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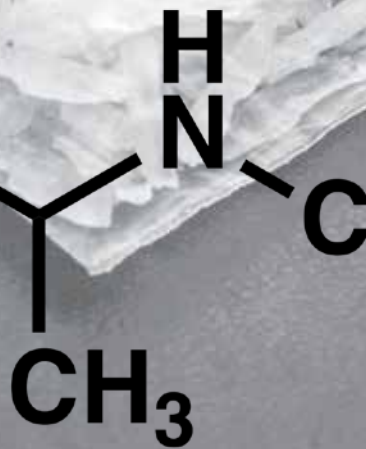
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Methamphetamine

A substance of emerging environmental concern for horse racing

By Clara Fenger, DVM, PhD, DACVIM; Tanya Boulmetis, JD; Kim Brewer, DVM; Kent Stirling; Thomas Tobin, MRCVS, Phd, DABT

The racing regulator reached for his glasses in disbelief as he read the post-race laboratory report. His brow furrowed as he read the report again, wondering to what lengths horsemen would go to cheat in horse racing. His next emotion was disappointment as the name at the top of the report from his equine medical director was a trainer with a good reputation. Methamphetamine. Seriously, you never know about people. Anyone who would put such a thing in a horse for a race is a bad dude.

Thirty miles away at the rail of the racetrack, a horseman had just watched his last set gallop when his cell phone rang. He had been up since dawn and carefully gone over each horse in his care, checking their legs, feed tubs and tack as each one was readied for training and, set by set, had gone to the track and returned. Everyone was safe and happy, the feed tubs were clean, and now the work of calling owners and planning campaigns began. It was a round-the-clock job but worth it for a trainer whose career began more than 25 years earlier in the irons as a gallop boy. Nothing could be more rewarding than to live with these incredible animals and guide their careers.

The trainer saw the number on his caller ID from the racing commission office, and that feeling in the pit of his stomach began

in an instant. In recent years, with the ever-tightening restrictions on the use of therapeutic medications, avoiding medication positives had become a more problematic part of the job. No longer was the focus of medication decisions simply doing what was in the best interest of the horse, but now the focus was how to do anything at all to care for the horse and still avoid a trace positive test, which was penalized the same as an egregious misuse of medication. He thought carefully over the recent past about which horses had won and which horses had gone to the test barn. He thought about which horse might have gotten bute too close to racing, or if he had carefully read the label on that new wound spray he tried. All of those thoughts were swirling in his brain as he answered the phone.

Nothing could have prepared the trainer for that call. Methamphetamine. The word repeated over and over in his head, with a chorus of “there must be some mistake.” Meanwhile, the racing commission investigators had descended on his training barn and turned it upside down. It was usual practice for barns to be searched for contraband after a positive test. Some old syringes of antibiotics were discovered, but no methamphetamine was to be found.

➤ METHAMPHETAMINE IN HORSE RACING

Methamphetamine is a powerful stimulant that is most commonly used as a human recreational drug. It is readily synthesized by amateur chemists using easily obtainable household substances. The history of the use of amphetamines in horse racing dates back to the 1940s when such “hopping” was rumored to be commonplace. It might seem only natural to believe that a nefarious horseman might slip a little of this substance to his horse for an “edge,” because this case would certainly not be the first of its kind. However, the facts tell a different story, and the course of events that the trainer in our example above and others have endured in recent years should provide a wake-up call to the industry and its regulators.

As previously discussed,¹ there has been a parallel between illicit substances showing up in post-race samples and the use of these same substances among humans for recreational or therapeutic use. This pattern has been seen with cocaine, tramadol and cathinone, and it is starting to emerge with methamphetamine. As the frequency of drug use among the human population increases, the frequency of exposure spills over into the racehorse population. Similar to the levels observed with those other substances, the recent methamphetamine “positives” have been trace levels, consistent with contact exposure to the parent drug or urine from a human user.

➤ THE D- AND L- METHAMPHETAMINE STORY

The preceding narrative of the unfortunate trainer and disappointed regulator tells a true story of real people on either side of the regulatory divide. However, it doesn't end there. Methamphetamine strikes a chord with the regulators because of its long history during a dark era of racing, and it strikes a chord with the public because of the never-ending meth lab busts in the news. Intentional administration of such a substance to a racehorse should not be tolerated by regulators nor horsemen. Unfortunately, addiction is a disease, and there are those among the racing community who suffer from addiction just as there are those among the general population who do. The unfortunate scenario that plays out in our minds is that of a poor addicted groom or even racetrack maintenance worker relieving himself innocently in the horse's stall, resulting in a positive test. While that situation is clearly a key factor in the current rash of methamphetamine findings in horse racing, this particular methamphetamine story is just a little more complex.

Drug molecules are complicated three-dimensional structures like many things in nature, including your hands, and some come in two forms—a “right-handed,” dextro or d-, and a “left-handed,” levo or l-form. If you look in the mirror, you will notice that the person looking back is identical save for one detail. In your reflection, right and left are switched. If you have a mole on the right side of your face, your reflection has the mole on its left. This is the relationship between

d- and l-forms of molecules; they are identical, but they are different. This seemingly minor difference has a giant impact on the biological action of the two forms. Just as a mirror image of your key won't start your car, the d-form and l-form of molecules don't share the same functions. The sophisticated mass spectrometer used by drug testing laboratories identifies drugs by mass and composition but, without a special analysis, cannot differentiate between right-handed d- and left-handed l-forms.

In the case of methamphetamine, the d-form is a powerful psychoactive drug sought by drug addicts, while the l-form is a decongestant found over the counter in harmless products like a Vicks inhaler.

➤ THE STORY CONTINUES

Our trainer immediately had his employees drug tested one by one. He was going to get to the bottom of this positive as quickly as possible. Addiction is a terrible taskmaster, and our trainer knew that even those grooms and riders most devoted to the care of the horses are not immune to its allure. He carefully retraced his horse's steps, including which barn, which stalls and who might have had access to the horse. No stone would be left unturned in his effort to uncover the truth. Then he hired a lawyer.

Our regulator was on a similar path. The harshest of penalties was outlined. Such an infraction accompanied by such a large risk to the integrity of racing would be met with the full force of regulatory enforcement. Deterrence is best achieved by swift and severe action.

The trainer's lawyer turned to a set of experts in the field of forensic toxicology. After the trainer's employees all passed their drug tests, the riddle grew. How could the horse have tested positive for an illegal substance that carries such a severe penalty? The answer became readily apparent when the experts weighed in. Have the sample tested for the l-form of the drug. This will differentiate between the possibility of a meth addict or a nasal allergy sufferer having urinated in the horse's environment.

In the case of our trainer, the drug test came back as the l-form, indicating that the “positive” test most likely resulted from the exposure of the horse to the harmless inhaler form of the drug, either from the commingling of some equipment with a nasal inhaler in a groom's pocket or careless urination of an allergy sufferer in the horse's environment. One outcome of this particular case was the pharmacologically correct reclassification by the Association of Racing Commissioners International (RCI) of l-methamphetamine as a Class 2B substance. However, even the very active d-form can find its way into a post-race test as a trace level in many innocent ways.

◆ THE CANADIAN METHAMPHETAMINE “POSITIVES”

Well-documented and compelling evidence of an innocent environmental source for post-race trace-level urinary methamphetamine identifications came from a classic “cluster” of methamphetamine findings in Canada in 2014. In this matter, a very successful American Quarter Horse trainer based in Michigan purchased a large horse trailer secondhand to transport her horses to race at Ajax Downs near Toronto, Canada. Three of the horses that traveled in her newly purchased trailer raced within a few days of arrival at Ajax Downs. Each of these three horses had a post-race “positive” for methamphetamine. A fourth horse from the same trainer similarly went to the test barn and cleared the post-race test. This fourth horse had traveled to Canada in a separate trailer.

Upon careful review of the facts of this case, Ontario Racing Commission (ORC) investigators elected to test the trailer for methamphetamine. The result of this testing was the identification of methamphetamine from the interior of the trailer in the manger area, evidence that was presented at the steward’s hearing. Despite this incontrovertible evidence of a completely innocent and inadvertent source of the methamphetamine findings, the stewards handed down a significant fine and one-year suspension.

The case was immediately appealed to the ORC, and the case was reviewed, along with another case of two trace urinary methamphetamine identifications that occurred around the same time in Thoroughbred racing. Upon review of the experts’ submissions, the ORC allowed the appeals and set aside the stewards’ penalties. In reporting their rulings, the ORC noted the recent substantial increase in the sensitivity of equine drug testing uncovering trace levels of methamphetamines that could be consistent with inadvertent environmental exposure. The ORC further noted that these trace levels of methamphetamine would have no impact on the racing performance or the general health and safety of these horses, and the ORC considered that these trace levels were entirely consistent with random, innocent and unavoidable exposure to environmental traces of methamphetamine.

In presenting its ruling, the ORC added that there is a need to set analytical limits or cutoffs on the sensitivity of post-race testing “*high enough to . . . cut-off the environmental noise, but low enough to stop performance enhancement.*” This case has been recently outlined in the *Canadian Veterinary Journal*,² which further proposes a minimal regulatory cutoff of 15 ng/ml (parts per billion) of methamphetamine for post-race equine urine samples. The 15 ng/ml figure was based on review of the scientific literature and consideration of the regulatory experience in Oklahoma racing, where a cluster of methamphetamine positives created a similar problem for regulators as the Ontario positives.

◆ SOURCES OF TRACE METHAMPHETAMINE IN POST-RACE SAMPLES

The Substance Abuse and Mental Health Services Administration (SAMHSA) is the federal agency that leads public health efforts to reduce the impact of substance abuse and mental illness in America. Among its many roles to fulfill its mission, SAMHSA maintains a list of drug analytes and screening cutoffs below which humans are considered to be “clean.” This list is relied upon by the federal government for random drug testing, for drug testing for employment, and for testing pilots and truck drivers to ensure they are unequivocally unimpaired and safe to fly a plane or navigate a highway route. This amount is considered likely to result from inadvertent environmental exposure, such as contact with surfaces or places where methamphetamine may have been “cooked,” much like what happened to the horses in our Canadian example. The SAMHSA screening cutoff level for methamphetamine is 500 ng/ml of urine, with 250 ng/ml as the confirmatory level. This figure is well above the recommended level from the *Canadian Veterinary Journal* article and substantially higher than the trace levels identified in most of the post-race findings from across North America.

As the methamphetamine menace has expanded its reach in the human population, the sensitivity of drug testing in horse racing has gone up, increasing the likelihood of post-race findings of trace positives. Such positives have been identified in California, Oklahoma, Minnesota, Kentucky and even Australia and New Zealand. In most cases, the analysis to differentiate between the d- and l-forms of the drug has not been performed, leaving a large question as to the potential source. In most cases, much like our trainer in the above narrative, the trainer, grooms and others in contact with the horse have been drug-tested. In those cases in which a source has been suspected, trainers, grooms, assistant starters and even test barn personnel have been implicated. In one case in Australia, the trainer admitted to not only using methamphetamine but also urinating in the horse’s stall, the closest stall to the barn office. Penalties in almost all cases have included disqualifications, fines and suspensions—in one case, as long as four years, a death sentence in horse racing.

◆ PENALTIES FOR TRACE POSITIVES: WHAT ARE THE OPTIONS?

Only a few states consider the very real possibility of inadvertent environmental exposure. Under the “trainer responsibility” or “absolute insurer” rule, a key regulation in place in virtually every state, the trainer is responsible, regardless of the acts of third parties or any other circumstances. It is similar to a strict liability standard, in which the legal responsibility for damages (in this case, a positive test) lies with the responsible party (in this case, the trainer) even if that person is not at fault or negligent. Typical legal language is “the trainer shall

be the absolute insurer of, and responsible for, the condition of the horse entered in a race, regardless of the acts of third parties.” The basis for the absolute insurer rule is that it satisfies a “rational basis test.” This means that a law is constitutional if it is “rationally related to a legitimate government purpose.” The courts consider the trainer responsibility rule a rational application of police powers by the states in regulating an industry susceptible to corruption.

In Kentucky, “[a] trainer shall be responsible for the presence of a prohibited drug, medication, substance or metabolic derivative, including permitted medication in excess of the maximum allowable concentration, in horses in his or her care.” Kentucky administrative regulations further state: “A trainer shall prevent the administration of a drug, medication, substance or metabolic derivative that may constitute a violation of this administrative regulation.” Kentucky is silent on how a trainer can guard against an environmental exposure beyond their control, such as from a test barn employee. When asked during testimony at a recent administrative hearing if the test barn personnel were drug-tested, Kentucky Equine Medical Director Mary Scollay indicated that such testing would constitute a HIPAA or similar violation. This is an interesting comment, considering there are many jobs in both government and the private sector in which being subjected to random drug testing is an express condition of employment.

This mandatory penalty for trainers for trace environmental exposure positive tests is a dangerous precedent. In states that have adopted the Multiple Medication Violation provision of the Racing Medication and Testing Consortium’s (RMTC) National Uniform Medication Policy, methamphetamine represents a permanent six points on the trainer’s record. Even the slightest of additional violations will result in mandatory suspensions. With the RMTC’s track record for accurately determining therapeutic medication thresholds and withdrawals—at current count, seven of the 28 thresholds/withdrawals have been modified or revised—the odds are not in the trainer’s favor. There are existing alternative penalty structures that could be used in these cases, especially in the event of positive findings for which clear alternative sources of exposure can be identified.

A minority of states have a “failure to guard” option available to stewards and commissions that represents an alternative to a medication violation. Here, the liability of the trainer is restricted to a failure to sufficiently “guard”—or protect—the horse against trace levels of environmental exposure to medications or substances. The language in New York reads, “The trainer shall be held responsible for any positive test *unless* the trainer can show by *substantial evidence* that neither the trainer nor any employee nor agent was responsible for the administration of the drug or other restricted substance.” [Emphasis added.] Here, a methamphetamine trace level consistent with contamination could be mitigated if, for example, an assistant starter on the gate suffered from nasal congestion and was using a Vicks inhaler.

In the mid-1930s, when states started enacting the trainer responsibility/absolute insurer rules, they were a necessary tool for maintaining integrity in the sport and providing confidence to the public. The levels at which “positives” were identified were always quantities that affected performance. However, with today’s sophisticated testing methods, infinitesimal trace levels from inadvertent environmental exposure that no trainer, regardless of how careful, could possibly avoid could result in career-ending penalties.

In a clear legal contradiction to the absolute insurer rule for trace positives, RCI has included a cutoff threshold for caffeine as an environmental substance in horses. In fact, without such a rule, most horses would be positive at trace levels, because caffeine is almost ubiquitous in any environment shared with humans. Cocaine (as its metabolite) has been identified in at least six different racing jurisdictions as a likely contaminant, with a cutoff level of 50 to 150 ng/ml in urine representing no penalty and no redistribution of purse. In Florida, the presence of the cocaine metabolite at such low levels triggers no medication violation but is accompanied by a fine and notification of the trainer. This regulation encourages further investigation by the trainer of grooms, riders and other in-contact personnel to potentially identify substance abuse among workers in the training barn. Such commonsense regulation serves not only to protect the integrity of racing but also the health and welfare of the human beings who care for the horses.³

Other substances have similarly been identified by jurisdictions to be of no threat to the integrity of racing and deemed likely to result from inadvertent environmental contamination. Cutoffs for substances, including morphine, some published and some used as unpublished “in-house” levels, have been established in many jurisdictions similar to the SAMHSA list. Oklahoma, for example, has published a commission-sanctioned thresholds directive for likely environmental exposures:

Although the following environmental contaminants and/or substances may be found in the horse, no sample or specimen shall exceed the following levels when tested post-race: (a) Caffeine: 100 ng/ml serum. (b) Cocaine: 150 ng/ml urine (Benzoyl Ecgonine Metabolite). (c) Morphine: 100 ng/ml urine. (d) Lidocaine: 25 ng/ml urine. (e) Strychnine: 100 ng/ml urine. (f) Atropine: 70 ng/ml urine. (g) Methamphetamine: 100 ng/ml urine.

Racing commissions that have foresight and are concerned with the actual integrity of racing recognize that calling trace levels of environmental substances as “positives” only darkens the reputation of the entire racing industry and does nothing to identify and deter the real threats to the racing industry or protect our racehorses. Such focus on inadvertent environmental exposure diverts precious resources of time and money away from necessary innovative approaches to identify actual cheating.

⇒ CONCLUSIONS

Our racing regulator closed the folder on the methamphetamine case, now knowing that the substance was not the “real” methamphetamine but rather the l-form of the drug, a harmless nasal decongestant. He still suspects that our trainer was up to no good, so at least he was able to penalize him with a 60-day suspension for the syringes of antibiotics. Maybe the brainiac scientists will discover that, somehow, the inhaler form has some effect on racing and our racing regulator can feel good that he has protected racing from nefarious activity, just not the activity he originally suspected. He reaches for the light switch as he leaves the office, and he is thinking maybe he will take the kids to the lake this weekend.

Later that same evening, our trainer tosses and turns during another sleepless night as he wonders how he will recover from this episode. His case has been adjudicated in the turf media, and his owners are slow to return after his 60-day hiatus for antibiotic syringes. He just laid off three more grooms, and he is thinking about their families. Hopefully, they will land on their feet in another training barn. Then his mind turns to his own daughters. They are the main focus of his life, and he wonders what he will be able to do to support them if he can't get this episode behind him. The legal bills have mounted, and for a horseman who has devoted his entire life to horse racing, he has no idea what he could possibly do instead.

But for the grace of God, this story could belong to any of us in the horse industry. *h*

⇒ REFERENCES:

1. Fenger CK, Barker S, Soring K, Shalgos L, Tobin T. 2015. Trace environmental substances showing up as post-race “positives”: what every horseman needs to know about being wrongly accused. *The Horsemen's Journal* 62 (3): 36–40.
2. Brewer K, Shults TF, Machin J, Kudrimoti S, Eisenberg RL, Hartman P, Wany C, Fenger CK, Beaumier P, Tobin T. 2016. A cluster of trace-concentration methamphetamine identifications in racehorses associated with a methamphetamine-contaminated horse trailer: a report and analysis. *Canadian Veterinary Journal* 57 (8).
3. Carmargo FC, Hughes C, Lehner AF, Stirling K, Tobin T. 2006. “Trace” benzoylcegonine identifications in post-race urines: probable sources and regulatory significance of such identifications. *AAEP Proceedings* 52: 331–336.

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