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Behavioural Problems in Performance Mares

Behavioural problems in performance mares are common and can arise from a variety of reasons. Behaviour considered undesirable in the performance mare, although rarely, can be due to:

1. Normal oestrus cycle activity
2. Abnormal oestrus cycle activity
3. Non reproductive cycle factors

The owner/trainer and veterinarian must work closely to try and establish the cause of the behavioural problems that are observed. This article attempts to provide an insight into this process, and the possible treatments that are available.

Types of behavioural problems

The range of behavioural problems in performance mares can be highly varied, which can result in complex investigations to determine the underlying cause.

Typical 'behavioural' signs include:

- Change in attitude
- Tail swishing
- Excessive urination
- Clitoral 'winking'
- Squealing
- Reluctance to go forward
- Reluctance to be separated from other horses
- Kicking out
- Rearing
- Discomfort associated with ovulation – may present with signs typical of back pain ('cold backed', bucking, kicking out when saddled etc.)
- Extra sensitivity to being touched
- Aggressive or stallion like behaviour

Often these behaviour changes occur whether or not they are under saddle. It is important to note that there are numerous physical conditions (ie non-behavioural causes) which can cause similar signs to those listed above. These are discussed briefly later in the article.

Normal oestrus cycle activity

Expression of behavioural oestrus, when a mare is 'in heat' or 'in season', can have a marked negative impact on performance. Most mares are seasonally polyoestrous. In other words, they undergo repeated cycles of ovarian activity (oestrous cycles) during the breeding season, typically

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early spring through until the autumn in the northern hemisphere. The occasional mare appears to remain cyclic during the winter months with no underlying pathological cause. The influence of increased lighting and nutrition can cause a mare to start cycling earlier in the season.

During early spring, most mares enter a 'transition period' between winter anoestrus and the start of their normal 21-day oestrus cycles. Mares in the transition period typically undergo waves of ovarian activity where follicles increase in size but fail to ovulate. During this time the mare can show irregular or prolonged displays of oestrous like behaviour. Once the mare has her first ovulation, she will then go on to cycle normally, with a more predictable pattern of oestrous behaviour. The transition period can be artificially shortened if necessary. This can be achieved using a course of medication such as Domperidone or Sulpiride, or later in the period using Progesterones.

During the breeding season, mares typically have a 21-day oestrous cycle. Behavioural oestrous is normally apparent for 3-7 days out of each 21-day cycle and is under the influence of the hormone oestrogen. It is around this oestrous period that some mares may display uncharacteristic behaviour that may hinder performance. Before starting any treatment, it is important to try and confirm that the behavioural problems being observed are truly associated with the mare's oestrous cycle.

This is achieved by:

1. Accurate recording of when the abnormal behaviour patterns are observed. If the problems are only apparent for a few days every 3 weeks, then they are more likely to be due to the mare being in the oestrous phase of her cycle.
2. A full physical examination to rule out other potential physical causes. This may include a physical examination at rest, orthopaedic examination in hand and under saddle, rectal examination and ultrasound examination of the mare's reproductive tract.
3. Consider an analgesia trial. Giving daily pain killers for a set period of time, as long as there are no contra-indications for your horse, can be a way of assessing that it is hormones rather than pain that is the reason for her behavioural problem.

Use of Regumate™ during competitions

FEI Rules: Regumate™ is currently allowed under FEI rules in mares.

Jockey Club Rules: Regumate™ is NOT allowed under the rules of racing. The withdrawal period is 8 days, during which time the mare is likely to come back into season thus reducing its usefulness in racing fillies/mares.

The use of a synthetic hormone is often used to aid diagnosis in cases where it is unclear whether the behaviour is a symptom of the mare being in oestrous. Regumate™, a synthetic progesterone, has the effect of stopping a mare from coming into season. Thus, a mare can be trialled on

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Regumate™ to see if it abolishes the unwanted behaviour. Use of Regumate™ and alternative treatments to suppress the oestrous cycle are discussed later in the article.

Abnormal oestrus cycle activity

There are certain conditions in the mare where a disruption to the normal oestrous cycle can cause abnormal behaviour patterns.

Granulosa Cell Tumours (GCTs) are the most common type of ovarian tumour in mares and can cause unwanted behaviour in mares. The mean age of affected mares is 10.6 years but can range from 12 months through to 25 years. GCTs usually occur in one ovary, causing it to become enlarged. The unaffected ovary usually becomes small and inactive. GCTs are hormonally active and can secrete excessive amounts of testosterone, oestrogens, and inhibin. It is the excessive production of these hormones that cause the abnormal behaviour patterns seen in affected mares. Mares with GCTs typically present with 1 of 3 different behaviour patterns:

1. Persistent anoestrus – the mare fails to come in to season.
2. Stallion like behaviour – the mare becomes abnormally aggressive, with sexual aggression and mounting of other mares.
3. Persistent oestrus – the mare shows continual signs of being in season.

Ruling out GCTs is an important part of the routine investigation of a mare showing persistently abnormal behaviour. Often an abnormally large ovary is detected on rectal palpation and confirmed by ultrasound examination. If in doubt, the diagnosis can be confirmed using a blood sample to test for the hormones commonly secreted by GCTs (Testosterone, Inhibin and Anti-Mullerian Hormone). The condition is treated by surgical removal of the affected ovary. Once the affected ovary is removed the mare should return to normal cyclic activity on her remaining ovary and can be bred from in subsequent breeding seasons.

A second, but less common cause of persistent oestrous behaviour is uterine infection. Bacteria and fluid in the uterus can cause a mare to have abnormal cycles. Although far less common in the performance mare than the breeding mare, poor vulval conformation in competition mares can lead to the sucking of air and faecal material into the vagina, a condition known as Pneumovagina. This in turn this can lead to infection within the uterus itself. The condition can be diagnosed with an ultrasound examination and a uterine swab. After treatment of this infection, the condition can be prevented from recurring by performing a ‘Caslick’s Vulvoplasty’. This is a procedure involving suturing of the upper vulva under local anaesthetic.

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Abnormal behaviour not related to the reproductive cycle

1. Physical abnormalities

The types of abnormal behaviour discussed above may of course be caused by factors not related to the mare's reproductive cycle. When investigating the mare with problematic behavioural patterns, a full clinical examination should be undertaken to try and rule out other potential causes such as:

- Dental pain
- Lameness
- Back pain
- Gastric ulcers If dental or orthopaedic pain is suspected but not obvious on clinical examination, a short period of painkillers can be administered to the mare to see if she shows an improvement, this is often referred to as a 'bute trial'.

2. Psychological abnormalities

In addition to the above physical problems, there are also psychological reasons for abnormal behaviour in mares. This is undoubtedly the hardest category to diagnose. Diagnosis often relies on exclusion of oestrous cycle related behaviour and other physical causes. It is worth bearing in mind that young competition fillies can show unusual patterns of submissive behaviour due to insecurity or timidity. Such displays can closely resemble oestrous behaviour but are not related to their reproductive hormones. This has led to the term 'starting gate oestrous', a phrase used to describe nervous race mares that may lean into the side of the starting stalls and squirt urine. Despite the name, this phenomenon is not caused by factors related to the oestrus cycle but is a psychological condition. Such mares require alterations to their management or training to reduce their fear and anxiety.

Suppression of the oestrous cycle in performance mares.

When the oestrous cycle is deemed to affect the behaviour or performance of a competition mare, it is common practice to attempt to suppress her normal ovarian activity.

There are several ways in which this can be achieved:

1. Oral synthetic progesterone supplementation

Regumate™ is a synthetic progesterone that is licensed for use in horses and given orally every 24 hours. Progesterone is the dominant hormone in the mare's reproductive cycle and therefore daily supplementation with Regumate™ will prevent a mare from coming into season. Regumate™ is very effective and easy to use. In addition, studies have shown that the product can be used for extended periods without adverse effects on future reproductive performance or fertility. The

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disadvantages of its use include cost (the drug must be given daily) and the fact that its use is not allowed by some competition authorities (see box above). In addition, care must be taken when handling the product, as it can be absorbed through skin and can influence the human reproductive cycle.

2. Progesterone injections

Although not licensed in the UK, recently an injectable form of altrenogest (the same active ingredient as in Regumate™) have shown it to be successful in suppressing oestrous. Injections are given once weekly. They are more costly than giving oral Regumate™, however, it is often easier when managing large numbers of stock.

3. GnRH vaccine

GnRH is a hormone released by the hypothalamus in the brain which in turn causes high levels of the hormones FSH and LH to be released from the pituitary gland. It is these high levels of circulating FSH and LH which cause an increase in ovarian activity which results in a mare coming into season and exhibiting signs of oestrous behaviour. Thus, if a drug is given that can reduce the secretion of GnRH, this can have the effect of suppressing a mare's oestrous behaviour. Studies have shown that GnRH vaccines are 100% effective in suppressing the normal ovarian cycle and thus suppressing signs of oestrus behaviour. The duration of suppression is not reliable and may be prolonged for up to several months. Although available commercially in Australia, the vaccine is not currently licensed for use in the UK or elsewhere in Europe at present. An important consideration is that some individuals fail to return to oestrus again and are subsequently barren. If breeding the mare in the future is of importance the vaccine should not be administered.

4. Intra-uterine insertion of a sterile marble or iUPOD magnet

The insertion of sterile glass marbles and iUPOD's has been used to suppress oestrous return in mares and would be advantageous in competition mares as no withdrawal times would be required. This can result in prolonged suppression for up to 90 days.

In addition, there has been no study to evaluate any long-term effects on a mare's future fertility. Glass marbles have also been known to fragment inside the uterus making their removal difficult. The iUPOD's can be easily removed by your Veterinary Surgeon.

5. Ovariectomy

Although clearly an invasive and irreversible procedure, removal of the ovaries has been used a technique to stop unwanted oestrous behaviour.

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6. Acupuncture

Acupuncture has been used with varying success in curbing unwanted oestrous behaviour. The technique often involves inserting surgical staples into an acupuncture point in the mare's ear tip. Although this has no suppression of the mare's oestrous cycle there is some anecdotal evidence to suggest it may reduce unwanted behaviour during the heat period in some mares.

Finally, it should be mentioned that FEI and Jockey Club rules permit horses to compete up until 120 days of pregnancy. During this time there will be no oestrous cycles or unwanted oestrous related behaviour. Some trainers believe there is improved performance in pregnant mares although this is purely anecdotal.

Methods of altering the onset of oestrous

Veterinary intervention can be used to alter the timing of the oestrous cycle and can therefore be used to try and avoid the mare being in season during competitions. For example, if the mare is midway through her cycle she can be 'short-cycled' by the administration of a prostaglandin. This will usually hasten the onset of oestrous. Another technique if a mare is showing signs of being in season would be to inject the mare using a hormone that will hasten ovulation. Following this most mares will ovulate 36-42 hours later after which behavioural signs of oestrus will subside.

Conclusion

Behavioural problems in performance mares are common. As discussed, the possible causes of such unwanted behaviour are numerous and not always related to the mare's oestrous cycle. Investigation of possible causes should be systematic, involving both the owner/trainer and the veterinarian. Although this process can be time consuming, it is important to ensure that any subsequent treatment is effective.