

27^e Studienamiddag voor de paardendierenarts

15 februari 2025

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FENDIGO



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Beste collega dierenartsen,

Zoals ieder jaar rond deze tijd heten we jullie opnieuw hartelijk welkom op alweer de 27^e editie van de studiedag van de Wetenschappelijke Vereniging voor de Gezondheid van het Paard.

Afgelopen jaar was een bewogen jaar voor onze VZW. Enkele oudgedienden zwaaiden af als bestuurslid, en dus werden de bestuurstaken opnieuw ingedeeld, met een nieuwe secretaris, en een nieuwe voorzitter. Daarnaast mochten we ook een nieuw bestuurslid verwelkomen, en hebben we nog steeds een plaatsje vrij voor een bijkomend nieuw bestuurslid. Wie zin heeft om onze werking mee vorm te geven mag dus zeker zijn of haar kandidatuur indienen bij onze secretaris (pauline@berckmans.com).

Ook dit jaar hebben we een gevarieerd aanbod aan sprekers kunnen strikken om de studiedag te vullen. In de voormiddag zal Prof. Dr. Ann Martens een masterclass geven over de aanpak van wonden in de praktijk. In de namiddag mogen we dierenarts Brenda Hoogelander verwelkomen. Ze zal een uiteenzetting geven over de zin en onzin van beeldvormingstechnieken in de diagnostiek. Onze eigen (nieuwe) secretaris, dierenarts Pauline Berckmans, zal ons inwijden in de farmacologische benadering van maagulcera bij het paard. De dag wordt afgesloten door dierenarts Alex Thiemann, een wereldexperte op vlak van diergeneeskunde van de ezel. Zij zal uiteenzetten wat de specifieke aandachtspunten zijn bij het behandelen van de ezel, en waar de verschillen liggen met de behandeling van het paard.

Deze studiedag zou er nooit gekomen zijn zonder de gewaardeerde steun van onze sponsors: Zoetis (platinum sponsor); Boehringer Ingelheim en Dechra (Gold sponsors); Audevard, Fendigo, FS Animal Health, GoldMedics, Grovet en Pegasus-Cavalor (Silver sponsors).

Daarnaast bedanken we de Faculteit Diergeneeskunde voor het beschikbaar stellen van hun infrastructuur, en uiteraard jullie allemaal, om aanwezig te zijn vandaag.

Met collegiale groeten,

Het WVGP bestuur

(Nieuwe) technieken en toepassingen in de medische beeldvorming: zin en onzin



Brenda Hoogelander DVM

Res ECVSMR certified ISELP
Certified FES, EGAS, NVVGP
Erkend Keuringsdierenarts Paard

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15 februari 2025



1

Courtesy Elisabeth van Veggel DVM

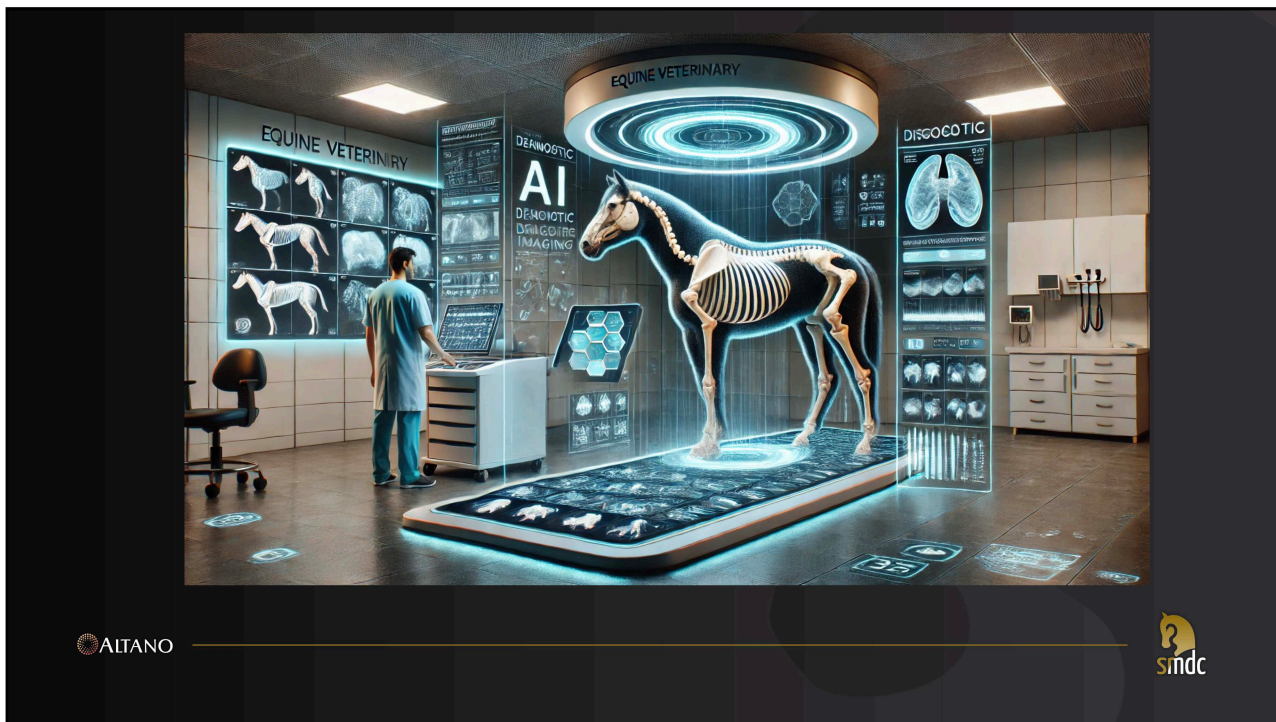


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Board certified radiologist (DECVDI)



2



3

What is clinically relevant ?

- Incidental vs cause of the problem
- Knowledge !!
 - Detailed and sytematic clinical examination
 - Objective gait analysis
 - Gait pattern recognition
 - Diagnostic Analgesia
 - Anatomy
 - Biomechanics
 - Neurofysiology
 - Literature
 - Experience



IMAGING IS SEXY!!

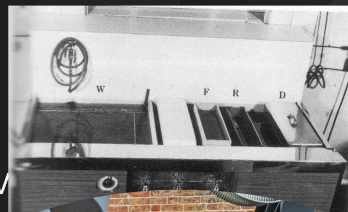
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Radiographic examination

- Equipment
- AI:
 - Improve image quality
 - Decrease exposure time / kV
 - Improve work flow
 - Improve projections
 - Evaluate image



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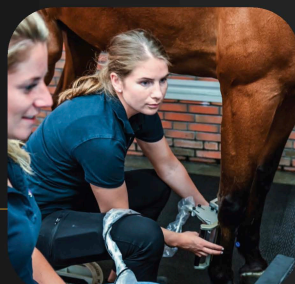
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TECHNIQUE !!!

5

Ultrasonographic examination

- Equipment
- Image quality
 - Cross beam
 - Doppler
- UTC
- Elastography

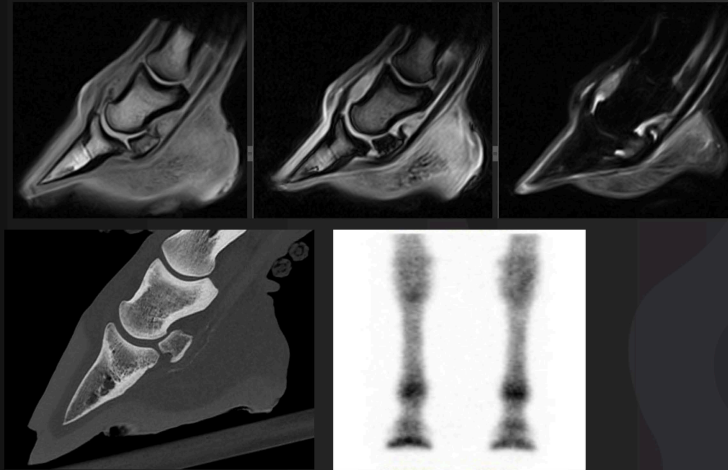


ANATOMY !!!

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6

Advanced Imaging



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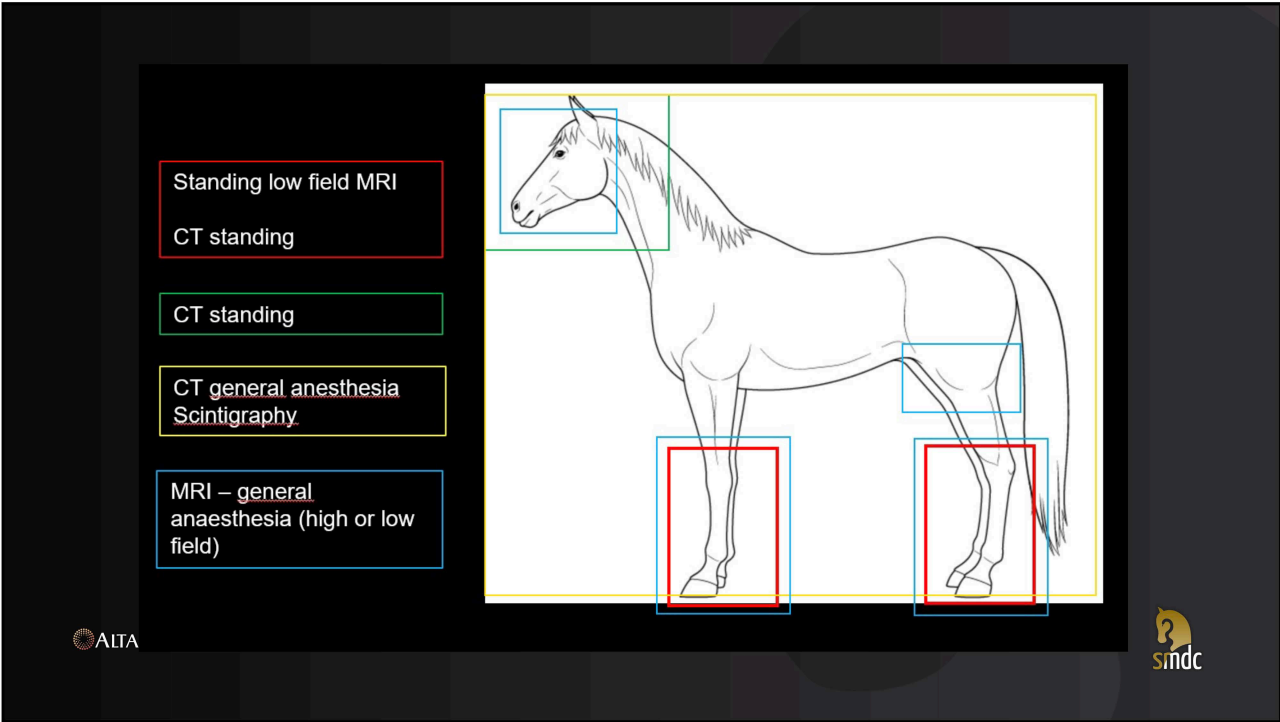
Outline

- MRI, CT and Scintigraphy
 - What is it
 - Strengths/weaknesses
- Common locations of abnormalities on MRI and CT
 - Case examples
 - Lesion characteristics
 - Which modality to chose

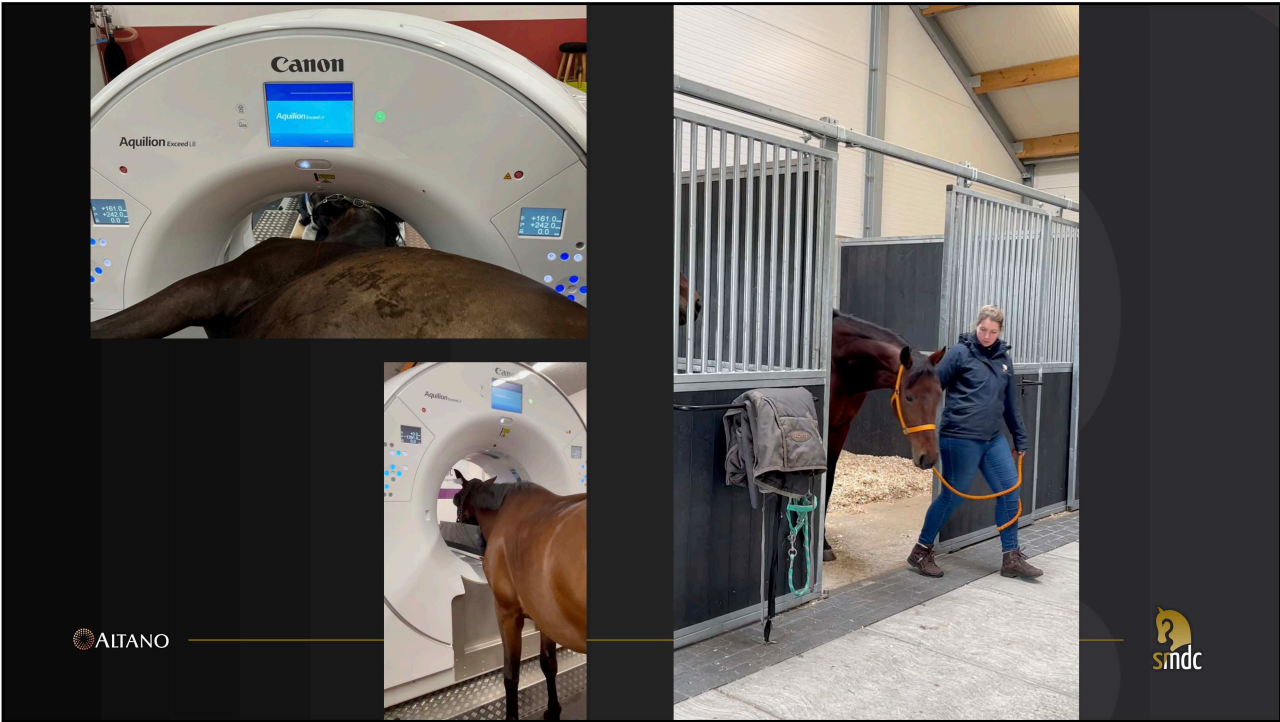
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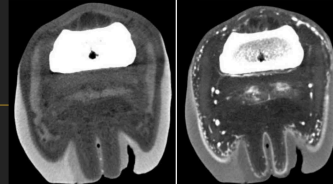
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Computed Tomography

- Computed tomography (CT) uses a rotating x-ray source → axial images (slices) → that is reformatted to a cross sectional image Slice thickness variable (0.5 mm → 1-2 mm).
- CT > radiographs for evaluating the complex structures of the axial skeleton and the appendicular skeleton
- Different processing → different windows
 - ie musculoskeletal → bone and soft tissue window
- Contrast – intra-arterial/intra-venous/intrasynovial



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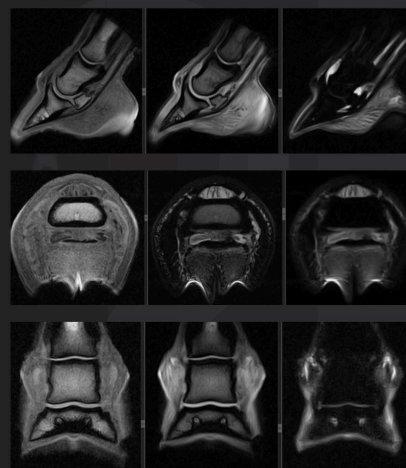
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Magnetic Resonance Imaging

- MRI - magnetic field
- MRI is optimal to evaluate soft tissue, and bone fluid
- Different imaging planes
- Different types of scans
 - Ex T1, T2, STIR images
- +/- contrast



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Scintigraphy

- Targeted region with inconclusive findings
- Clinical signs suggestive for fracture/fissure
- Inability to localize pain
- Unexplained poor performance
- Episodic lameness
- Screening tool (PPE challenge 😊)
- Follow-up
- ((Dangerous behaviour))



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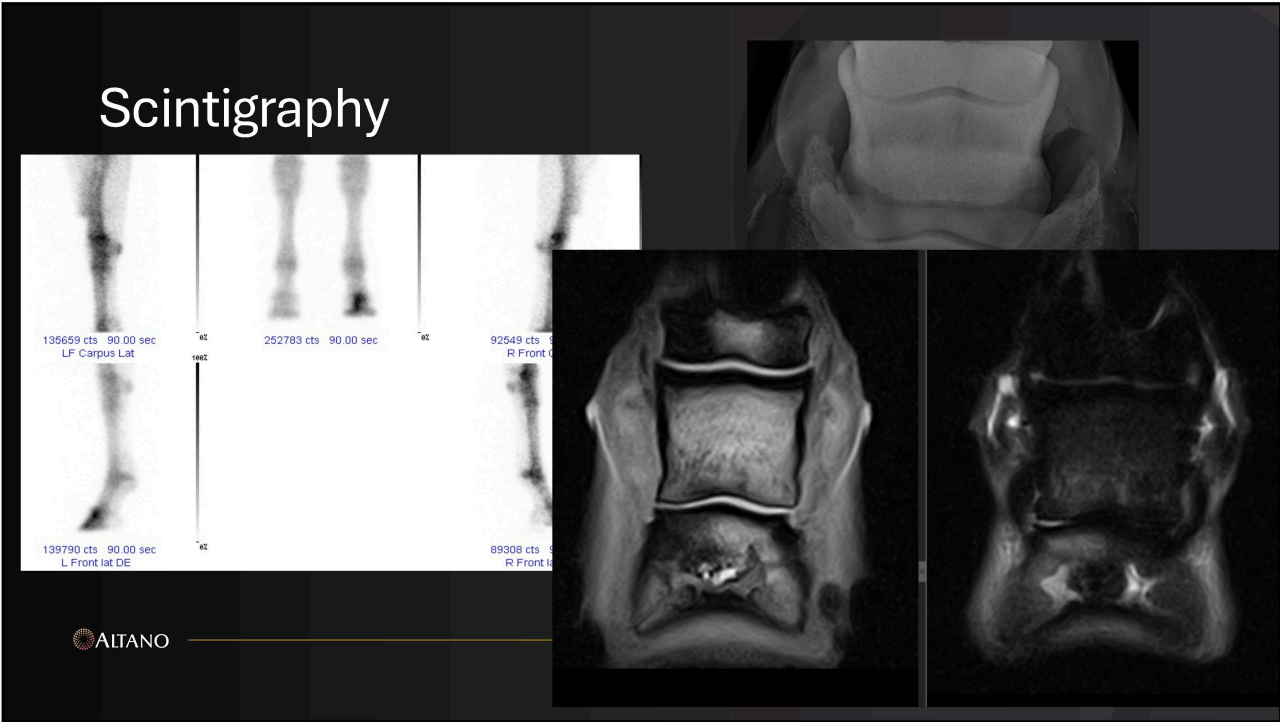
Scintigraphy

- Radiopharmaceutical Agent – Technetium coupled to a diphosphonate
 - binds to the hydroxyapatite crystals in the bone matrix proportionately to local blood flow and osteoblastic activity, thus highlighting areas of **increased bone turnover and bone perfusion**.
- Alteration in bone turnover/perfusion
 - NOT synonymous with pain or lameness!
 - Can be influenced by loading
 - Knowledge of normal physiological patterns is CRUCIAL
- Reflects increased osteoblastic activity
 - Can be influenced by perfusion and regional sympathetic tone
 - Cold limb syndrome
 - Lunging

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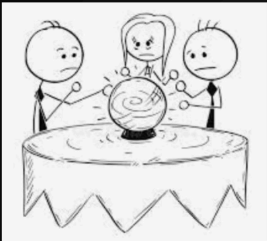


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CT vs MRI Or both



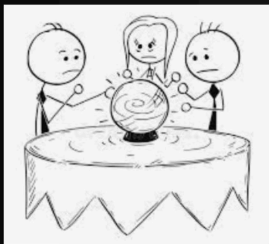
CT	MRI
Fast and (widely) available	Slower – low field MRI's (standing) widely available.
Excellent for bony detail	Excellent for soft tissue
Good for soft tissue detail +/- contrast	Excellent for bony fluid
Modern systems – basically whole body	More limited in regions able to scan

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CT vs MRI Or both



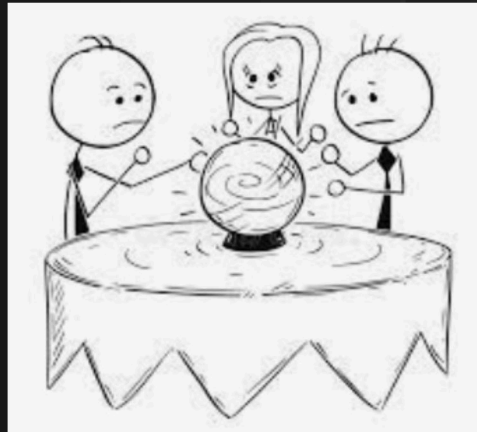
CT	MRI
Ionizing radiation + detectors	Magnetic field and radiofrequency pulses
Different processing parameters – ex bone and soft tissue window	Different sequences types (T1, T2 etc)
Faster (minutes)	Slower (30-60 minutes)
Metal	Metal
Fan and cone beam	High field and low field

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CT vs MRI Or both

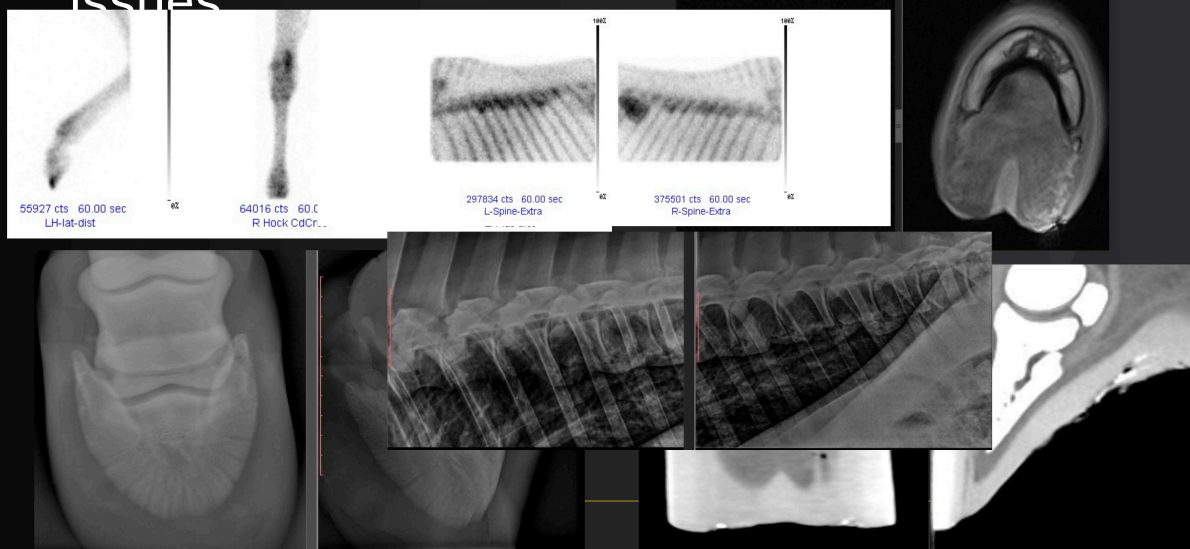


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14 years old stallion, LH lameness and topline issues



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CASE SCENARIOS

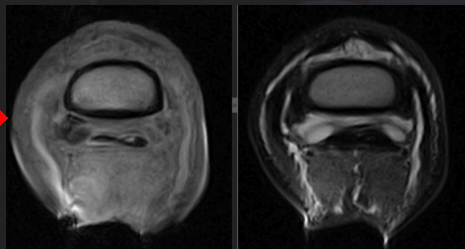
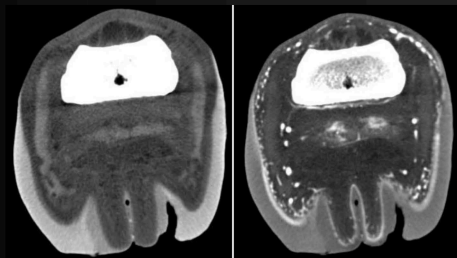
- Grab you phone !

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CT vs MRI



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CT vs MRI

Comparisons of computed tomography, contrast-enhanced computed tomography and standing low-field magnetic resonance imaging in horses with lameness localised to the foot. Part 2: Lesion identification

S. A. VALLANCE*, R. J. W. BELL, M. SPRIET†, P. H. KASS‡ and S. M. PUCHALSKI†

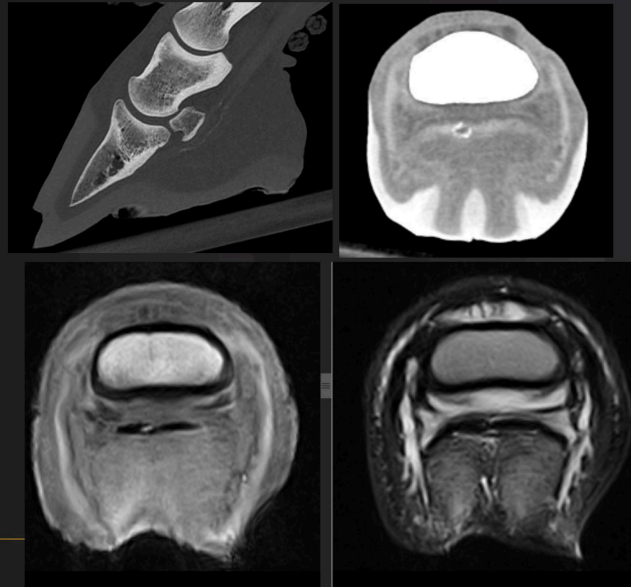
- What is potentially missed ?
 - Bone marrow lesions
 - Lesion at the deep digital flexor tendon




27

CT vs MRI

- Dystrophic mineralization
- Small fragments



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Common Pathologies Distal Limb

- Deep digital flexor tendon
 - P1, suprasesamoidean and infra-sesamoidean
- Navicular apparatus
 - Bursitis
 - Flexor cortex erosion
- Bone marrow lesions/edema
 - Navicular bone
 - P2
 - P3
- Collateral Ligament -DIPJ >>>>> PIPJ
- Joint – DIPJ >>> PIPJ
- Subchondral bone injury
 - – PIPJ > DIPJ
 - P1
- Fracture
 - Palmar process
 - P3
- Ungular cartilage
- Space occupying masses
- Sesamoidean ligaments
 - Oblique
 - Straight

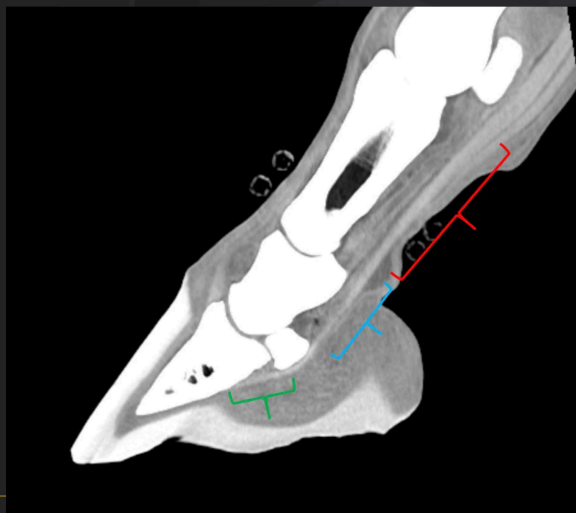
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Common Sites of Injury

- Deep digital flexor tendon
 - P1
 - core
 - dorsal tearing
 - supra-sesamoidean
 - core
 - dorsal tearing
 - splits
 - infra-sesamoidean
 - core



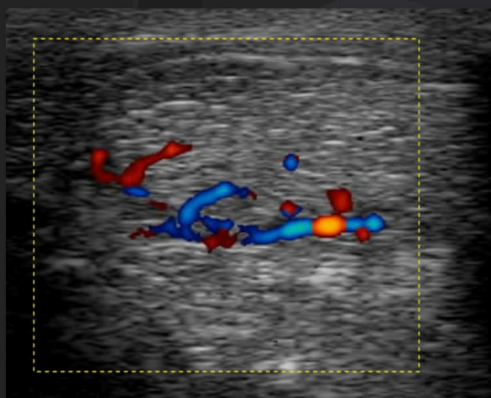
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Common Sites of Injury

- Common sites of injury
 - Deep digital flexor tendon
 - P1
 - supra-sesamoidean
 - infra-sesamoidean



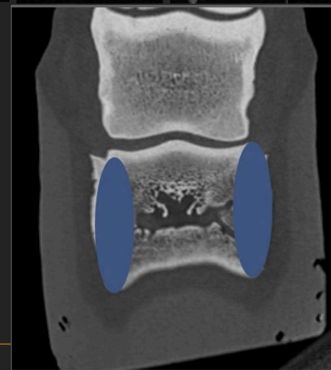
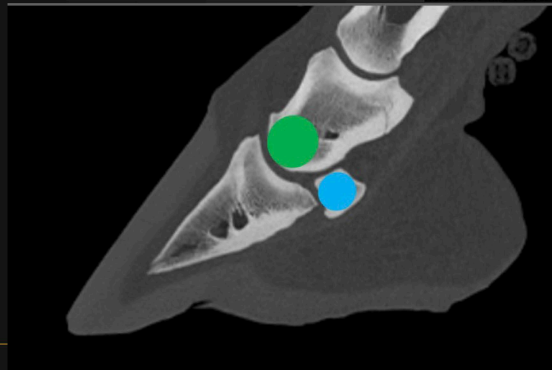
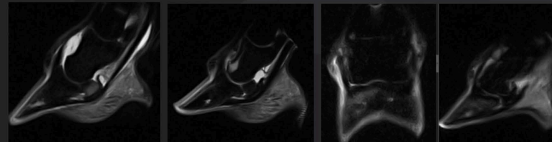
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Common sites of injury

- Bone marrow lesions/edema
 - Navicular bone
 - P2
 - P3



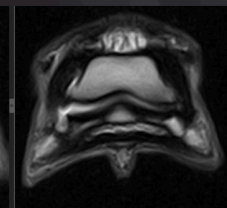
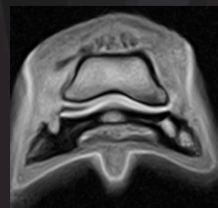
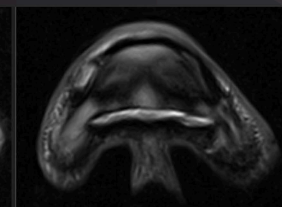
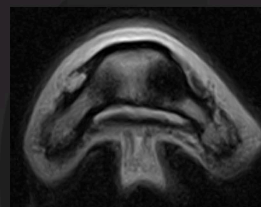
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Common sites of injury

- Collateral Ligament -
DIPJ >>>>> PIPJ

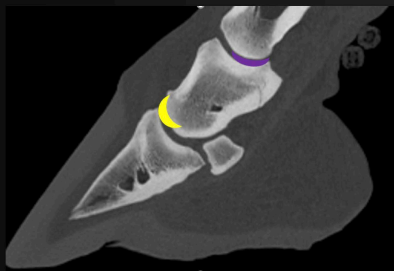


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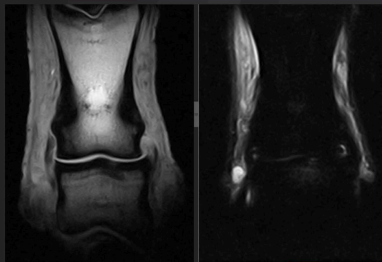
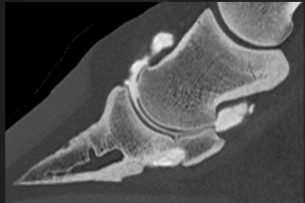
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Common sites of injury

- Joint – DIPJ >>> PIPJ
- Subchondral bone injury
 - PIPJ >>> DIPJ



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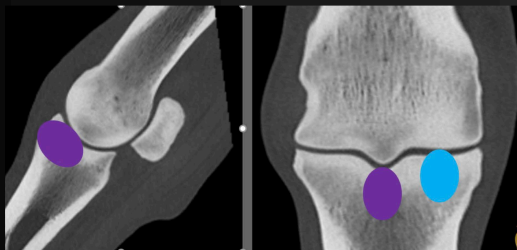


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Common sites of injury

- P1 injuries
 - Fissure/fractures
 - Subchondral bone injury
 - Bone fluid like material



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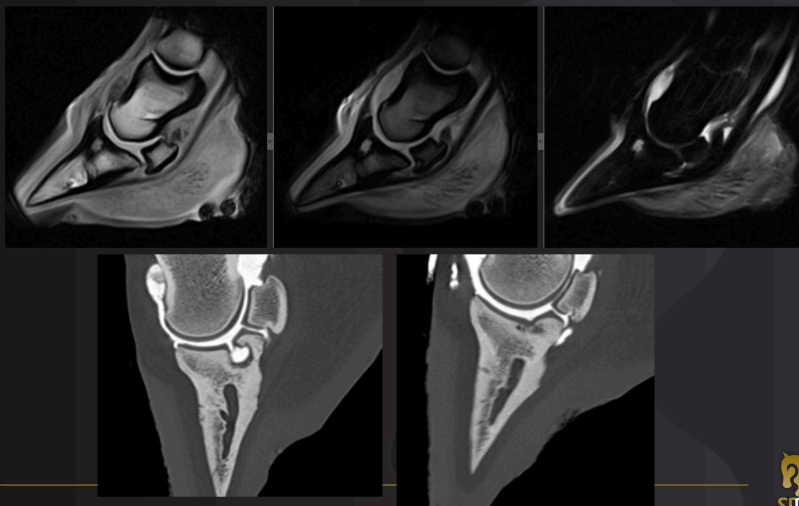


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Common sites of injury

- Osseous cyst like lesions
 - DIPJ
 - PIPJ



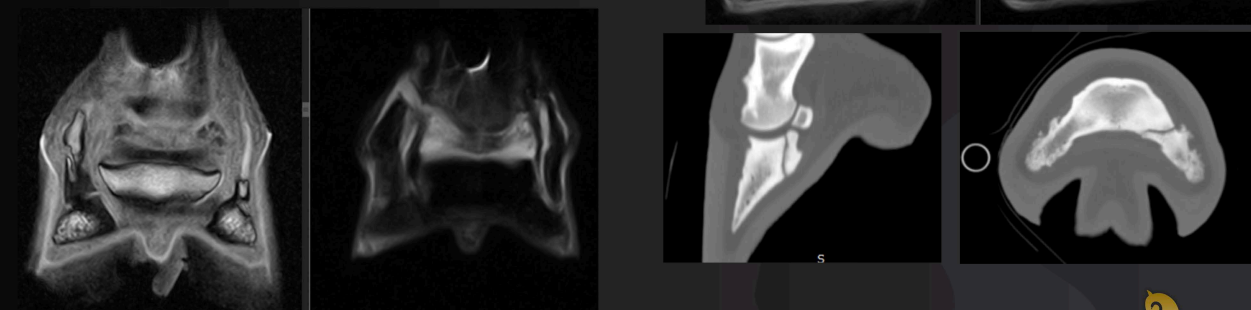
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Common sites of injury

- Palmar/plantar process(es)
 - Intra-articular
 - active/non-active
- Ungular cartilages



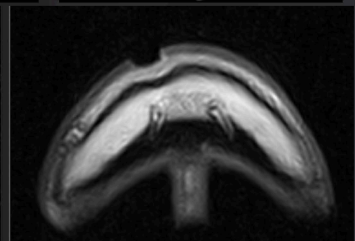
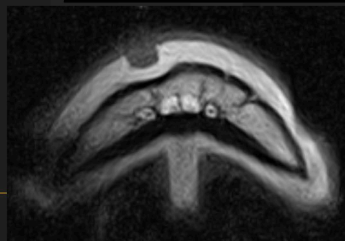
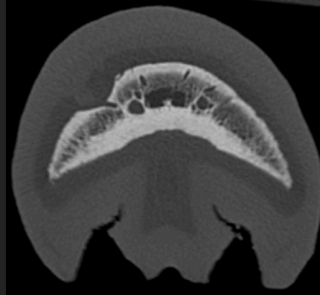
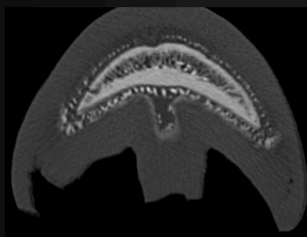
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Common sites of injury

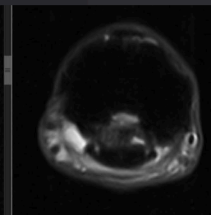
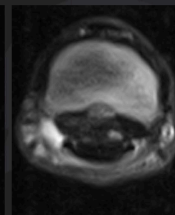
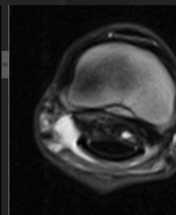
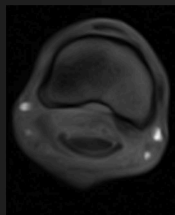
- Space occupying masses
 - Keratoma



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Common sites of injury

- Sesamoidean ligaments
 - Oblique
 - Straight



Contract-enhanced computed tomography in thoracic and straight distal esophageal junction injury in thirty-two horses

Contracto-contrastperitoneografie benodigend bij letsel van de schouder en rectale distale oesofageusjunction bij 32 paardenvormen

N. Rasmussen, U. H. Smarshuis, W. Van der Horst, M. Blom, W. Van Soest, G. Van den Broek

¹Department of Medical Imaging and Small Animal Medicine, Faculty of Veterinary Medicine, Utrecht University, The Netherlands; ²Department of Clinical Sciences, Faculty of Veterinary Medicine, Utrecht University, The Netherlands; ³Sportveterinary Medical Diagnostic Centre, Wageningen UR, The Netherlands; ⁴Hasselt, the Netherlands; ⁵Lopik, the Netherlands

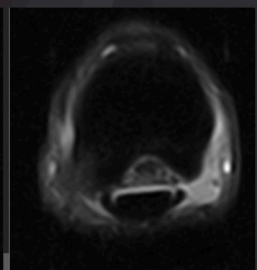
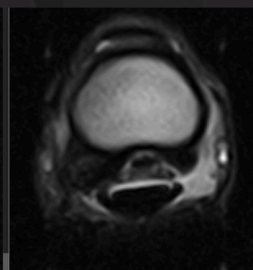
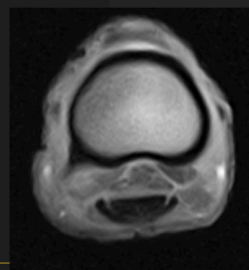
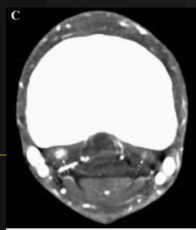
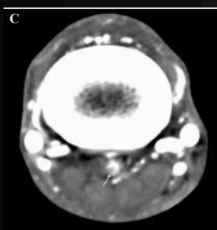
doi:10.1111/j.1469-7580.2012.01611.x

ABSTRACT

Purpose: Esophageal rupture (ER) is a recognized cause of laminitis in horses. The purpose of this study was to describe the contract-enhanced computed tomography (CE-CT) findings in horses injured by the ERD compared to a control group without injury to the ERD.

Methods: Sixteen horses referred to CE-CT between 2008 and 2010 were allocated. Cases were classified retrospectively based on the CE-CT imaging finding of the ERD. Three horses had isolated peritonitis, seven horses had ERD type I, three horses had ERD type II and three horses had ERD type III.

Results: In all cases, the CE-CT scan revealed a large amount of free intraperitoneal air, suggesting complete or near-complete perforation of the ERD. The high number of contrast-enhanced vessels within the abdominal cavity indicated severe inflammation that should be considered when evaluating horses with injuries related to either of these structures.



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MAAGZWEREN: BEHANDELING

Pauline Berckmans – 15/02/2025 – WVGP

VOORSTELLEN



MASTER VETERINARY MEDICINE,
UGENT, 2018

INTERNSHIP INWENDIGE ZIEKTEN
PAARD, UGENT, 2019

DAP PARMENTIER, VIA NOVA, 2021

DIENST INWENDIGE ZIEKTEN PAARD,
UGENT

OSTEOCURE



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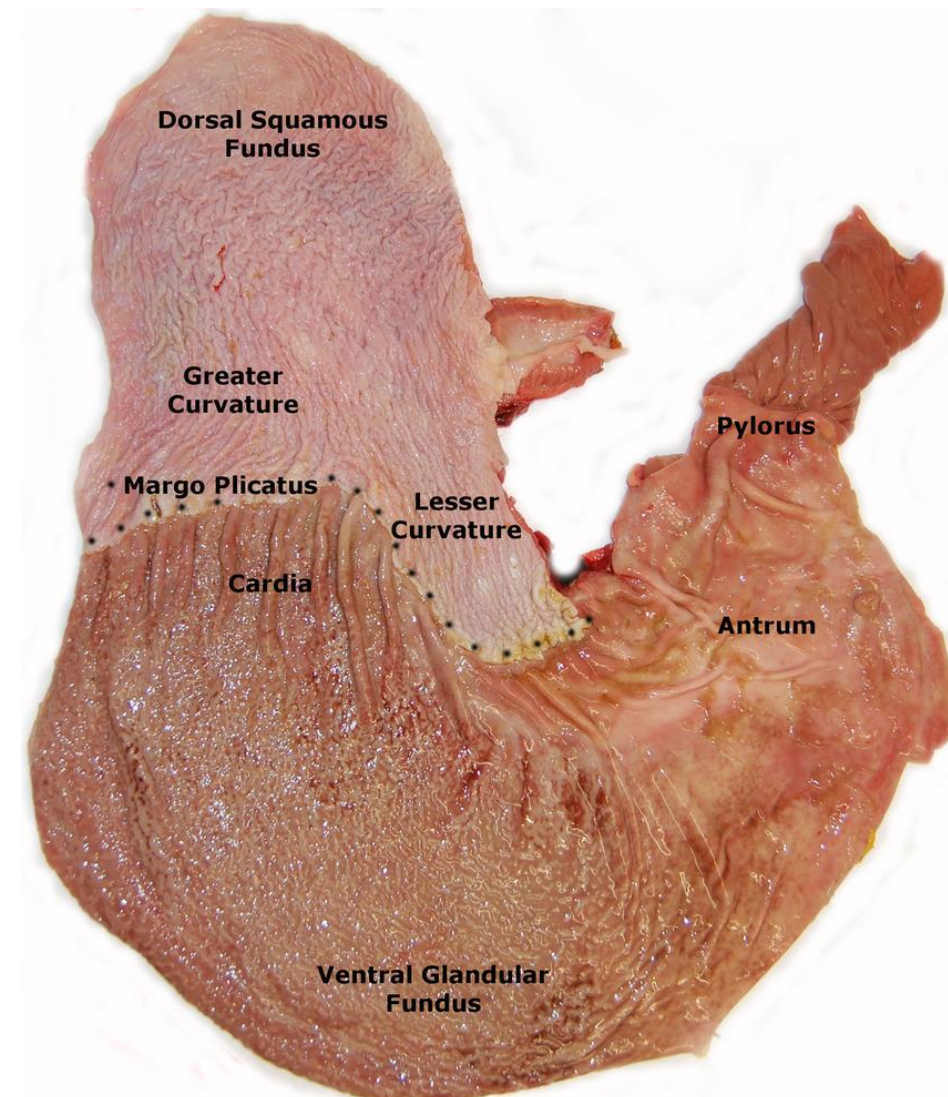
INLEIDING

ESGD

- Squameus gedeelte
- Primair: normaal GI – stelsel
- Secundair: afwijkend GI – stelsel

EGGD

- Glandulair gedeelte
- Pathofysiologie ongekend



PATHOFYSIOLOGIE

– Equine Squamous Gastric Disease

Uitlokkende factoren

- HCl
- Galzuren
- Pepsine
- Vluchtige vetzuren
- Beweging

Beschermende factoren

- Mucus-bicarbonaat laag
- Mucosale bloedvloei
- PGE2
- Gastroduodenale motiliteit

PATHOFYSIOLOGIE

- Equine Glandular Gastric Disease
 - Weinig bekend
 - Verminderd beschermingsmechanisme
 - Gastric inflammation
- *Helicobacter spp*
- Microbiota

RISICO FACTOREN



SYMPTOMEN

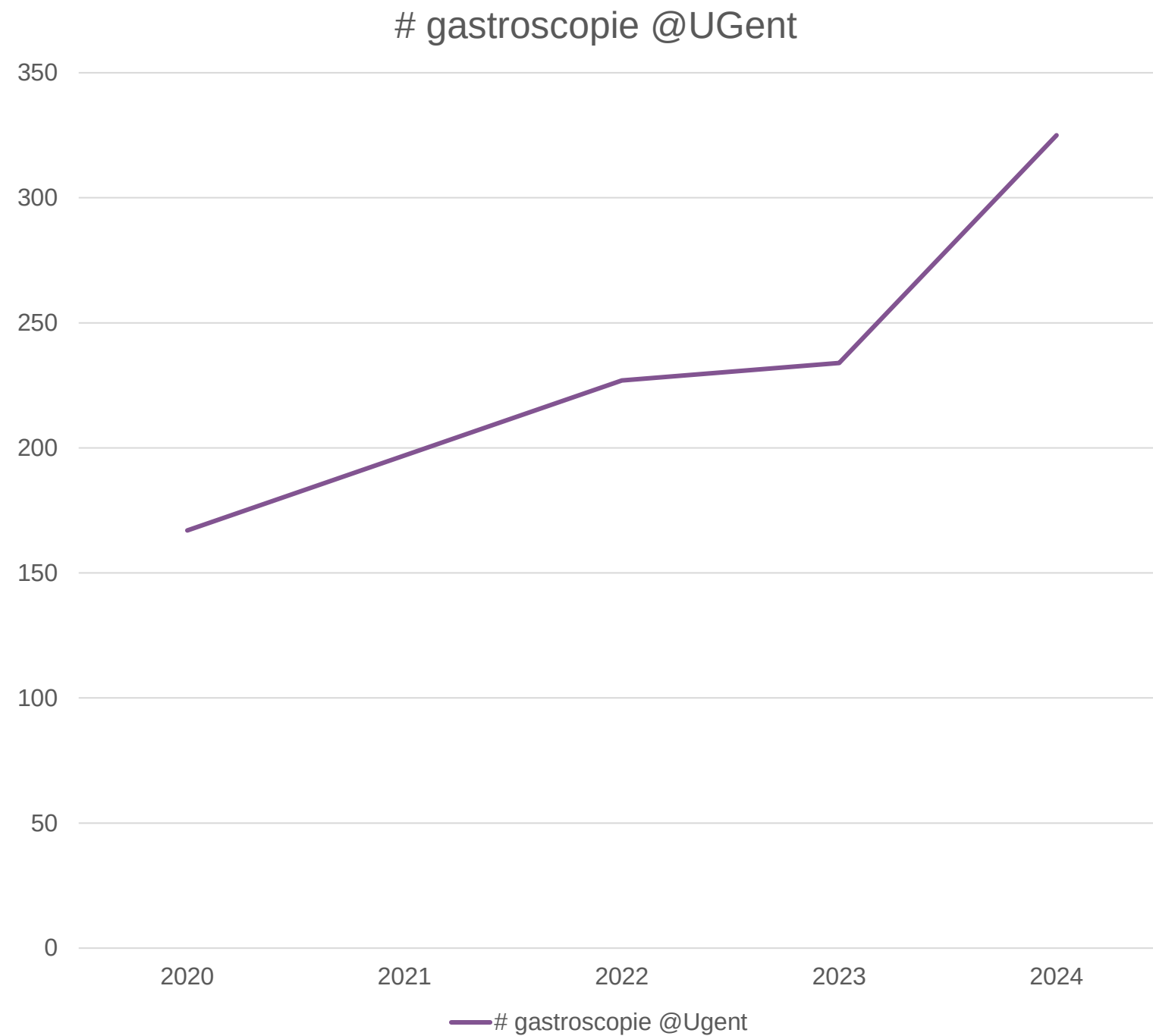


- Verminderde eetlust
- Recurrente (milde) koliek
- Geeuwen/ flehmen
- Gewichtsverlies
- Verminderde prestaties
- ...

DIAGNOSE

- Gastroskopie
 - ESGD
 - Grading I – IV
 - EGGD
 - Klinische relevantie?
 - Letsel beschrijven
- Histopathologie

GASTROSCOPIE



- Enige diagnostiek
- Onderscheid ESGD / EGGD
 - Grading system
- Opvolging behandeling

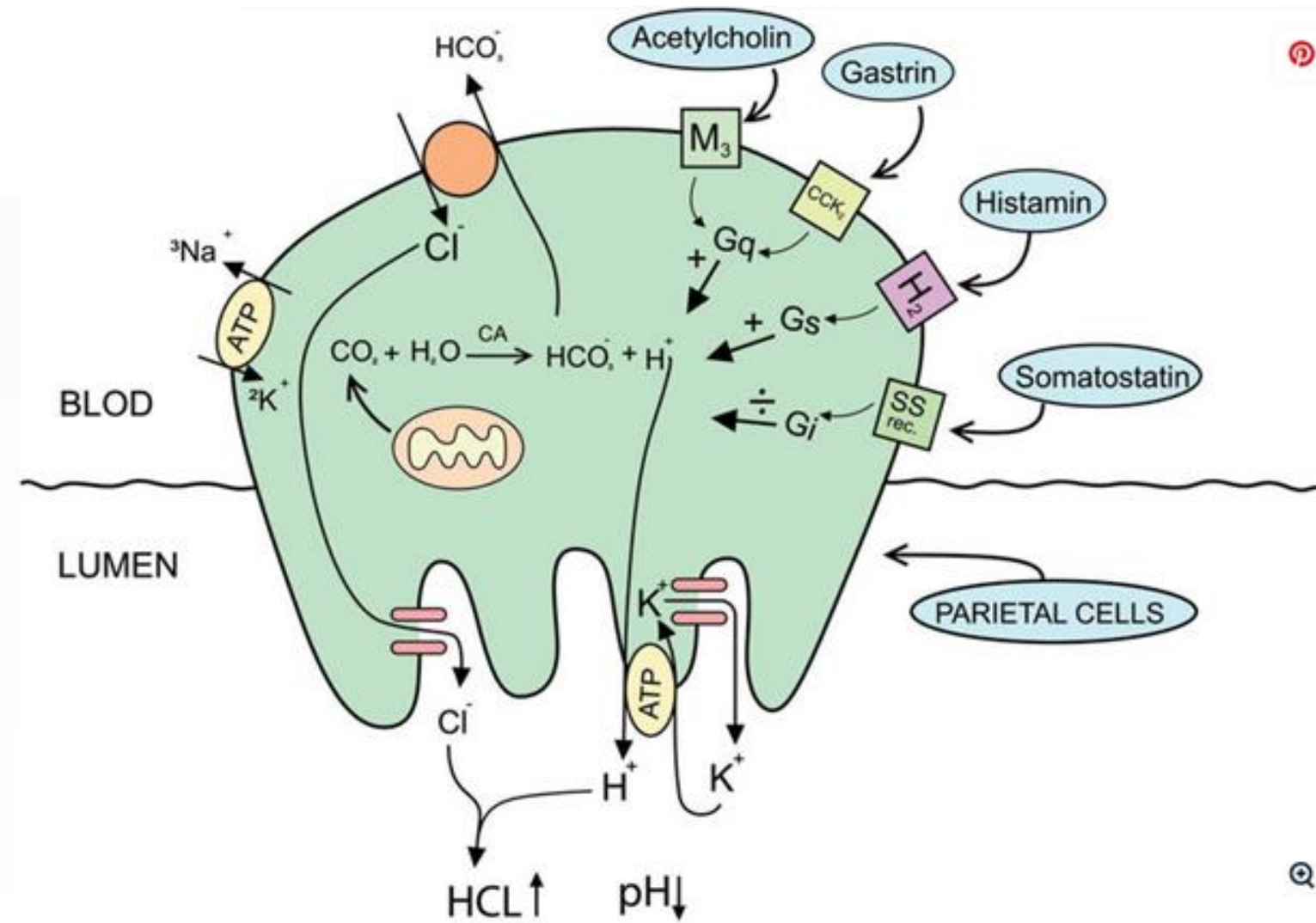
BEHANDELING?

BEHANDELING

- Afhankelijk van oorzaak/ lokalisatie van de ulcers
 - Squameus → maagzuurproductie remmen
 - Glandulair → ?

MAAGZUURPRODUCTIE

Voedselinname



Para- sympatisch zenuwstelsel

Gastrine

MEDICATIE

MEDICATIE

Protonpompinhibitoren

- Omeprazole

Mucosabeschermers

- Sucralfaat
- Misoprostol

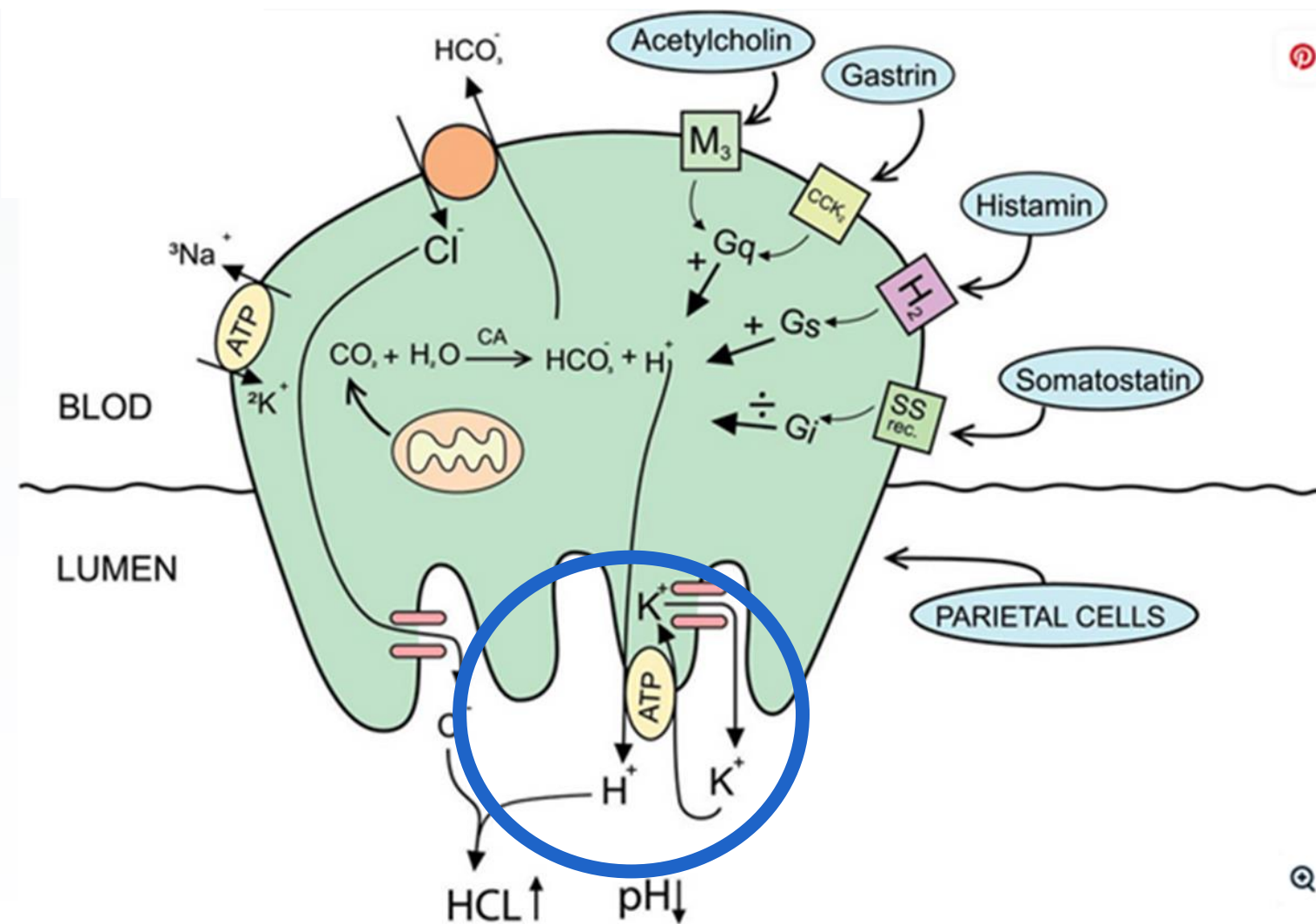
Antacida

- Magnesiumhydroxide
- Aluminiumhydroxide

PROTONPOMPINHIBITOREN

- Omeprazole
- Pantoprazole, Esomeprazole

- Irreversiebele binding protonpomp
- Verminderde HCl secretie
- Wordt afgebroken door maagzuur



Opname thv dd → bloedbaan → pariëtale cel
→ Inactivatie protonpomp

PROTONPOMPINHIBITOREN

– Omeprazole



PROTONPOMPINHIBITOREN – DOSIS

- Omeprazole = drug of choice
 - ESGD
 - 4 mg/kg SID PO
 - Geen ruwvoer tijdens nacht
 - 30' voor de maaltijd
 - Duur van behandeling?
 - CSS: 3 weken
- Pantoprazole (Pantomed®): 1,5mg/kg IV SID

A comparison of three doses of omeprazole in the treatment of equine gastric ulcer syndrome: A blinded, randomised, dose-response clinical trial

B. W. Sykes ✉ K. M. Sykes, G. D. Hallowell

PROTONPOMPINHIBITOREN



REBOUND EFFECT



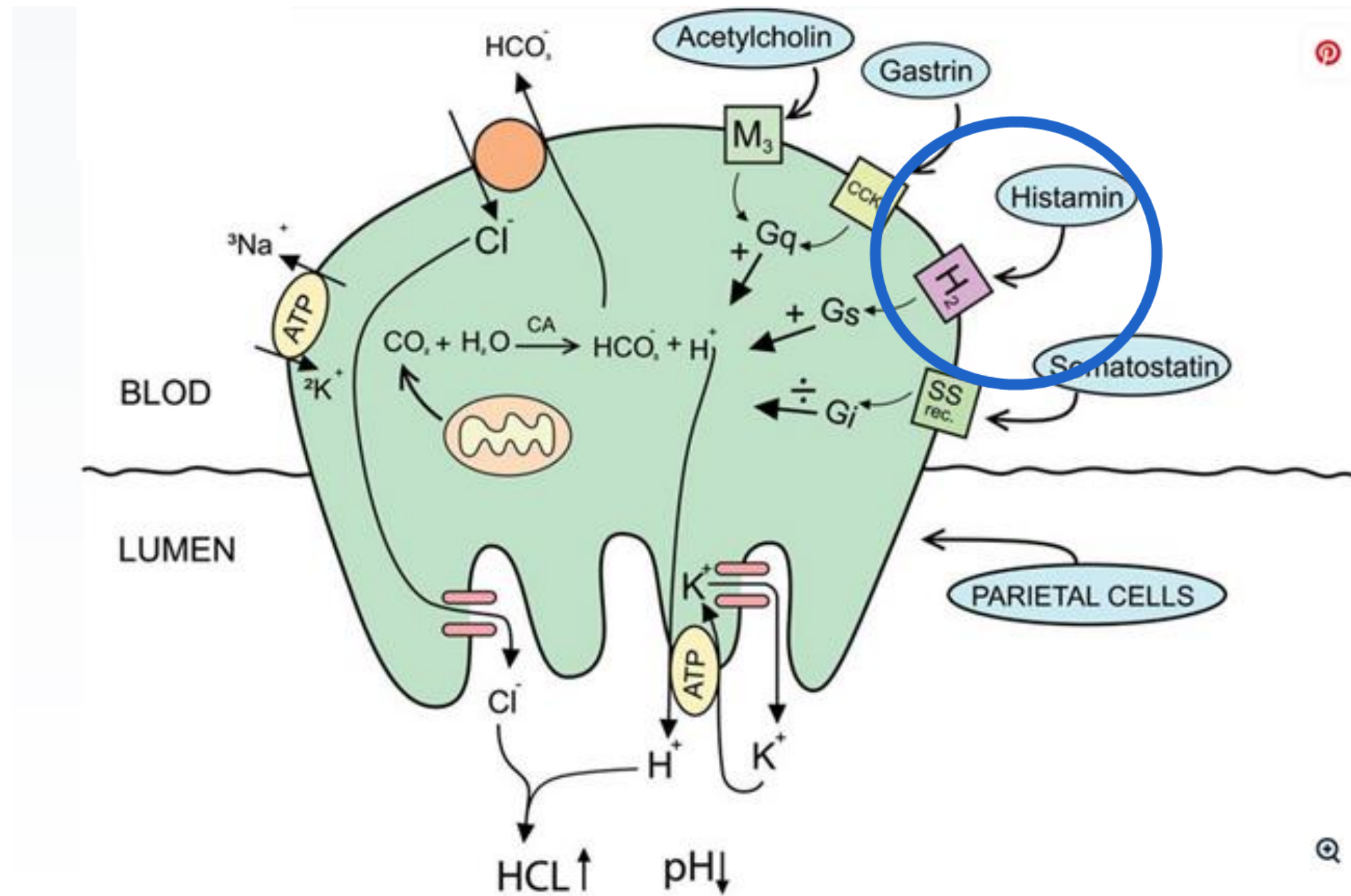
RISICO OP
FRACTUREN



COMBINATIE MET
NSAID → COLITIS

H2 – RECEPTOR ANTAGONISTEN

– Ranitidine



H2-RECEPTOR ANTAGONISTEN

- Ranitidine
 - Reversiebele binding thv H2 receptoren
 - Remming histamine → verminderde maagzuurproductie
 - Competitieve binding
- Famotidine

MUCOSABESCHERMERS

- Sucralfaat (polyamomonium hydroxide complex)
 1. Hecht aan ulcers → beschermend effect
 2. Stimulatie prostaglandine productie
 - mucus secretie
 - blood flow



SUCRALFAAT



Dosis: 12 mg/kg (tot 30 mg/kg) BID (tot TID/ QID) PO



Toediening = absorptie overige medicatie



Sucralfaat alleen heeft weinig effect

MUCOSABESCHERMERS

- Misoprostol
 - Prostaglandine analoog
 - Blood flow +
 - Bicarbonaat secretie +
 - Mucus secretie +
 - Zuurproductie –
 - Humane bijwerkingen
 - **!! Niet bij drachtige merries**



MISOPROSTOL



Dosis: 5 µg/ kg BID PO



Preventie NSAID geïnduceerde colitis



EGGD: Heling: 72% - Verbetering: 98%

ANTACIDA

Magnesiumhydroxide/ Aluminiumhydroxide



Korte werkingsduur



Interactie met andere geneesmiddelen



Dosis: 1-2 gram/ 100 kg LG

BEHANDELING – PRAKTISCH

MEDICAMENTEUZE BEHANDELING

ESGD

→ Omeprazole

EGGD

→ Omeprazole + Sucralfaat

→ Misoprostol

Preventie bij
NSAID gebruik

! Geen omeprazole
Misoprostol

MEDICAMENTEUZE BEHANDELING



4 WEKEN BEHANDELEN



CONTROLE GASTROSCOPIE



MINSTENS 8 WEKEN
BEHANDELEN ALVORENS VAN
STRATEGIE TE VERANDEREN

SUPPLEMENTEN

NUTRACEUTICALS

Olie

Pectine-lecithine

Magnesiumhydroxide

Saccharomyces cerevisiae

NUTRACEUTICALS

- Genezing / preventie
- In combinatie met omeprazole therapie
- Verder onderzoek nodig



PHARMACEUTICALS

- Omeprazole (1mg/kg SID po)
 - Long-term?
 - “pulse-therapy”
 - ➔ Gebruiken in stress-situaties



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Ghent University



A Practical approach to common issues in Donkeys

*Alex Thiemann – MA, Vet MB,
Cert AVP EP, MSc, MRCVS*



Aims of this talk

How donkeys differ from horses

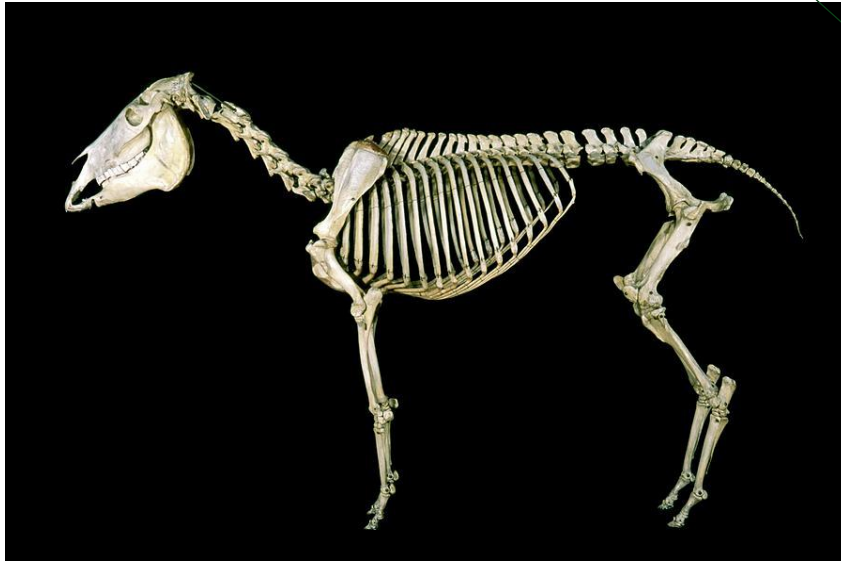
Recognise pain behaviours in the donkey

First line care for a dull donkey

Correct advice for the overweight laminitic donkey



The Donkey compared to a Horse- *A beast of burden*



- **Desert adapted equid**
- Large Ears
- *Loud Bray*
- *Browsers vs Grazers*
- Donkey head more massive
- Thick neck muscle
- "Good do-ers"



Understanding Donkey Behavior

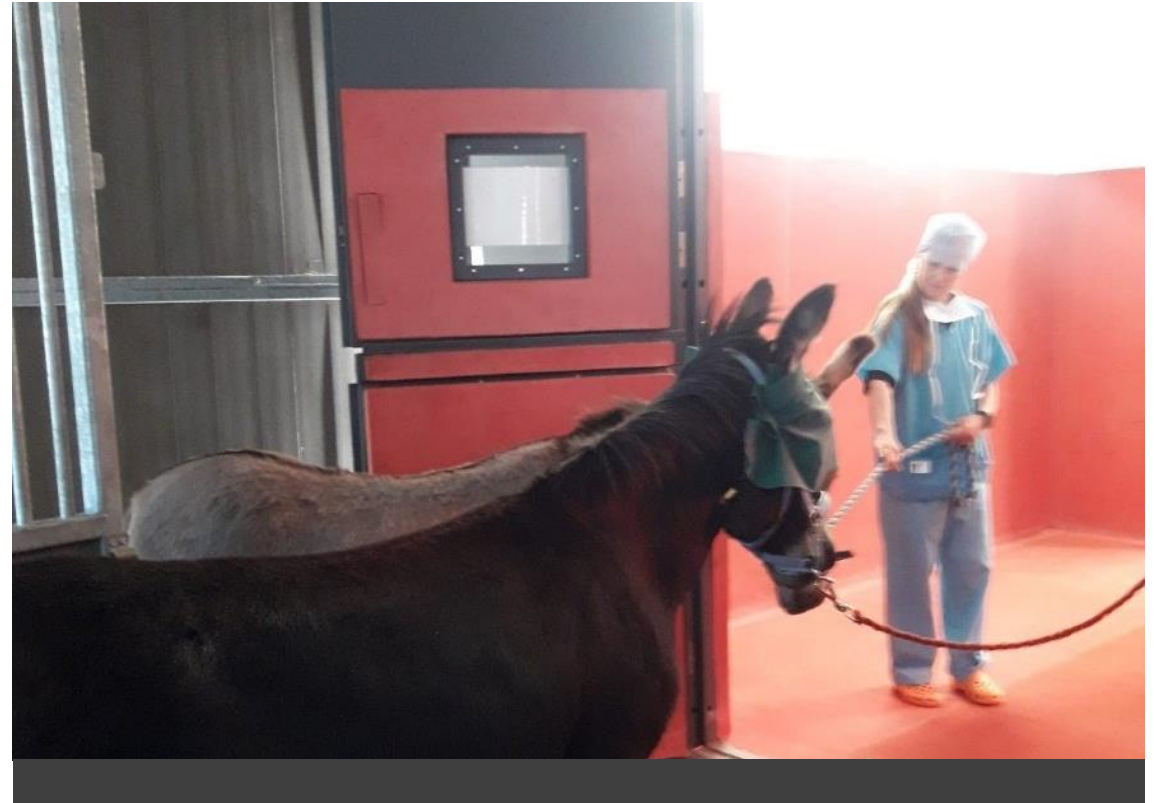


- ✓ Prey species
- ✓ Hide pain behaviors- **dull= very unwell**
- ✓ Stoic
- ✓ Cautious not "Stubborn"
—
- ✓ Loyal to friends /Grieve when bereaved
- ✓ Gentle/Friendly/Curious
—



Tips for Dealing with Donkeys- and Owners

- ✓ Be calm
- ✓ Avoid confrontation
- ✓ Keep companion nearby
- ✓ Use shaping plan for non- urgent work/clicker training
- ✓ Avoid being squashed/cow kicked
- ✓ NEVER EAR TWITCH- life- long dangerous head shy donkey
- ✓ Oral/IM/ IV sedation is your friend



Use Donkey Pain scale score- facial , composite, chronic

- Behavioural indicators
- Physiological measures
- Combined score



vets@thedonkeysanctuary.org.uk

vetadmin@thedonkeysanctuary.org.uk

Normal Vital Signs

Temperature

Donkey 36.5- 37.7 average **37.1** C

Horse 37.2-38.3 C

Heart Rate

Donkey 31- 53 bpm average **41** bpm

Horse 24-48

Respiration Range

Donkey 13-31 average **20** rpm

Horse 10-24



Donkey Blood parameters

Red cells fewer but larger, check TG on all dull, anorexic donkeys

Donkey	Result	Average	range	Adult non TB horse average
RBC	$10^{12} / l$	5.5	4.4-7.1	8.2
pcv	%	33	27-42	37
Hb	g/dl	11.0	8.9-14.7	13.5
MCH	pg	20.6	17.6-23.1	16.6
MCHC	g/dl	34	31-37	36.1
MCV	fl	60	53-67	46
TG	Mmol/l	1.4	0.6-2.8	0.2-1.2



Use SAA and lactate as in horse



My donkey is “not quite right”

- History- preventative care??
- Clinical exam- include rectal and dental, BCS, appetite
- Blood sample- include Triglycerides and SAA
- Faecal sample- WEC and history
- Dental exam

Top differentials

Hyperlipaemia
Colic
Colitis



Hyperlipaemia

Risk factors

- Pregnancy and lactation
- Female/Age
- Obese
- “Stress”- psychological/physiological
- Dental disease

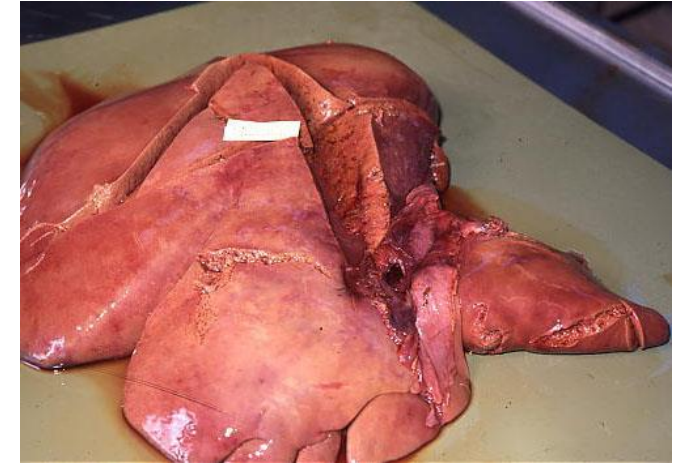
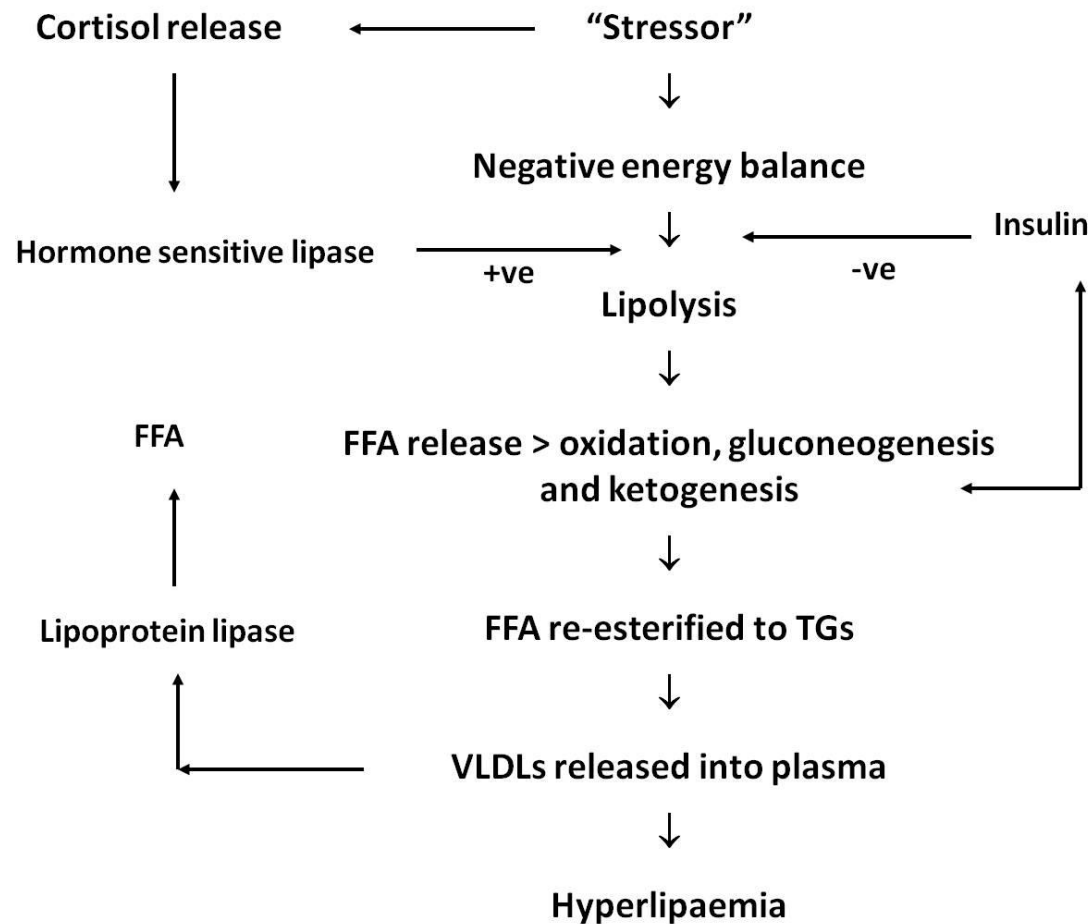
Mortality

- Increases as TG 
- Treat at home if TG < 10mmol, consider move to hospital if over
- Poor survival if TG 20-30mmol/l





BRAIN NEEDS
A STEADY SUPPLY OF SUGAR



Equine liver efficient at producing VLDL and *triglycerides* vs cats and ruminants that produce *ketones*.

How to recognise a hyperlipaemic donkey



Behavioural signs ****

Self -isolation

Dullness

Depression

Ears back or fixed to side

Head below withers

Lack of interest in food /sham eating



Sham Eating



Clinical findings in Hyperlipaemic donkeys

- Tachycardia
- Pyrexia
- Congested mucous membranes
- Ileus
- Dry faeces
- Colic
- Ataxia
- Weakness
- Halitosis
- Oedema

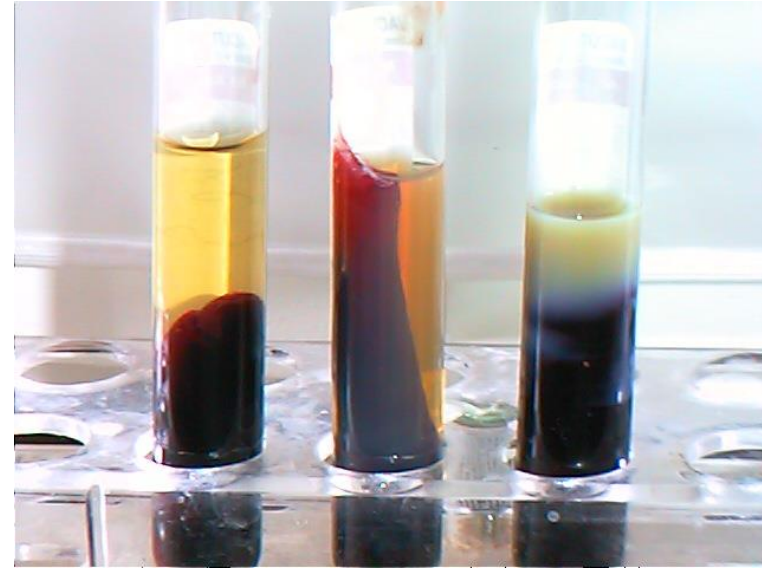


- **MULTI ORGAN FAILURE**



Goals of treatment

- Reverse negative energy balance
- Supply glucose oral/IV
- Analgesia, Gastric protectants
- Fluid therapy- oral, NGT, IV
- Diagnose and treat underlying disease



In- field treatment

- 2-3L warm water (1Litre/75kg Bwt)
- Rehydration fluid e.g. effydral /lectade
- 1g/kg glucose
- 250-500g “ready break” (oat cereal)
- Encourage browsing /treats/turnout
- Re-assess TID



Hospital treatment

	Day 1	Day 2	Day 3
Biochemistry mean (range)			
Triglycerides mmol/l 1.4 (0.6-2.8)	43.44	24.99	14.38
Creatine phosphokinase u/l 208 (128-525)	168	313	157
Aspartate amino transferase u/l 362 (258-536)	323	423	298
Gamma glutamyl transferase u/l 24 (14-69)	125	112	116
Glutamate dehydrogenase 2.5 (1.2-8.2)	22.9	3.1	3
Alkaline phosphatase 152 (98-252)	834	783	946
Bile acids umol/l 10 (2.6-18.6)	39.8	27.9	17
Total bilirubin umol/l 1.6 (0.1-3.7)	4.5	2.4	5.4
Total Protein g/l 65 (58-76)	60	52	50
Albumin g/l 26 (22-32)	27	24	22
Globulin g/l 38 (32-48)	31.5	28	50
Creatinine umol/l 87 (53-118)	262	257	116
Urea mmol/l 3.2 (1.5-5.2)	16.6	16	12
Amylase u/l 4 (1-10.6)	4		
Lipase u/l 12.9 (7.8-27.3)	13.2		



Hospitalisation treatment

Intravenous fluid example

3 litres Hartman's

Dextrose solution 1-2ml/kg bwt

Duphalyte 1-2ml/kg bwt (B vitamins, amino acids, dextrose)

Bolus then fluids at 40-60ml/kg/day

For CRI rates see Donkey Academy

Total parenteral nutrition example

50% glucose 15% amino acids (Fresenius Kabi aminoven)

0.5ml/kg bwt/hr

Monitor glucose 4 hrs, TG every 8 hours



How colic presents in donkeys

Frequency of presenting signs found:

78% were **off their food**

10% were rolling [a low percentage compared to horses]

18% also had **hyperlipaemia**

associated with clinical signs such as dullness, hard droppings and bad breath.

Research on donkey colic was carried out using case records held at the DS.

Final Year Equine Medicine Elective Project “The common presenting signs and causes of colic in the donkey”.

Honor Duffield, Nick Bell & Frances Henson (2002)



Colic in donkeys

High prevalence of impaction related to dental disease in older donkeys.

Parasitic/colitis in younger animals

Neoplasia- geriatric donkeys

Liver disease /gastric stasis



Rectal and/or US required to diagnose

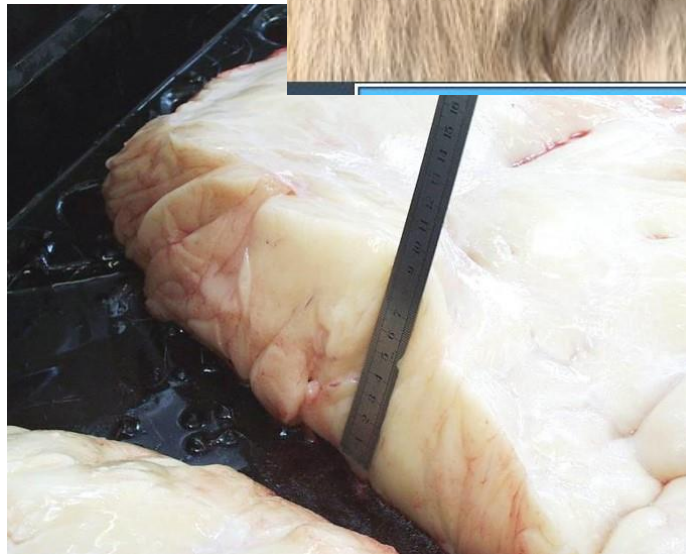
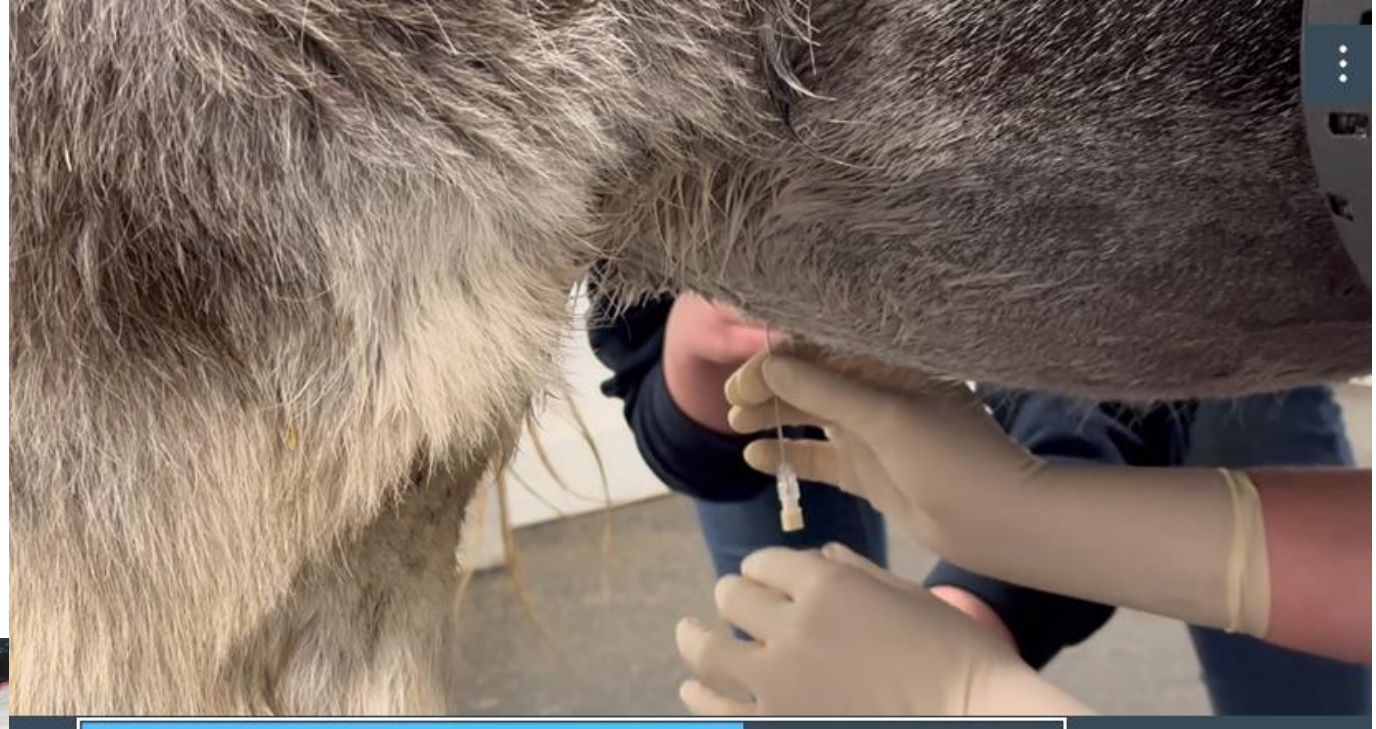
Peritoneal tap

Intra-abdominal fat can be substantial

US recommended for tap

May need catheter/teat cannula

TP/wbc/ plasma/ lactate



Surgical colic in donkeys

- ❖ Likely co-morbidities
- ❖ Study 33% survival to discharge (vs horse 70%)
 - 42% developed hyperlipaemia
- ❖ Post- op ileus common
- ❖ Pedunculated lipomas are very rare in donkeys

Merridale-Punter MS, Parker RA, Prutton JSW, (2017). Outcome following exploratory laparotomy in 24 donkeys: a retrospective multicentre study. BEVA Conference Proceedings 2017. Liverpool, United Kingdom, 13–16 September 2017.



Colitis in donkeys



Disruption of gut microbiome

Donkey sicker than expected

May be pyrexemic/toxic

Neutropenia. SAA elevation. Lactate high

Thickened colon wall 5mm +

Peritoneal fluid changes

Need quick treatment



Causes of colitis

Acute-

Parasites- cyathostomiasis

Infectious agents- Salmonella

Clostridia- difficile/perfringens

Cryptosporidium/Lawsonia/Campylobacter

Chronic

IBD

Lymphoma

Sand irritation



Cyathostomiasis

Donkeys rarely show diarrhoea

Many animals do not have adequate worming

Moxidectin is treatment of choice

Adjunct steroids

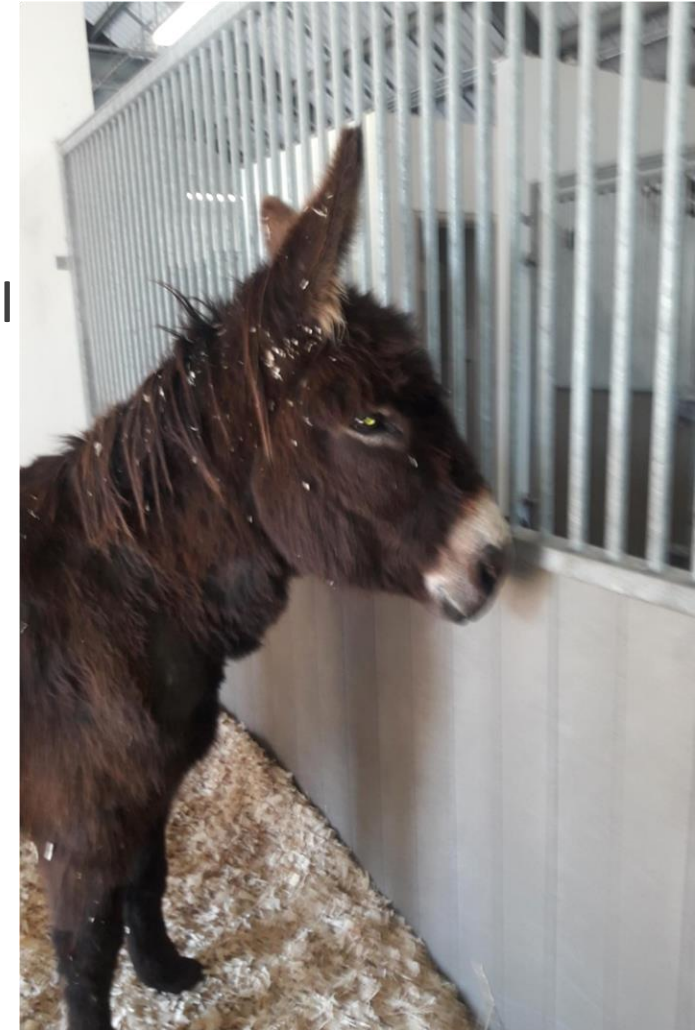
Ventral oedema /pyrexia/neutrophilia/neutropenia

Rapid protein loss



Colitis treatments.....

- **Biosponge**
 - 3g/kg loading dose then 1g/kg TID-QID
- **Anti- inflammatory...**
 - Misoprostol may counteract NSAID toxicity 0.005mg/kg BI
 - Dexamethasone 0.05-0.1mg/kg SID
 - Prednisolone 1-2mg/kg SID- EOD
 - Lidocaine 1.3mg/kg loading then 3mg/kg/hour slow
- **Antibiotics?** Penicillin Na 20mg/kg QID- clostridia
Metronidazole 25mg/kg BID- clostridia
Enrofloxacin 7.5mg/kg SID - salmonella
- **Protectants-** omeprazole/Sucralfate/oil



The laminitic donkey



Clinical exam- Gait abnormalities

Donkey descriptors

Weight shifting/lying down

Short/stilted gait

Reluctant to walk

Difficulty turning

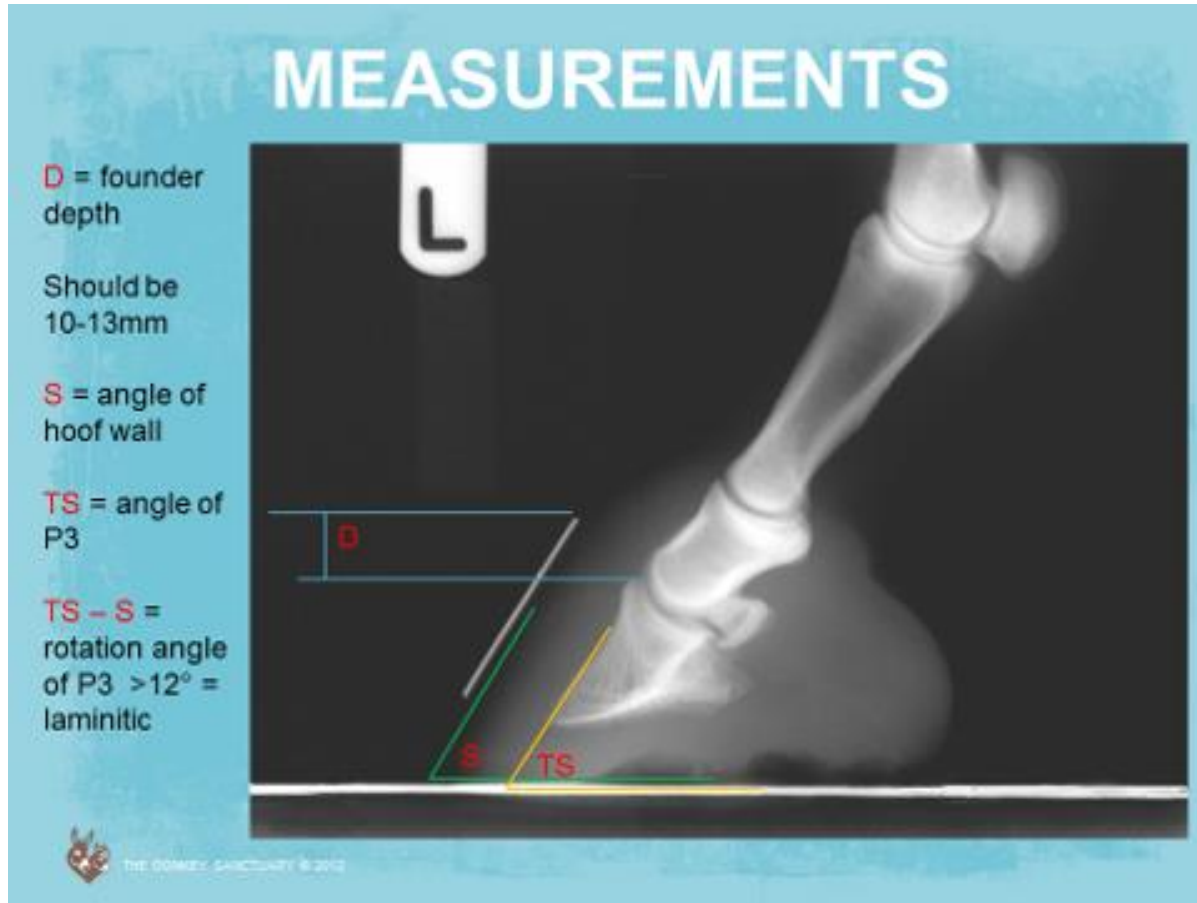


- *Standing exam- weight shifting*
- *Forelimb lift- easy/reluctant/unable*
- *Walk- normal/short/stilted/difficult*
- *Turning- normal /reluctant/difficult*
- *Digital pulses*

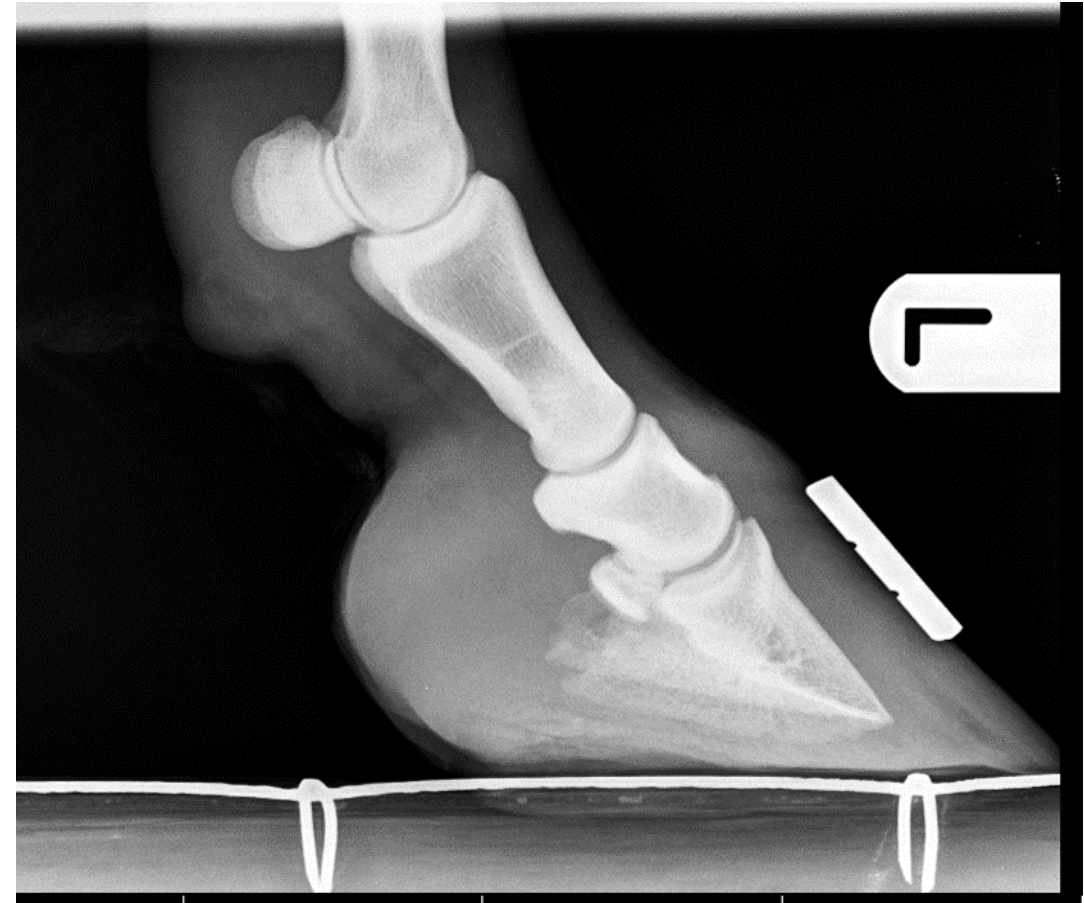
Meier, A et al, A modified Obel method for the severity scoring of (endocrinopathic) laminitis
PeerJ. 2019, 7: e7084



Radiographic signs recognise donkey normal



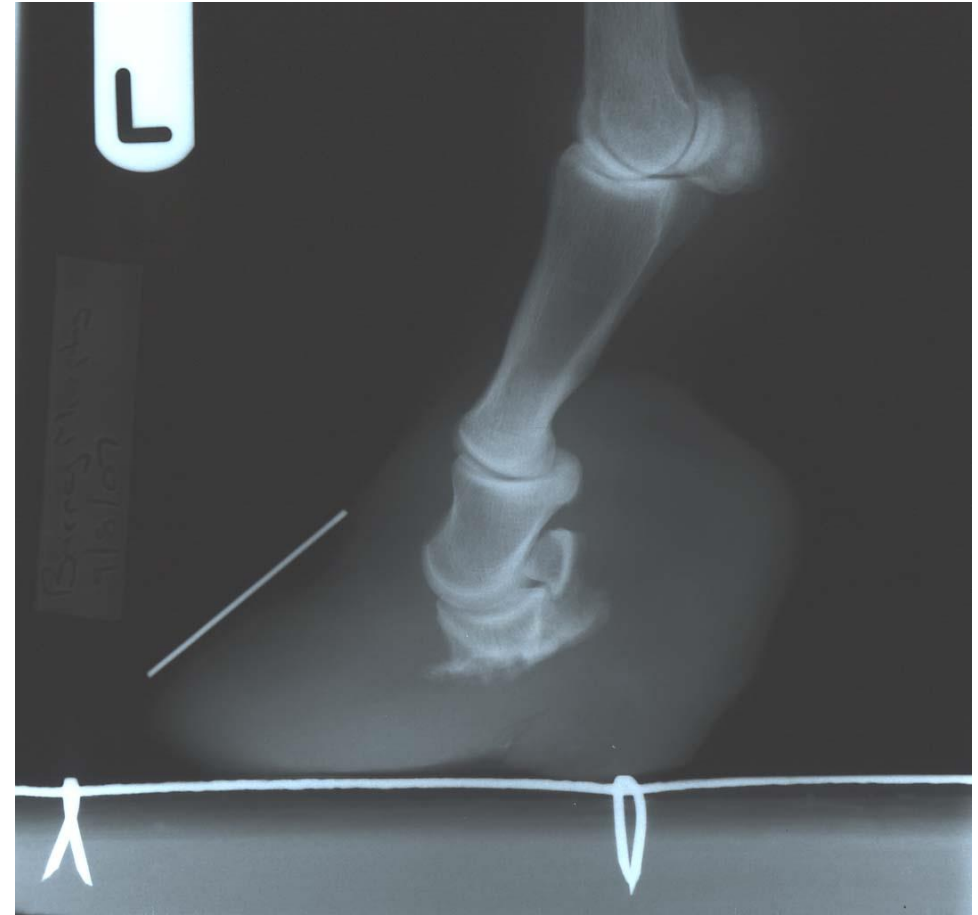
Donkey normal radiograph



Pony normal radiograph

Repeat radiographic assessments

Do not underestimate changes within the hoof



Relationship of pedal bone, frog and hoof

Donkey

Horse



Treating the acute laminitic donkey

Aim : to reduce lamellar injury and prevent displacement

Identify underlying cause if possible

Dietary overload

Insulin dysregulation

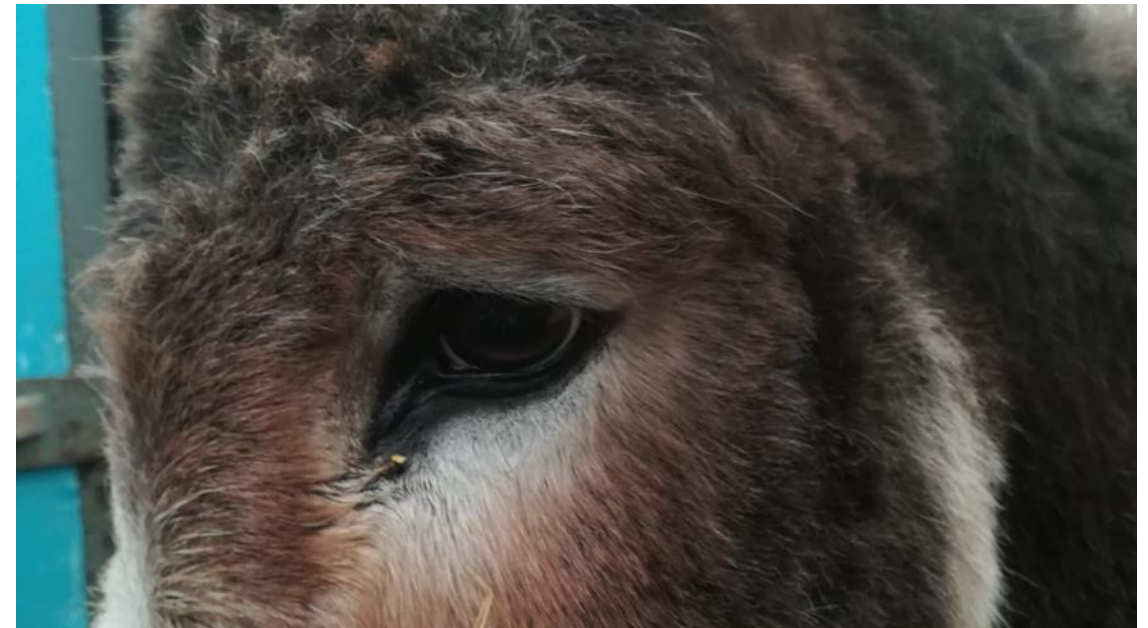
Microbiome disruption

Stress /Sepsis

Inflammation

Pain

Fear



Medical therapy- analgesia

Donkey appropriate doses of multi- modal analgesia

Phenylbutazone 4.4- 2.2 mg/kg BID (TID for miniatures)

Flunixin meglumine 1.1 mg/kg BID

Paracetamol 20- 25mg/kg BID- TID

? Morphine- 0.1mg/kg—buprenorphine/butorphanol

Gabapentin 5-10mg/kg TID

Distal limb cryotherapy



Chronic laminitis

- Changes have occurred in the hoof/pedal bone- rotation/founder
- Varying degrees of pain
- Owners often get accustomed to gait
- Acute episodes may occur intermittently



Treatments

Analgesia

Foot care / Farriery

Nutrition/Weight management

Medication for specific condition

Assess Quality of Life



Medications for the cause of laminitis- PPID



Test donkeys with laminitis, especially >15 years but **not** if stressed when testing

ACTH testing

TRH testing if borderline

Pergolide- may be compliance issues (2ug/kg starting)

Cabergoline- dopamine agonist- IM injection 2 weeks

Normal donkey acth pg/ml November –June 2.7-30.4, July- October 9-49.1

Asinine Metabolic Syndrome

Donkeys are given Obesogenic diets

Regional and local adiposity

Inflammatory adipokines

Insulin Dysregulation- resting or Karo lite

Predisposition to laminitis

High risk for hyperlipaemia

Can coexist with PPID



Medications for the cause of laminitis – AMS

Insulin lowering drugs- ertuglifloxin (0.05mg/kg oral SID), canagliflozin, velagliflozin
inhibit glucose uptake in kidney, promote glycosuria, lower insulin
Sodium glucose cotransport 2 inhibitors (SGLT2)

Monitor liver enzymes and appetite
metformin- inhibits glucose absorption in intestine 15- 30mg/kg BID

Increasing metabolism- Levothyroxine-promotes weight loss, and increases sensitivity to insulin

0.1mg/kg orally SID 3-6 months?



Nutrition

- Donkeys' origins from wild asses in Africa and Asia
- Evolved as a grazing and browsing herbivore
- Efficient fibre digestion
- Forage 14-18 hours/ day travel up to 20km
- They are browsers as well as grazers



Nutrition: Feeding the “average” donkey

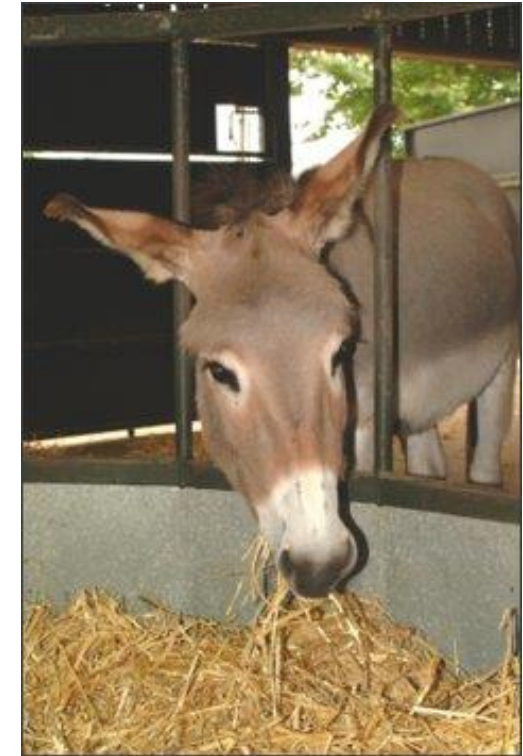
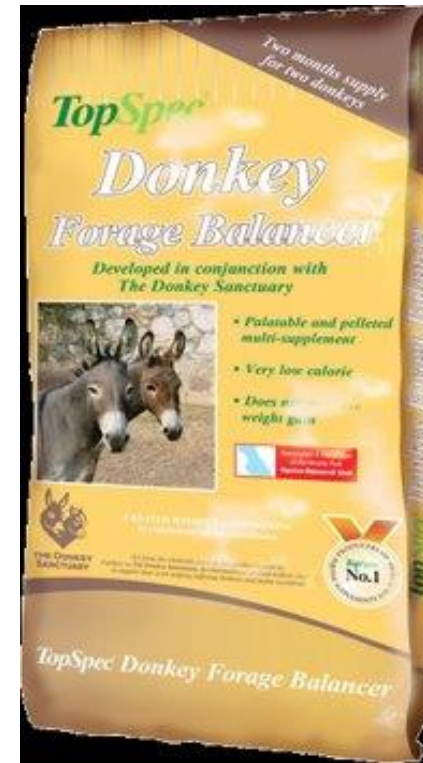
Significantly less energy per day than a pony of the same size (between 25 and 50% less) They also require less protein.

Feed a diet high in fiber and low in energy and non-structural carbohydrates

Feed by condition score

Provide low energy foodstuffs so the donkey can satisfy their natural appetite and behavioral needs to forage without becoming obese

Increase when pregnant /lactating?
underweight



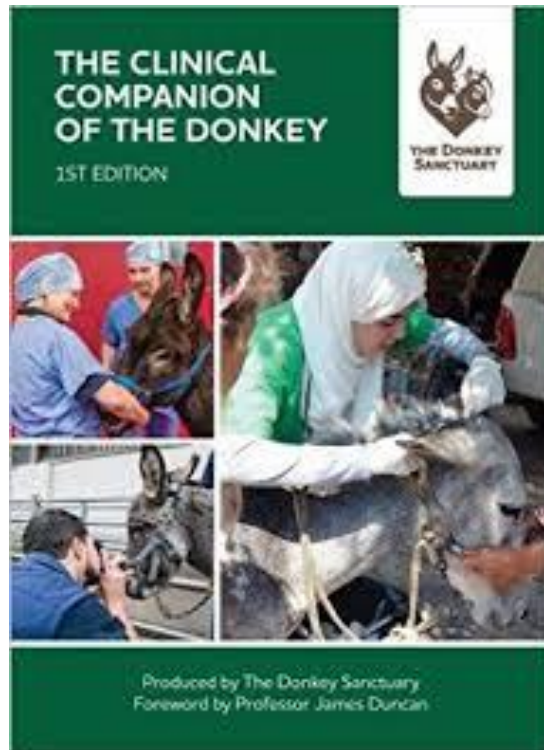
Managing Asinine Metabolic syndrome

- ❑ Transition to donkey appropriate diet
- ❑ Check teeth and TG
- ❑ Increase exercise if possible
- ❑ Weight loss not more than 5% per month
- ❑ Gliflozins- Ertugliflozin 0.05mg/kg SID (increase renal glucose loss)- check liver function monitor appetite

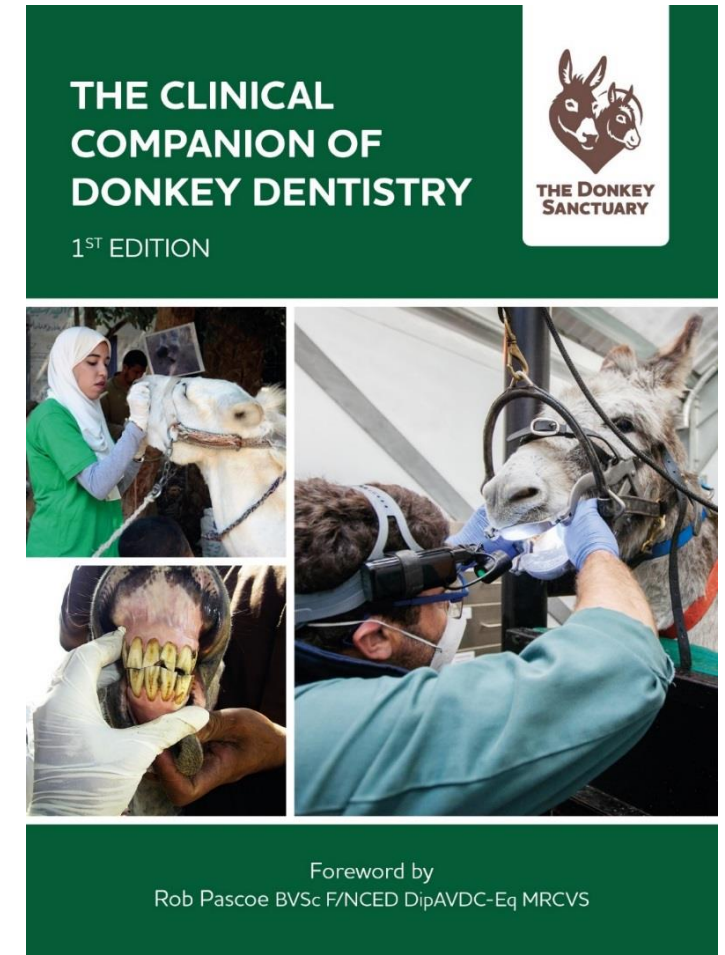


The Donkey Academy and resources

<https://www.thedonkeysanctuary.org.uk/what-we-do/knowledge-and-advice/donkey-academy>



Books and fact sheets:
www.thedonkeysanctuary.org.uk



Thank you for listening

