From footstrike to an iron-allocation hypothesis

The paper links terrestrial locomotion to recurring physiological costs, then proposes body-hair reduction as an iron-conservation response.

01 Repeated foot-ground impact

Terrestrial travel repeatedly compresses tissues and small vessels in the foot.

02 Red-cell damage

Footstrike haemolysis releases haemoglobin from damaged red blood cells.

03 Iron recovery or loss

The fate of released haemoglobin determines whether iron is recycled or leaves the body.





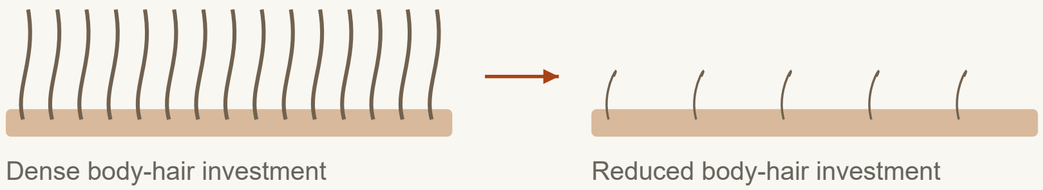
NORMAL RECOVERY

Haemoglobin binding and liver / spleen recovery conserve iron. Red-cell destruction does not automatically equal permanent iron loss.

LOSS PATHWAY IN THE MODEL

When binding and recovery capacity is exceeded, haemoglobin can be filtered into urine. Urinary haemoglobin or haemosiderin can carry iron out of the body.

THE AUTHOR'S PROPOSED EVOLUTIONARY RESPONSE



Recurring iron burden → reduced follicular investment. The model proposes selection for less dense body hair, redirecting resources toward essential maintenance and, later, expanding neural demands.

Converging costs: the paper also includes sweat-related iron loss and exertional gastrointestinal losses. The proposed hair response is an inherited evolutionary allocation change, not simply an episode of individual hair shedding.

Source: corrected Version 2, terrestrial adaptation and body-hair sections; Telford et al. (2003), Lippi & Sanchis-Gomar (2019), Harrison & Bergfeld (2009), as cited there. The chronic ancestral loss burden and adaptive hair-allocation explanation are the author's model; no loss rate or iron saving is quantified here.