**Distal Forelimb Vasculature**

**Arteries:**

The arterial supply to the digit and fetlock of the thoracic limb comes mainly from the **median palmar artery**. The median palmar artery divides in the distal fourth of the [metacarpus](https://en.wikivet.net/Limb_Bones_and_Cartilages_-_Horse_Anatomy#Metacarpals_and_Metatarsals) between the [superficial and deep digital flexor tendons](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Flexors) and the [suspensory ligament](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Flexors), to become the **medial and lateral digital arteries**. Part of the **deep palmar arch** anastamoses with the **lateral digital artery** to form the **superficial palmar arch**, which supplies the [fetlock joint](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Metacarpophalangeal_.28Fetlock.29_Joint).

The digital arteries run superficially in the proximal [fetlock](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Metacarpophalangeal_.28Fetlock.29_Joint) region, emerging palmar to their satellite vein and between the palmar digital nerve and its dorsal branch. The medial and lateral digital arteries run distally over the [fetlock](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Metacarpophalangeal_.28Fetlock.29_Joint) and each branches to supply the [fetlock joint](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Metacarpophalangeal_.28Fetlock.29_Joint), [digital extensor](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Extensors) and [flexor tendons](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Flexors) , digital sheath, ligaments fascia and skin.

The **short artery of the proximal phalanx** arises from the medial and lateral digital arteries, immediately dividing into dorsal and palmar branches to form a circle around the middle of the [proximal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Proximal_Phalanx). This supplies the [proximal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Proximal_Phalanx) and surrounding structures. The **palmar branch of the short artery** runs between the [proximal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Proximal_Phalanx) and the [digital flexor tendons](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Flexors) to join the contralateral vessel between the sesamoidean ligaments. The **dorsal branch** joins the contralateral vessel deep to the [common digital extensor tendon](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Extensors).

In the region of the [proximal interphalangeal](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Proximal_Interphalangeal_.28Pastern.29_Joint)(pastern) joint, the **bulbar artery (artery of the digital cushion)** arises from each digital artery. This artery branches to supply the [frog](https://en.wikivet.net/Hoof_-_Horse_Anatomy#Frog), [digital cushion](https://en.wikivet.net/Hoof_-_Horse_Anatomy#Digital_Cusion), palmar part of the cuneate corium, laminar corium of the heel and bar and palmar parts of the perioplic and coronary corium.

The **coronal artery** arises from the digital artery or the bulbar artery to supply the heel and perioplic corium. The coronal artery then anastamoses with branches from the **dorsal artery of the middle phalanx**. The dorsal artery of the middle phalanx arises from each digital artery in the mid-region of the [middle phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Middle_Phalanx), forming the **coronary arterial circle**; as the palmar and dorsal branches anastamose to form a complete arterial circle around the [middle phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Middle_Phalanx). This coronary arterial circle supplies the [distal interphalangeal](https://en.wikivet.net/Joints_and_Ligaments_-_Horse_Anatomy#Distal_Interphalangeal_.28Coffin.29_Joint) (coffin) joint, [common digital extensor tendon](https://en.wikivet.net/Tendons_-_Horse_Anatomy#Extensors), perioplic and coronary corium, fascia and skin.

Branches from the conjoined **palmar branches of the middle phalanx** anastamose to form the **navicular plexus**, providing several small arteries to foramina along the proximal border of the [distal sesamoid](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone) (navicular) bone. This plexus provides approximately one third of the total blood supply to the [navicular bone](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone).

At the level of the palmar process of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx), the **digital artery** forms a **dorsal branch** of the distal phalanx, then continues distally to the **terminal arch**. The dorsal branch gives off a small artery to supply the [digital cushion](https://en.wikivet.net/Hoof_-_Horse_Anatomy#Digital_Cusion) and corium of the [frog](https://en.wikivet.net/Hoof_-_Horse_Anatomy#Frog), before it passes through a foramen in the palmar process of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx). It then bifurcates on the dorsal surface of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx) to form branches that supply the corium of the heels and quarters, laminar corium of the toe, and eventually joining branches of the **coronal artery** and the **marginal artery of the sole**. The termination of the dorsal branch of the distal phalanx joins with a vessel that comes from the **terminal arch** in the solar canal. It then branches into several small arteries which enter the distal border of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx).

The **medial and lateral digital arteries** run in the solar groove of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx). Each gives off branches to the **navicular plexus** in the distal sesamoidean (impar) ligament. The navicular plexus gives rise to the **distal navicular arteries**, which enter the [distal sesamoid](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone) (navicular) bone at the distal border and anastamose within the foraminae of the bone. These distal navicular arteries supply the distal two thirds of the [navicular bone](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone).

The **medial and lateral digital arteries** enter the solar foramen and form the **terminal arch** within the solar canal of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx). Branches from the terminal arch run through foraminae on the parietal surface of the [distal phalanx](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Phalanx) to supply the laminar corium. Several of these branches emerge near the solar border and anastamose to form the **marginal artery of the sole**. This supplies the solar and cuneate corium.

**Veins:**

Venous drainage from the laminar corium is via **parietal veins** from the laminar circulation to the **parietal venous plexus** and **coronary venous plexus**. The coronary venous plexus also receives veins from the perioplic and coronary corium. Veins from the solar and cuneate corium drain into the **solar venous plexus**.

Veins in the solar canal anastamose at the level of the [distal sesamoid](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone) (navicular) bone, forming the **medial and lateral terminal veins**. The **medial and lateral terminal veins** join branches of the **inner venous plexus** to form the **digital vein**. This digital vein receives venous drainage from the [navicular bone](https://en.wikivet.net/Phalanges_-_Horse_Anatomy#Distal_Sesamoid_.28Navicular.29_Bone), **coronary vein** (coronary region), **inner venous plexus** and **bulbar vein** (heel).

Most of the venous drainage from the equine foot is via veins on the palmar aspect, which generally lack valves. Some small branches of the coronary, sub-coronary and bulbar veins have valves. This means that blood flow from the foot can take different routes and that weightbearing is essential for blood to flow proximally.