

Nutritional Support For The Injured Horse

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Performance Horse Nutrition



Outline

- Description of injuries
- Metabolic consequences
 - Hyper-metabolism
 - Catabolism
- Nutrient use by injured horses
- Nutrient Requirements
- Management/Feeding



Injuries



- Many types of injuries
- Bone Fractures
- Skeletal Lameness
- Muscle injuries or weakness
- Surgery
- Sickness or Disease
- Body responds the same way



Injuries

- Injured or Sick Horses
- Stop training
- Transported back to farm or a pre-training facility
- Given stall rest
- Limited or No Turn-Out



Metabolic Result of Injury



- Pain causes a decreased appetite
- "Stress Response"
- Inflammation
- Increase energy demands
- Weight loss



Hyper-metabolism



- Massive increase in the bodies demand for energy
- Catabolic State
- Body is using energy to fuel the healing process
- Body protein becomes an energy source
- Horses become weak due to loss of protein



Catabolism

- When the body uses all of its glucose and fat stores and then turns to breaking down muscle to provide energy
- Leads to weight loss and muscle loss
- Catabolism is a characteristic of the “stress response” to injury or disease
- Begins very soon after the injury and persists until the injury or infection resolves



Catabolism

- Methods to minimize or reverse catabolism
- Loss of body protein delays healing
- Medicate for pain
- Resolve infection
- Provide adequate intake of high-quality nutrition



Nutrient Utilization “Non-Injured” Horse

- Non-Stressed
- Not working
- 90% of calories come from fat stores within the body
- 5 – 8% come from protein



Nutrient Utilization "Stressed or Injured" Horse



- 50% of calorie needs come from stored body fat
- 20% of calories come from stored carbohydrate
- 30% of the calories come from the breakdown of protein (muscle and organs)



Nutrient Requirements of Injured Horses

- Elevated energy requirement
Fuel recovery
- Elevated protein requirement
Heal muscle & bone
- Trace mineral and vitamin requirements may also be increased



Equine Energy Requirements

- No data are available on energy requirements of sick horses.
- However, if regression equations for human medicine are applied, a stalled 500-kg horse with an infection or postsurgical condition would have energy requirements of 18 to 22 Mcal/d
- Maintenance 15 - 16 Mcal/d



Protein Requirements

- Increased protein requirements in sick, debilitated, or injured horses due to protein catabolism should be taken into consideration.
- A 25% increase in protein over the NRC maintenance protein requirement has been suggested for sick horses



Energy and Protein Requirements



Micro-Nutrient Requirements

- Trace mineral requirements increase
 - Cu, Zn and Se
- Involved in tissue generation reactions
- Amino Acid requirements increase
 - protein synthesis
- Omega 3 fatty acids needed
 - immune function



Management and Feeding of Injured Horses



- Dealing with a physically fit animal
- Conditioned to daily exercise
 - Walking Machine
 - Track Work
- Now injured and exercise stops
- Very excitable and nervous



Management and Feeding of Injured Horses

- Energy
- Must attempt to control behavior and movement
- Prevent further injury
- Control the sugar & starch content of the diet
- Provide fat and fiber as nutrient source
- Avoid cereal grains



Energy - Feeds

- Add Oil
 - No sugar
 - Increase omega 3
- Add Beet Pulp – Fiber Source
- Alfalfa - hay/ cubes/ pellets
- Constant access to hay
- Avoid increasing grain as horse may become to excitable and risk further injury



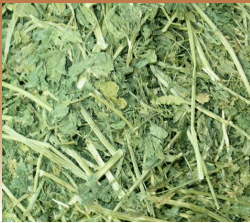
Proper Body Condition



- Want sick and injured horses to have a BCS of 5 to 5.5
- We do not want them to have a BCS of 4 to 4.5
- Maximize hay, beet pulp and oil
- You are actually hurting the horse by keeping it too thin



Protein Requirements



- Body is literally burning up muscle protein
- Must supply excess protein in the diet to avoid further muscle loss
- Primary protein source
 - Alfalfa: 4 – 6 lb
 - Vitamin & Mineral

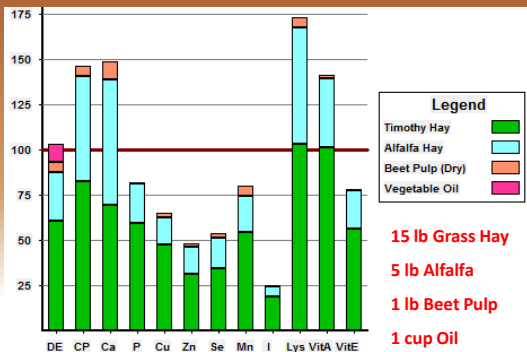


Micro-Nutrient Supply

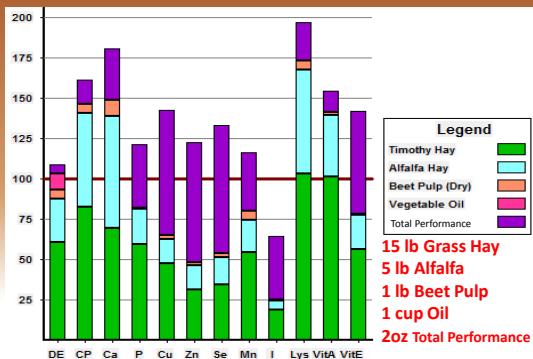
- Critical to help the body heal
- Most of the trace mineral and vitamin fortification comes from the Total Performance, Orange
- Must ensure the horses are getting recommended amounts



Forage and Oil



Forage, Oil, Supplement Pellet



Other Management Strategies



- Daily exercise stimulates muscle and bone healing
- Exercise helps reduce muscle loss
- If possible daily turnout in small pens
- Swimming, Walking machine
- Veterinary Permission



Summary

- Many types of injury – the body responds to all injuries the same way
- Stress Response – Inflammation, Increase energy demand, weight loss
- Hyper-Metabolism, Catabolism – body begins to breakdown protein to provide adequate energy
- Injured horses have increase energy, protein and micronutrient requirements



Summary

- Feeding must try to minimize excitable behavior
- Provide adequate energy, protein and micronutrients
- Provide canola oil, beet pulp, free-choice hay, alfalfa and Supplement Pellet
- Maintain proper BCS – Thin horses heal slower
- Provide exercise or turnout as soon as possible



Thank You