

THE TOP 10 injuries in bones, joints, tendons and ligaments and the preventive effect of TWIN™ SHOES on these.

BART HALSBERGHE, JUNE 2022

DVM, DECVSMR (Equine), DABVP (equine practice), cert. ISELP, cVMA, cVSMT, CERT

Contents:

1. BONES

- 1.1 Navicular disease 2**
- 1.2 Fractures (long pastern bone, canon bone, ...) 2**
- 1.3 Bone oedema like lesions (inflammation) 3**

2. JOINTS

- 2.1 Synovitis and capsulitis**
- 2.2 Osteoarthritis (coffin joint, pastern joint, fetlock joint)**
- 2.3 Cartilage erosions**

3. TENDONS and LIGAMENTS

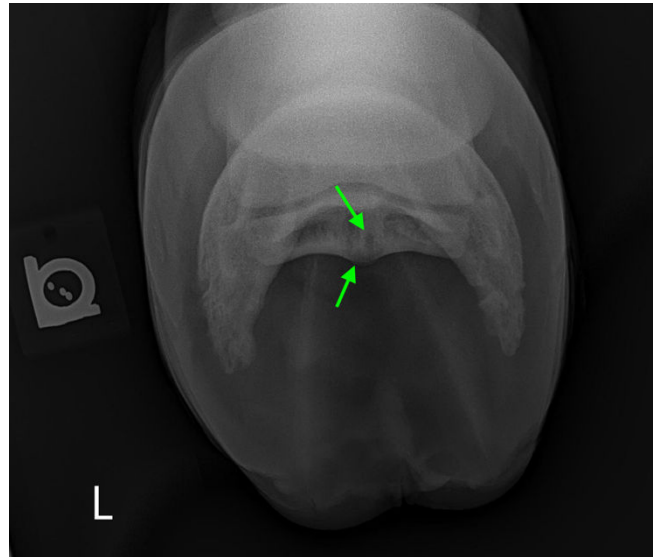
- 3.1 Superficial digital flexor tendon (SDFT) injury (Bowed Tendon).**
- 3.2 Suspensory ligament injury**
- 3.3 Deep digital flexor tendon (DDFT) injury**
- 3.4 Collateral ligament injury of the foot**

1. Bones:

1.1. Navicular disease.

CAUSE: altered biomechanics leading to increased force on the navicular bone at mid-stance and push-off.

Twin™ Shoe: protective effect (reducing force) on the navicular bone by (1) maintaining normal distal limb joint angulation by allowing a normal functioning hoof mechanism (heel movement and sagittal flexibility), by (2) maintaining hoof angle between shoeing intervals due to more equal hoof wear of toe and heels, and by (3) light weight shoe design.



1.2. Fractures (long pastern bone, cannon bone, ...).



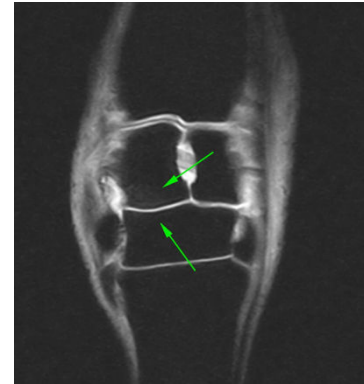
CAUSE: impaired shock absorption at impact.

Twin™ Shoe: protective effect (reduced force) on the bone by maintaining natural shock absorption capacity of the hoof (including digital cushion and frog) by allowing a normal functioning hoof mechanism (heel movement) and circulation to take place.

1.3. Bone oedema like lesions (inflammation).

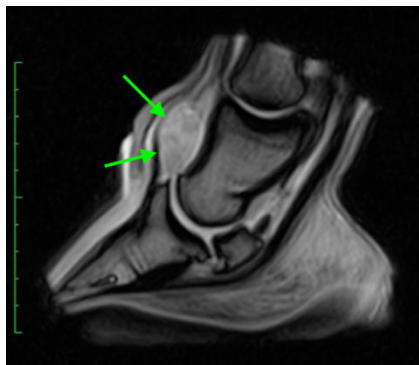
CAUSE: impaired shock absorption at impact.

Twin™ Shoe: protective effect (reduced force) on the bone by maintaining natural shock absorption capacity of the hoof (including digital cushion and frog) by allowing a normal functioning hoof mechanism (heel movement) and circulation to take place.

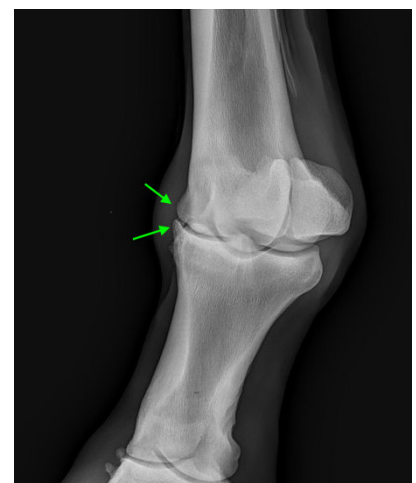


2. Joints:

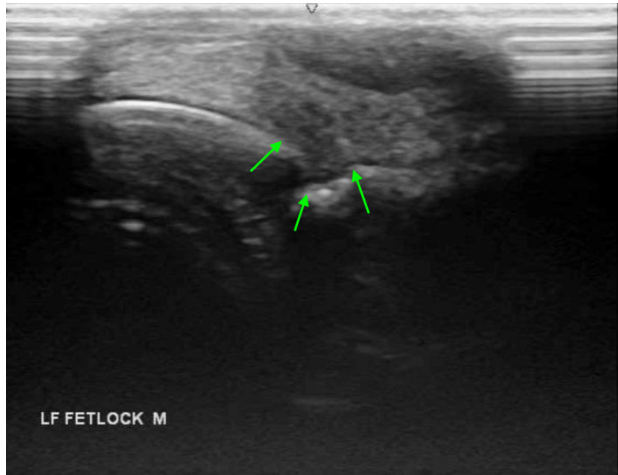
2.1. Synovitis and capsulitis (inflammation).



2.2. Osteoarthritis (coffin joint, pastern joint, fetlock joint).



2.3. Cartilage erosions.



CAUSE (all joint diseases): altered biomechanics leading to increased strain on the joints and impaired shock absorption.

Twin™ Shoe (all joint diseases): protective effect (reducing stress) on the joint and its surrounding structures by:

- ⇒ maintaining normal distal limb joint angulation by allowing a normal functioning hoof mechanism (heel movement and sagittal flexibility),
- ⇒ maintaining medio-lateral joint balance on circles and on uneven surface by allowing a normal functioning hoof mechanism (lateral flexibility),
- ⇒ maintaining natural shock absorption capacity of the hoof by allowing a normal functioning hoof mechanism (heel movement) and circulation and
- ⇒ maintaining hoof angle between shoeing cycles due to more equal hoof wear of toe and heels.

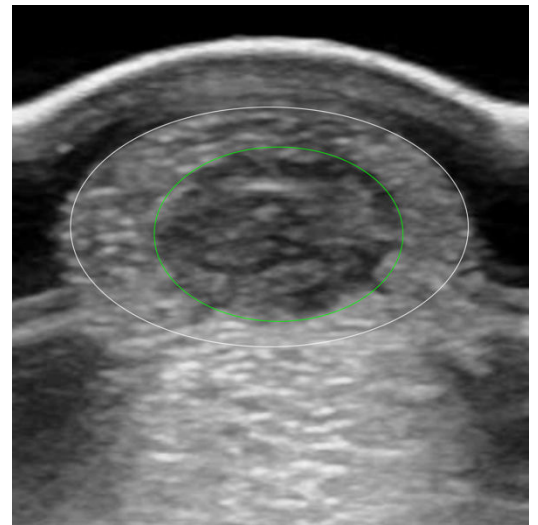
3. Tendons and ligaments:

3.1. Superficial digital flexor tendon (SDFT) injury (Bowed Tendon).

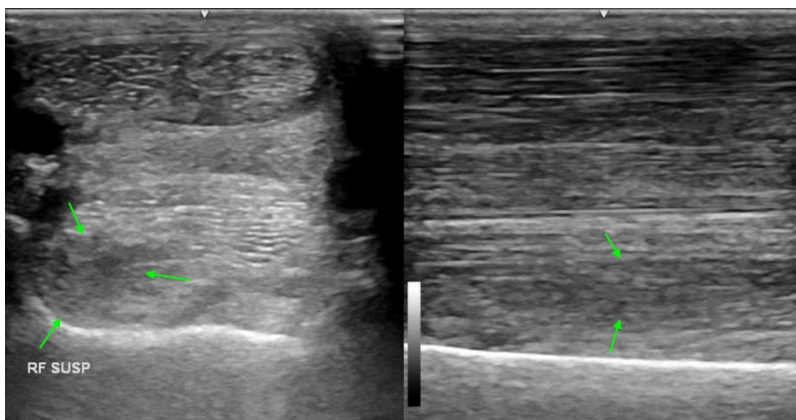
CAUSE: altered biomechanics leading to increased strain on the SDFT at impact and mid-stance.

Twin™ Shoe: protective effect (reducing strain) on the SDFT by:

- ⇒ maintaining normal distal limb joint angulation by allowing a normal functioning hoof mechanism (heel movement and sagittal flexibility) and
- ⇒ maintaining medio-lateral joint balance in circles and on an uneven surface by allowing a normal functioning hoof mechanism (lateral flexibility).



3.2. Suspensory ligament injury.



CAUSE: altered biomechanics leading to increased strain on the suspensory at impact and mid-stance.

Twin™ Shoe: protective effect (reducing strain) on the suspensory by:

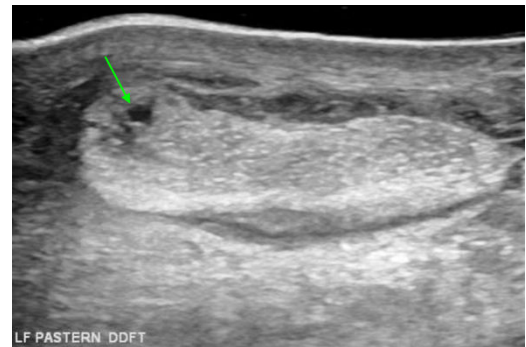
- ⇒ maintaining normal distal limb joint angulation by allowing a normal functioning hoof mechanism (heel movement and sagittal flexibility)
- ⇒ maintaining medio-lateral joint balance in circles and on an uneven surface by allowing a normal functioning hoof mechanism (lateral flexibility) and
- ⇒ maintaining hoof angle between shoeing cycles due to more equal hoof wear of toe and heels.

3.3. Deep digital flexor tendon (DDFT) injury

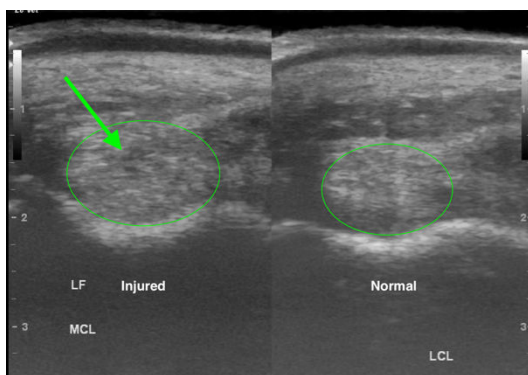
CAUSE: altered biomechanics leading to increased strain on the DDFT at push-off.

Twin™ Shoe: protective effect (reducing strain) on the DDFT by:

- ⇒ maintaining normal distal limb joint angulation by allowing a normal functioning hoof mechanism (heel movement and sagittal flexibility),
- ⇒ maintaining medio-lateral joint balance in circles and on an uneven surface by allowing a normal functioning hoof mechanism (lateral flexibility) and
- ⇒ maintaining hoof angle between shoeing cycles due to more equal hoof wear of toe and heels.



3.4. Collateral ligament injury of the foot.



CAUSE: altered biomechanics leading to increased strain on the collateral ligaments during turning and on uneven footing.

Twin™ Shoe: protective effect (reducing strain) on the collateral ligament by maintaining medio-lateral joint balance in circles and on an uneven surface by allowing a normal functioning hoof mechanism (lateral flexibility).