

LETTER TO THE EDITOR**ECEIM consensus statement on equine metabolic syndrome**

Dear Editors,

Durham and colleagues' 2019 consensus statement on equine metabolic syndrome (EMS) which you published in January 2019 is a much-needed article to help promote understanding of EMS, promote evidence-based treatment strategies, and help veterinarians give practical evidence-based information to their horse-owning clients.

I would like to address some concerns with the article, based on the fact that the authors state that "EMS is controlled mainly by dietary strategies and exercise programs...." which indicates the importance of both of these factors (compared to medication) and because they go on to state that their aim is to "...summarize and appraise more recent scientific evidence in order to optimize recommendations on how to recognize and manage the syndrome in practice."

1. In section 5.1, it would be useful to have a definition of what a "diet high in NSC" is. It is scientific to define what is meant by a diet low or high in a named nutrient or fraction. Four researchers have used values of 17% or over as "high NSC forages" in their studies^{1-3,6}.
2. In section 7.1, carrots are quoted as having a high NSC content, which is incorrect. New carrots contain (per 100 g as fed), 5.8 g starch and total sugar, and old carrots, 7.3 g starch and total sugar. Apples were also quoted as having a high NSC content, which is also incorrect as whole raw apples (as fed) contain 10 g starch and total sugar per 100 g.⁴ Perhaps confusion between as fed and dry matter feed composition? The authors themselves quoted hay at 10% NSC as "having a low NSC content"; therefore, this is a contradiction to them stating apples and carrots (at 10% and maximum 7.3% NSC as fed, respectively) are high in NSC.
3. There is no mention of forage energy content in section 7.1, despite the title of the section being "dietary energy restriction," apart from the reduction of energy intake to 64%-94% of maintenance via reducing dry matter intake. There is also no mention of forage energy content in section 7.3 "Key dietary recommendations." It is good nutrition practice to source lower energy forage when restricting dietary energy, considering that mixed species grass hay can vary in digestible energy content,⁵ and it is considered best practice to feed forage of a lower energy content if weight loss is not occurring on the minimum recommended intake of forage (15 g DM/kg BW).

4. Regarding haylage recommendations, the study referred to by the authors (128. Carslake et al, 2018) used haylage with NSC similar to that of the hay (18.5% + 4.1), which is not typical for haylage and which could be described as "high NSC."^{1-3,7} Fermented forages (haylage) with very low NSC content (under 5% DM) are available.² The recommendation made by the authors that haylage should not be fed could limit the difficult choices for owners of EMS-affected equids, yet this advice is not based on good evidence. In practice, a low-NSC haylage (at 66.6% total DM intake) mixed with 33.3% total DM intake of straw can provide a low energy, low NSC diet suitable for a horse or pony with EMS. A statement about feeding only haylage of known NSC would have been more beneficial, perhaps based on Harris et al⁵ recommendations of forage with a low content of NSC (<10%-12% DM) to minimize post-feeding glycemic and insulinemic responses.
5. Referring to soaking hay, limiting to a 1- to 2-hour soak is recommended by the authors yet there is no good evidence that this significantly reduces NSC or energy to a level that would reduce the glycemic and insulinemic response and make the forage suitable for an EMS-affected horse or pony. The research studies quoted by the authors as showing reduced glycemic and insulinemic responses to hay and haylage after soaking used soak times of 12, 14, and 24 hours.

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