DISTAL LIMB LAMENESS DIAGNOSIS AND TREATMENT

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The origin of lameness

Legs (tendons, ligaments, joints, bones, hoof..)

The origin of lameness

- Submitted the lesions are located on the back, neck, etc.

AAEP grading system.29

0: Lameness not perceptible under any circumstances.

1: Lameness is difficult to observe and is not consistently apparent, regardless of circumstances (e.g. under saddle, circling, inclines, hard surface, etc.).

2: Lameness is difficult to observe at a walk or when trotting in a straight line but consistently apparent under certain circumstances (e.g. weight-carrying, circling, inclines, hard surface, etc.).

3: Lameness is consistently observable at a trot under all circumstances.

4: Lameness is obvious at a walk.

5: Lameness produces minimal weight bearing in motion and/or at rest or a complete inability to move.

HISTORY

- Age, service, lameness beginning other lameness, werw or not treatet, frequency of shoeing.
- Wich is the consultation reason.
- Recived treatment for this lameness?.
- What?

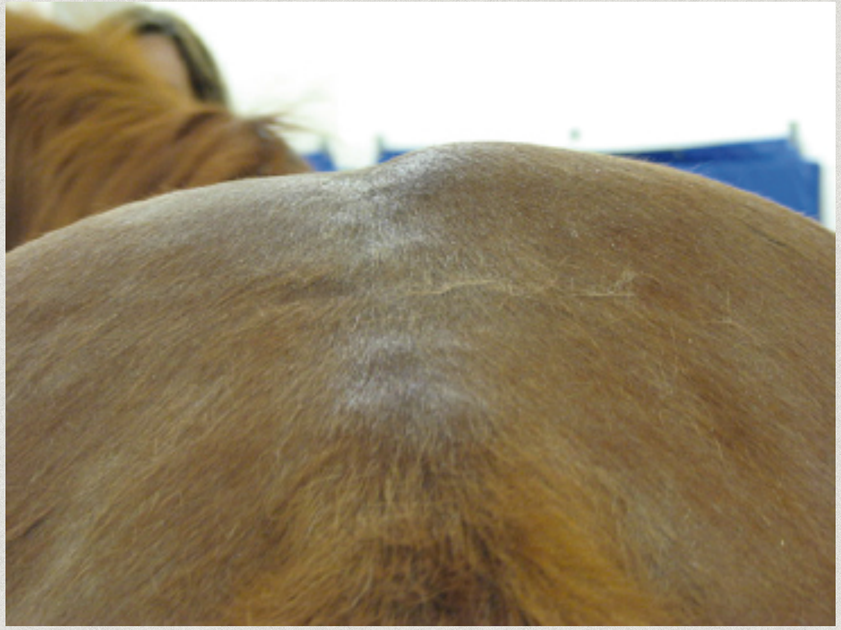
- OTHER COMPLICATIONS- gastric ulcer, gastritis etc.

Static examination

- **General – temperature, puls, respiratory rate,conformation, apearence of the leafs, hug etc.**

How he resisted!!!!

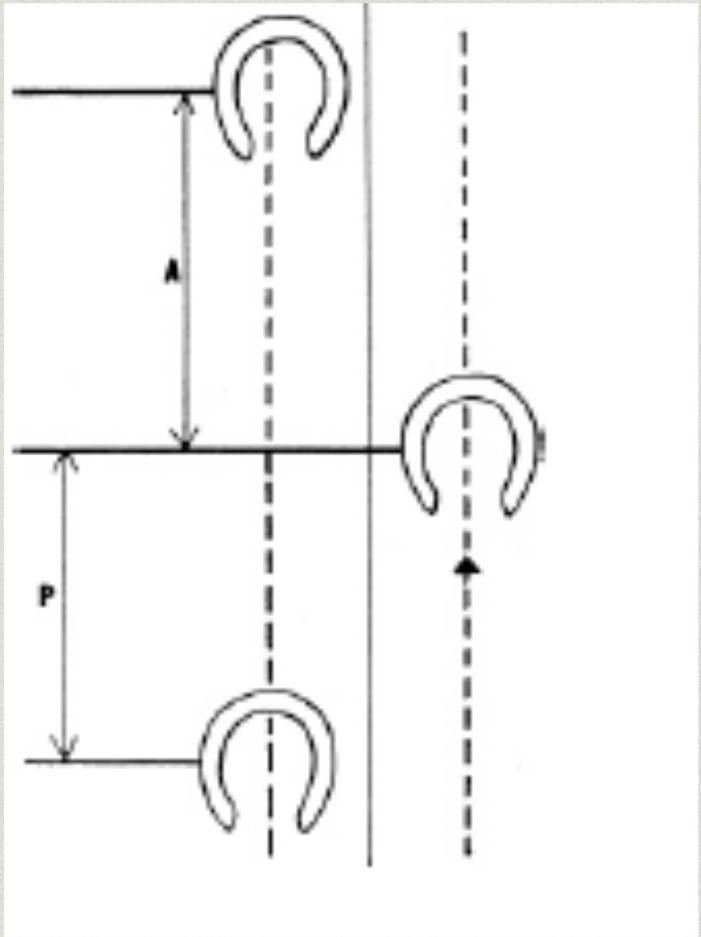
Clinical examination



Dinamic examination

- **Dinamic exam** hard surfaces in a straight line and in circle 20 m.
- Movement, on rope on both hands diffrent type of surface.

DISTANCE BETWEN STEPS



Head movement

FLEXION TESTS

It accentuates lameness

For at least 1 minute!!!

1. **Forelimb**

foot, pastern, fetlock first, followed by the whole limb, applying further pressure on the knee, elbow and shoulder

2. **Hindlimb**

foot, fetlock and hock first, followed by stifle and coco-femoral joint

FLEXIA MEMBRULUI ANTERIOR

HIND LIMB FLEXION

NAVICULAR SENSITIVITY

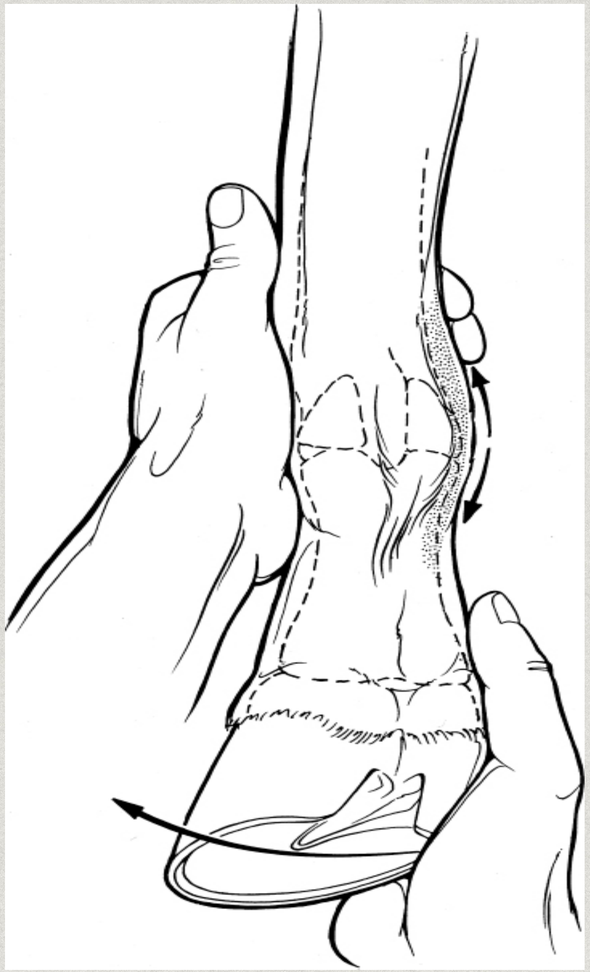
HOOF TEST

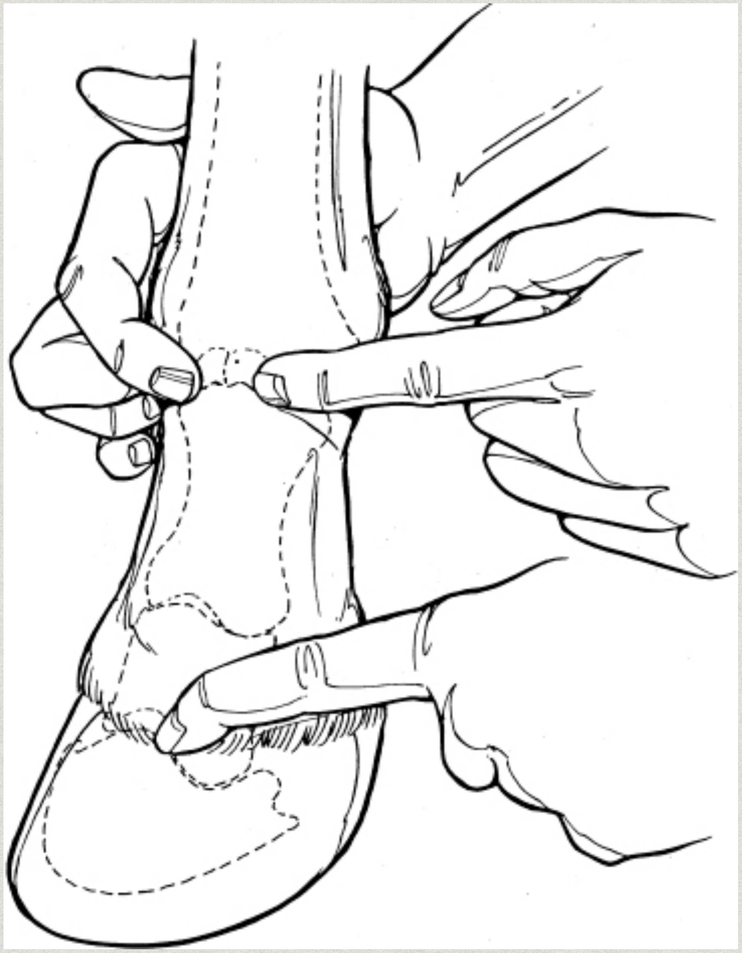
PALPATION

- Starting from distal, going upwards - checking both hard and soft tissue
- Hoof is tested with the hoof tester

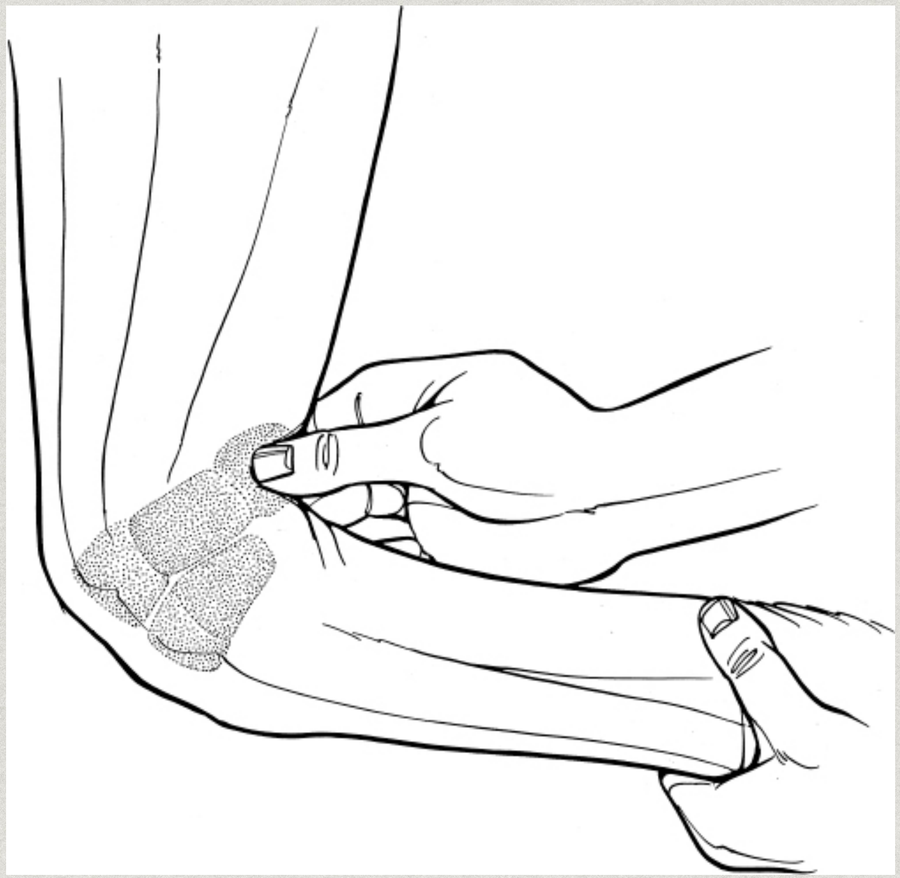
Palpating the complementary ligaments

Assessment of the fetlock

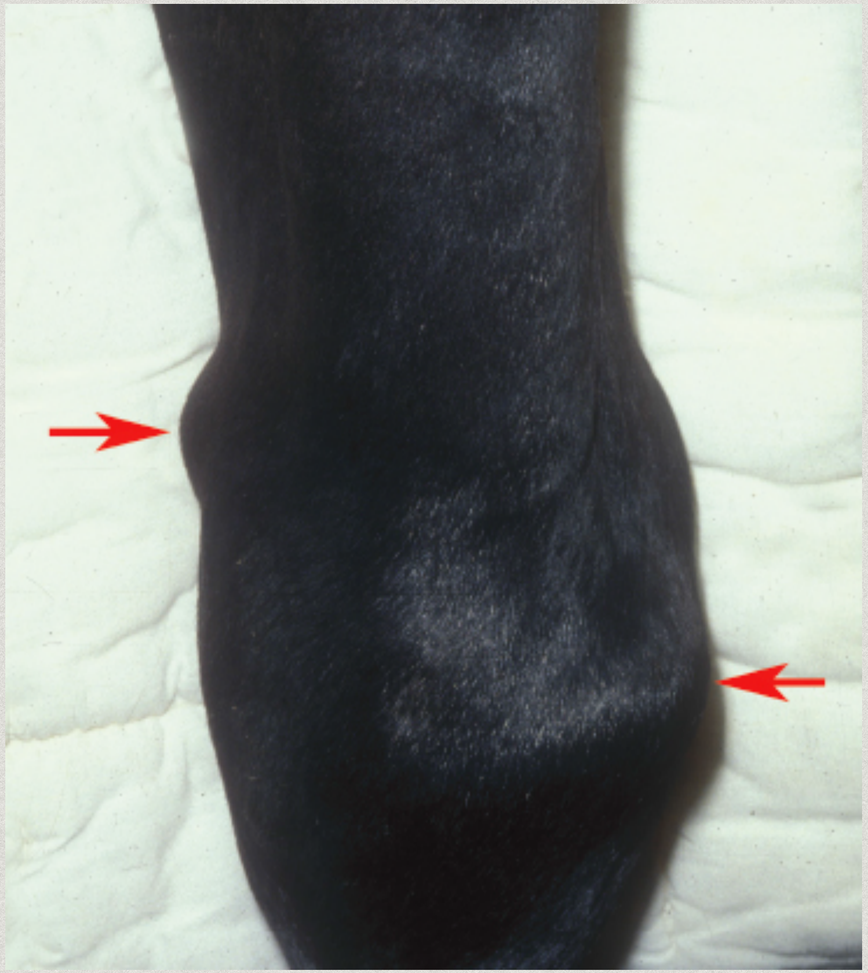




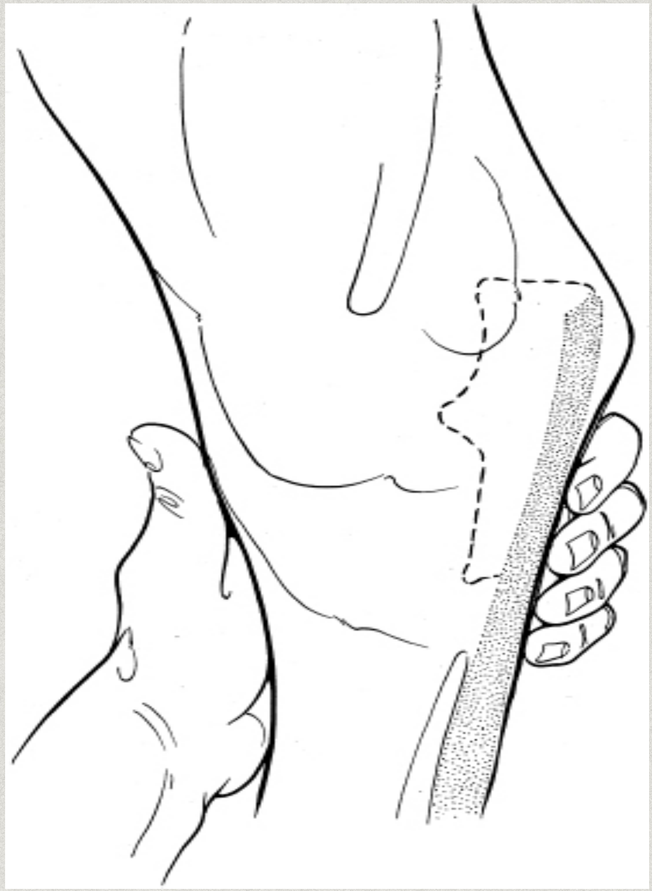
Assessment of the knee



Joint effusion, sensitivity, strong pain reaction



Tendon assessment



Regional and intraarticular anesthesia

Veterinary Anaesthesia and Analgesia

Formerly the Journal of Veterinary Anaesthesia

Comparison of the cytotoxic effects of bupivacaine, lidocaine, and mepivacaine in equine articular chondrocytes

Jinuk Park,

1. Bibek C Sutradhar,
2. Gyeongmi Hong,
3. Seok H Choi,
4. Gonhyung Kim

Article first published online: 9 FEB 2011

Pros and Cons

- Bupivacaine 0.5% vs Lidocaine 2% vs Mepivacaine 2%.
- Exposure time: 30 minutes
- Viability assessment : chondrocyte necrosis and apoptosis w trypan blue, electrono microscopy

Results

- Trypan blue - cell viability, dead cells are stained
- **Bupivacaine** 0.5% viability 28.73 ± 8.44%
- **Lidocaine** 2% viability 66.85 ± 6.03%
- **Mepivacaine** 2% viability 86.27 ± 2.00%
- Control NaCl viability 95.95 ± 2.75%.

Routinely used anesthetics

Regional anesthesia technique:

- 23 G needle
- Injection site preparation
- Iodine, Alcohol
- Check result!

Arthrosis has a low degree of response to regional analgesia

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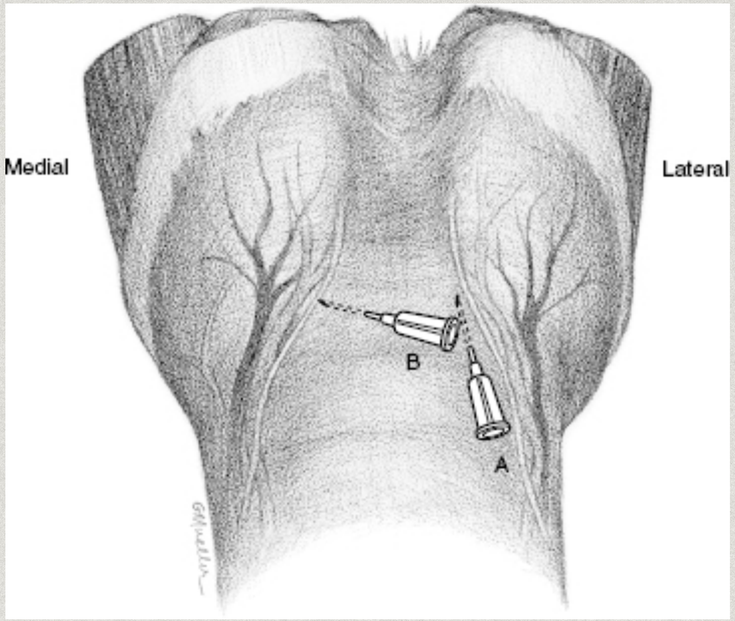
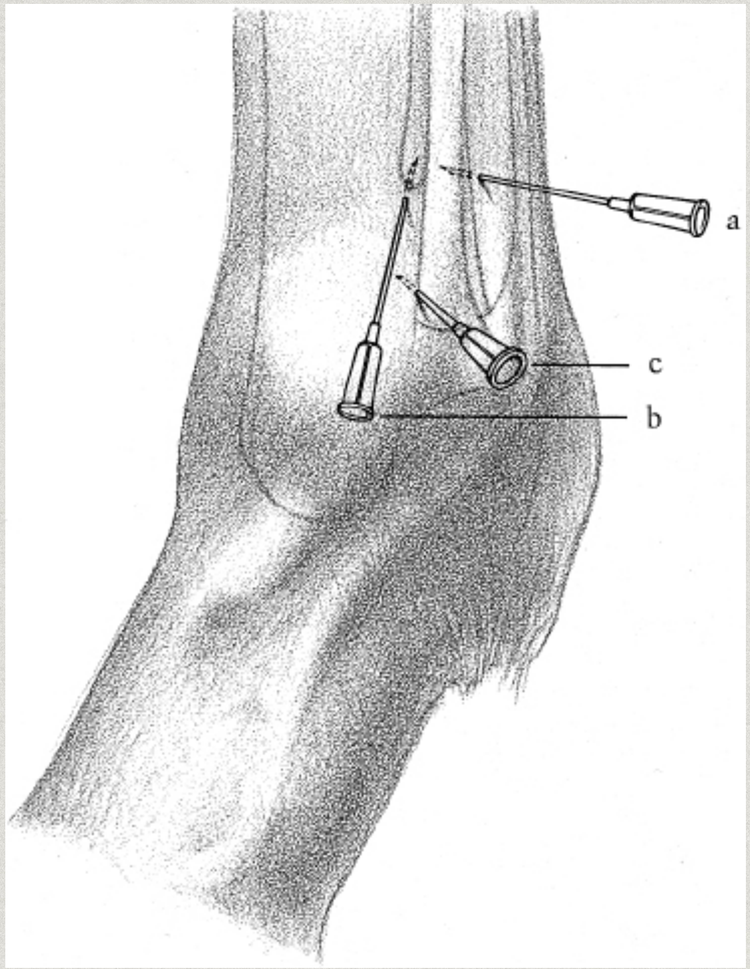
Specific block	Needle size	Volume of anesthetic	Skin prep recommended (Yes or No)	Location
Palmar/plantar digital (PD)	25 g, 5/8″	1–1.5 mL	No	Just above collateral cartilages
Basisesamoid (High PD)	25 g, 5/8″	1.5–2 mL	No	At the base of the proximal sesamoid bone
Pastern ring block	22 g, 1.5″	2–3 mL	No	Above collateral cartilages and directed dorsally
Abaxial sesamoid	25 g, 5/8″	1.5–2 mL	No	Abaxial surface of proximal sesamoid bone
Low palmar or 4-point	22–25 g, 5/8–1″	2–3 mL/site	Yes	Distal metacarpus (above buttons of splint bones)
High palmar or 4-point	25 g 5/8″ and 20–22 g 1.5″	3–5 mL/site	Yes	Proximal metacarpus
Lateral palmar (lateral approach)	20–22 g 1″	5–8 mL	Yes	Distal to accessory carpal bone
Lateral palmar (medial approach)	25 g, 5/8″ or 22 g 1″	2–4 mL	No	Medial aspect of accessory carpal bone
Ulnar	20 g 1.5″	10 mL	No	4″ above accessory carpal bone
Median	20–22 g 1.5–2.5″	10 mL	No	Caudal to radius below pectoralis muscle
Medial cutaneous antebrachial	22–25 g 1–1.5″	5–10 mL	No	Mid-radius near cephalic and accessory cephalic veins
Low plantar or 6-point	25 g, 5/8″ or 22 g 1″	2–3 mL/site	Yes	Distal metatarsus and each side of long digital extensor tendon
High plantar, high 4-point or subtarsal	25 g 5/8″ and 20–22 g 1.5″	3–5 mL/site	Yes	Proximal metatarsus
Deep branch of lateral plantar	20–22 g 1.5″	5–7 mL/site	Yes	Lateral aspect of proximal metatarsus
Tibial/peroneal	20–22 g 1.5″	10–20 mL/site	No	4″ above point of hock on lateral and medial aspects of limb

Digital nerve blocks

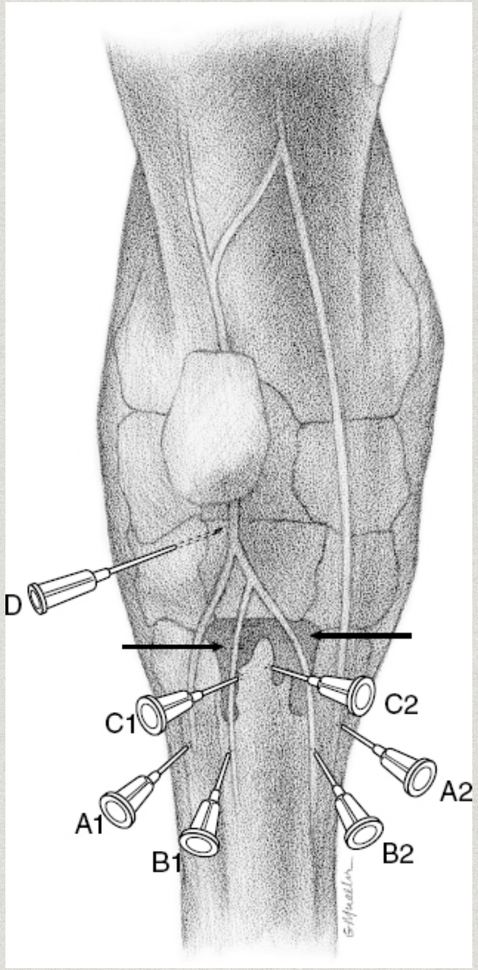


Low four point block



Low 6 point block

four point block



JOINT BLOCKS

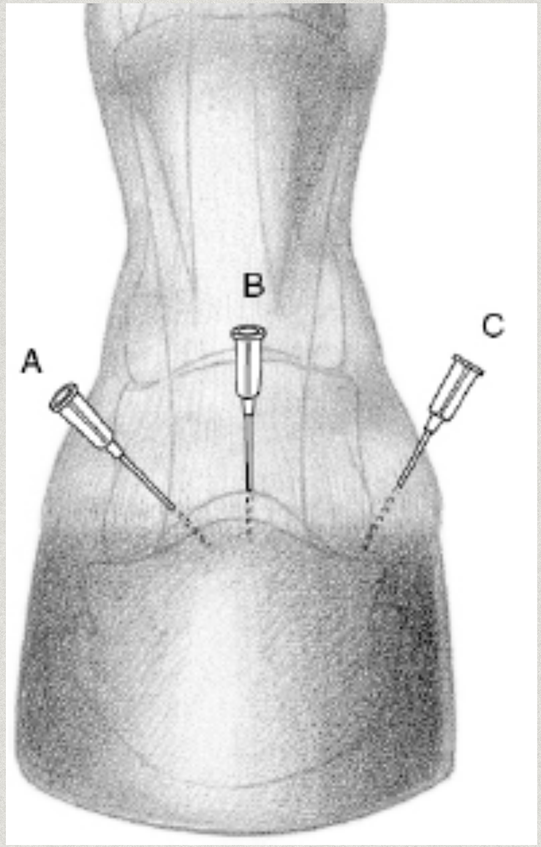
- HAIR clipping, 4 BLADE
- No shaving!
- Iodine/ clorhexidine soap
- Iodine/ alcohol antiseptic preparation

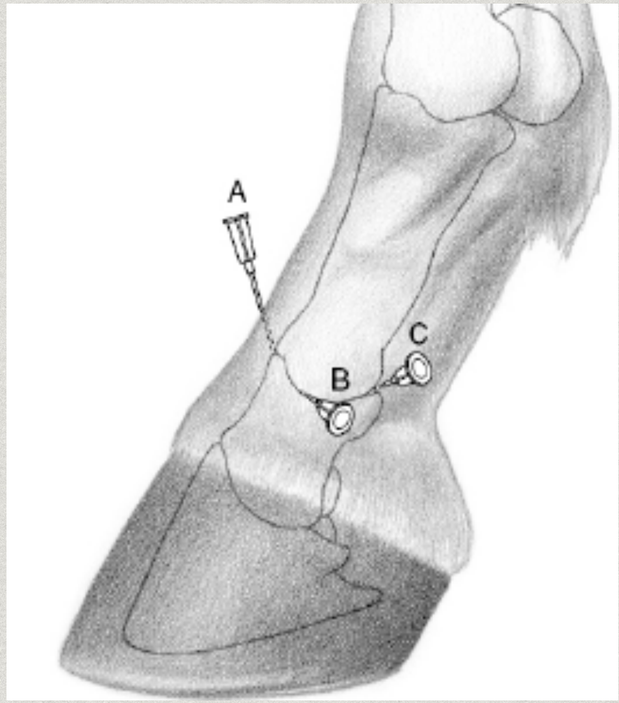
- 20 G needle!

- Use a 23 G needle to aspirate in a sterile manner, inject with a 20 G needle

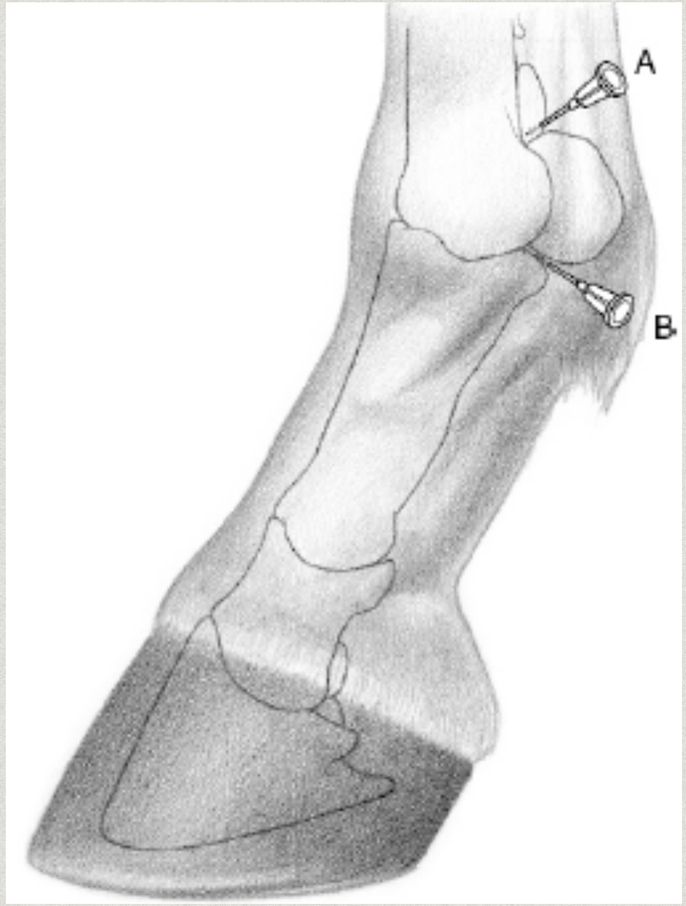
Synovial cavity	Needle size	Volume of anesthetic	Approaches and limb position (standing or held
Coffin joint	20–22 g, 1–1.5″	4–6 mL	Dorsal approaches: standing Lateral approach: standing or held
Pastern joint	20–22 g, 1.5″	4–6 mL	Dorsal and dorsolateral approaches: standing Palmar/plantar approach: held
Fetlock joint	20–22 g, 1–1.5″	8–12 mL	Proximal palmar/plantar approaches: standing or held Collateral sesamoidean approach: held Distal palmar/plantar approach: standing Dorsal approach: standing
Carpal joints	20–22 g, 1–1.5″	8–10 mL	Doral approaches: held Palmar approaches: standing
Elbow	20 g, 1.5″ or 20 g, 3.5″	20–30 mL	All approaches: standing
Shoulder	18–20 g, 3.5″	20–40 mL	All approaches: standing
Tarsometatarsal joint	20 g, 1–1.5″	4–6 mL	All approaches: standing
Distal intertarsal joint	25 g, 5/8″ or 22 g, 1″	3–5 mL	All approaches: standing
Tarsocrural joint	20–22 g, 1.5″	15–20 mL	All approaches: standing
Femoropatellar joint	20 g, 1.5–3.5″	30–40 mL	All approaches: standing
Medial femorotibial joint	20 g, 1.5″	20–30 mL	All approaches: standing
Lateral femorotibial joint	20 g, 1.5″	20–30 mL	All approaches: standing
Coxofemoral joint	16–18 g, 6–8″ spinal	30–60 mL	All approaches: standing
Sacroiliac joint	15–16 g, 10″ spinal	7–10 mL	All approaches: standing
Digital flexor tendon sheath	20–22 g, 1–1.5″	8–15 mL	Proximal approach: standing All other approaches: held
Carpal sheath	20 g, 1.5–3.5″	15–30 mL	Medial approach: standing Lateral approach: held
Tarsal sheath	20 g, 1.5″	15–20 mL	Medial approach: standing
Extensor carpi radialis sheath	20 g, 1.5″	10–20 mL	All approaches: standing or held
Calcaneal bursa	20 g, 1.5″	10–15 mL	Distal approach: standing Proximal approach: standing or held
Bicipital bursa	18–20 g, 3.5–5″ or 20 g, 1.5″	20–30 mL	All approaches: standing
Trochanteric bursa	18–20 g, 1.5–3.5″	7–10 mL	All approaches: standing
Cunean bursa	20–22 g, 1″	2–3 mL	Medial approach: standing

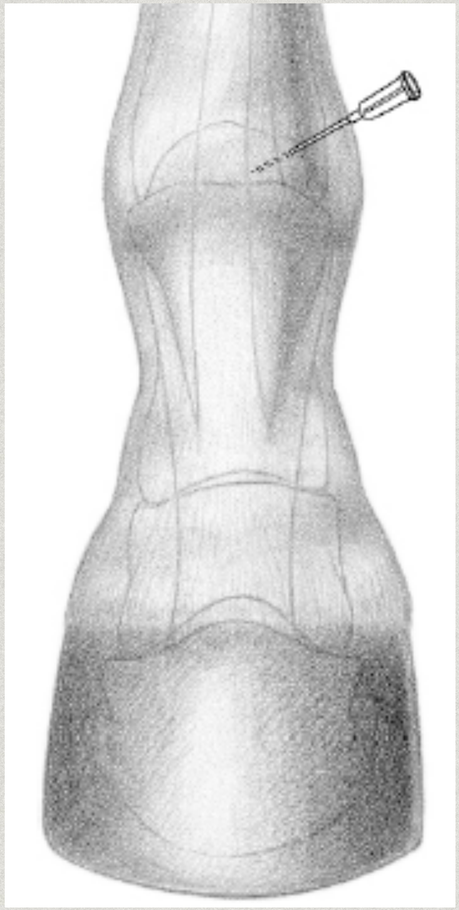
Foot and pastern



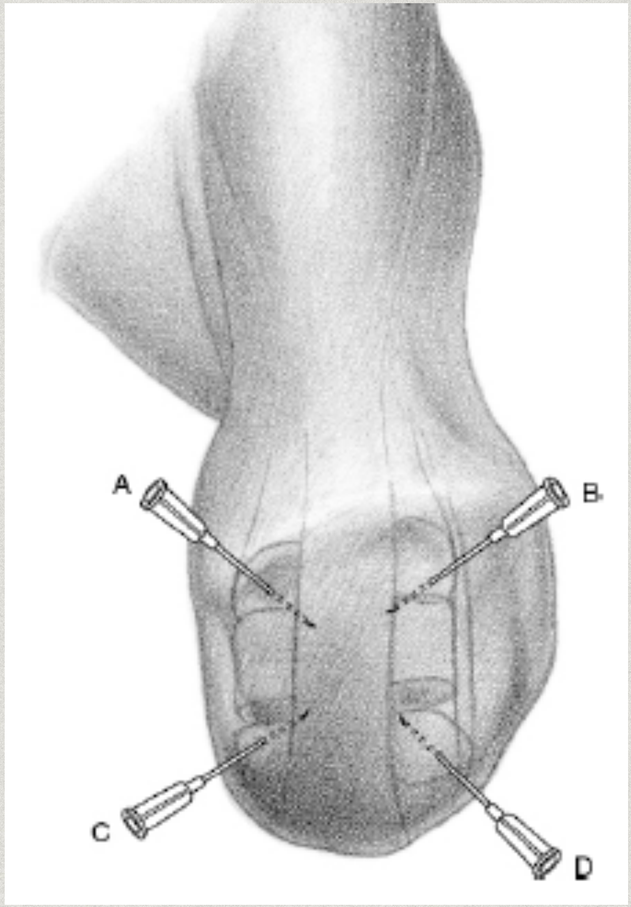


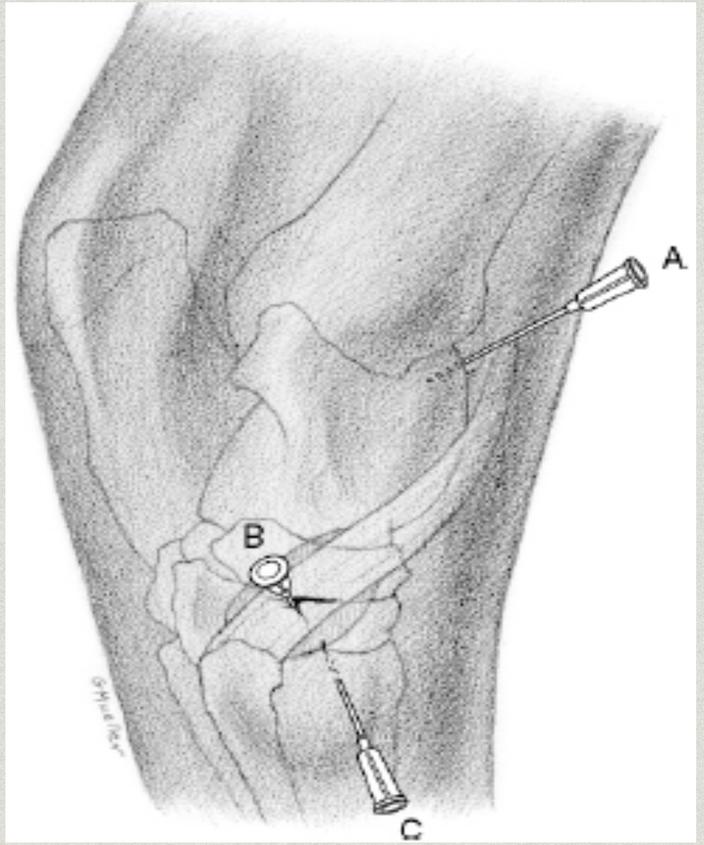
FETLOCK





KNEE AND HOCK





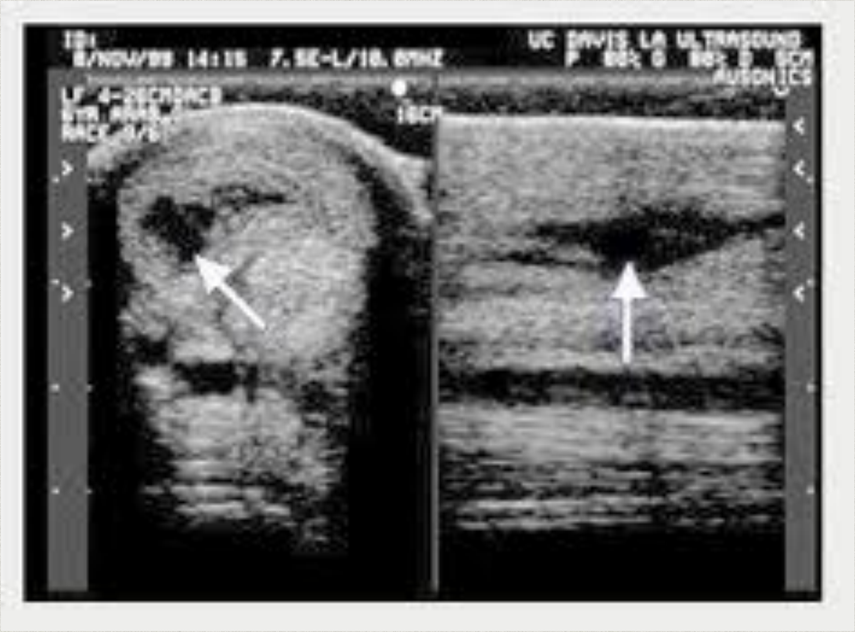
PARACLINICAL EXAM

- SYNOVIAL FLUID EXAM

(color, density, protein, cell count, bacterial growth and sensitivity)

- Imaging: RX, US, CT, MRI

FREQUENT TENDON PATHOLOGY



* TENDINITIS, YENDOSYNOVITIS, TENDON RUPTURE

FREQUENT JOINT PATHOLOGY

- Traumatic arthritis, synovitis, capsulitis, OCD, Birkeland, bone cyst, phalanx fracture

Bone cyst

Phalanx fracture

AINS therapy

TABLE 79-1. Partial Listing of Currently Available NSAIDs*

Generic Name	Product Name	Formulations	Recommended Dosage (mg/kg)	Standard Availability	Cost
Phenylbutazone	Equi-Phar Phenylbutazone	1 g tablet	4.4 bid for 1 day, 2.2 bid for 4 days, 2.2 sid	Bottle 100 tabs	$9.98
	Equi-Phar Phenylbutazone injection 20%	Injectable 20%	2.2-4.4 bid (5 days)	100 mL	$8.89
	Phenylzone Paste	200 mg/g (20% paste), 12 g Rx	1-2.2 bid (4 days)	60 g	$8.95
	Phenylzone Paste	200 mg/g (20% paste), 6 g Rx	1-2.2 bid (4 days)	30 g	$4.78
Carprofen	Rimadyl	Injectable or tablets	0.7 daily (IV, PO)	Bottle of 180 tablets	$0.84/tablet
Flunixin meglumine	Flu-Nix D Rx (Flunixamine)	Injectable	1.1 daily (5 days) (IV, IM)	100 mL	$18.75
				250 mL	$38.50
	Banamine Paste	Paste	1.1 daily (5 days)	30-g tube	$21.17
Ketoprofen	Ketofen	Injectable	2.2 daily (5 days) (IV)	100 mL	$135.25
				50 mL	$80.76
Firocoxib	EQUIOXX	Paste	0.1 mg/kg daily (up to 14 days)	6.93 g syringe	$5.50

*Availability and costs are as of 2010.

bid, Twice daily; *IM*, intramuscular; *IV*, intravenous; *NSAID*, nonsteroidal anti-inflammatory drug; *PO*, by mouth.

Available in Romania

Joint cortico-steroids

TABLE 79-2. Corticosteroids Commonly Used for Intra-articular Administration

Corticosteroid	Product Name	Manufacturer	Concentration (mg/mL)	Dose (mg)	Potency Relative to Hydrocortisone
Betamethasone sulfate	Celestone Soluspan	Schering-Plough	6	3-18	30
Triamcinolone acetonide	Vetalog	Solvay	6	6-18	5
Flumethasone	Flucort	Syntex	0.5	1.25-2.5	120
Isoflupredone acetate	Predef 2X	Pharmacia and Upjohn	2	5-20	50
Methylprednisolone acetate	Depo-Medrol	Pharmacia and Upjohn	40	40-120	5

Hyaluronic acid
Cell protection and lubrication

TABLE 79-3. Partial Listing of Available Hyaluron Products*

Product Name	Manufacturer	Concentration	Molecular Weight (daltons)	How Supplied	Recommended Dose (for Small- to Medium-Size Joints)	Standard Availability	Cost
Hylartin V	Pfizer	10 mg/mL	3.5×10^6	2-mL syringe 20 mg	20 mg	Each	$54.16
MAP-5 (used intra-articularly at this dose)	Bioniche	10.3 mg/mL (2 mL) 5 mg/mL (10 mL)	7.5×10^5	2-mL vial 10-mL vial	20 mg	10 mL 2 mL	$37.93 $17.78
Legend (Hyonate) Intravenous/ intra-articular use	Bayer Corporation	10 mg/mL	3×10^5	4-mL vial	40 mg (IV)	Box of 6	$388.08
Hyalovet (Hyalovet 20)	Boehringer	10 mg/mL	$4\text{-}7 \times 10^5$	2-mL syringe	20 mg	2 mL	$42.79
HyCoat (used intra-articularly)	Neogen	5 mg/mL	$>1.0 \times 10^6$	10-mL vial	30 mg	10 mL	$37.17
Hyvisc	Boehringer	11 mg/mL	2.1×10^6	2-mL syringe	20 mg	each	$53.04
HY-50	Bexco Pharma	17 mg/mL	—	3-mL syringe	51 mg	each	$35.00

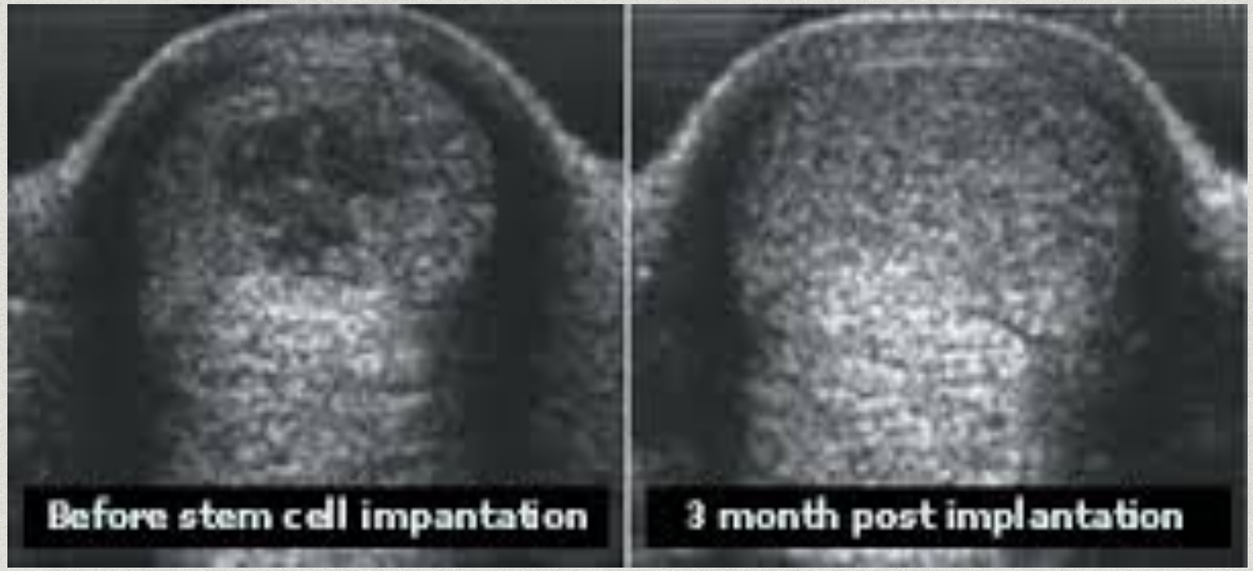
Alternative therapies:
IRAP – interleukin 1 antagonist receptor
antiinflamatory, regenerative
4x / week

Bone cyst therapy

Bone cyst therapy

- Tildren 10 days intravenously (not in perfusion - colic!), triamcinolon 20mg/horse, hyaluronic acid (bursa and/or joint)
- 40 days box rest

STEM cells therapy

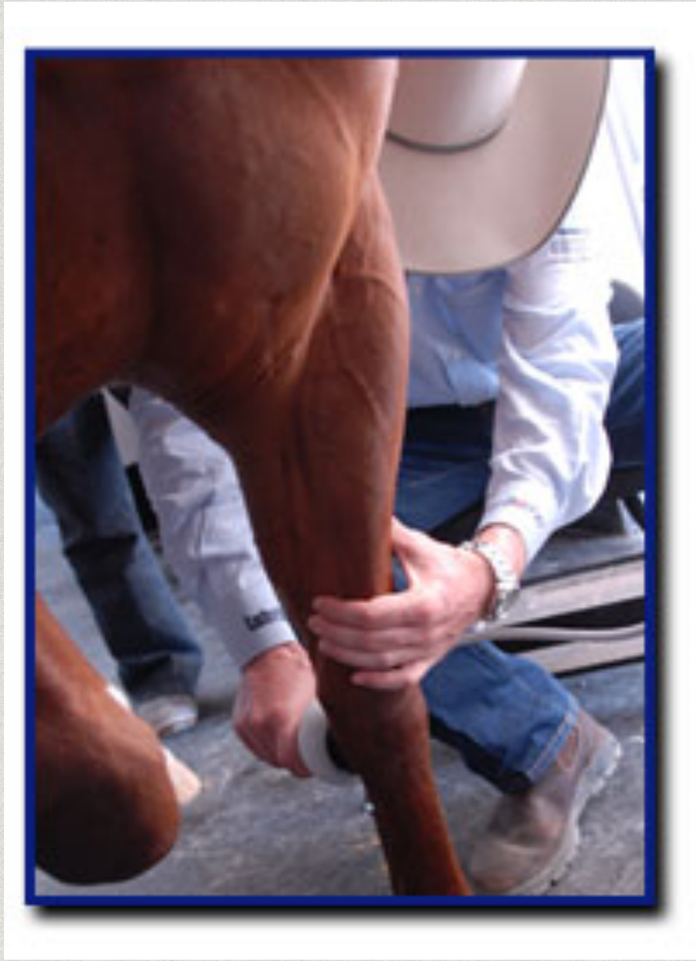


Tendon therapy

- PRP - biologic product, platelet growth factors - cell growth and remodelling, not scar tissue!

Complementary therapy

- **Shockwave Therapy**
- **analgesic, regenerative**
- **Camfor ointments**
- **Cautery**



Thank you !