Nutritional Support For The Injured Horse

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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

- 15 lb Grass Hay
- 5 lb Alfalfa
- 1 lb Beet Pulp
- 1 cup Oil

Forage, Oil, Supplement Pellet

- 15 lb Grass Hay
- 5 lb Alfalfa
- 1 lb Beet Pulp
- 1 cup Oil

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