

# Theriogenology Question of the Month

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This feature is sponsored by the American College of Theriogenologists. Readers of the *JAVMA* are invited to submit contributions. Contributions should provide a learning exercise about theriogenology. A specific question should be posed for the readers. The author's answer to the question and a brief discussion should be presented. Possible topics include commonly seen problems in domestic or exotic animals. Herd problems in dairy and beef cattle, sheep, goats, horses, and exotic hoofstock, problems in kennels or catteries, or flock problems in domestic and exotic fowl also are appropriate. Please contact Dr. Craig A. Smith, Associate Editor (800/248-2862, ext 259, or FAX 847/925-1329), for further details.

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## History

A 9-year-old Thoroughbred stallion that had been used for racing was admitted to our veterinary medical teaching hospital for a prepurchase breeding soundness examination. The stallion had never been used for breeding.

Routine breeding soundness examination of stallions requires washing the erect penis, collecting swab specimens from the penile fossa, urethra, and penile shaft, and collection of a minimum of 2 semen samples with a 1-hour interval between collections. Most stallions, whether experienced or novice breeders, readily tolerate manipulations of the penis and placement of

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an artificial vagina while mounted on a mare or dummy. Thus, breeding soundness examination of a novice stallion is usually accomplished within 2 to 3 hours.

The stallion of our report appeared to be well mannered for general handling. He was relatively quiet in the stall. Exposure to an ovariectomized stimulus mare resulted in the stallion achieving an erection within a typical response time (1 to 5 minutes).<sup>1</sup> During the initial attempt to approach the stallion for washing of the penis, the stallion shied away from the clinician, trembled, and threatened to kick. Nevertheless, with patience, a reassuring approach, and gentle rubbing of the abdomen, the stallion reluctantly tolerated washing and drying of the penis as well as collection of swab specimens from the urethral fossa and urethra for microbial culture.

An ovariectomized stimulus mare was then moved to the center of a breeding shed and prepared for mounting. The stallion appeared ready to mount, but when taken to the mare, he scurried past her and attempted to kick her with his hind limbs. This behavior was repeated on several subsequent approaches. Eventually the stallion appeared to lose interest. He would achieve an erection when at a distance from the mare, but would lose the erection whenever taken near the mare and encouraged to mount. When the clinician approached the stallion with the artificial vagina, the horse appeared distracted and offered to kick.

## Question

What is your tentative diagnosis for this stallion's condition? *Please turn the page.*

## Answer

Specific aversion to handling for semen collection and to personnel approaching the genital area, probably associated with a previous negative experience.

## Management and Outcome

Overall, the stallion's response suggested greater fear and resistance to people approaching the genital area than is typical for most novice breeders. Fear and resistance to the approach of the clinician seemed greater when the stallion was near a mare or when he was encouraged to mount the mare, compared with simple touching of the genitals in general.

Because of the generally quiet and compliant disposition of the stallion in nonsexual situations, we interpreted his behavior in the breeding shed as genuine fear to manipulation of the genital region, possibly associated with prior punishment for displays of sexual behavior or interest. We did not detect signs of genital injury or elicit signs of pain during genital manipulation, and evidence was not found of a stallion ring or scars from use of a stallion ring that might have contributed to this behavior. Therefore, our plan was to proceed with behavior modification with 3 main objectives: manipulate the breeding situation toward increased sexual motivation of the stallion, undertake systematic desensitization of the stallion to the presence of people in the breeding situation as well as to manipulation of the penis and mounting, and provide continued positive experiences in the breeding shed. Ideally, it would have been best to have an indefinite period in which to proceed with 1 or 2 sessions (15 to 30 min/session) daily toward the goal of steady improvement. We also considered the use of anxiolytics and libido-enhancing hormone treatments as training aids.<sup>1</sup> Unfortunately, the owner revealed that there was only a limited amount of time (1 to 3 days) in which to complete a breeding soundness examination, because pending sale as a breeding stallion was contingent on acceptable results for a breeding soundness examination. At the owners request, we proceeded with a simple behavior modification plan at a reasonably accelerated rate.

In the afternoon of that first day, the stallion was taken to a mare in natural estrus, because certain stallions respond more favorably to a mare in natural estrus than to an ovariectomized mare.<sup>1</sup> A trained, quiet, and tolerant ovariectomized mare also was provided for mounting to minimize the chance that the stallion would be kicked. The handler was instructed to use only positive reinforcement and encouragement, minimizing discipline and restraint of the stallion. The stallion readily achieved an erection in response to the natural-estrus mare, but when directed to the ovariectomized mare for mounting, the stallion lost his erection and pinned his ears back, as in a fearful response. This was repeated twice with the same result.

Because the stallion had responded favorably to penile manipulation during washing, it was decided to attempt semen collection of the standing stallion by manual stimulation.<sup>2</sup> It was expected that this would be a positive experience to gain the stallion's confidence in the handler and semen-collection clinician.

The procedure sometimes stimulates mounting as well, so the ovariectomized mare was kept nearby so that she rapidly could be positioned for mounting if the stallion was appropriately stimulated. It was decided that attempts by the stallion to kick the clinician would be dealt with by a well-timed slap of the abdomen immediately after each kick followed by immediate gentle rubbing of the stallion's abdomen. Attempts to kick subsided after 3 replicates, after which the stallion responded favorably to application of the warm compresses and manual stimulation. Organized vigorous pelvic thrusting, flaring of the glans penis, and an apparent partial ejaculate resulted from the first tolerated attempt.

One hour later, the stallion was again taken to a mare in natural estrus with the goal of progressing from stimulation to mounting of the ovariectomized mount mare positioned nearby. The plan was to stimulate the stallion with the natural-estrus mare, and once he was excited, to divert him to mount the ovariectomized mount mare and to simultaneously apply an artificial vagina to stimulate pelvic thrusting. Again, the stallion responded well to the natural-estrus mare, but appeared confused when encouraged to mount the ovariectomized mare. During several attempts, he appeared to resent placement of an artificial vagina on his erect penis while he was standing on the ground. The stallion maintained good interest and readily regained an erection between attempts, so the session was continued.

The ovariectomized mare was removed, and we resumed the previously positive procedure of teasing the stallion with the natural-estrus mare followed by manual stimulation of the erect penis while the stallion was standing on the ground. This again resulted in a partial ejaculate, during which the stallion covered away from the clinician as if anticipating punishment. The stallion was verbally praised, to which he seemed to respond favorably.

Typical ejaculatory tail flagging had not been evident, and the stallion immediately regained an erection. Another attempt was made to collect semen with the stallion standing on the ground. An artificial vagina was prepared with a warmer temperature (50 C) and greater pressure with copious lubrication in an effort to better stimulate the stallion. The stallion readily accepted placement of the artificial vagina. The fact the stallion tolerated the artificial vagina was considered an improvement. After 3 or 4 strong pelvic thrusts, the stallion ejaculated while attempting to stand on his hind limbs as if mounting a mare. The stallion again appeared fearful, but again was verbally praised, which appeared to induce relaxation.

The subsequent morning, the stallion again was taken to the natural-estrus mare. Sexual arousal and erection response were excellent. The penis was washed and dried with little resistance, and the stallion did not attempt to kick. The ovariectomized mare was positioned nearby to encourage the stallion to mount. This was not immediately successful, so we attempted to stimulate the stallion to mount by placing the artificial vagina on the penis while the stallion was still on the ground standing directly behind the ovariec-

tomized mare. Initially, he attempted to kick the artificial vagina and clinician. Placement of the artificial vagina was quietly repeated several times, with verbal reassurance to the stallion. After several attempts, each with increasing compliance, the stallion tolerated placement of the artificial vagina and mounted the ovariectomized mare. Although he did not thrust or ejaculate during that mount, it was considered an improvement. However, several additional attempts to encourage him to mount failed, and he appeared to become progressively frustrated.

At that time, it was decided to provide another ovariectomized mare in an attempt to stimulate renewed sexual interest (Coolidge effect).<sup>1</sup> Use of the second ovariectomized mare resulted in a higher level of sexual arousal in the stallion, but mounts were not achieved. After initial signs of waning interest by the stallion, the session was ended.

In the afternoon of that second day, the stallion was taken to the second ovariectomized mare for teasing, but attempts at manual stimulation and placement of an artificial vagina were unsuccessful. At that point, it was decided to provide a mare in estrus for natural mating as positive reinforcement for mounting. The stallion mounted the mare twice. Intromission was not achieved during either mount. Upon dismounting, the stallion cowered from the handler as if anticipating punishment.

It was decided to keep the mare at a distance and return once more to desensitization by approaching the stallion and handling the penis. The stallion was manually stimulated to achieve an erection, and an artificial vagina was placed on the penis. After a single pelvic thrust, the stallion startled and fell to the ground. It then was decided to continue desensitization by returning to the reliably positive procedure of manual stimulation with hot compresses and to simultaneously back the natural-estrus mare toward the stallion while he was pelvic thrusting with all 4 limbs on the ground. Using this procedure, the stallion was enticed to mount the mare, and an artificial vagina was placed on his penis. The stallion ejaculated normally. The stallion was offered verbal and tactile praise.

The following morning, the stallion again was brought to the breeding shed. Sexual arousal and erection response were excellent. The penis was washed and dried without resistance or kicking by the stallion. Semen collection for breeding soundness examination proceeded normally. Two ejaculates were collected (1-hour interval between collections), using an ovariectomized mare to stimulate the stallion and to serve as a mount mare.

The stallion was discharged that day to the owner, and he was transported to the buyer's breeding farm. The breeding manager on that farm was informed of the stallion's behavior and progress. Recommendations included quiet and respectful handling of the stallion; allowing the stallion to become accustomed to the people in the breeding shed before washing the penis or assisting with insertion; avoiding punishment for sexual behavior, erection, masturbation, or behavior

judged to be indicative of fear of genital manipulation; and providing praise and reassurance whenever possible. Follow-up information provided 1 year later indicated that the stallion had satisfactory performance and behavior during his first year at stud with almost a full book of mares.

## Discussion

Working and performing stallions are often punished for what it is considered inappropriate displays of sexual behavior. Stallions that are expected to breed later during life may exhibit aversion to manipulation of the penis and other sexual behavior problems. These may manifest as defensive or offensive aggression toward the handler, semen collector, or mare, such as in the stallion reported here. In our experience, older novice stallions often have greater difficulty beginning their breeding career than do younger novice stallions.<sup>1</sup>

We interpreted this stallion's aggression and attempts to kick as fear of punishment, because this was a calm well-mannered stallion that was not particularly sensitive to touching of his flanks or genitals outside a breeding situation. This stallion illustrates that gentle patient correction of inappropriate behavior can successfully result in semen collection under normal circumstances and in a relatively short period. In our experience, punishment or rough handling of such horses has typically resulted in loss of libido or increased apparent frustration and aggression.<sup>1</sup>

The stallion reported here did not have value unless he could pass a breeding soundness examination within a short time. Accordingly, the owners were anxious to obtain a prepurchase semen evaluation, and we were pressed to accomplish the training as soon as possible with minimal expense. In situations in which more time is available, we have had good success with more organized systematic desensitization to people and mares over a period of several days. Also, when more time is available, we have had good results with further follow-up training to reinforce the breeding routine before moving the stallion to a new breeding environment and team of people. We recommend 1 to 2 weeks of daily or alternate-day semen collection for that purpose.

In similar situations of apparent fear-specific response of stallions to handlers during breeding, we generally have had good results by using half blinders to impair a stallion's detection of the clinician approaching with the artificial vagina. In the stallion reported here, the handler expressed reluctance to use blinders because of the stallion's initial tendency to rush past the mare and whirl and kick. Accordingly, it was judged that it could be counter-productive to try blinders in this stallion.

## References

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2. McDonnell SM, Love CC. Manual stimulation collection of semen from stallions: training time, sexual behavior and semen. *Theriogenology* 1990;33:1201-1210.