Equine Performance Supplements

Introduction

Equine professionals have discovered the benefits of supplement use in their horses’ diets. These benefits can enhance performance, alleviate medical conditions, and improve cosmetic factors. Williams and Lamprecht (1997) found that 70% of all horse owners fed one type of supplement.

Many equine performance supplements on the market are herbal. People consider herbs safe; however, herb toxicities and potential negative side effects show this can be incorrect (Williams & Lamprecht, 2007). There are many positive side effects that can result from using supplements. Without having the proper information, supplement use can be detrimental to the equine. The proper education about equine performance supplements and supplement selection can allow the supplement to reach its full potential.

Purpose

The purpose of this research brief is to describe the rewards and potential dangers of using equine performance supplements.

Terminology

The term ergogenic aid means any agent that will increase or improve work production (Harris & Harris, 2005). Ergogenic aids are not only nutritional supplements, they can also be mechanical factors, pharmacological agents, and physiological improvements (Geor, 2006). In this research brief, ergogenic aids refers to nutritional supplements.

Advantages

Ergogenic aids have shown to improve performance and health issues. A large variety of products have been developed for equine to supplement missing factors in the diet (Hill, 2007). Horses considered “healthy” can benefit from ergogenic aids (Harris & Harris, 2005). Harris and Harris stated these benefits include

1. Psychological effects;
2. Decreased energy requirements, e.g. due to a reduced body weight;
3. Increased lean body mass, or muscle mass, especially by stimulation of protein synthesis;
4. Improved coordination or recruitment of muscle fibres; greater flexibility; and therefore, better efficiency of movement;
5. Provision of a supplementary fuel source, or the use of a feed with a higher energy content;
6. Increased levels of available stored energy;
7. Improved efficiency of conversion of the chemical energy of the feed, or stored energy, to mechanical energy for work;
8. Improved ATP/ADP homeostasis in contracting muscle fibres;
9. Decreased substrate depletion;
10. Decreased end product accumulation. Including improved intra-cellular acid-base regulation; and
11. Reduced damage to tissues during formation during exercise arising from the formation of free radicals. (p. 148)
Ergogenic aids can assist in improvement in many different areas. Supplements can aid in breathing, joint problems, cosmetic issues, hoof health, energy levels, and many other issues. One of the most common supplement usages for equine is glucosamine. This supplement aids in improving joint problems. When used properly, glucosamine has very beneficial results. It can help treat a variety of health disorders including osteoarthritis (Oke, Aghazadeh-Habashi, Weese, & Jamali, 2006). Other herbal supplements affect the immune system. These supplements are classified as adaptogens, immunostimulants, or both. Adaptogens will increase the resistance to stressors, and immunostimulants activate the defense mechanisms against infections (Williams & Lamprecht, 2007).

Woodward et al. (2007) found that adding certain fatty acids to a horse’s diet the equine professional is able to increase the horse’s trot length. Like humans, equine can have vitamin and mineral deficiencies. Supplement use can assist in taking care of many of these problems.

The benefits that result from using vitamin supplements vary. Some of these benefits include: Vitamin A is important to vision and is critical to cell differentiation and regeneration, Vitamin B1 aids in extracting energy from the horse’s diet and metabolize carbohydrates, Vitamin C is the primary component of connective tissue, Vitamin D maintains the electrolyte balance in the formation of bones and regulates the release of phosphates in urine, Vitamin K is necessary for blood clotting and utilizing many protein throughout the body (Barakat, 2007).

Vitamins, minerals, and proteins are crucial to the well being of any performance horse. Many supplements on the market are easier to access than pharmaceuticals and on average less expensive to purchase. For example, hoof supplements are typically less than one dollar per dose (Crabbe, 2008). When used properly, supplements have fewer side effects than many powerful pharmaceuticals on the market and have the same results.

Disadvantages

Many issues can arise when using ergogenic aids. Who determines if a supplement is deemed safe? How does an equine professional decide how much supplement to feed? Are there any regulations for equine supplements?

The answers to these questions are where the problems lie. Unlike pharmaceuticals, there are limited regulations concerning supplements, especially herbal supplements. Many of the supplements are not scientifically tested before being put onto the market (Geor, 2006). It is very hard for the agencies that regulate supplements to do so effectively. The lack of regulations and testing leads to false advertising and a lack of control during manufacturing (Geor, 2006). As a result, some manufacturers place the incorrect amounts needed into the supplement for it to be effective as it is marked on the package (Oke et al., 2006). For example, there may be lower levels of glucosamine in the supplement than marked. The lower levels of glucosamine will not allow the supplement to be as effective as other supplements that have the correct levels of glucosamine. The lack of regulation and testing causes a wide variation of quality when dealing with supplements from separate manufacturers (Oke et al., 2006).

Veterinarians and nutritionists should obtain knowledge of different supplements to be able to guide equine professionals to the correct supplement. By going to a veterinarian or nutritionist, the equine professional should be able to be better educated over the risks and benefits.
However, with the large number of new products coming onto the market each year, the task for veterinarians and nutritionists to learn about all the supplements can be very difficult (Geor, 2006).

Many owners and trainers do not consult veterinarians or nutritionists before administering a supplement. They read labels and advertisements stating the product can increase the performance of their horse, and begin to use the supplement. Without realizing it, some may be breaking rules. Some of the ergogenic aids are banned or considered unacceptable in regulations within various organizations (Harris & Harris, 2005).

A large portion of supplements on the market do not meet criteria proving the supplement actually works (Geor, 2006). Therefore, many of the performance enhancing supplements are not effective. This in turn causes many users to increase levels of the supplements, or change to another supplement. The increased of levels of the supplement, or the feeding of multiple supplements, can become dangerous to the horse (Barakat, 2007). Healthy horses should be able to obtain the nutritional requirements they need from the feed and forages they obtain on a daily basis. Age of the horse and environment can play a vital role in deciding how much and which supplement to administer.

Pascoe (2008) states the varying percentages of protein needed in different equine (Table 1). This table shows equine of different ages and environments need varying amounts. What is considered an adequate amount for one equine is not for the other depending on the age of the equine and environment it is living in.

Equine are like humans in the sense they can overload on vitamins and minerals that are included within the supplements. The excess levels can become detrimental to the horse’s performance. There are cases where an overload of a supplement has caused adverse effects. When used in excess, Vitamin B1 can cause an over excitability and during an extreme case labored breathing (Barakat, 2007).

Equine professionals should also be aware of the amount of supplement they are feeding. Supplement packages should state the quantity that should be fed as a ratio to the amount of feed being fed or weight of the horse. The assumption of one scoop being the correct amount can often be incorrect. Once again, this can cause excess levels of vitamins and minerals being placed into the horse. A simple prevention is to monitor the levels per horse while using performance enhancing supplements (Foreman, Waldsmith, & Lalum, 2003).

<table>
<thead>
<tr>
<th>Stage of Life</th>
<th>Percent of Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weanling</td>
<td>16%</td>
</tr>
<tr>
<td>Yearling</td>
<td>14%</td>
</tr>
<tr>
<td>Pregnant mare</td>
<td>14%</td>
</tr>
<tr>
<td>Performance horse</td>
<td>10-12%</td>
</tr>
<tr>
<td>Pastured horse</td>
<td>10-12%</td>
</tr>
<tr>
<td>Breeding stallion</td>
<td>10-12%</td>
</tr>
<tr>
<td>Senior citizen</td>
<td>14%</td>
</tr>
</tbody>
</table>

Conclusions
Healthy horses in moderate work are able to live long lives on quality pasture (Mackay, 2008). Supplements should only be administered when a horse is lacking a specific vitamin, mineral, or necessary factor in their diet. An overload of any vitamins or minerals can cause health problems in the horse. To avoid this risk owners and trainers should educate themselves over the nutrient levels in their horses’ feed. This can easily prevent an overdose of any vitamin or mineral.

One key to success when using ergogenic aids is ensuring the supplement is properly labeled with the correct levels to
obtain the desired goal. To guarantee the safest use, equine professionals should consult with veterinarian or nutritionist. Equine professionals should also be aware of the lack of regulation of not only the manufacturing process but also the advertising process. When used properly, performance enhancing supplements can be beneficial in many aspects of equine care and management.

Audience
This research brief is primarily written for equine professionals and veterinarians working with equine. It will be beneficial for any equine professional or veterinarian to learn the benefits and risks before suggesting the use of supplements.

References