

What is a geriatric horse?

- The veterinary literature has labeled horses > 20 years as geriatric horses
 - 10% of Horses in U.S.
 - 1 year = 3 human years (donkeys and ponies are slightly different)
- Horses should be expected to live into at least their 20's or 30's
 - This will depend upon health care programs throughout their life!!
 - Expectations may shift from performance to quality of life


Although in a survey of 163 old horses 63% were still participating in some athletic activity



Brosnahan 2003

General Geriatric Care

- Husbandry!
- Diet (special needs) and Exercise- change slowly
- General Health maintenance
 - Teeth
 - Feet
 - Eyes
 - Skin
 - Joints
 - Parasites
- Medical Problems
 - Heaves
 - Cushing's disease
 - Organ Failure
 - Neoplasia
 - Colic
 - Reproductive
- Daily Attention and love



What are the problems with aging?

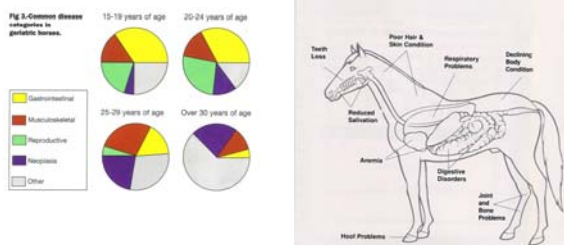



Fig. 3- Common diseases unique to geriatric horses.

Age Group	Common Diseases
15-19 years of age	Respiratory, Musculoskeletal, Reproductive, Neoplasia, Other
20-24 years of age	Respiratory, Musculoskeletal, Reproductive, Neoplasia, Other
25-29 years of age	Respiratory, Musculoskeletal, Reproductive, Neoplasia, Other
Over 30 years of age	Respiratory, Musculoskeletal, Reproductive, Neoplasia, Other

Health Issues Diagram Labels: Teeth Loss, Poor Hair & Skin Condition, Respiratory Problems, Declining Body Condition, Reduced Appetite, Anemia, Digestive Disorders, Joint and Bone Problems, Hoof Problems.

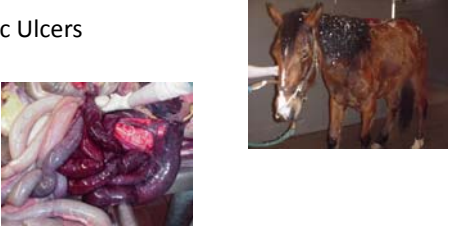
Normal signs of aging

- Top line muscle mass diminishes
- Hair may become gray
- Teeth may be lost



Colic and the geriatric horse


- The dreaded **lipoma**!!
 - Old horses may be more "stoic"
- Impaction Colic
- Gastric Ulcers



Stangulating lipomas

Average age 18.7 years
Mostly strangulates the S.I.
Quarter horse, Arabians and ponies ?

Call quickly for colic in geriatric horses !



Colic Surgery

- Although the survival rate for horses undergoing colic surgery has improved dramatically over the past several decades, emergency abdominal exploratory surgeries are still viewed with trepidation, especially by horse owners. Survival rates for exploratory celiotomy were 72% to 87.2% in 2 recent large retrospective studies

Krista et. al 2009



Comparison of survival rates for geriatric horses versus nongeriatric horses following exploratory celiotomy for colic
Kathryn M. Krista, DVM

- **Conclusions and Clinical Relevance**—Survival rate at the time of hospital discharge was significantly lower for geriatric horses, compared with that for nongeriatric horses. The primary reason for this difference in survival rates between the 2 groups appeared to be related to the significantly higher number of geriatric horses euthanized during surgery. Strangulating lesions-lipoma



If they have "cresty" neck there is a high risk of laminitis following Intestinal disorder

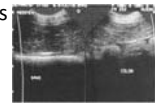
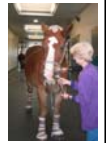
Diarrhea,
Intestinal Surgery
Proximal enteritis
Grain Overload

Prevention



Impaction Colic- Why are they more common in old horses?

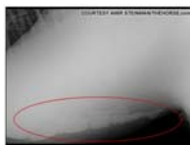
- Decreased mastication of feed!
- Altered intestinal motility?
 - Lameness, pain, NSAIDs
 - Parasitism?
 - Sand accumulation
- Decreased water consumption
 - Dental disease?
 - Lameness



Large Colon, Cecum and Small colon Impactions

Treatments

- Fluids
- Psyllium
- Hay, beet pulp*, bran
- Surgery
- *soaked only









Prevention of impactions in high risk geriatrics

- Fiber
 - Soaked Beet Pulp great for water and fiber
 - Psyllium
 - Soaked hay- will loose nutrients
- Water
 - Fresh
 - Salt blocks
 - Warm in winter
- Dental Corrections
- Decrease pain, ie orthopedic



Why Gastric Ulcers in old horses?

NSAID use ??

Why do old horses choke

- Video





- The masticatory forces decreased with age.-
Huthmann S 2009
- Saliva production decreases with age

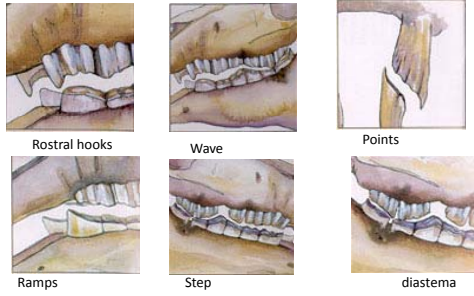
Dental Problems in old horses

- Signs of:
 - Is the horse losing weight?
 - Is the horse chewing differently?
 - Is feed spilled on the ground?
 - Is there oats etc. in the tail hairs?
 - Is the choke?
 - Impaction colic?






Common problems of premolar and molar teeth in geriatric horses



Vertical cracks, loose or missing teeth, fractured teeth, enamel loss etc.

<http://www.equinehorsevet.com/jmc-dentistry.htm>

Donkey Dental study- du Toit 2009

- There was an increase in prevalence of commonly recognized dental disorders with increasing age, such as: diastemata (3.8% in youngest to 86% in oldest group); missing teeth (0-56%); overgrown teeth (15-86%); worn teeth (8-84%); displaced teeth (0-38%); and periodontal disease (0-28%). CONCLUSIONS: There was a significant increase in the prevalence of dental disorders with increasing age with the largest significant increase for most dental disorders occurring in the 15-20 year age group. POTENTIAL SIGNIFICANCE: Most dental disorders significantly increase in prevalence in the 15-20 year age group and, therefore, prophylactic geriatric dental treatment in donkeys should be commenced from age 15 years.

Dental exam at least every 6 months!

- By someone with experience treating geriatric horses
 - May need tranquilization
 - Examination of heart
 - Careful with excessive floating
 - Careful with speculum
 - Careful making major changes at once




More severe problems associated with "bad teeth"



Parasites and older horses

- **Results**—Horses with PPID (Cushing's) had higher fecal egg counts before and 8, 10, and 12 weeks after ivermectin treatment, compared with counts for site-matched healthy horses. There was no difference in the period for < 90% reduction in fecal egg counts between the 2 age groups. Age did not affect fecal egg counts at any time point.
- **Conclusions and Clinical Relevance**—For similar environmental conditions, horses with PPID were more likely to have higher fecal egg counts than were healthy horses. Therefore, horses with PPID may need to have a more aggressive parasite prevention program than do healthy horses. Age did not affect fecal egg counts or time to egg reappearance after anthelmintic treatment, **which suggested age alone does not likely require special consideration when designing a parasite control program for adult horses**

Fecal egg counts after anthelmintic administration to aged horses and horses with pituitary pars intermedia dysfunction McFarlane et al. J.A.V.M.A. February 1, 2010,

Cyathostomiasis- Currently the greatest parasite problem in mature horses

- May cause acute and/or chronic diarrhea
- Progressive weight loss
- Protein losing enteropathy
- More common in weanling to young adults
- Most common late winter to spring in NE

- Resulting from large # of encysted larvae and inflammatory reaction- winter
- Emergence of larvae to adults- spring



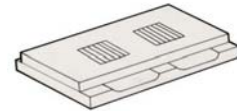
What is a good program



The old recommendation to deworm every 2 months with rotating anthelmintics is now being scrutinized!!

Each Farm is different

Fecal Egg counts

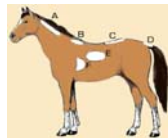


Nutrition for the geriatric horse

Depends upon BCS

- Geriatric horses should have BCS of 4-6

- **4 - Moderately Thin:**
 - Negative crease along back. Faint outline of ribs discernible. Tailhead prominence depends on conformation, fat can be felt around it. Hook bones not discernible. Withers, shoulders and neck not obviously thin.
- **5 - Moderate:**
 - Back is level. Ribs cannot be visually distinguished, but can be easily felt. Fat around tailhead beginning to feel spongy. Withers appear rounded over spinous processes. Shoulders and neck blend smoothly into body.
- **6 - Moderate to Fleishy:**
 - May have slight crease down back. Fat over ribs feels spongy. Fat around tailhead feels soft. Fat beginning to be deposited along the sides of the withers, behind the shoulders and along the sides of the neck



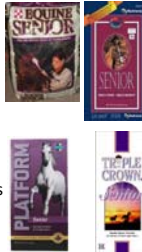
Changes in Nutrition?

- **If the horses BCS is normal and there are no medical problems (eg. Cushing's disease, bad teeth, coke etc.)- Why change?-**
 - starting reference- 1.5-2% of B.W. in good quality forages
- If old horses start to lose weight their feed, husbandry, and health should all be evaluated!
- Old horses often seem to loose weight in the winter
 - Difficulty in regulating body temp.
 - Cushing disease
 - More severe Osteoarthritis
 - Difficulty competing for feed bunk etc.
 - So might need to increase calories or feed a "senior" ration
 - If the horse spends considerable amount of time out doors roughage helps to keep them warm!!

Make all changes gradual!

What are special nutritional needs of the geriatric horse

- May require more dietary protein (12-16%/ alfalfa hay if good quality) and energy (vegetable oil-1 cup) depending upon BCS
- May need more easily digested fiber (extruded, predigested)??
 - These may have increased carbohydrate
- General rules-
 - If BCS is good- good quality hay (1&1/2-2% BW/day) and/or grass pasture may be sufficient
 - Complete feeds can be fed at this same rate
 - Divide into more feedings!
 - If more energy or more easily digestible fiber needed then feeding complete feed/ extruded pellets may be required
 - Concentrate feeding should not be in excess of 0.5% BW/ feeding



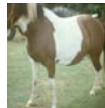
Supplements

- Salt block-regular and mineral
- Corn oil or omega 3- oils
- Selenium if needed
- Vitamin E
- Vitamin C
- Probiotics??
- Laxatives- soaked beet pulp
- nutraceuticals

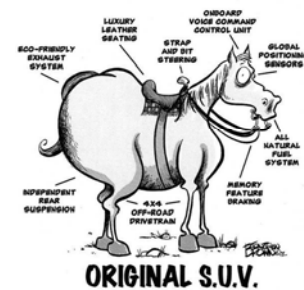


Some special considerations

- History of urinary calculi or decreased renal function- limit legume hays and high calcium concentrate or supplement feeds
 - Increase Phosphorus in the diet
- Severe dental disease
 - Complete feed Pellets and cubes "freshly" soaked
 - Vegetable oil can be added for higher depending upon BCS



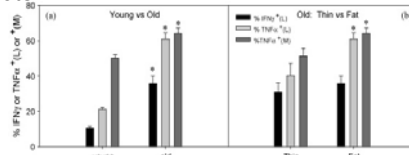
To Fat



Inflamm-aging in the horse- Adams 2008

Obesity in old horse causes

- Increase in inflammatory cytokines
 - Tumor necrosis factor
 - C-reactive protein



Vet Immunol Immunopathol. 2009 Feb 15;127(3-4):286-94. Effect of body condition, body weight and adiposity on inflammatory cytokine responses in old horses Adams et al.

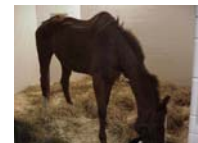
"Re-feeding syndrome"

- Consult with a veterinarian and a nutritionist.
- Re-feeding syndrome usually occurs within 3 – 5 days.
 - The best approach is frequent small meals of high quality alfalfa. Gradually increase the amount fed and decrease the frequency fed over a 10 day period.






Days 1-3
Feed one pound (@ 1/6 of a flake) of leafy alfalfa every four hours for a total of six pounds per day divided into six feedings. Contact a vet to evaluate the medical status of the horse.

Days 4-10
Slowly increase the amount of alfalfa and decrease the number of feedings so that by day six, you are feeding just over four pounds of hay every eight hours (total of 13 pounds per day in 3 feedings)



Heaves and the old horse

- This is undoubtedly the most common respiratory disease of geriatric horses
 - Causes
 - Genetics
 - Immune response to prolonged exposure to allergins (mostly thermophilic molds in the hay)
 - Clinical Signs
 - Early- Chronic cough, nasal discharge
 - Later respiratory difficulty and weight loss
 - May have acute episodes, sometimes febrile, seasonal

Diagnosis of Heaves

Early Diagnosis best!




J.P. Lavoie

Treatments for Heaves

- Management
 - Skin testing- poor
 - serum allergen-poor
 - Soaking hay often done and it helps but also diminishes nutrients
- Medical







If Horses with Heaves are left on pasture in the winter



- Need some shelter
- Need extra calories and care
- Water!*







Pneumonia in older horses

Some follow esophageal choke others are hard to explain and often appear without cause:
 Treatment- broad spectrum antibiotics
 Prognosis- good but 1-2 months of antibiotics often required

Immune Suppression in the Geriatric Horse

- The decline of lymphocyte population numbers with age is a natural process in many animal species, and could be the origin for immune dysfunction observed in geriatric individuals. Immunophenotypical characterization in Andalusian horse: variations with age and gender. Satué K

Vaccination of the geriatric horse

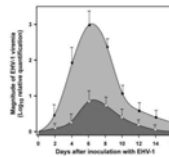
- Healthy aged horses generated a primary immune response to a killed rabies vaccine similar to that of younger adult horses. Aged horses had a significantly reduced anamnestic response to influenza vaccine. **The effect of age on serum antibody titers after rabies and influenza vaccination in healthy horses.** Muirhead TL



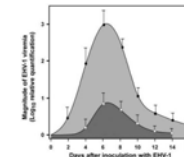
Risk Factors for EHV1 associated neurologic disease/ experimental horses

Allen 2008

- *12 mares > 20yr; mutant EHV1- 8 CNS signs/disease
- 12 mares > 20 yr, abortigenic EHV1- 0 CNS signs
- ^12 mares < 15 yr, mutant EHV1- 1 CNS signs



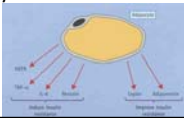
Neuro EHV1 * (light) vs ^ (dark)



Neuro EHV1 (light) vs abortigenic EHV1

Summary- Immunity of the Geriatric Horse

- Shift in immune response towards a Th2 response
- Decline in B and T cells
- Reduced response to some vaccines- eg. rabies
- Selenium and Vit. C deficient may have some adverse effect on the immune system
- There may be increased inflammatory cytokines produced by fat cells



DIAGNOSIS AND TREATMENT of Cushing Disease



Don't confuse with Equine Metabolic Syndrome/ Pre-laminitic Syndrome (Peripheral Cushing's)

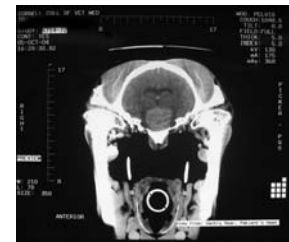
Early works:
Johnson 2002
Treiber, Kronfield and Geor 2006-08
Bailey et.al 2006-08
Frank 2006-08



EMS


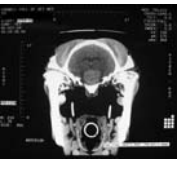
Cushing's Disease

(Pituitary Pars Intermedia Dysfunction – PPID)

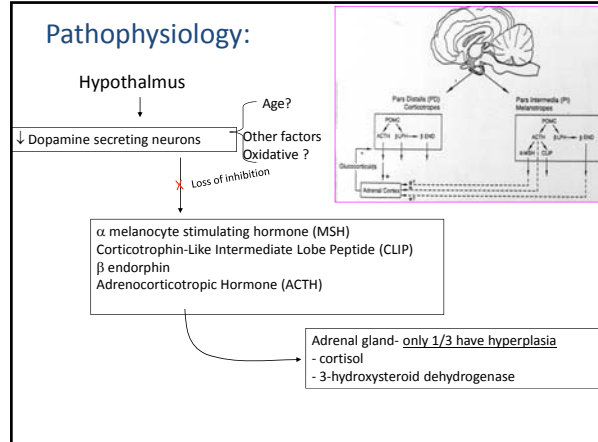


Epidemiology:

- All breeds affected
 - Morgans and ponies - greater incidence reported
 - May or may not be true; overlap with metabolic syndrome
- Age of onset – 18 – 23 years most common
 - Earliest case → 7 years

Pathophysiology:



Hypothalamus

↓ Dopamine secreting neurons

Other factors: Age? Oxidative?



Loss of inhibition

α melanocyte stimulating hormone (MSH)
Corticotrophin-Like Intermediate Lobe Peptide (CLIP)
β endorphin
Adrenocorticotropic Hormone (ACTH)

Adrenal gland- only 1/3 have hyperplasia
- cortisol
- 3-hydroxysteroid dehydrogenase



Clinical Signs:

- Hirsutism, Lice
 - Delayed shedding!!
- Coat color change
- Sweating – neck & shoulders
 - Dermatophilus
- Lethargy
- Loss of epaxial & rump muscles-myopathy
- Fat deposition – neck, tail head, sheath, orbit
- PU/PD
- Infertility
- CNS signs
- Suspensory breakdown
- Laminitis – abscess
- Sinusitis, gingivitis, abscess
- Parasitism


Which horses should we test for Cushing's Disease

- Determined by clinical signs and age
 - Clinical signs are variable and even focal areas of abnormal shedding, increased water consumption, urination or unusual fat deposition should raise suspicion for ECD.
 - Unexplained laminitis!!
 - Age could be as young as 7 years

Purpose of Endocrine testing



- For early diagnosis of ECD in hopes of preventing laminitis and other associated clinical conditions in ECD!!
- Prognosis of the disorders
- Monitoring response to treatment



Testing: Equine Cushing's Disease

- Hirsutism is specific for ECD but not a sensitive indicator
- Laboratory tests are numerous
 - Overnight dexamethasone suppression test (0.04 mg/kg)
 - Seasonal variation exists
 - Adverse effect? Rarely → exacerbation of laminitis
 - ACTH > 35-40 pg/ml
 - EDTA plasma
 - Seasonal effects (last week of August to first week of November in N.E.)
 - 340 old horses- sen.= 80%, sp.= 87% McGowan 08
 - Hyperglycemia and/or glucosuria
 - in a non-painful, unexcited horse
 - not fed "sweet feed" within past 3-4 hrs
 - low sensitivity


Sampling?

Testing:
Equine Cushing's Disease- cont.

- **Insulin testing- recommended**
 - included in routine testing for ECD
 - Insulin concentrations affected by diet, thus samples should not be collected within 5 hrs of concentrate feeding or 12-18 hrs of high sugar/starch grass/forages
 - May provide prognostic information, affect recommendations for nutritional management and treatments
 - Useful when considering both ECD and EMS

• **ECD Prognosis and insulin concentrations:**
 >188 μ U/ml = poor 2 year survival compared to ECD horses with insulin < 62 μ U/ml McGowan CM 2004



Testing:
Equine Cushing's Disease


- **Diurnal variation in cortisol**
 - though the concept is sound, there is no evidential medicine to support this test
- **Thyrotropin releasing hormone (TRH) stimulation**
 - Multiple samples
 - Chemical grade TRH
 - Specificity is not high
- **Dexamethasone suppression / TRH stimulation**
 - there is EBM for this test but it is a complex test
- **Domperidone stimulation (dopamine antagonist)**
 - 3.3 mg/kg PO causes 2x or greater ACTH at 4 hrs in ECD horses (Sojka 2006)

Testing during the Fall

- **ACTH**
 - <10% of normal equines were <35pg/ml (normal)
 - Ponies >250 pg/ml or horses >150 pg/ml had ECD

Beech 2007
- **Dexamethasone suppression**
 - 74% of normal horses are suppressed
- **Domperidone**
 - ACTH increases >2x
- **Insulin**
 - Must not have been fed grain for at least 5 hrs
 - prognosis


Why not routinely check insulin and ACTH in all at risk horses in January?



Treating ECD



Pergolide and Cyproheptadine: Which Medication to Choose for Treating Equine Cushing's Disease

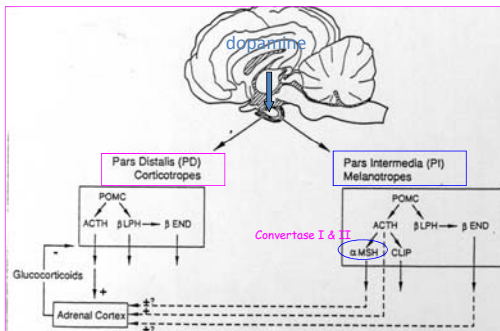


- **The short and practical answer?**
Pergolide mesylate
 evidence based medicine supports this recommendation

Donaldson 2002 and Perkins 2002



- Why? The mechanism of action of pergolide, a type 2, dopaminergic agonist, in treating ECD is well accepted.



• Proper dose of pergolide:

- 0.5 - 5 mg (1-10ug/kg) PO SID
- Capsules are preferred due to stability but may be difficult to find
- Use a reputable compounding company and store as recommended (suspension) !
 - Protect from light
 - <30 days / refrigeration (Davis 2009)
- Changes in dosage should be based upon diagnostic testing and clinical signs after 2-4 weeks of therapy.

Adverse effects of pergolide are uncommon!!

- Anorexia
- Colic
- Neurologic signs (extrapyramidal signs) → secondary to gross overdosing
- Pergolide is a prolactin inhibitor so its use in pregnant mares could cause agalactiae?
 - Of the limited number of horses with ECD that become pregnant and treated with pergolide, agalactiae has been rarely reported.
 - I personally recommend stopping the pergolide 2 weeks prior to foaling in most cases.
 - To my knowledge there is no EBM to allow standard recommendations

Cyproheptadine has also been commonly used for treating ECD



- Cyproheptadine is a serotonin antagonist with some antihistamine effects
- I don't recommend it as first line treatment for ECD but may be useful in horses or ponies with ECD and laminitis
 - Horses with ECD and laminitis and treated with cyproheptadine had improvement in the signs of laminitis Perkins et al 2002

Why treat early cases ??

- This decision is often a financial one but
- The disease is progressive.
- Safe and reasonably effective medication is readily available
- Acute laminitis
 - could be the first clinical sign



Alternative therapies for ECD

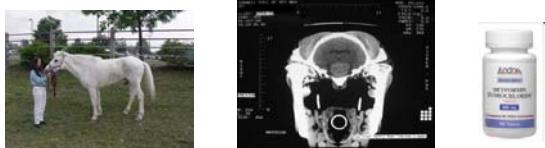
Keep an open mind but, at this time, there is no EBM to support successful treatment with alternative therapies. One report found chasteberry extract to be ineffective

Beech 2002



Monitoring response to treatment ECD- Clinical signs, ACTH and Glucose

- Be careful interpreting changes in ACTH when baseline (starting) values are very high.
 - There is significant hourly variation in ACTH in horses/ponies with very high initial values
- Perform testing at same time of day, same diets, and even same season when possible.



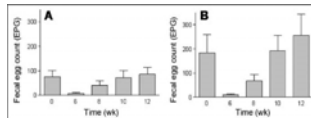
Nutrition in ECD

- Dietary changes for ECD are similar to EMS except dramatic restriction of carbohydrates might not be possible in old horses/ponies with dental problems, abnormally low BCS, or severe recurrent airway obstruction (heaves).
- Low (<20%) NSC complete pellets, extruded feeds and higher oil/fat (Ricebran, soybean, omega 3's) diet with vitamin and mineral supplements* are appropriate for most horses/ponies with ECD.
 - Depends on BCS, blood glucose, insulin, other health conditions!!



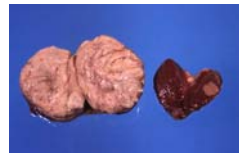
Equally important to any specific medical treatment for ECD is **Good Health Care and Management!**

- Nutritional needs
 - Calories - eat to maintain BCS 5-6
 - Careful with diet changes and especially high sugar starch feeds
 - monitor insulin resistance
 - glucose and insulin
 - Anti-oxidants-
 - Vitamin C, Vitamin E, Se
- Dental care - conservative changes
- Dermatologic care
- Hoof care - analgesics as needed
- Fresh, clean water
- Anthelmintics - don't forget *Parascaris equorum*



Benign Thyroid adenomas

- Common in horses
- Most often in older horses
- Usually unilateral



Hypothyroid Horses

- Hypothyroidism is uncommon in horses in the U.S.!!!
- Low T3 (1.7–5.2, FT3= pmol/L and/or T4 (6–46 nmol/L, FT4=7–47 pmol/L) is common in horses!!!!
 - Euthyroid sick syndrome (non-thyroidal illness syndrome)
 - Medication- NSAIDs etc.
 - Anorexia
 - Diurnal variation
 - Exercise- T4,FT4,T3,FT3 concentrati
successful completion of 80km or > ride





Experimental hypothyroidism

- 3 reports on thyroidectomized horses
- several reports using propylthiouracil
- Clinical signs are minimal
 - Weight gain
 - Lethargy
 - Slowed heart rate
 - Some changes in ECG

Clinical Hypothyroidism

- **Hypothermia** is a problem in **donkeys** during cold winter months and is associated with hypothyroidism
- **Congenital hypothyroidism and dysmaturity syndrome** of foals
 - Dysmaturity, ruptured Common digital extensor tendons, enlarged thyroid gland, mandibular prognathia, incomplete ossification of cuboidal bones
 - result of diets that contain high nitrate or that are low in iodine being fed to pregnant mares.







Lameness and the geriatric horse

1. Laminitis- often Cushing's disease
2. Osteoarthritis- "wear and tear"
 - Age related changes in both articular cartilage and flexor tendons have been documented in horses
3. Degeneration of suspensory ligaments

All may be worsened by –


- "over weight condition"
- Poor hoof care
- Poor husbandry

Treatments for osteoarthritis

- Glucosamine
 - Low quality of evidence for glucosamine-based nutraceuticals in equine
 - joint disease: review of in vivo studies. 2009 Pearson W, Lindinger M
- Low dose NSAID
- Doxycycline
- For chronic osteoarthritis some consistent and possibly increasing exercise (common sense) can be beneficial











Results indicated that PSGAG (250mg) and hyaluronan (20mg) had beneficial disease-modifying effects and are viable therapeutic options for osteoarthritis in horses. Am J Vet Res. 2009 Feb;70(2):203-9. Evaluation of polysulfated glycosaminoglycan or sodium hyaluronan administered intra-articularly for treatment of horses with experimentally induced osteoarthritis. Frisbie DD

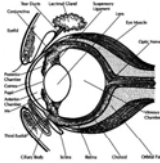




Ophthalmic Problems in Geriatric Horses

Lids- Squamous Cell Carcinoma (can occur in young horses also!)

The most Common Problems

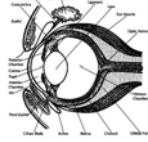

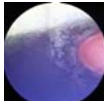
- Iris and Anterior chamber
 - Recurrent Uveitis
- Lens
 - Cataract- often due to recurrent uveitis
- Vitreous
 - Degeneration
- Retina
 - Senile retinopathy- sometimes due to recurrent uveitis

– In a review of eye lesions in old horses- 67 of 83 horses had lesions but only 7 were blind- Chandler Vet. Rec. 2003

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Leptospirosis

Leptospirosis

Organ Failure

- Heart- rare
- Kidney- sometimes
- Liver- rare, high energy feeds do not cause

Kidney Failure

Liver Failure Not common

Cardiac Diseases in Geriatric Horses- Aortic Insufficiency

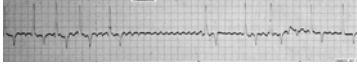
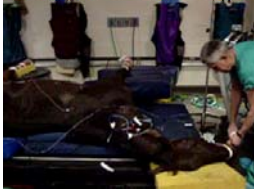
- The most common murmur of old horses
 - This is a diastolic murmur and if the heart rate is normal and there is no systolic murmur then, the insufficiency is unlikely to limit the horses life

Exercise capacity in old horses

- If you are riding/competing with your geriatric horse and everything seems fine- Keep At it! But keep these following in mind:
- Older horses should be exercised and can compete but there is a decline in cardio-pulmonary function and thermoregulation
 - Decline in oxygen consumption
 - Reaches anaerobic threshold quicker than young horses (be careful trying to maintain high speeds against younger horses)
 - Older horses reach high body temperatures much quickly with exercise than do young horses (be careful with hard rides on hot days)
- Heart- age related decline in max. Heart Rate and stroke volume
- Lungs- decline in function partially due to airway diseases
- Although there appears to be 2 groups of body type geriatric horses (Fat and Lean)- some muscle is replaced by fat in both
- There is some loss of type I fibers with age meaning have to use anaerobic muscles quicker and earlier fatigue

McKeever 2003



Atrial Fibrillation in the geriatric horse

Heart Failure- not common








Ruptured Uterine Artery in Older Mares

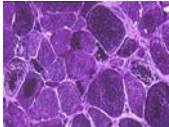
Neuromuscular Disorders of the geriatric horse

- EPM
- Spondylitis
- Cervical osteoarthritis
- Polysaccharide Storage Myopathy
- Selenium deficiency
- Shivers












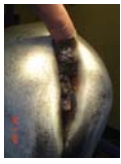
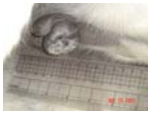


PSSM



- Which horses to test for GYS1
- Which horses to test for RYR1
- Which horses to biopsy
- Which horses to test and biopsy

Cancer- melanomas

Treatments?

Cancer of Mammary gland and Vulva



Treatment options



Penile Carcinoma



Other Carcinomas



Summary-All of these should be examined as recommended by your attending veterinarian

- Suggested outline
 - Husbandry, feeding, general health and attitude etc. daily
 - BCS 2X per year- fall and Early Spring
 - Parasites- fecal egg count -fall and early Spring
 - Dental examination- fall and early Spring
 - Testing for Cushing's- Jan-March
 - **Complete physical examination** with CBC and Chemistry- once yearly



Case 871602 "Shrimp" Rice



Signalment & Hx

- 26 y.o. jenny
- 2 weeks prior to presentation - began shifting weight in hind limbs & off feed
- 1 week prior to presentation, rDVM Dx cystitis based on large bladder
- Tx ceftiofur : no response
- 1 day prior to presentation : hematuria
- Tx PBZ or flunixin SID for 10 days prior to presentation

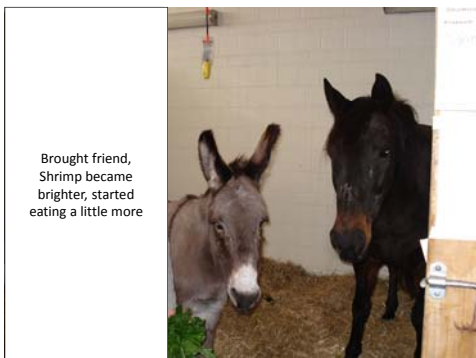
Admission

- Would not walk!
- Weight shifting behind when standing
- HR = 96, RR = 24, T = 97.6 F
- M.M hyperemic, CRT 5 sec.
- PCV = 53%, TP = 7.1g/dL
- Creatinine = 1 mg/dL



Weight shifting.....

- Hooves warm
- Response to hoof testers in RH only (point of frog)
- Abaxial block both hind limbs; stopped shifting in hind and began shifting in front
- Abaxial block in fore limbs; stood still!



Brought friend, Shrimp became brighter, started eating a little more

