

Equine Swimming Exercise

A guide for users



KEY



Safety



Exercise




Horse

Why use swimming for your horse?

Swimming exercise has many potential benefits when integrated into a conditioning/training or rehabilitation programme that involves other modalities, such as groundwork, ridden work, and water treadmill exercise.

Swimming can provide an effective non-weight bearing exercise that may improve range of movement, fitness, and stamina. The purpose of these guidelines is to help users achieve these benefits for their horses, whether they are using swimming as an exercise for conditioning and fitness, weight management, or to support a rehabilitation programme. These guidelines provide a consensus based on a combination of research studies and skilled user experience.



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improve range of
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and stamina**

Credit: Ecole Nationale Vétérinaire d'Alfort,
CIRALE, F 94700 Maisons-Alfort, France

General guidelines for new pool users



Staff training & safety

- Personnel who are not familiar with swimming horses are strongly advised to seek training from experienced staff and should wear appropriate protective equipment for handling horses. Care must be taken to avoid injury to handlers, especially when horses are entering and exiting the pool.
- It is recommended that pools are designed with a loading area that precedes the ramp of the pool, with high padded walls on three sides, with the aim of guiding the horse down the ramp and into the water. Individuals should be advised against being in the loading area with the horse.
- Even with experienced horses, it is recommended to have one person in addition to the handler(s) at or near the pool in case of problems.
- Personnel should never be in the water with the horse.
- A life-ring should always be available.
- Each centre should have its own risk assessments and health and safety policies, including for the eventuality that a person falls in the water.
- Water should be appropriately managed to help filter and prevent bacteria and algae growth. In addition, to prevent potential adverse effects on health, dirty water may prevent the operator from observing the swimming gait to determine if it is acceptable. Different filtration systems exist and fresh or salt water may be utilised. It is important that personnel are adequately trained to maintain the water cleanliness.



Horse preparation

- Ideally horses should be handled using a well-fitted lunge cavesson. A well fitted headcollar may suffice for experienced swimmers. Some, horses, for example Thoroughbred racehorses, may require a stallion (rearing) bit/Chifney bit.
- The horse should be as clean as possible to maintain water cleanliness. Pick out the feet or use a footbath to ensure feet are as clean as possible. An all-over wash will help remove surface dirt and loose hairs.
- Horses can swim shod or unshod. Where fitted, check that shoes are secure. Pay particular attention to the condition of the feet if swimming is used daily. Foot problems can occur if the frequency of sessions is such that the feet are never fully dry between sessions.
- Check the horse for any cuts or abrasions. Even water which looks clean may carry microbes which could lead to infection. Daily immersion in water might also reduce the integrity of the skin and delay wound healing.
- Most horses do not require limb protection during swimming and the use of boots will increase drag through the water. Brushing or overreach boots may be used at the trainer's discretion, but their use is not advised.
- Horses should not be sedated during swimming.
- Depending on climate, outside of the summer months, ideally horses should be clipped to enable them to be dried, cooled, and warmed effectively after the swim exercise. It may take longer to cool, dry, and warm a horse after swimming in cold weather conditions.

Introducing a horse to swimming



- Some horses are naturally better swimmers than others. Be aware that individual horses may not take to swimming at all, in which case swimming is contraindicated.



- Horses must be introduced to swimming slowly and carefully. Personnel must be patient and allow time for inexperienced horses to adjust to their surroundings and to explore the water at the ramp before being encouraged to enter the pool.



- A minimum of two handlers are required to habituate horses to swimming, but it is recommended that additional personnel are available to assist if needed.



- Where possible, there should be one handler on each side of the horse controlling the head. If the pool is not designed to enable this, a solid pole attached to the lunge cavesson with a clip can be used to direct the horse's position within the pool and to assist the horse during swimming. The handler(s) should ensure the horse's head stays above the water. A third handler should be on the ground on one side of the pool to encourage the horse from behind. A tail rope controlled by a third person is useful to stabilise and support the hindquarters when the horse is learning to swim. An additional handler may also be required to move the gangplank if using a round pool.



- Several weeks of habituation may be required before gradually increasing the duration of swimming, according to the level of fitness and requirements of the individual.



New horses benefit from a structured period of habituation, with at least 2, ideally 3 swim sessions within the first week. During this period, it is recommended that the horse swim only one or two brief intervals. The distance of each interval (lap or length) will depend on pool design, but for many facilities intervals up to 20-40 seconds are possible, as horses generally swim at about 1 m/sec. As swimming is a novel experience for horses, it is imperative that swimming duration is gradually increased, regardless of the fitness level over-ground.



Most horses start with several short swims, each less than 1 minute for the first three sessions, with a gradual increase over 3-4 weeks to 2-5 minutes total swim time continuously or as intervals (laps with a short walking recovery between). The frequency of sessions varies from once or twice a week to twice daily, however 3-4 sessions per week is common if there is convenient access to the pool.



The horse's gait and posture when swimming is variable and should be evaluated by observing the horse in clear water to determine whether swimming is a suitable exercise for that individual.



Movement patterns of horses when swimming can vary, however, there are some common features seen in horses that swim well, such as using all four limbs and a symmetric gait pattern. It is important that an experienced swim handler is able to watch and make judgements on individual horse's technique.



Be aware that the horse may attempt to jump into the water. Gently encouraging the horse to walk into the water is safest and gives the horse the chance to feel their way safely down the ramp.



If facilities are available, horses new to swimming benefit from their first experience being in a straight-line pool where they can see the exit ramp. Following an experienced horse at a safe distance can be beneficial during habituation. Experienced personnel are best at gauging a safe distance between horses.



Credit: Moulton College
Equine Therapy Centre

Handling techniques



- During swimming, handlers ideally maintain a distance slightly ahead of the horse at the pool side to aid in keeping the horse straight and moving forward.



- Horses can be led by a handler on each side to aid in keeping the horse straight and to provide additional support to help pull the horse, if required. However, pool design may not allow for this and/or horse experience may not warrant it. The horse can be led by either a long line on one or both sides, or a single pole attached to the lunge cavesson (or headcollar for experienced swimmers) but never attached to the bit.



- When it is required that a horse should be lead with a bit or a Chifney bit, a snaffle bit is preferred, two lines on each side should be used, so that pressure is only applied to the bit when required and otherwise the horse is lead through the water via the lunge cavesson or headcollar.

Swimming protocols



It is difficult to standardise swimming programs as individual horse factors (fitness, swimming technique and ability) and pool designs differ. It is imperative that protocols are determined on an individual basis. Horses should be continuously monitored (refer to monitoring section) to ensure that the chosen protocol is suitable and is adapted as necessary.



Swimming protocols differ depending on the reason for swimming, age, stage of training, and discipline or race distance (for Thoroughbred racehorses). The duration of swim sessions for Standardbred racehorses and endurance horses tends to be longer (typically 4-8 minutes) post adaptation to swimming exercise.



It may be useful to keep the program the same for approximately five sessions before increasing it. This allows for monitoring of potential changes in recovery heart rate and/or training effects. A faster heart rate recovery to 60 beats per minute (or less) indicates a positive effect on swimming fitness. Whether this translates into improved fitness or performance over-ground remains to be determined.

- Heart rate is ideally measured using a stethoscope or heart rate monitor after the horse has exited the water. Be aware that some horses may have an altered swimming technique and/or appear anxious with a heart rate monitor fitted around the girth, and that heart rate data may not be accurate or reliable in water.
- Heart rate is likely to increase and decrease more rapidly when habituating a horse to swim exercise due to a stress response. When a horse is habituated to swim exercise, it may be harder to reach and maintain higher heart rates, however, the subsequent rate in fall of heart rate post swim may be more indicative of a training response.



Credit: ErrA-Cirale

Credit: Ecole Nationale Vétérinaire d'Alfort,
CIRALE, F 94700 Maisons-Alfort, France

Swimming multiple horses



- Swimming multiple horses should usually only be carried out by experienced handlers with horses that are habituated to swimming.



- In busy pools where multiple horses are being swum simultaneously, entry timing is crucial. Try to gauge an appropriate distance from the horse ahead and in round pools, watch for any horses that may be completing a lap and coming up behind you after you enter.



- When multiple horses are swimming in the same pool, appropriate safe distances should be maintained between the horses.

Monitoring the response to swimming exercise



- Throughout the exercise, keep your attention on the horse and monitor the movement pattern and changes in movement pattern, heart rate during rest intervals, respiratory patterns, and signs of stress or fatigue. Decisions regarding how much exercise the horse should do should be based on the responses of the individual horse within an individual session.



- Some horses are better at swimming than others. Horses that swim with an asymmetric gait or don't use their forelimbs in a consistent manner may not be appropriate candidates for swimming exercise.



- If there are signs of fatigue or anxiety, such as reduced swim speed, swimming deeper than usual, unevenness in gait, taking in water, an over extended posture with the pelvis rising or lowering, drifting, or rolling, finish the swim session as soon as safely possible. A fatiguing horse may also be slower to walk up the exit ramp.



- Should a horse become unduly distressed, or be unable to swim, keeping the horse's airway above water should be the priority. Additional handlers may be required to help pull the horse forwards to maintain a horizontal posture while encouraging the horse towards the exit. In the event that during post swim monitoring there are any concerns, a vet should be called.

Throughout the exercise, keep your attention on the horse and monitor the movement pattern and any changes in movement

Cardiovascular and respiratory responses when swimming



Horses can hold their breath for up to 25 seconds when first entering the water. The breathing frequency (average 28 breaths/min) is much slower than over-ground exercise. Within a breathing cycle, horses typically show a brief inhalation, followed by a short period of breath holding, and finally an explosive exhalation. During breath-holding, the nostrils and upper airways close in order to protect the lower airways from aspiration of water. Breathing frequency increases after exiting the pool.



Heart rate is challenging to measure in water due to limitations of currently available equipment. It is common that the heart rate is elevated at the onset of swimming exercise, presumably due to anticipation of exercise, followed by a reduction during the swim session.



Even with strenuous swimming exercise in fit horses, the heart rate reaches a lower peak value (150-200 beats/min) than during a gallop (up to 240 beats/min), however, it should be noted that heart rate should not be used as the sole means of indicating workload when exercising horses in water.



Heart rate may be monitored once the horse exits the pool. Heart rate usually decreases rapidly within the first minute following cessation of exercise. Heart rate recovery may be a useful guide to an individual horse's fitness, with fitter horses returning to baseline (60 bpm or less) more quickly.

General good practice for swimming exercise



- Include some form of warm up overland, such as hand walking or treadmill walking, prior to swimming.



- Examine limbs closely for any signs of skin wounds and skin infection such as mud fever/greasy heel/rain scald which may be exacerbated by submersion. Daily immersion in water may also reduce the integrity of the skin and delay wound healing. Failure to dry skin adequately may facilitate skin infections.



- Horses should be walked overground post swim exercise until suitably recovered, in the same manner as post canter/gallop exercise. Heart rate and breathing should be monitored until considered satisfactory. It is recommended that heart rate is checked every minute during hand walking until it reaches 60 bpm.



- The horse should be well washed off after exercise. A mild disinfectant may be used.



- The horse should be dried well after swimming and may benefit from being rubbed down with a towel before a suitable wool/wicking rug is applied. In cold weather the horse may need additional rugs to be applied temporarily until completely dry to keep warm.

Post swim, it is recommended that heart rate is checked every minute during hand walking until it reaches 60 bpm.

Determining suitability for swimming exercise



- Some horses are naturally better swimmers than others. Be aware that individual horses may not take to swimming or may be at risk of injury from swimming. In these cases, swimming is contraindicated.



- The horse's gait and posture when swimming is variable and should be evaluated by observing the horse in clear water to determine whether swimming is a suitable exercise for each individual during each session.

Contraindications for swimming exercise



- Use of swimming during rehabilitation should be undertaken in consultation with the veterinarian who has knowledge of the injury and stage of healing.



- Horses adopt different limb movement strategies in water. Some horses show a postural change, extending their neck and back, and rolling the pelvis more. Some horses naturally, or due to neck, back, pelvic or hindlimb dysfunction, swim with an asymmetrical action. Horses with an obvious asymmetry over-ground may exhibit the same asymmetry in the pool, in which case swimming may not be the ideal rehabilitative mechanism for that horse. Observing for this through clear water is important to avoid fatigue and soreness due to incorrect use.



● Swimming may be contraindicated in horses with certain cardiac issues. Veterinary advice should be sought before swimming a horse with known compromised cardiac function and arrhythmias.



● Swimming is contraindicated in horses that have a history of epistaxis (nose bleeds) or have respiratory disease. Horses that have impaired upper airway function such as 'roarers' or that have undergone upper airway surgery may also not be well suited to swimming.



● Avoid swimming or use with caution if a horse has upper hind limb lameness.



● Swimming is contraindicated in horses that have back soreness if the horse has a high head carriage with extension of the back during swimming.



● Swimming may be contraindicated in horses with a history of post-swim colic, particularly if the horse has had two or more episodes.



● It is not recommended that horses undergo swimming exercise within several days of a joint injection to minimize the risk of infection.



● Swimming is contraindicated if a horse has any skin lesions which may be exacerbated by submersion.



● Muscles are used differently when swimming than during overground work, therefore, water-based exercise is unlikely to train muscles in the same way as overground exercise. The impact of this on risk of muscle soreness and injury is currently unknown.



● Bone strength can be lost in the first two to three weeks after overground exercise is ceased or reduced. As a result, swimming is not recommended as the sole or primary means of exercising a horse unless the horse has a specific injury that warrants it. If this is the case, land-based exercise must be re-introduced slowly to allow the bone to re-adapt to the rigors of regular high-speed exercise prior to competition or racing.

Guidelines produced by Moulton College for the Equine Hydrotherapy Advisory Panel (formerly, the Equine Hydrotherapy Working Group)

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This document provides guidelines to assist in the application of swimming horses. It is the responsibility of the user to ensure they have taken appropriate advice from a Veterinary Surgeon and utilise their professional judgement and experience when swimming horses. None of the contributors take any responsibility for the application of these guidelines by users.



With thanks to:

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