

## A Practical Approach to Feeding the Metabolic Horse

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Eden Equine along with Swiftsure Equine and Island Equine

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## Metabolic Horse?

1. Pituitary Pars Intermedia Dysfunction - PPID
2. Equine Metabolic Syndrome- EMS

## Differences Between PPID and EMS

	PPID	EMS
Breed	Any	Any*
Age	>= 15	< 15
Underlying Cause	Pituitary Disease	Insulin Dysregulation
Common Clinical Signs	<ul style="list-style-type: none"> <li>- Long, Curly Haircoat (Hypertrichosis)</li> <li>- Loss of muscle mass</li> <li>- Pot-bellied appearance</li> <li>- Drinking and urinating more (PU/PD)</li> <li>- Lethargy</li> <li>- Recurrent infections</li> <li>- Laminitis</li> <li>- Regional adiposity</li> </ul>	<ul style="list-style-type: none"> <li>- Insulin Dysregulation</li> <li>- Laminitis</li> <li>- Increased/Regional adiposity</li> </ul>
Diagnosis	<ul style="list-style-type: none"> <li>- ACTH</li> <li>- Rule in/out</li> <li>- Hyperinsulinemic</li> </ul>	<ul style="list-style-type: none"> <li>- Insulin</li> <li>- Oral Sugar Test 1</li> <li>- Rule in/out PPID</li> </ul>
Treatment	<ul style="list-style-type: none"> <li>- Pergolide Mesylate (Prascend)</li> <li>- Dietary Modification</li> <li>- Exercise</li> <li>- Regular Veterinary Care</li> </ul>	<ul style="list-style-type: none"> <li>- Dietary Modification</li> <li>- Exercise</li> <li>- Regular Veterinary Care</li> </ul>
Nutrition Guidelines	<ul style="list-style-type: none"> <li>- Grass Hay- Low NSC &lt;12%</li> <li>- Adequate Intake DE</li> <li>- Protein/Fat - Balanced Senior Feeds</li> </ul>	<ul style="list-style-type: none"> <li>- Grass Hay- Low NSC &lt;12%</li> <li>- Adequate Intake DE</li> <li>- Low glycemic index feeds</li> </ul>

## PPID

Increased Cortisol Secretion

## PPID Management MULTIMODAL APPROACH

- o Good aged horse veterinary care
- o Exercise
- o Regular farrier work
- o Heat avoidance
- o Deworming
- o Pergolide Mesylate
- o **Nutrition**

## PPID- Nutrition

- o Two Categories
  - o PPID + Regular Insulin, BCS <6
  - o PPID + Hyperinsulinemic, BCS >6

## PPID- Nutrition

- PPID and Normal insulin regulation, Thin to normal BCS (<6/9)
  - Grass Hay
  - Low in NSC (<12%)
  - Perform Hay Analysis!
- Limit Pasture
  - Grazing muzzle
  - Ensure Adequate Intake DE
  - Ensure Adequate Protein
  - Supplement fat and Protein to encourage weight gain if required



## PPID- Nutrition

- PPID and Insulin Dysregulation- elevated BCS (>6/9)
  - Grass Hay
    - Low in NSC (<10% NSC)
    - Perform Hay Analysis!
  - Limit Pasture
    - Grazing Muzzle
    - Dietary restriction (obese) (1.5%BW DM basis)
    - Frequent small meals
      - Avoid insulin spike

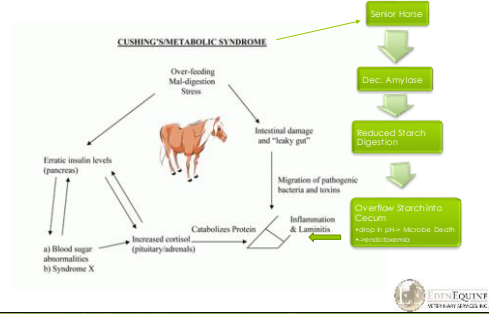


## Laminitis?

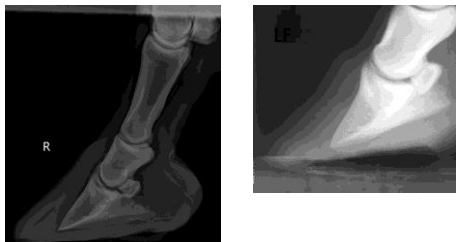
- PPID + Normal Insulin → LAMINITIS LESS LIKELY
- PPID + Insulin Dysregulation → LAMINITIS
- METABOLIC SYNDROME (Insulin Dysregulation) → LAMINITIS



## Laminitis



## Hoof - Laminitis



## Your thoughts?

- 19 year old QH X gelding
- Refractory mud fever
- Quidding hay
- Body Condition Score of 5/9
- No history of laminitis
- Diagnosed with PPID- elevated ACTH in November, normal Insulin, missing 5 molars
- Dietary Recommendations?



## 2. EMS

- Equine Metabolic Syndrome

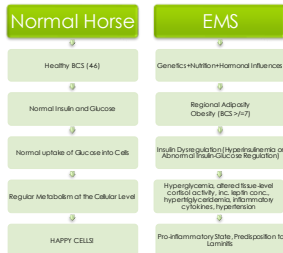


## 2. EMS- Criteria

- insulin resistance (IR)
- history of, or active laminitis
- excess fat depositions in typical regions, i.e. neck crest, fat pads at the base of tail.



## EMS Theory



## EMS- Management/Treatment

- GOAL:** Reduction in postprandial hyperinsulinemia is the immediate and ultimate goal of EMS dietary management
- HOW DO WE DO THIS?
- Dietary Modification**
- Exercise, EXERCISE, EXERCISE!**



## EMS- Dietary Modification

- Dietary Modification**
  - Grass Hay- NSC < 10%
    - Perform **HAY ANALYSIS!**
  - Decrease Caloric Intake- feed at **1.5% BW DM basis**
  - Restrict Pasture Access
    - Grazing muzzle
  - Avoid high glycemic/high starch feeds
    - Sweet feed, oats, TREATS!!!
  - 'Safe' Concentrates



## EMS-Exercise

- Exercise, EXERCISE, EXERCISE!**
  - Decrease fat, burn glucose



## How much can diet and exercise actually help an EMS horse?

Before Diet and Exercise:

Serum Insulin 1336.0 H pmol/L <300



After Diet and Exercise:

Serum Insulin 97 pmol/L <300



## How to Perform Body Condition Score



MAXE GLO



## Body Condition Score?



## Weight Loss

- Can return Insulin to normal!
- 0.5-1% of bw per week
- max 3-4 mos
- Clear outcome targets of improved insulin regulation
  - Guide as to when to relax the caloric restriction
- Safe Weight loss



## Your Thoughts?

- 13 yr old Warmblood Mare
- Having difficulty walking over the past few days
- BCS- 8/9
- Diagnosed with Acute Laminitis, Hyperinsulinemia
- **Dietary Recommendations?**



## In Summary Metabolic Horse Nutrition

- PREVENTION if possible
- Majority if not all horses benefit from:
  - Routine BCS and Veterinary Care
  - Routine Hay Analysis- low NSC hay, adequate protein
  - Feeding for the Individual Horse
  - balanced mineral
  - Fresh, good quality clean water
  - Frequent small meals throughout day

