

From Ape to Human: The Evolution of feet

Quadrupedal to Bipedal

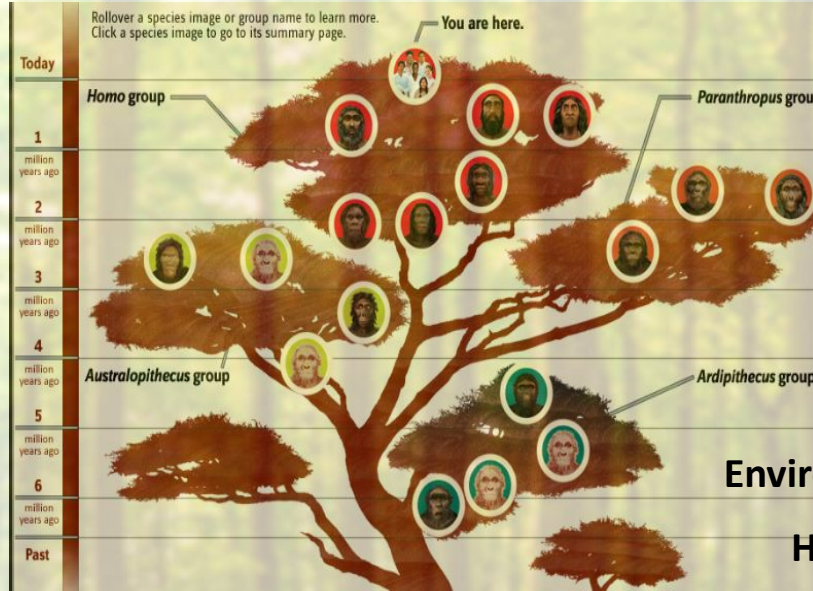


Image 1: "Human family tree" (Smithsonian Institution, 2020).

Approximately 10 - 4 million years ago the fossil record dried up along with the climate that decimated tropical forests and their inhabitants, with genetics showing a split from the chimp line. The vertebra column became vertically orientated and positioned under the skull appearing bipedal as in humans, not positioned posteriorly on the skull and facing backwards as with previous apes. Evolutionary changes in the foot such as the development of arches, aligning toes and more robust calcaneus appeared alongside geographical changes, postural feeding, food gathering and those listed around Image 2 (D'Costa, 2018; Masao, et. al., 2016; Strait, 2010, p. 342)

Social responsibility

Food specialisation

Adaptability

Genetics

Migration & dispersal

Sexual division of labour

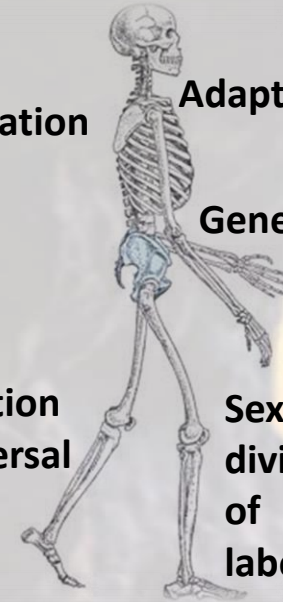
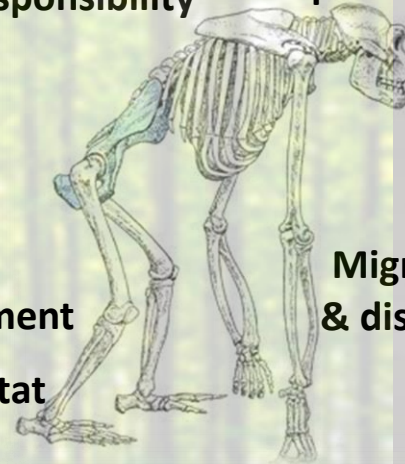


Image 2: "Bipedalism" (Kissel, 2020).

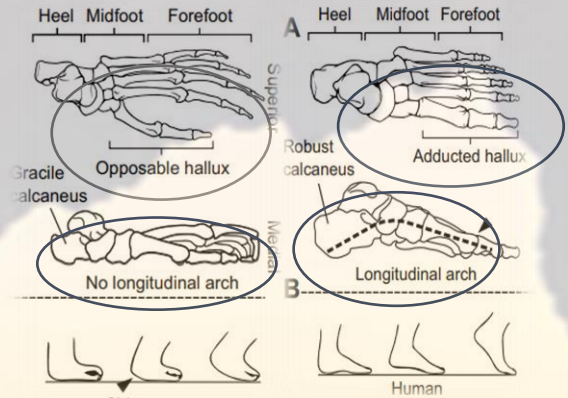


Image 3a:
Pan troglodyte
(Chimpanzee) foot

3b: Homo sapiens
(Human) foot (Holowka
and Lieberman, 2018).

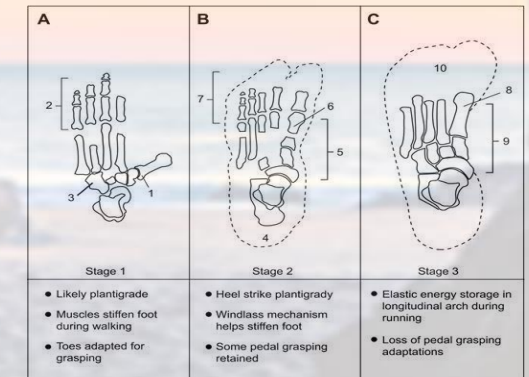
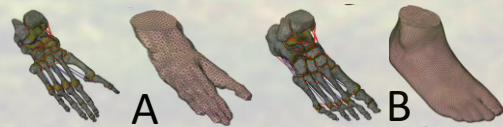


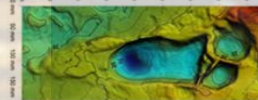
Image 4: Changes to the foot (Holowka and Lieberman, 2018, Fig. 8).



10 Toes, 52 bones
and 66 muscles

Images 5A: Primitive foot and 5B: Advanced foot" (Ellison, McNutt, Zipfel and DeSilva, 2018).

A



B



C



Image 6A: 3.66 million year old Tanzanian footprint (Masao, et. al., 2016, Fig. 9), B:3D photogrammetric elevation model of test pit L8 with preserved tracks and contour lines (Masao, et. al., 2016, Fig. 5) and C: Modern human footprint (D'Costa, 2018).

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