

# Foot and Ankle Arches Complexity

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## Abstract

The presence of high rocky feet in modern society is the result of natural selection of long-distance running. On the other hand, the old trait of unripe feet on our great baboon relatives has been preserved because of their preference to hold tree branches as part of their arboreal life. The distinction between baboon feet and human feet began with the ancestor of the first man *Ardipithecus ramidus*, in which the reinforced plantar tissue emerged, which supported the premature movement of the earth before the appearance of the real arch. However, the skeletal longitudinal arch structure itself did not begin to evolve until *Australopithecus afarensis* transformed a much lower longitudinal arch (compared to modern humans) and the first signs of a parallel arch associated with it.

## Introduction

The foot is a body region that is farther away from the leg and has 28 bones. These bones are organized into longitudinal and transverse arches with the support of various muscles and ligaments. There are three arches in the foot, called:

1. Middle longitudinal arch
2. Lateral longitudinal arch
3. The opposite arch

These bows play an important role in standing, walking, and running. Their shape allows them to act in the same way as spring, carrying weight and capturing the shock produced during travel. The flexibility provided by the foot by these arches helps with tasks such as walking and running.

## Middle Arch

The middle arch is higher than the longitudinal arch lateral. It is composed of calcaneus, talus, navicular, three cuneiform (middle, middle, and lateral), as well as the first, second, and third metatarsal. Its top is located at the highest point of the talus, and its two points, where it sits in a standing position, are the tuberosity in the plantar area of the posterior calcaneus and the first, second, and third bone heads before. Its weakest part (i.e., the part that should be found most in excessive pressure) is the joint between the talus and the navicular, but this part is bound by the plantar calcaneonavicular ligament aka spring ligament, which is flexible and thus able to quickly replace