



EQUINE
CONSULTING · SERVICES



Nutrition & Equine Gastric Ulcer Syndrome

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Equine Consulting Services Pty Ltd

Equine Consulting Services

- Founded by Dr Caroline Foote 2004
- Nutritional consulting service
 - Breeders – Farm consultations
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 - Spellers/pretrainers
 - Performance horse owners/trainers
- Research
 - Clients
- Product formulation work
 - Commercial product range (supplements)
 - Customised supplements for farms/stables



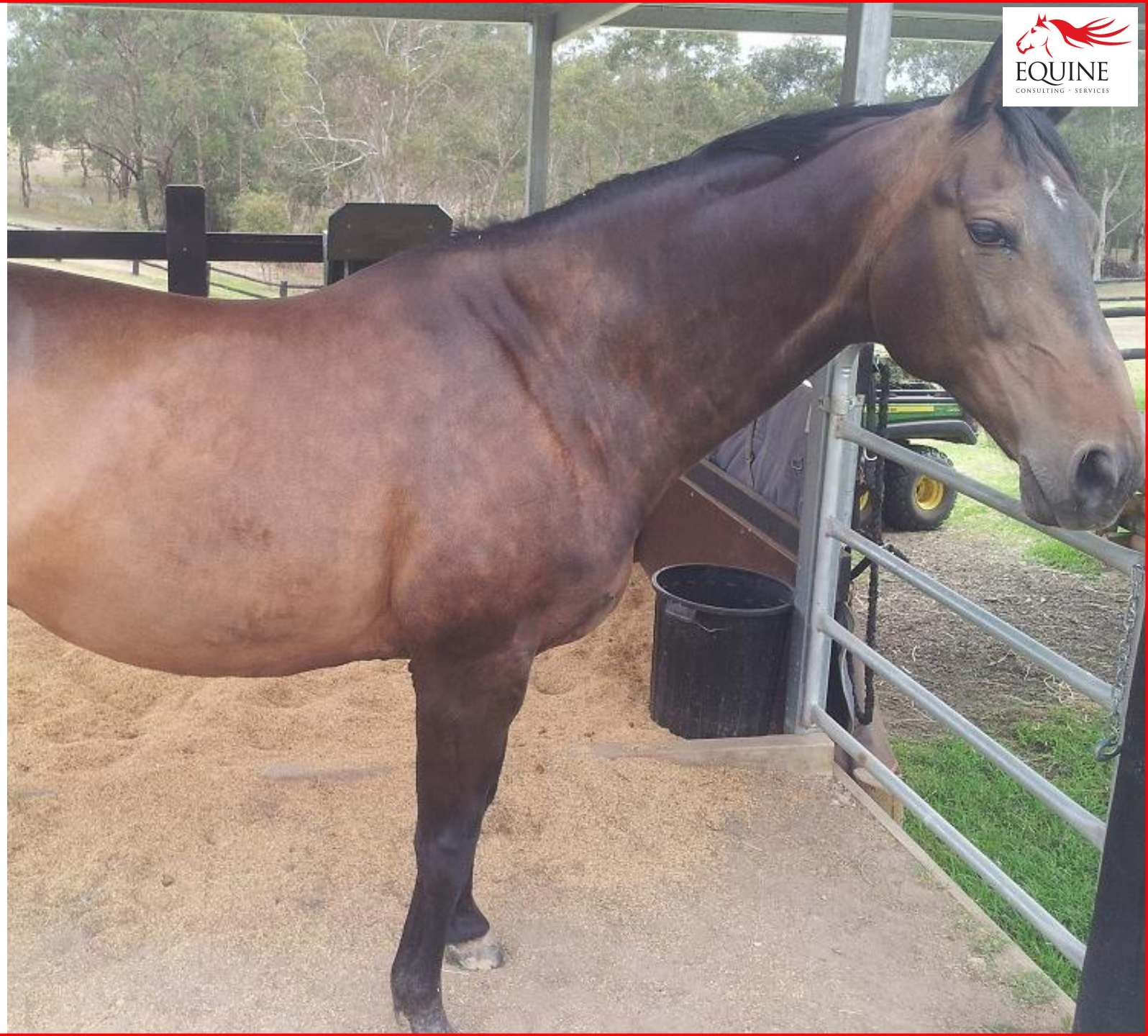


Content

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- Why do horses get ulcers?
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- Nutritional strategies to reduce the incidence of EGUS

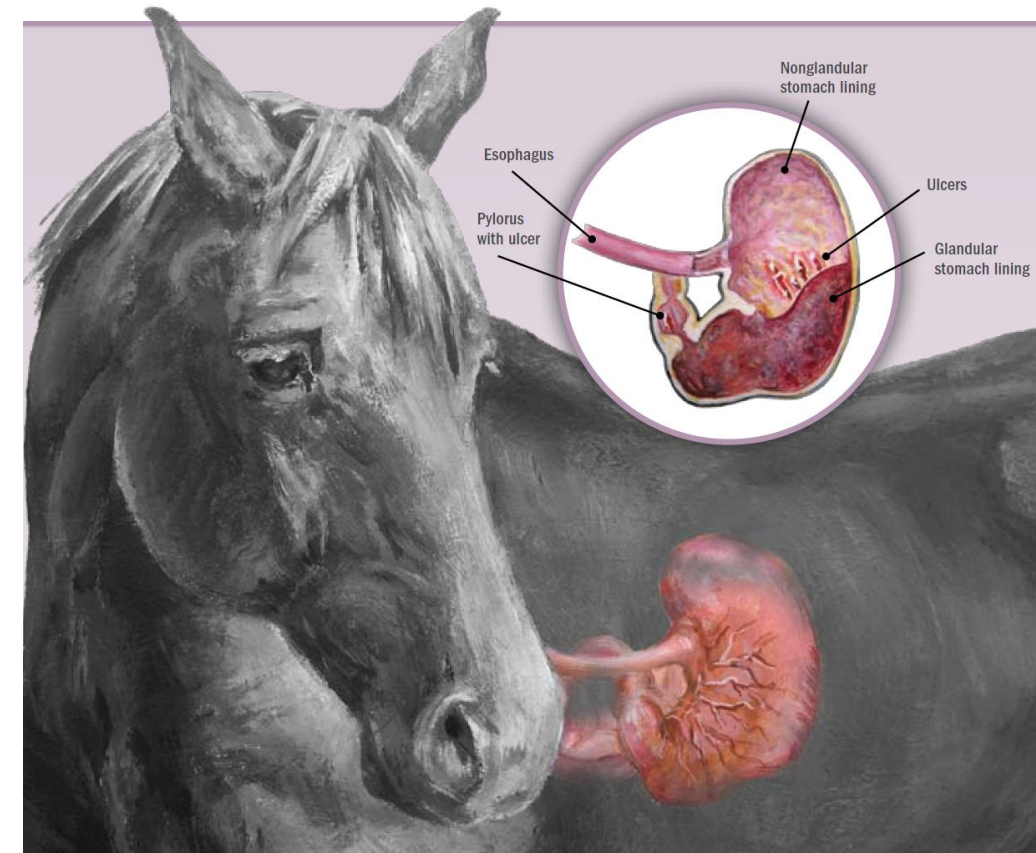
Prevalence of EGUS

- EGUS has been suggested to affect between 58 – 100% of adult horses in training
- Most young horses appear to have normal stomachs but EGUS occurs within about 3 months of training
- Studies have also reported EGUS in:
 - 37% pleasure horses
 - 58% show horses
 - 67% endurance horses
 - 70% broodmares
 - 22% of foals aged < 6 months
 - 50% weanlings
- Not all horses show clinical signs of disease



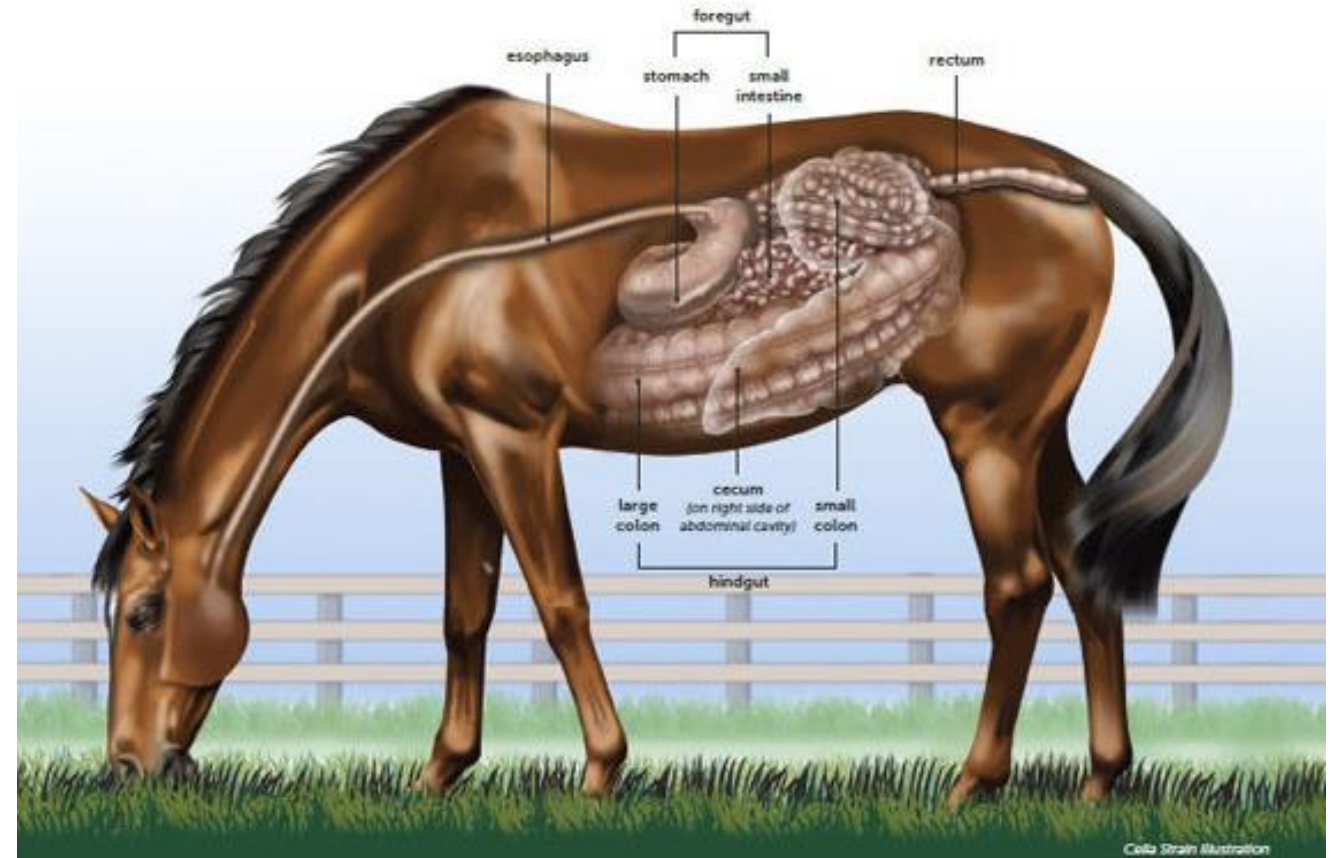
Why do horses get ulcers?

- Horses stomach is unique and specially designed for grazing animals
- The stomach is essentially divided into two “halves”
 - Top half – has a skin-like lining (squamous cells)
 - Bottom half – has glandular cells that produce hydrochloric acid and mucus (which helps to protect the stomach lining from the acid).
 - Most ulcer problems occur in the unprotected nonglandular squamous lining



Why do horses get ulcers?

- Stomach is quite small and produces HCl continually rather than just when food reaches it (as occurs in humans)
- This design is perfect for perpetual grazers, but not for horses that are fed only a few times a day
- Therefore, when a horse ingests insufficient amounts of roughage and/or eats grain meals intermittently, the stomach continues releasing acid with the buffer of saliva, irritating the stomach's mucosal lining and leading to ulcer formation.



End result...

- As the acid splashes across the upper side of the stomach it eats away the lining to form, sometimes within days, deep bleeding ulcers.



Clinical signs

- Reduction in appetite
- Preference for roughage
- Loss of body weight and condition
- Suboptimal performance
- Rough hair coat
- Behavioural changes
- Frequent drinking while eating
- Recurrent colic
- Anaemia in severe cases
- Many horses asymptomatic



Risk Factors for EGUS



Exercise Intensity

- Speculated that during exercise contraction of the stomach and “acid splash” may occur leading to acid injury.



Weaning

- Weanlings are susceptible to the stress of being separated from their dams, as well as from changing diet during this life stage transition



Highly concentrated diets

- Grain-based diets that are highly concentrated put horses at risk for EGUS
- Produce large amounts of volatile fatty acids which can damage the protective barriers of the nonglandular epithelium



Forage Quality

Forage quality important
with studies showing the
type of hay fed can impact
on prevalence of EGUS



Intermittent Feeding

- When horses are placed in a stable or yard they are likely to have periods of time without access to forage increasing the risk of EGUS



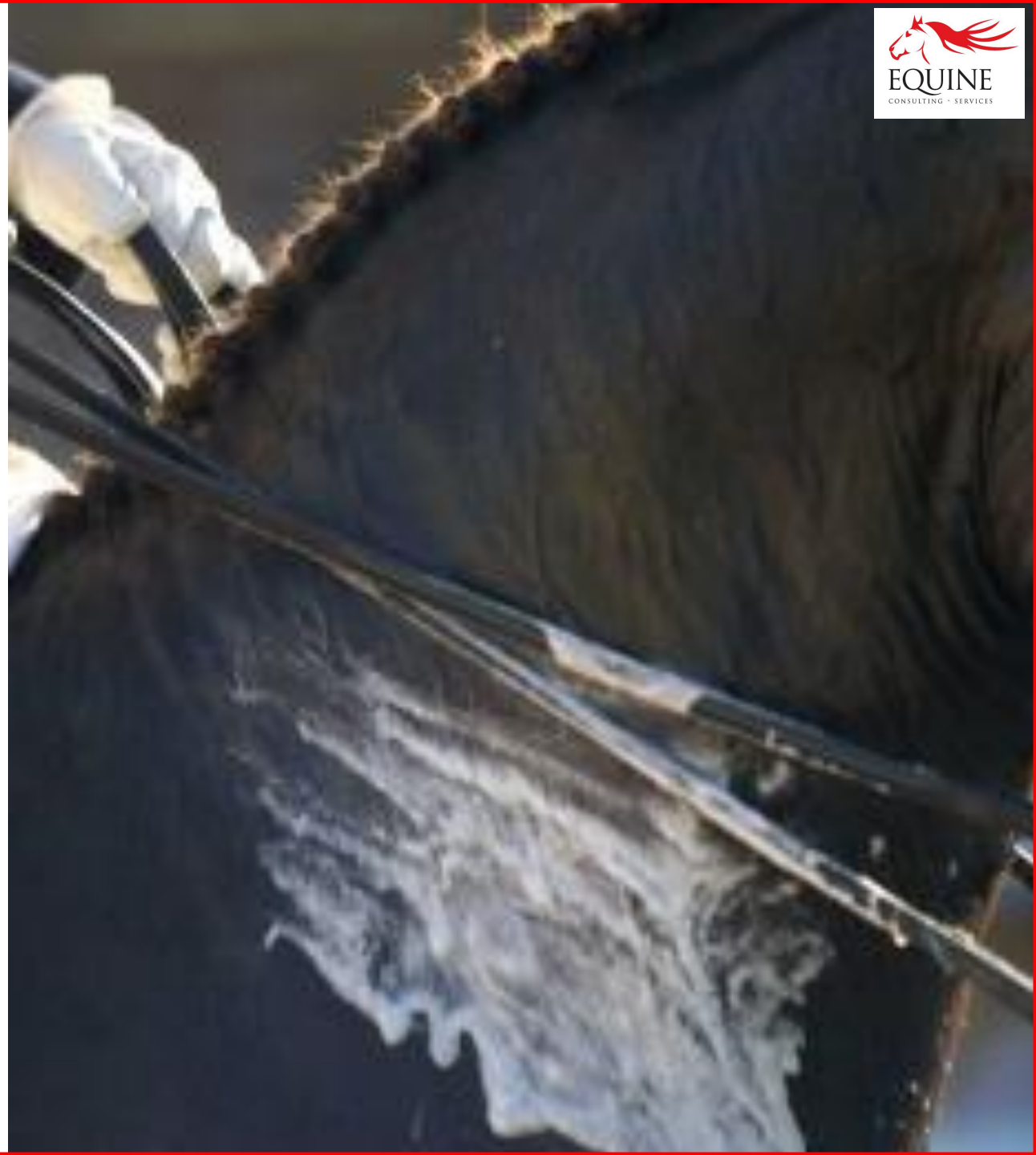
Transportation

- The stress of travel can be a contributing factor to EGUS



Timing of electrolytes

- It is advised that electrolyte products be used with caution and may be best given after exercise with feed to minimise their effects on the gastric mucosa



Non-steroidal anti-inflammatories

- Non-steroidal anti-inflammatory drugs such as phenylbutazone or “bute” can cause gastric ulcers.
 - In one study horses developed grade ≥ 2 (out of 4) glandular ulceration following administration of “bute” for 7 days



Nutritional strategies to reduce the incidence of EGUS



Pasture access

- Pasture turn-out has been suggested to be the best dietary method of controlling EGUS
 - However grazing horses can have ulceration so this may depend on factors such as pasture fructan and simple sugar content which may promote acid injury under certain circumstances
- However, pasture access may be limited in certain situations...
 - Performance horses
 - Horses in heavy body condition
 - Ponies/horses prone to metabolic disease and laminitis



Fibre first

- Feeding of hay has been shown to increase gastric pH in horses due to buffering effect of salivary bicarbonate



Which hay?

- Lucerne hay regarded as best hay to reduce risk of EGUS
 - Horses fed Lucerne hay and a pelleted concentrate had lower EGUS scores than horses fed coastal Bermuda or Brome grass hay.
 - It has been hypothesised that the calcium carbonate in Lucerne hay buffers the stomach acid or directly inhibits gastric secretion has been shown in rats fed diets containing 2% calcium carbonate
 - Horses fed straw were > 4 times more likely to have an EGUS score of ≥ 2 compared with hay feeding



Feeding frequency

- An epidemiological study found forage feeding intervals > 6 hours represented the strongest dietary risk factor (more than 5 times risk) for ulceration of the gastric squamous mucosa



Slow hay feeders

- Free access to forage helps maintain pH stratification in the stomach so that the squamous mucosa is protected from gastric acid
- Slow feeders or hay nets can help to lengthen the time horses spend eating which can be an effective strategy for managing EGUS



Feeding before work

- The assumption that fast work is best undertaken on an empty stomach is likely to increase the risk of EGUS in racehorses



Limit concentrates where possible

- An epidemiological study found that consuming $> 1\text{g}$ starch per kg bodyweight per meal (e.g. 1 – 2kg concentrates for a 500kg horse) more than doubled the risk of having squamous mucosal ulcers
- Since a large quantity of VFAs are produced in the stomach of horses fed high concentrate diets, it has been suggested that concentrates should be fed at $\leq 0.5\text{kg}/100\text{kg}$ bodyweight not more frequently than every 6 hours



Modifying diets to reduce the risk of gastric ulceration

Submit your feeding programs!!!

