

Feeding in Relation to Conditioning

Equine Nutrition #11

Created for Canadian Pony Club

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The Unfit Horse

The unfit horse is said to be in *soft condition*.

He is physically healthy, but unfit for work.

His muscles are slack. He is overweight.

He is unable to carry out physical exercise without undue stress, as evidenced by much sweating and increased respiration. He will fatigue more rapidly and if worked in this state, could be vulnerable to soft tissue injury.



The Fit Horse



The Fit Horse

- The fit horse is said to be in *hard condition*
- He will:
 - Not have any excess fat
 - Be muscular
 - The soft tissues such as tendons and ligaments are toned and capable of withstanding the strain of work
 - Be capable of doing sustained work without any undue sweating or blowing
 - Have the energy to exert himself in concentrated bursts of energy without becoming unduly fatigued

Before starting a fitness program

- Have the horse checked by the vet and farrier
- Evaluate weight/condition
- Establish a feed program
 - *Initially, high bulk to low concentrate ratio*
- Introduce work gradually depending upon horse's environment/condition
 - Walking, hand walking, progressing to short hacks
 - Turn out
 - Longeing

At the Beginning of the Program

Do lots of Trotting



Introduce Small Fences



Initial stages of a conditioning program

- Walk is so important, and very under-utilized in many conditioning programs
- Walk is good for the horse's mind, provides a connection between you and your horse, helps to prepare the skin for tack, and starts to tighten soft tissues and develop bone density
- Trot primarily works on tightening soft tissues and building muscle
- Later, introduce canter, which primarily works on the cardiovascular system (heart and lungs)
- All of this work will also help to harden the feet and improve bone density
- The three areas we are focussing on are:
 - Strengthening the musculoskeletal system
 - Improving the cardiovascular system
 - Increasing the range of motion of the joints

Feeding for Condition

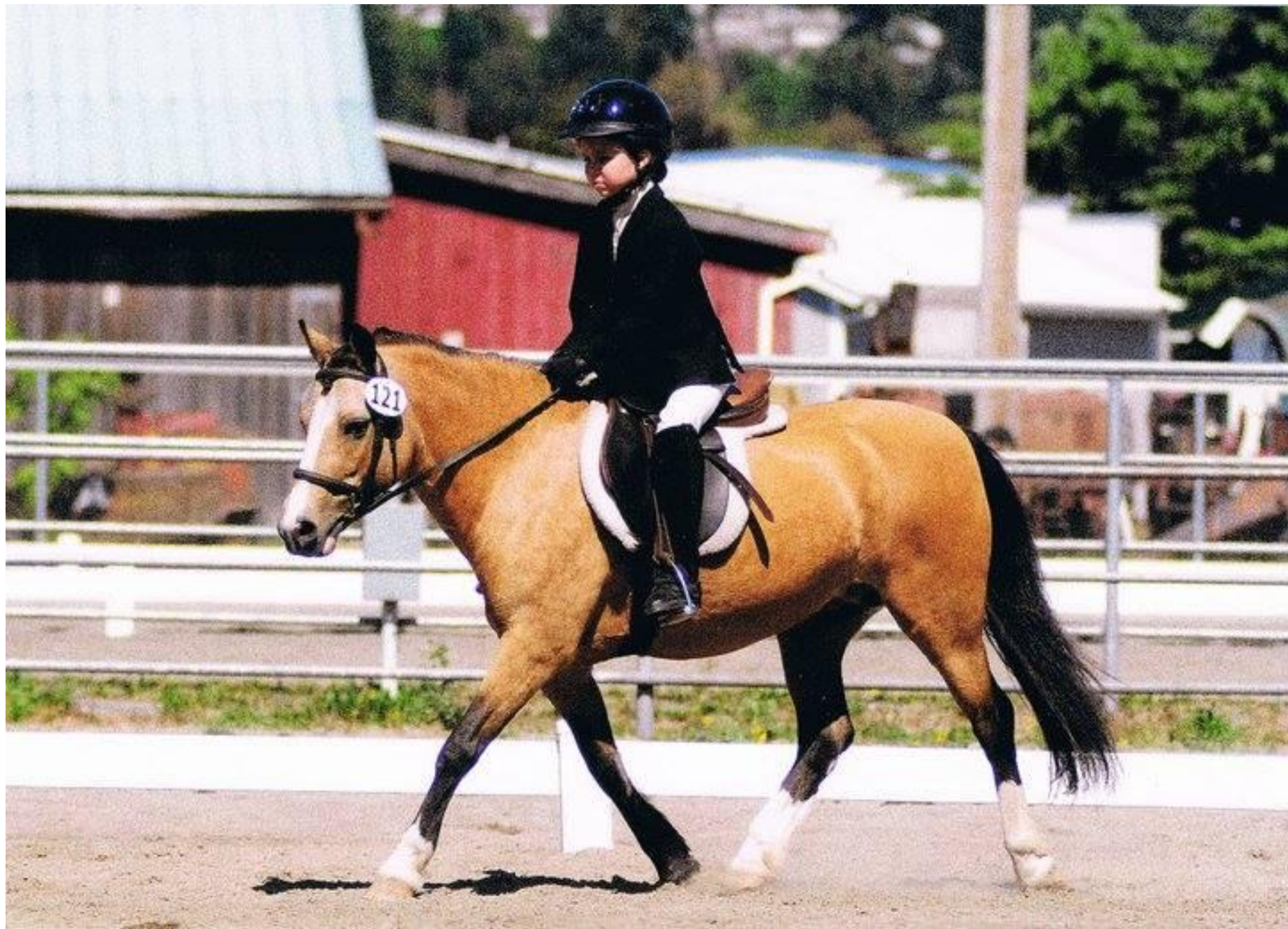
- As the fitness program progresses, the feed must be adjusted to produce the muscle and energy required for the job
 - The adjustment must be gradual
- Carbohydrates:
 - Causes insulin and glucose to rise to highest levels 2 hours after eating
 - Drops to lowest levels 5 hours after eating
 - Feeding a large grain meal can push horse into a hypoglycemic state, where he is under-fuelled
 - Excess carbohydrates can be stored as glycogen in the liver and muscle fibres
 - Available for anaerobic or aerobic lactic metabolism

Starches are instant energy foods



Fats

- Fats are:
 - a concentrated source of energy
 - great for fit horses that are hard keepers
 - Also good for horses that get too hot on a high starch diet
 - only used in aerobic activity
- The longer the duration of exercise, the more fat is used
 - Therefore any aerobic based exercise program will burn more fat
 - A by-product of this is that glycogen stores increase
 - This helps horse maintain higher blood glucose levels
 - This is helpful for horses doing endurance work



Minerals

- Horses that work hard frequently or for long hours lose electrolytes
- Electrolytes are substances found in body fluids that conduct electricity in body functions
 - These must be replaced
- Horses fed electrolytes will have higher rates of urination, therefore must have access to water
- The need for sodium rises as sweat causes sodium losses; this varies from horse to horse
- Selenium deficiency may limit horses performance and may contribute to episodes of azoturia

Ration formulation

- As fitness and energy exertion increases, energy intake will also increase
- Energy requirements will increase based on
 - type of work
 - intensity
 - length of work
 - footing
 - weather
- As work and fitness increase
 - Grain is a concentrated form of energy that can supply energy requirements
 - Supplement with fat, another concentrated form of energy

Match your feeding to type of work being done



Consider Energy Expenditure

- A 450 kg horse will
 - expends 225 kcal/hour at the walk
 - This increases tenfold to 2250 kcal/hour when trot and canter are added
 - Galloping and jumping changes this expenditure to 10350 kcal/hour
 - Intense work such as racing bumps it up again to 17550 kcal/hour

In order to maintain this same horse at those energy levels, they would need to consume:

0.1 kg of oats for one hour of walking

0.8 kg of oats for one hour of trot and canter

3.6 kg of oats for one hour of galloping and jumping

6 kg of oats for intense work

Match type of feed to type of work

- Fibre
 - Slow release energy
 - Essential to gut health
- Starch
 - Instant energy
 - Can cause problems with
 - Behaviour/temperament
 - Increased risk of laminitis
- Oil
 - Energy dense, but slow release energy
 - Helps prevent over-excitability
 - Very important to introduce fats gradually

Feeding on Competition Day

- The horse should have access to unlimited water
- For horses doing intense work, on competition day the hay intake should be restricted to 1.5% of body weight
- Feed hay and grain 4 hours ahead of riding
 - This will allow glucose and insulin levels to stabilize

Questions

- 1. Compare and contrast the fit and unfit horse.
- 2. List some considerations to make when feeding a horse on competition day.
- 3. Discuss the importance of the following when conditioning a horse:
 - - carbohydrates
 - - fats
 - - proteins
 - - minerals
 - - fibre