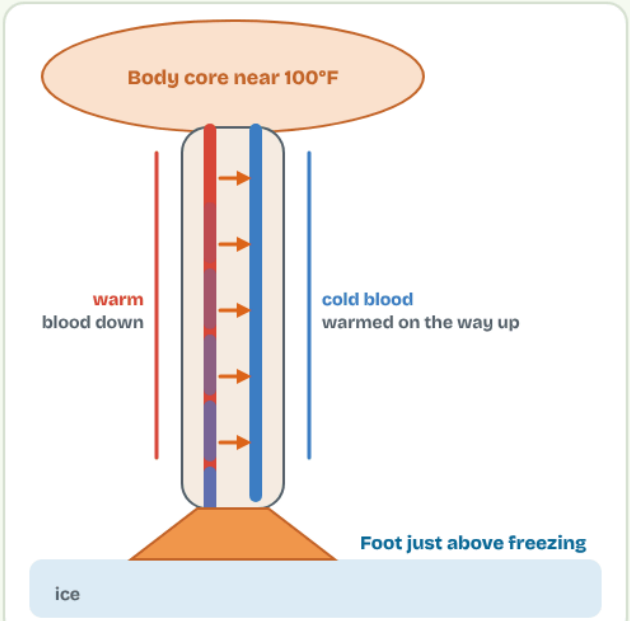
That is why

Why don’t ducks’ feet freeze?

Warm blood going down hands its heat to cold blood coming up, so the feet run just above freezing and lose very little.

A The heat swap in the leg

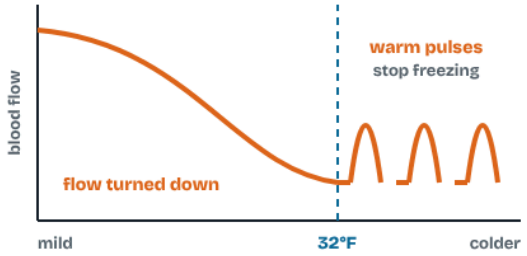


Heat crosses from the artery to the veins all the way down, so blood reaching the foot is already cool. Mallards press 7+ arteries against even more veins.

B A faucet and a small gap

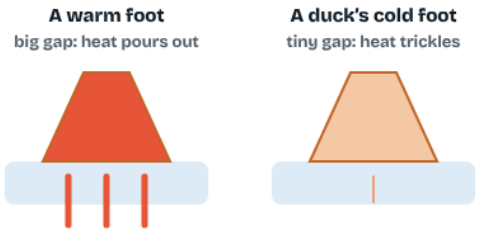
Blood flow to the feet as air cools

shape drawn for illustration



In seabirds, each surge fades after 30 to 60 seconds.

The smaller the gap, the slower the leak

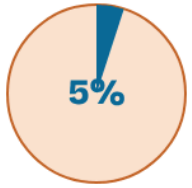


In ice water, a 1–2 mm layer of web can hold back a gap of about 40°C.

C How little it costs

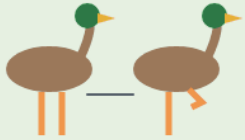
Mallard body heat lost

through the feet



the rest stays in the body

Hide a leg



One leg up: half the bare leg hidden.

Sitting down hides both legs.

1 Built for cold

Mostly tendon and bone, little muscle or nerve for the cold to hurt.

Cold feet are the point: the heat turns back before it reaches the ice.

Free for learning thatiswhy.com

Free for learning, teaching and research. Please credit: That Is Why, thatiswhy.com

Diagram: https://thatiswhy.com/diagrams/why-dont-ducks-feet-freeze/ · Full guide: https://thatiswhy.com/why-dont-ducks-feet-freeze/