

The ascent of man: Why our early ancestors took to two feet

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A new study by archaeologists at the University of York challenges evolutionary theories behind the development of our earliest ancestors from tree dwelling quadrupeds to upright bipeds capable of walking and scrambling.

The researchers say our upright [gait](#) may have its origins in the rugged landscape of East and South Africa which was shaped during the Pliocene epoch by volcanoes and shifting [tectonic plates](#).

Hominins, our early forebears, would have been attracted to the terrain of rocky outcrops and gorges because it offered shelter and opportunities to trap prey. But it also required more upright scrambling and climbing gaits, prompting the emergence of bipedalism.

The York research challenges traditional hypotheses which suggest our early forebears were forced out of the trees and onto two feet when climate change reduced tree cover.

The study, 'Complex Topography and [Human Evolution](#): the Missing Link', was developed in conjunction with researchers from the Institut de Physique du Globe in Paris. It is published in the journal *Antiquity*.

Dr Isabelle Winder, from the Department of Archaeology at York and one of the paper's authors, said: "Our research shows that bipedalism may have developed as a response to the terrain, rather than a response to climatically-driven vegetation changes.

"The broken, disrupted terrain offered benefits for hominins in terms of security and food, but it also proved a motivation to improve their locomotor skills by climbing, balancing, scrambling and moving swiftly over broken ground - types of movement encouraging a more upright gait."

The research suggests that the hands and arms of upright hominins were then left free to develop increased [manual dexterity](#) and tool use, supporting a further key stage in the evolutionary story.

The development of running adaptations to the skeleton and foot may have resulted from later excursions onto the surrounding flat plains in search of prey and new home ranges.

Dr Winder said: "The varied terrain may also have contributed to improved cognitive skills such as navigation and communication abilities, accounting for the continued evolution of our brains and social functions such as co-operation and team work.

"Our hypothesis offers a new, viable alternative to traditional vegetation or [climate change](#) hypotheses. It explains all the key processes in hominin evolution and offers a more convincing scenario than traditional hypotheses."

More information: 'Complex Topography and Human Evolution: the Missing Link' is published in *Antiquity*

Provided by University of York

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