Bone Structures of the Distal Limb

To expertly shape the hoof capsule through trimming, extensive knowledge about the anatomy of the hoof and the horse is important. As the hoof is the horse's base of support, everything you do (while trimming) will influence the structure above the hoof as well.

There are 4 bones to be noted from the ground up:

The **coffin bone**, also known as pedal bone, distal phalanx or P3

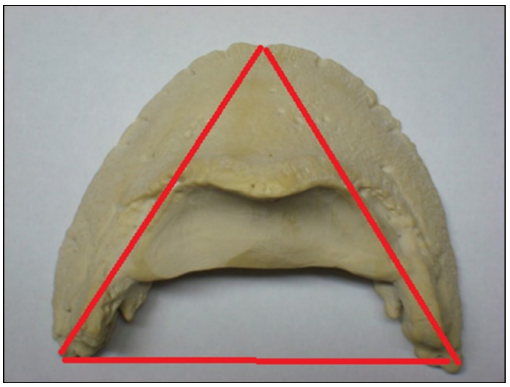
The **navicular bone**, also known as distal sesamoid bone.

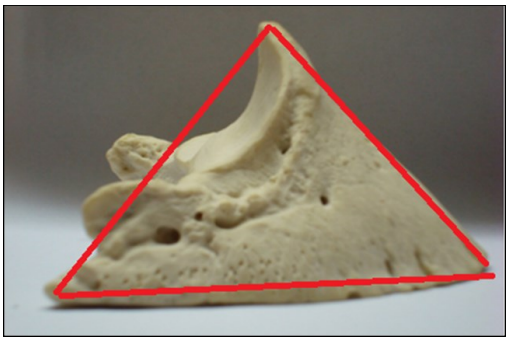
The **short pastern bone**, also known as P2 or middle phalanx - fits on top of the coffin bone – connects the coffin bone with the long pastern bone

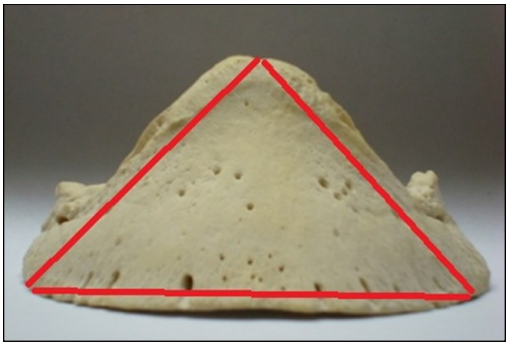
The **long pastern bone**, also known as P1 or proximal phalanx - connects the short pastern bone and the cannon bone

Coffin Bone

Try to memorize the shape of the coffin bone from every aspect. This is best done by making a few drawings.



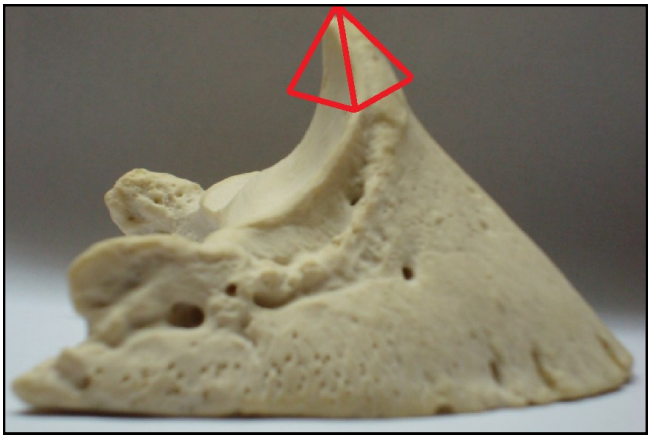




The coffin bone has a triangular shape from all these aspects.

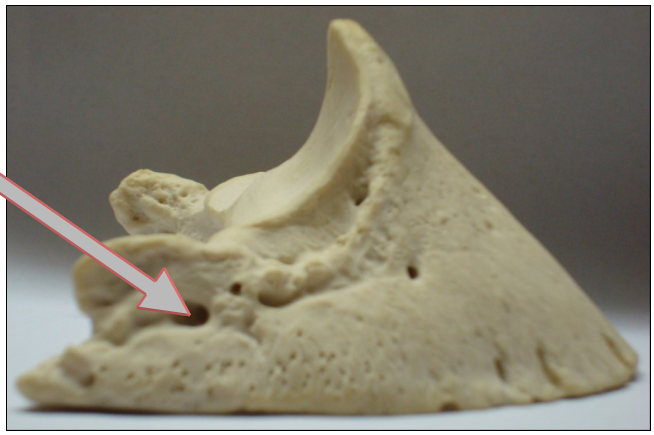
UNO ALLA VOLTA — ONE AT A TIME

The frontal extension on top is named the extensor or pyramidal process.

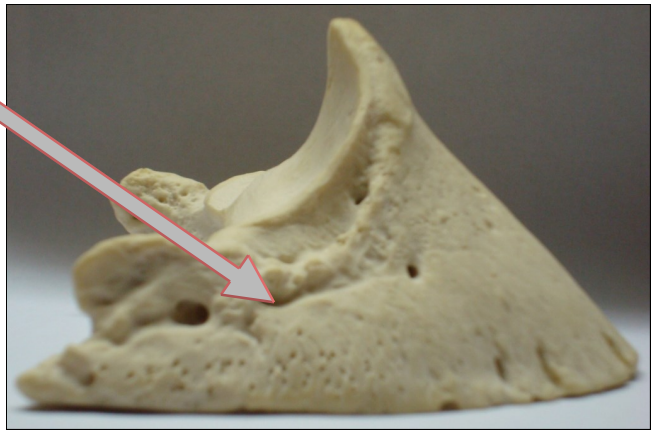


The two wing like extensions on the back are named palmar or lateral processes.

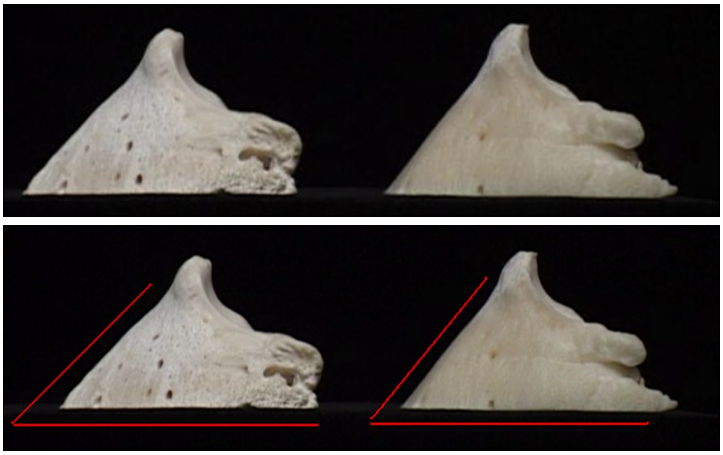
There are openings in the coffin bone where the arterial supply exits/enters.



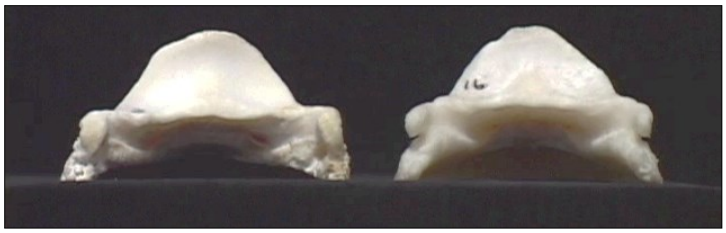
There also is a groove on both sides where the alternate artery to the toe runs as well as nerves.



In a lateral view, the frontal surface of the front coffin bone to the ground is more shallow than the frontal surface of the hind coffin bone to the ground. In a healthy hoof the angle of the front coffin bone is approximately 45-50°, while the angle of the hind coffin bone is approximately 55—60°



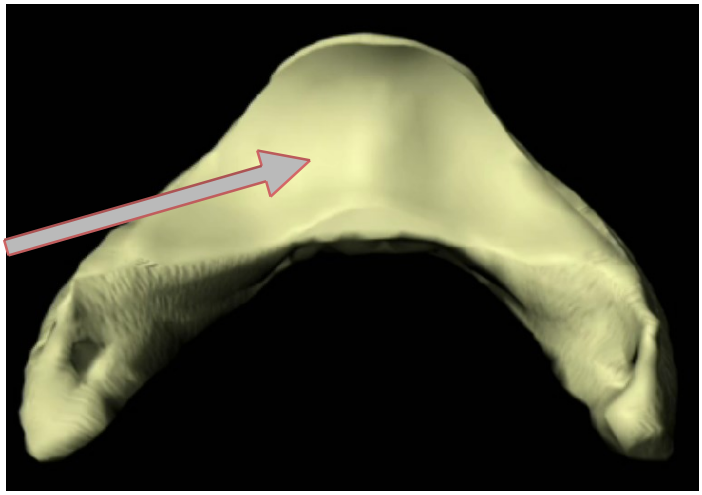
Viewed from behind, the coffin bones of the front hooves are more shallow, the coffin bones of the hind hooves are more vaulted.



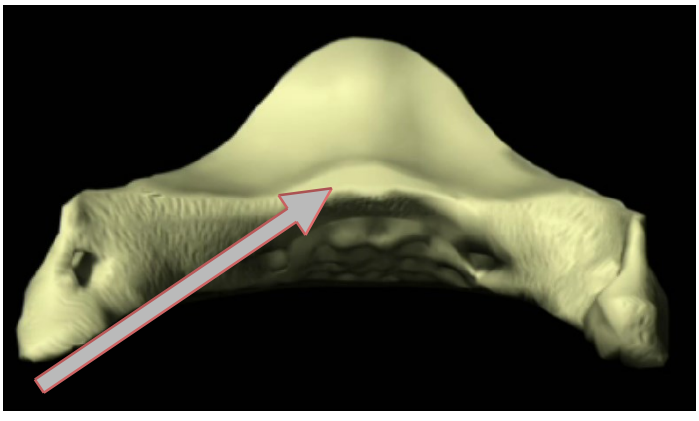
Viewed directly from above or below, the frontal coffin bones have a rounder shape while the coffin bones of the hind hooves are a little more elliptical.
Top:
Front coffin bone is rounder
Bottom:
Hind coffin bone is more pointed, more spade like

The distal margin of the coffin bone has a pointed edge, in a healthy coffin bone this edge is not sharp, but slightly round-ed.

The solar aspect of the coffin bone is vaulted. At its deepest point, the volar* concavity is in a healthy front hoof
approx. 1 ½ cm deep, while in a healthy hind hoof it is about 1 ½ —2 cm deep.



[*volar: relating to the palm of the hand or the sole of the foot; *specifically* **:** located on the same side as the palm of the hand <the *volar* part of the fore-arm>]



The coffin bone has two joint surfaces. A fairly large one on top where P2, the short pas-tern bone, connects

The coffin bone of a newborn foal has the same basic shape, but the palmar processes are not yet developed

Pictures: HoofCareUnLtd.— Coofin bone model: Dr. Hiltrud Strasser— Coffin bone comparisons: Dr. Hiltrud Strasser —The Glass Horse—Coffin bone foal: Todd Merrell

Text: Claudia Garner