

Drugs in the show ring: What you don't know can hurt your horse

By Beth Minnich

As introduced in last month's installment in this series on 'drugs in the show ring', rules regarding the use of drugs, medications, and other substances in competition are in place to provide a fair and level playing field, protect the integrity of the sport, and most important to protect the health and well-being of the horses. Because the Arabian/Half-Arabian/Anglo-Arabian divisions at AHA horse shows compete as part of the USEF 'Therapeutic Substance Group', there is an important need to not only be aware of practices involved in doping (such as the use of substances to alter behavior), but to also understand the appropriate use of therapeutic substances (such as NSAIDs and corticosteroids). This month's article aims to provide an overview about some of these substances, so owners can be better informed when discussing this subject with their trainer and veterinarian.

Horses are athletic by nature and when these physical abilities are directed toward competition, the outcome can be truly awe inspiring. During the course of working toward achieving great performances a lot of decisions need to be made, by an assortment of people, about a horse's training and management. Unfortunately, some of these decisions are not always in the best interest of the horse. As such, it is vital that owners be educated and aware of current training and veterinary practices, so they can make informed decisions regarding their horse's care.

Show horses rely on their owners, trainers, veterinarians, and other professionals to help keep them healthy, conditioned, sound, and happy. Even when a horse is boarded at a training facility and the owner is not the daily care taker, the owner is still the first line of defense in making sure good decisions are being made. While a trainer, along with their staff, may be the primary caretaker and directing activity, it is the owner who pays the bills and ultimately, it is the owner who needs to take responsibility for how their horse is being trained, cared for, and competed. Owners need to remember that *they* are the client. Even when needing to rely on the expertise of trainers and veterinarians, these professional services are still being paid for by the owner and as such, the owner needs to be actively engaged in the decision making process. Without a firm understanding of the importance of owner involvement in the ongoing process of taking care of the health, training, and management of a show horse, there is no way for an owner to be sure their wishes are being met and that the well-being of the horse is kept first and foremost.

The Practice of Doping

Doping involves the use of substances to mask an underlying health problem or affect performance. In divisions such as western pleasure and hunter pleasure, where a 'quiet' horse is greatly sought, sometimes horses are being given 'calming substances' such as ACTH, magnesium sulfate, calcium or GABA. Not only is this practice unethical and against the rules, it also poses very real health risks to the horse.

While ACTH, magnesium sulfate, and calcium are not considered forbidden substances under USEF rules, their use to modify behavior is against the rules. In the case of GABA (which stands for gamma aminobutyric acid), a principal ingredient of the commercial product 'Carolina Gold', USEF listed GABA as a forbidden substance in 2012. GABA is an inhibitory neurotransmitter that, under USEF rules, has no

recognized medical use and there is a concern about health risks to the horse. The newly developed test for GABA has already identified numerous positive samples with associated sanctions from the USEF Hearing Committee beginning to be announced.

Dr. Stephen Soule, an equine veterinarian based out of Wellington, FL who has also served as a United States Equestrian Team Veterinarian helps explain how some of these substances work.

“ACTH is adrenocorticotrophic hormone. While ACTH is a naturally occurring substance in the body, it can also be given via injection. ACTH stimulates the adrenal glands, which results in the secretion of cortisol (a naturally occurring steroid). Because cortisol is involved with the flight or fight mechanism, increased levels of cortisol can give the horse a sense of well-being and security, which then translates to a quieter more compliant mount. Cortisol levels peak about 3 hours after injection, so this is a common time frame for administering ACTH in relation to competition. However, there is also a bottoming effect about 8 hours after injection. As such, a quieting response (depressing effect) can also be observed at this point; as the horse undergoes withdrawal from the ACTH administration and the elevated cortisol level drops. The concern over repeated use of ACTH is the potential to lead to exhaustion of the adrenal glands, which results in changes in metabolic behavior, and suppression of the immune system; which can lead to increased susceptibility to disease and laminitis.”

Dr. Soule notes there are some therapeutic uses for ACTH. Most notably, *“after exogenous corticosteroids have been given for an extended period to treat conditions such as heaves, hives or skin disease, or from multiple corticosteroid joint injections, function of the adrenal glands can be suppressed. ACTH could help jump start the body’s natural corticosteroid production and get adrenal gland function back in order. However, this treatment is likely not going to be occurring in conjunction with a competition”.*

Magnesium sulfate is a mineral compound also known as ‘Epsom salt’. Epsom salt has a variety of uses ranging from foot baths, to agriculture to help correct soil deficiencies and to treat a muscle condition in cattle called hypomagnesemic tetany, to a wide range of medical uses including an oral laxative, for eclampsia treatment in pregnant women, and in asthma therapy. However, its use to help quiet horses in competition can be deadly.

Sometimes referred to in horse show slang as ‘vitamin M’, Dr. Soule explains more about magnesium sulfate and the danger it poses when used in horses as a behavior modifier – *“magnesium sulfate (which is not a vitamin) is involved in heart and skeletal muscle function, and it is a substance where using more is not necessarily better. Because mag sulfate affects the function of the heart and skeletal muscle, adverse reactions from injection can include collapse and death. Not only is the amount administered of concern, how the injection is performed is of equal importance, and any reaction to administration will occur immediately. Mag sulfate is administered very close to class time, so the horse is essentially ‘off the needle and into the ring’. Last year at USEF shows there were several reported incidents of horses collapsing and in some cases dying; there is increasing concern about mag sulfate’s role in these incidents.”*

Calcium is a well-known mineral that plays an important role in bone development, in addition to being involved in muscle contraction, cell membrane function and regulation of numerous enzymes. Although the ‘why it works’ is not well understood, an observation that *calcium loading* can help quiet race horses

has found its way to the show ring. Dr. Soule provides some additional overview information – *“intravenous injection of calcium gluconate has been found to help quiet ‘washy’ race horses with a response coming immediately after injection. Calcium gluconate can be used alone or in combination with a substance such as ACTH and calcium gluconate is another substance where too much can kill.”*

Owners need to not only be aware of what these substances are, but also the timing for administration. Because many of the substances used in doping are given within hours of competition, there should be an increased awareness and questioning whenever a horse is being ‘medicated’ the day of a class; especially if it occurs so close to class time that the horse is literally coming off of the needle and going to the ring. In addition, with substances such as ACTH, calcium gluconate, and IV magnesium sulfate being available only with a prescription, there needs to be increased awareness and accountability for the role that veterinarians are playing in this process. And last, but certainly not least, is the potential risk to the rider when mounted on a horse that has been chemically subdued, especially if the horse has also been extensively lunged; the end result being a horse that is not only drugged, but also tired. This scenario is obviously not the safest situation for the horse or rider.

Therapeutic Substances

The use of therapeutic substances is aimed at providing appropriate therapeutic treatment to help protect the well-being of the horse in competition without masking an underlying health problem or affecting performance. Substances frequently used for this purpose include the non-steroid anti-inflammatory drugs (NSAIDs), corticosteroids such as dexamethasone, the muscle relaxant Robaxin[®] and corticosteroid joint injections. Although these drugs are permitted for use in competition (though some have set limits), there needs to be a legitimate reason for ‘therapeutic use’. Just because the rules say it can be done does not automatically mean it should be done. And, if a little is good, more is not always better. Owners need to have a clear understanding, with direct input from the attending veterinarian, of items such as: why the drugs are needed and for how long, what initiated the physical problem, and what is being done to avoid (if possible) having the physical problem become a chronic issue. The use of therapeutic medications should be considered *part of* a treatment plan, not *the* treatment plan.

NSAIDs: As described by USEF, *“NSAID stands for non-steroidal anti-inflammatory drug. These drugs are used to treat inflammation and in this manner provide pain relief for osteoarthritis, colic pain, soft tissue injuries, and to treat fevers.”* Although bute and Banamine[®] are the most commonly used NSAIDs, the USEF rules permit limited use of the following NSAIDs:

Drug	Trade Name
phenylbutazone (aka bute)	Butasone [®]
flunixin meglumine	Banamine [®]
naproxen	Naprosyn [®]
ketoprofen	Ketofen [®]
meclofenamic acid	Arquel [®]
diclofenac	Surpass [®]
firocoxib	Equioxx [®]

Additional information and dosage guidelines can be found at:
<http://www.usef.org/documents/drugsMeds/DrugsMedsGuidelines2013.pdf>

Effective December 1, 2011, USEF put in place a new rule which prohibits concurrently using more than one NSAID (also known as 'stacking'). Dr. Stephen Schumacher, Chief Administrator of the USEF Drug and Medications Program, explains why this rule change was made.

"The reason for this rule was to protect horse welfare; it has been shown that there is no real benefit to the stacking of NSAIDs, but there are many ill effects. The Therapeutic Substance Provision was improved by this rule change, because along with the prohibition against the stacking of NSAIDs we also included a rule change to allow for the emergency use of flunixin to treat colic and ophthalmic emergencies..." Dr. Schumacher continues *"Altogether, the recent rules regarding NSAIDs have been directed by a practical approach, yet driven by equine welfare. The intent was to get rid of the unnecessary routine stacking of NSAIDs, while preserving legitimate responsible treatment options."*

While NSAIDs are regularly used, sometimes to the point that administering bute is a regular part of class preparation, there are side effects of which owners need to be aware. The two main types of adverse side effects include: 1) gastric, pyloric, or colonic ulcers and 2) kidney problems, especially if the horse is not properly hydrated. As the dosage and frequency of use is increased, so is the potential for side effects. While NSAIDs can certainly play a valuable role in maintaining the health of show horses, these drugs should not be used indiscriminately and there should be a specific identified need for their administration.

Dexamethasone (commonly referred to as Azium®): Also known as 'dex', dexamethasone is a synthetic corticosteroid. When used judiciously and appropriately, dexamethasone can be a valuable therapeutic tool to help control inflammation in treating joints for osteoarthritis, respiratory conditions such as heaves, and skin conditions such as hives. However, inappropriate use can result in laminitis, reduced ability to fight off infection and disease, and further joint injury if the pain response is being to effectively masked. As described by USEF, *"corticosteroids are commonly used therapeutically to treat and control inflammation caused by athletic pursuits, or simply as a result of normal wear and tear."* As briefly mentioned in the discussion on ACTH, naturally occurring corticosteroids are produced by the adrenal glands and are involved in the flight or fight response. However, the USEF rules permit the use of dexamethasone *"...only for a therapeutic purpose, i.e., for the treatment of existing inflammatory conditions related to illness or injury. The rules do not permit the use of corticosteroids for a non-therapeutic purpose, i.e., to affect the mood or enhance the performance of the horse."*

In 2003, with concerns about the overuse of corticosteroids, USA Equestrian (now USEF) initiated a rule change limiting the permitted use of corticosteroids in competition. *[based on a review of forms submitted in USAE-sanctioned shows between May – September 2002, 33% of the horses were administered three or more doses of corticosteroids during an event - in some cases, up to 10 doses were given]* The first part of the rule established a quantitative limit in horses' plasma for the amount dexamethasone permitted. The second part of the rule classified any other corticosteroids as forbidden substances (see USEF Rule GR411 for more information). Because dexamethasone has set restrictions for its use, USEF has established administration guidelines for how much and how close to competition it can be administered. Implementation of these guidelines has helped curb overuse, as well as the use of dexamethasone as a behavior modifier. However, owners should still be cautious in the use of dexamethasone (or any corticosteroid) and its use should not be taken lightly because of the potential

for suppression of the adrenal glands and immunosuppression with repeated use, especially over the long term.

Robaxin® (also known as methocarbamol): Robaxin® is a potent skeletal muscle relaxant which is used to help treat muscle strain, sore backs, and in some cases help manage horses prone to exertional rhabdomyolysis (tying up). Because Robaxin® acts on the central nervous system it can also have a secondary sedative-type affect which can affect behavior, coordination, and performance. Because of the potential 'quieting' effect that can come with use, there is the potential for its misuse as a doping agent, instead of a strictly therapeutic drug. While the limits USEF has set regarding the permitted use of Robaxin® helps curb its use for doping, owners should still have a solid understanding of why their horse requires administration of the drug and what other therapy is also being given to manage muscle spasms or a level of muscle soreness which requires a muscle relaxant.

Corticosteroid Joint Injections: While intra-articular (IA) joint therapy is a common strategy used to help manage show horses to treat soreness and limited range of motion in joints caused by inflammation, the subject does not come without a level of controversy and varied opinion. As previously mentioned, corticosteroids are potent anti-inflammatory agents which act to reduce inflammation which in turn reduces pain. But, as with many things, with the good comes potential adverse effects. Every time an injection is made into the joint capsule, there is the risk for infection occurring in the joint. In addition, as part of the process of reducing inflammation, the joint's ability to fight infection is also reduced. It is also important to realize that inflammation is part of the healing process and continued joint injections can actually contribute to degenerative joint disease.

While the topic of joint injections can easily take an entire article on its own, the main point for this discussion is that corticosteroid joint injections should not be done indiscriminately and contrary to a growing trend, they should not be used in otherwise normal joints as a form of 'maintenance'. The American Association of Equine Practitioners (AAEP) has made the following statement which owners and trainer should be fully aware of - *"The AAEP recognizes that the judicious use of intra-articular medications with a valid veterinarian-patient relationship is appropriate treatment and can benefit a horse's health and well being. The AAEP defines this relationship to be a clinical or lameness examination with appropriate diagnostic tests prior to initiation of a therapeutic plan."* The veterinarian-patient relationship is an important aspect of this therapy, so owners need to be sure to have a thorough discussion with their veterinarian about IA joint therapy and the specifics of their horse's individual case.

Medication Requires a Reason

Although an argument can be made for the beneficial role of therapeutic substances in keeping horses sound and comfortable for competition, as highlighted in the previous article with cases such as the 'Devon Pony' and 'Speedy', there is an ever growing question of whether therapeutic substances are being used too casually and to excess by some trainers, vets, and owners. Not only is there a concern over potential adverse effects from individual medications, but also the cumulative effects when a horse is receiving multiple drugs and other substances. This is an issue that is also being addressed by the AAEP and in their white paper *"Clinical Guidelines for Veterinarians Treating the Non-Racing Performance Horse"* the following statement is made - *"The current use of medications to manage competition horses is often permissive and excessive. This environment is propagated by owners, trainers*

and veterinarians who fail to appreciate the potential harm to the horse inherent in the excessive or frivolous use of multiple medications and supplements in the quest for competitive success..."

Kent Allen, DVM, the Chair of the USEF Equine Drugs & Medications and Veterinary Committees, has a saying "Absent a diagnosis, surgery is trauma, medicine is poison, alternative therapy is witchcraft." This same philosophy is front and center in the AAEP white paper, which emphasizes the importance of treatment needing to be based on a specific need and specific diagnosis. Some additional key points from the AAEP paper include:

- *"Non-specific treatment including multiple joint injections, without specific indication, is an example of under diagnosis and over treatment. Some horses are simply unable to perform effectively in today's intensive scheduling of competitions and may require periods of decreased activity as part of appropriate medical management. Ignoring the individual's needs while responding to the demands of the particular competition may lead to excessive treatment and failure to consider the best interests of the horse."*
- *"All therapeutic treatments for performance horses should be based upon a specific diagnosis and administered in the context of a valid and transparent owner-trainer-veterinarian relationship."*
- *"All therapeutic medications should be administered to performance horses by or under the direction of a licensed veterinarian."*
- *"All therapeutic procedures should be performed with a sufficient interval provided to allow evaluation of the response to treatment prior to competition."*
- *"All treatments should be scheduled and administered with an underlying recognition that the health and safety of the horse are the ultimate objectives. Maintenance therapy is an inappropriate medical concept. Systemic and or intra-articular medication administered on a periodic basis must be based on a prior diagnosis with periodic monitoring of the diagnosed condition to determine the appropriate frequency of administration."*

Just One Part of the Bigger Picture

The use of drugs and other substances in competition is a complex subject. While appropriate administration of therapeutic substances is part of keeping equine athletes healthy, there is another component which is not so virtuous...that being the desire to win and putting that desire ahead of the well being of the horse. Numerous changes need to occur in order to help protect show horses from indiscriminate and inappropriate drug use. First, owners must become educated and engaged in the decision making process. With that, trainers and veterinarians must be transparent in their activities and willing to accept increased responsibility and accountability for their role involving administration of drugs and other substances. Additionally, governing bodies need to educate and not only strengthen rules and ethics codes, but also make enforcement meaningful.

But, even with increased education, accountability, and meaningful punishment the root issue is the culture of competition and winning being so important. How do we go about changing a culture and putting the best interest of the horses before 'the win'?

Next installment will discuss proposed rule changes and how to bring about a culture change in the show ring.

Additional information:

American Association of Equine Practitioners (AAEP): "Clinical Guidelines for Veterinarians Treating the Non-Racing Performance Horse"

<http://www.aaep.org/images/files/AAEP%20CLINICAL%20GUIDELINES%20PERFORMANCE%20HORSES%20Final%2012-1-11.pdf>

Drugs and Medications Corner: A Healthy Respect

<http://www.usef.org/documents/drugsMeds/HealthyRespect.pdf>

USEF Drugs and Medication Guidelines 2013

<http://www.usef.org/issuu/flipbook.ashx?docname=DrugsMedsGuidelines2013&pdfurl=http://www.usef.org/documents/drugsMeds/DrugsMedsGuidelines2013.pdf>