

Human Evolution - Tree Climbing to Habitual Bipedalism

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Why in News?

A new study provides evidence that archaic humans had largely shifted from regular tree climbing to habitual upright walking on the ground.

Key Finding

- **Major evolutionary transition** - Arboreal lifestyle to Terrestrial bipedalism
- **Approximate period** - 1.8 million years ago
- **Evidence used** - Internal strength of limb bones
- **Fossils studied** - Little Foot and Dmanisi Homo
- **Researchers** - University of the Witwatersrand + University of Southern California

Important Fossils			 SHANKAR IAS PARLIAMENT
Fossil	Age	Species / Group	Significance
 Little Foot	3.67 million years	<i>Australopithecus</i>	• Limb strength more similar to African arboreal apes. • Greater adaptation to tree climbing. 
 Lucy	3.2 million years	<i>Australopithecus afarensis</i>	• Limb-strength pattern between modern humans and chimpanzees. • Substantial tree use. 
 Dmanisi Homo	1.8 million years	<i>Archaic Homo</i>	• Limb strength closer to modern humans. • Stronger evidence for habitual terrestrial bipedalism. 
 Dmanisi is located in Georgia , while Little Foot and Lucy were found in Africa .			

- **Methods Used by Scientists to Determine Findings**
 - Previous research primarily analyzed the morphology and proportions of fossilized limbs.

- The recent study concentrated on assessing the internal structural strength of bone shafts.
- **Analytical Framework** - Bone strength reflects the physical loads experienced, which in turn inform interpretations of locomotor behavior and habitat utilization.
 - Increased forelimb loading indicates greater use of the arms, including activities such as tree climbing.
 - Stronger adaptation of the lower limbs suggests a greater reliance on terrestrial locomotion.
- Researchers compared the strength ratios of fossil limb bones with those observed in the following extant species:
 - Modern humans
 - Chimpanzees
 - Gorillas
 - Orangutans

Reference

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