THE ROYAL (DICK) SCHOOL OF VETERINARY STUDIES

Dietary management

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Learning Outcomes

By the end of this section you should be able to:

- Define the nutrient requirements of horses and ponies, and provide recommendations on rations

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Content

- Determining bodyweight
- Condition scoring
- Nutrient requirements
  - Horses at maintenance
  - Breeding horses
  - Growing horses
  - Working horses

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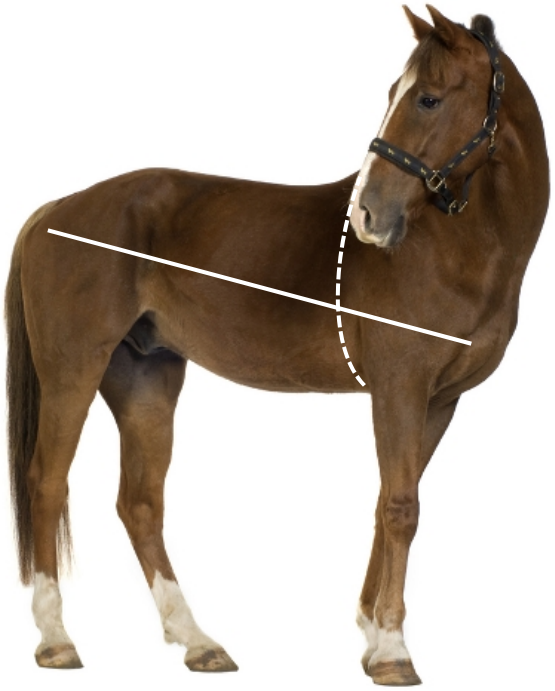
Determining bodyweight



- Essential part of dietary management
- Can be done by:
  - Weigh tape
  - Weighbridge
  - Measuring tape
- Equation: BW (kg) = [heart girth (cm)2 x length (cm)]/11877

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Condition scoring

- 0 to 5 system
  - Carroll & Huntingdon, 1988
  - Ideal = between 2 to 3
- 1 to 9 system
  - Henneke *et al*., 1983
  - Ideal = between 5 to 7

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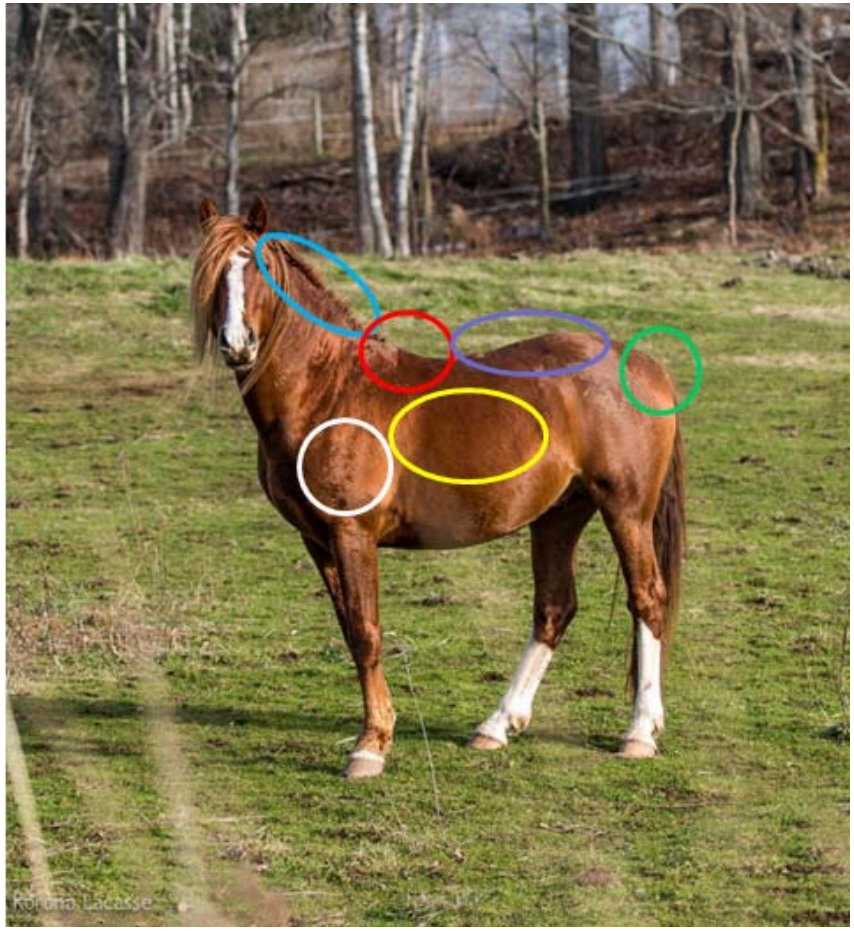
Condition scoring

- Henneke – scored on 1 to 9 scale
- Areas of body are graded 1 to 9
  - average taken
- Areas assessed:
  - Loin
  - Ribs
  - Tailhead
  - Withers
  - Neck
  - Shoulders



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Condition scoring – thin horse

- Loin
  - negative crease
- Ribs
  - Very prominent
  - Easily seen and felt
  - No fat padding
- Tailhead
  - Prominent
- Withers
  - Affected by conformation
  - Easily visible
- Neck
  - Can se bone structure of neck
- Shoulder
  - Prominent

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Condition scoring – obese horse

- Loin
  - Crease down back
- Ribs
  - Not seen
  - Very difficult to feel
- Tailhead
  - Bulging fat
- Withers
  - Bulging fat
- Neck
  - Thick all round “cresty”
- Shoulder
  - Bulging fat, especially behind the elbow

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Nutrient requirements:

- Categories:
  - Maintenance
  - Pregnancy and lactation
  - Growth
  - Work
- Requirements are additive:
  - Maintenance + activity
- Under/over supply of nutrient
  - Limit performance/productivity
  - Affect health
- Balancing diet = begins with maintenance

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Maintenance:

- Horses that are not:
  - Pregnant
  - Growing
  - Working
- Requirements depend on:
  - Bodyweight
  - The environment
  - Individual digestive and metabolic efficiency
- Feed intake
  - Generally 2 % of bodyweight
- Forage only (with forage balancer)

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Breeding - pregnancy:

- Pregnancy:
  - Gestation = 11 months
  - First 4 months = maintenance
  - Last 7 months = adjust ration
- Requirements:
  - Increased energy and protein
  - Reduced intake
  - Due to foetal growth

- Feed intake
  - Can reduce to 1.75 % of bodyweight
- Feed energy dense feeds (e.g. oils) and ↑ protein feeds

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Breeding - lactation:

- Lactation:
  - Early and late lactation
  - Early lactation = 0 to 12 weeks
  - Late lactation = 12 weeks to weaning
- Requirements:
  - High energy requirements
  - Early lactation = 2 x maintenance
  - Late lactation = 1.75 x maintenance
- Feed intake
  - Can increase to 2.5 % of bodyweight
- Ensure ad lib water available

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Breeding - lactation:

- Feeds good quality forage
- Feed a stud mix
  - No more that 40 % of the ration
  - Feed little and often
- Monitor condition
  - Feed more mix of losing weight
  - For good doers use a forage balancer to reduce calories

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Breeding - stallion:

- Breeding season:
  - Naturally starts in spring
- Requirements:
  - Non-breeding season = feed as for maintenance
  - Breeding season = 1.2 x maintenance energy and protein
  - Increased vitamin and mineral requirements
  - Depends on the number of mares covered
- Feed intake
  - 2 to 2.5 % of bodyweight
- Feed broad spectrum vitamin and mineral supplement

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Breeding - stallion:

- Feed good quality forage
- Can feed a stud mix
  - During breeding season
  - Feed little and often
- Monitor condition
  - Obesity affects breeding performance

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Growing horses:

- Aims:
  - Steady increase in size and bodyweight
  - Avoid very rapid growth rates
  - Avoid compensatory growth spurts
  - Avoid getting overweight
- Foals:
  - Newborn = 10 % of adult weight
  - One year old = 60 to 70 % of adult weight (80 to 90 % of adult height)
- Feed intake
  - 0 to 3 months = mare's milk
  - 3 months mare's milk ↓ and foal's requirements ↑

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Growing horses:

- Feeding the foal:
  - Begin to introduce feeds at 3 months ready for weaning
  - Weaning occurs around 4 to 6 months
- Feed types:
  - Good quality protein feeds
  - Low starch
  - Good vitamin and mineral levels
  - Good quality forage (e.g. grass)
  - Feed a youngstock pellet (if required)
  - Good doers = balancer only

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Growing horses:

- Yearlings to two years:
  - Growth rate begins to slow
  - Correct feeding still essential
- Feeding:
  - Feed ad lib forage
  - Feed a forage balancer
  - Good quality forage should meet energy and protein requirements
  - Some youngsters may need supplementary feeding (stud feed)
- Two years onwards
  - Requirements affected by training (e.g. racehorse)
  - If not in training then forage alone
  - Growing horses in training have ↑ nutrient requirements
  - Diet should still be good quality forage plus supplementary feed

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Working – light work:

- Light work:
  - Recreational riding
  - Beginning of training programme
- Requirements:
  - Appetite = 2 % BW
  - Good quality forage
  - Possibly supplementary feeds deepening on individual
  - Forage should comprise minimum 70 % of the ration
- Supplementary feeds
  - Low energy mix, sugar beet pulp, alfalfa, oil
- Feed broad spectrum vitamin and mineral supplement

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Working – energy sources:

- Dietary energy sources:
  - Oil
  - Carbohydrate (fibre, starch and sugars)
- Type of energy source required depends on:
  - Intensity of exercise
  - Duration of exercise
  - Temperament of the horse
  - Any clinical conditions
- Energy - calories
  - Horse diets use megajoules (1 MJ = 239 calories)
- Digestible energy (DE) energy digested in the GIT

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Working – energy sources:

- Fibre as a energy source:
  - Slow release energy
  - Essential for gut health
- Starch as an energy source:
  - Instant energy
  - May cause excitability in horses
  - Not suitable for obese horses/for horses with certain clinical conditions
- Oil as an energy source:
  - Slow release of energy (high energy content)
  - Less excitable behaviour
  - Must be introduced gradually (100 ml per week)
  - No more than 100 ml oil/100 kg BW (Vit E should be added to ↑ oil diets)

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Working – moderate work:

- Moderate work:
  - Novice/intermediate level eventer
  - Dressage horse (medium level)
  - Grade A showjumper
- Requirements:
  - Appetite = 2.25 % BW
  - Good quality forage
  - Supplementary feeds
  - Forage should comprise minimum 60 to 70 % of the ration
- Supplementary feeds
  - Mix, Sugar beet pulp, HT alfalfa, Oil

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Working – heavy work:

- Heavy work:
  - 3 day eventer
  - Endurance horse (70 to 100 mile rides)
- Requirements:
  - Appetite = 2.5 % BW
  - Good quality forage plus supplementary feeds
  - Forage should comprise minimum 50 to 60 % of the ration
- Supplementary feeds
  - Mix
  - Sugar beet pulp
  - HT alfalfa
  - Oil

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Working – very heavy work:

- Very heavy work:
  - Racehorse
- Requirements:
  - Appetite = 2.25 % BW
  - Good quality forage
  - Plus supplementary feeds
  - Forage should comprise minimum 50 of the ration
- Supplementary feeds
  - Mix
  - Sugar beet pulp
  - HT alfalfa
  - Oil

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Rules of feeding:

- Provide adequate forage
- Feed concentrates little and often
- Feed consistently: amount and type
- Provide a good water source
- Control parasites
- Check teeth
- Monitor condition (and weight)
- Provide regular exercise

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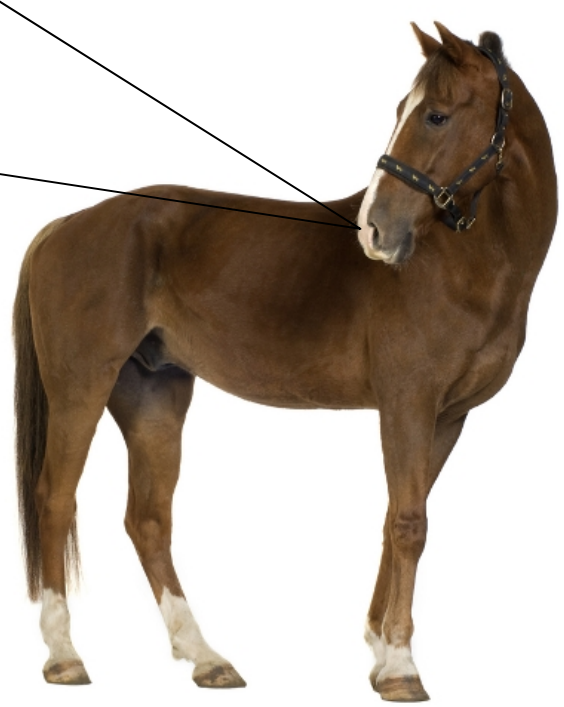
Dietary management- conclusion

- Feed high quality forage
- Use high degradable fibrous feeds
- Feed cereals in moderation
- Feed little and often
- Monitor bodyweight



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Thank you for listening