

# **SUMMER HEAT ALERT**

## Some Handy Hints

By Dr John Kohnke BVSc RDA

The summer months in Southern Australia are normally hot and dry, and in these states the hot weather, as well as in some northern areas where the tropical heat and high humidity combine, the ambient heat in the air can reduce the ability of a horse to lose heat absorbed when out in the paddock grazing, in stables overnight, as well as during and after training exercise.

### How do Horses Absorb or Generate Heat (Heat Load)?

1. Horses absorb heat directly from the sun's rays, the surrounding hot air and heat reflection from the ground during the hot part of the day in temperatures above 35°C. Ponies, miniatures and foals are likely to absorb more radiated heat from the ground surface, especially bare ground as their legs are short and their body closer to the ground. Locate them in a grassy yard in preference to a bare yard, with shade trees, on a hot day. Avoid working horses on non-grassed riding areas or black rubber cushioned arena surfaces during the heat of the day.
2. Horses generate heat during aerobic exercise. 80% of energy metabolised using oxygen (aerobically) produced in the working muscles, is expended with a by-product of heat. Heat production of 1,400 Kcals per hour can be generated during exercise in a light – medium worked horse, with even higher amounts of up to 2,700 Kcals during a few minutes at the gallop and approaching 7,000 Kcals/hour in an endurance horse. Exercise adds to the heat 'load' on the horse's body. Heat is also generated by friction of the hooves on the working surface which can raise hoof temperatures to 43°C, up to 2°C above body temperature.
3. Horses also generate heat during microbial digestion of fibre in the hindgut, especially when fed high protein or highly fibrous diets. Although this is of benefit to aid body warming during cold weather, it adds to the overall heat load during hot weather and exercise. Water within in the body cells, gut and other tissues contribute 60% of the total body weight of a horse, or about 300kg of total water by weight in a 500kg horse. In the average well hydrated horse, about 60 litres of water is trapped in the fibrous digesting mass in the large bowel (hind gut). It is used as a valuable reserve of water to replenish the blood and body to reduce the risk of dehydration through sweat loss, but also as a 'heat sink' to store excess heat under hot conditions. This allows a horse to dissipate the heat through sweating, radiation and expelling heat in expired air from the respiratory system during and after exercise and when resting.

### How to Determine if Heat Stress is likely to Occur in Your Horse

The sum of the ambient temperature (°C) and the Relative Humidity (RH%) can provide a useful guide to the risk of heat stress for horses being trained or worked under hot, and especially humid, summer conditions.

- If the **sum is less than 100** (e.g. Temp 25°C, RH% 70%), then a horse in a fit condition will be able to sweat efficiently to cool during trotting, cantering and short galloping exercise over a 60 minute period.
- If the **sum is between 100-120** (e.g. Temp 30°C, RH% 75%), then sweat loss will be less effective and a horse may overheat when worked hard or for long periods – limit more intense training work to 30 minutes.
- If the **sum is greater than 120** (e.g. Temp 35°C RH% 90%), then sweat evaporation under humid conditions will be significantly reduced and heat overload is likely – limit exercise to 10-15 minutes at a time, cooling in between work-outs, or preferably postpone training until it is cooler in the early morning or evening.

Therefore, under hot, humid conditions, when the efficiency of sweating, which is the primary means of heat dissipation, is compromised, horses must rely on **heat loss as air flows over the body, increased storage in the hindgut 'heat sink' reserves and blowing off heat or 'panting' to exchange heat from the highly vascular respiratory system.** Horses under humid conditions often develop the 'puffs' or rapid, shallow breathing at rest, and 'blow' hard after exercise, as they attempt to control their muscle, blood and internal body temperature. Horses in heavy condition or those with a thick hair coat retain more heat after exercise. Black horses are likely to absorb and retain more heat from the body surface, compared to lighter coloured horses or those with thin hair coats.

Once the body temperature reaches 41-42°C, symptoms of heat stress can develop, with muscle weakness, incoordination, and in severe cases if prompt cooling is not instigated quickly, a horse may suffer nervous damage, brain overheating and collapse.

### Horses lose heat from their bodies in 3 ways.

#### 1. Sweating and Radiation from the Skin.

Only horses and humans produce sweat. Sweat is a skin secretion of primarily water, salts, some protein and soap-like lathering compounds (saponins). It evaporates off the skin to remove heat from the body, leaving the salts and other residues in the hair. Each litre of sweat as it evaporates, can remove about 200 kcals of heat. A healthy well hydrated horse or pony loses 50-60% of the heat absorbed on a hot day, or produced during exercise, through sweating. During exercise, sweat output can increase to between 5-11 litres per hour, which if not replaced with water to drink, can quickly

lead to dehydration. Horses can also radiate heat from their bodies to aid cooling, but this is reduced when they are moving slowly as they graze out in the hot sun. Ideally, your horse's paddock should have some shade trees, or even a high roof shelter to allow air flow under the hot roof. There should be a 2 metre space between your horse's back and the roof when he is standing in the shelter to allow air flow and reduce roof heat radiating down onto his body. In a stable, 7-8 changes of air volume per hour is necessary to remove odours, ammonia and heat from the stable environment.

## 2. Air Passing Over the Skin (called Convection).

If a horse becomes hot and bothered during exercise, then the animal is at risk of overheating quickly once the airflow over the body stops when you finish working. In this case, walking the horse on a loose lead for 3-5 minutes will help to cool him down. The cooler air will help to remove heat, except on a very hot or humid day when the air temperature is above 35°C in the sun. (Refer to Temp/Relative Humidity Table Guidelines above)

### *Handy Hint 1: Peak or Heat Surge after Exercise.*

If you are riding or working your horse under hot conditions and you then dismount after riding him on a still day, the air flow over his body will stop. His temperature could rise from 40-41°C to 42°C (by 1°C) within 3-5 minutes before he sweats adequately to lose heat. Once you have finished exercising or training your horse for the day, walk him for 3-5 minutes to trigger sweat loss. This will allow the air movement over his body to remove heat from the skin. If he is still saddled, dismount, remove the saddle and tack, fit a head stall and either wash him over with cool water in a bucket with a sponge (called 'strapping'), or lightly hose his body, his underbelly and legs with cool water to wash out sweat and remove heat. (Refer to Handy Hint No. 11 for an explanation regarding hosing the under belly area.) You must then thoroughly scrape the topline, neck, sides and underbelly with a scraper to remove the 'warm' water trapped in his hair coat. This will allow any water retained in his coat to evaporate more efficiently. If the horse remains hot and is panting, take him for a short walk on the lead for 1 minute, then sponge or hose more cool water over his body, then scrape the water off again to assist cooling. If he has a long coat, then you may have to repeat the washing, scraping and walking until he cools down and is comfortable. Apply a light cotton rug if a breeze starts or the evening cools down to below 20°C to help prevent a chill.

## 3. Panting

Your horse will pant to cool if he is very hot and is unable to sweat. Your horse may also start to pant if he is unable to sweat because his body has lost too much fluid (dehydrated). He may also not have an opportunity to drink for 3-4 hours if he has been travelling. If the water tub is located in a hot, sunny area and the water warms up on a hot day, it is likely that your horse will not be attracted to drink enough of the 'warm' water, especially if it has an odour.

### *Handy Hint 2: Provide Air Flow over the Body.*

If your horse or pony is stressed by hot weather on a still day without a breeze, if you sponge him down, scrape him off and walk him (Refer to Handy Hint No. 1), you can help increase the efficiency of cooling him by fanning his body with a saddle blanket or even a branch of a tree to create air movement. Ideally pick a shady spot where the air is cooler. If he is in a wash bay, hose him down, scrape off excess water and then walk him to the aisle in the stable with the end doors open to allow air currents, or tie him up with some dampened hay to eat below chest height (helps to drain his lungs after exercise) and direct an electric fan from a safe distance over his body. This will help to improve heat loss by convection and moisture evaporation from the coat. Ensure that the horse cannot move around and stand on the electric cord, or knock the fan over.

Panting (also referred to as 'blowing' or the 'puffs') helps to expel heat from the lungs. After exercise on a hot day, your horse will offload up to 30% of his retained body heat by panting. (Refer to Handy Hint No. 11). If you notice your horse is standing under a tree during a hot or humid day and is panting, it is a sign that he is absorbing or retaining too much heat. In this case, you should sponge or hose him down with cool water, scrape him off, walk him around (Refer to Handy Hint 1) to assist his cooling. Panting also helps to cool your horse's brain. In all equids, the tubes which connect the throat to the middle ear to help equalise air pressure, have a bulging sac called a 'guttural pouch' which has a thin wall of elastic tissue. When a horse is galloping, up to 200mL of cool air is drawn into each guttural pouch at each breath (120-140 breaths per minute) which balloons to cool the large carotid artery which supplies blood to the brain located just beneath the lining.

### *Handy Hint 3: Carry a Wet Sponge When Riding*

If you are riding your horse on a hot day and you will be away from water in a trough or creek for 30 minutes or more, carry a car wash size sponge saturated with cold water in a plastic bag attached to your saddle. If you decide to dismount and have a rest, you can sponge your horse over his neck, topline, flanks and his under belly with the cool, wet sponge. If you continue riding him within a few minutes, you will not need to scrape him off as the water in the coat will evaporate quickly to cool him once air flow starts again as you ride. If you are not continuing for a while, choose a shady spot, sponge him over and wipe the excess 'warm' water off with your hands to allow him to evaporate the moisture from his coat to aid cooling. Event riders apply cold water to the lower border of the neck (jugular vein), the under belly and inside the front and rear legs where major arteries/veins pass, to assist cooling. Some endurance riders sponge the neck and shoulders of their horses to help cool them as they ride. Take care if you try to sponge your horse when riding.

## Heat Exhaustion

Occasionally a horse can become so over-heated that he becomes uncoordinated, weak or collapses. If you notice these signs, dismount immediately, and if available, apply cold water over his body, as well as his nose and head to help cool his brain. Ideally, walk him into a cool stream or dam and allow water to cover him to above his shoulder joint. Scooping up cool water in your helmet from a dam or trough to wash him down will also help to rapidly cool him down. A wet sponge carried in a plastic bag may be helpful. (Refer Handy Hint 3). Place the sponge of cool water just in front of his nostrils so that he breathes in moist, cool air. This will help to cool his upper respiratory surfaces and throat

and draw the air into his guttural pouches to cool his carotid artery and brain. Recharge the sponge from a trough or creek and repeat washing him down until he stops panting and regains his strength. Then walk him home to help air movement and allow him to cool down. If you notice that your horse is slow to regain his strength or develops colic, contact your vet immediately. If heat collapse occurs after you have finished riding or training, hose his body down with cold water, scraping off every 20-30 seconds and repeating the hosing and scraping off until the animal cools down. Consult your vet for advice.

### *Handy Hint 4: Pre-cool Your Pony Before Riding*

*If you are planning to ride or work your horse or pony under warm conditions, you can pre-cool him before he is exercised. Cover the saddle area with a plastic sheet to keep it dry. Then sponge or hose his body with cool water, then saddle him up and hop on. As he exercises, the water in his coat will evaporate as he warms up and will help to keep him cool for the initial 10-15 minutes of exercise and delay body heat accumulation. Do not ice or apply cold water to his tendons as it will delay them reaching full flexibility.*

### *Handy Hint 5: Keeping Mosquitoes Away at Night.*

*If you have a horse in a paddock or yard during warm summer mornings and evenings, female mosquitoes (the females 'buzz' as they fly) will be attracted to bite him to take blood so that they can breed. Apply a light rug to cover his neck and body. Lightly spray his head, underbelly and tail area with a long lasting insect fly repellent, such as Vetsense Flygon® in the evenings will help to repel the 'mozzies'. If he is in a stable and can't move away from 'mozzies', place an electric fan so that it directs air flow over his body, which will help cool him and reduce the 'mozzie' attack. 'Mozzies' will not land on a horse to bite under 'windy' conditions. 'Mozzies' can carry viruses, including Ross River Virus (RRV), Murray Valley Encephalitis (MVE) and Kunjin virus which can cause neurological conditions, chronic fatigue and death in severe cases.*

## Keeping Your Horse Cool

Always ensure that your horse has plenty of cool, clean water to drink. It is best to provide at least 50 litres of water in a deep tub during hot weather. Although your horse won't drink this volume each day, the larger volume of water in the tub will not heat up significantly during a hot day. Avoid providing water in a shallow trough or tub. Locate the water in a shady spot, as it will encourage your horse to drink adequate water to maintain his body fluids. Even water in a surface pipe to an automatic drinker can become very hot (especially in a black poly pipe) and the horse will not be able to drink cool water. Bury the pipes leading to a waterer or trough at least 300mm underground if possible.

Regularly clean the water trough or tub, especially if it is under a tree where leaves and bird droppings can contaminate the water. You should scrub it at least once a week to remove slime, algae or dirt. Do not locate a water tub under a tree where flying foxes or fruit bats rest, as they can secrete Hendra Virus which could make your horse very sick and endanger your life as well. A new Hendra Vaccination is now available from your vet. Consult your vet for advice if you are in a 'bat' area.

### *Handy Hint 6: Ensure the Water Tub has Smooth Top Edges.*

*If you provide water in a 100 litre plastic tub, often a thick blue drum cut in half which is available from your feed store, ensure that the top edge is smooth and not rough or jagged. Rasp or sand paper the edge to remove any rough or sharp areas. Horses may be tempted to put their front feet into a water tub or water trough and splash themselves to cool off during hot weather. Sharp edges may risk cuts to the pasterns and tendons.*

### *Handy Hint 7: Provide a Salt Mix in his Feed.*

*If your horse is not drinking an adequate volume of water each day (less than 3-5 litres/100kg body weight), and not a larger volume during hot weather, you can encourage him to drink more water by giving him 10g (2 teaspoonsful) per 100kg body weight of plain salt in his feed each day, or if you are working him, a salt mix, such as **Kohnke's Own Cell-Salts™** with an equal amount of plain, fine (table) salt mixed into his hard feed each day. Adequate water intake will help flush his kidneys to maintain good health.*

1. If your horse or pony is dark in colour, has a long shaggy coat, it would be a good idea to have him clipped so that he can lose heat more efficiently by way of sweating and convection. This will help make his life more comfortable.

### *Handy Hint 8: Check for Sand in the Water Tub*

*If your horse is grazing on pasture in an area with sandy soil, or hay in a sandy yard, check the water bucket for sand in the bottom. Horses habitually wash their mouth out as they drink, letting sand precipitate in the water to collect as a layer on the bottom. If you notice more than a 2-3mm layer of sand in the tub or trough when you clean it once a week, then your horse is likely to be taking up sand on the grass. You may need to give him a supplement, such as psyllium husks in rough chaff to remove sand from his large bowel to avoid him developing sand colic. For a fact sheet on Sand Colic, contact Gary at [newsletters@kohnkesown.com](mailto:newsletters@kohnkesown.com) requesting Fact Sheet No. C10.*

**NOTE:** If your horse is elderly, above 18 years of age and has not lost his winter coat by mid-summer time, and is losing weight, then he may have developed a condition called 'Cushings Disease'. The horse may be easily exhausted **when exercised, suffer from sore feet and founder and loss of weight due to a poor appetite**, when he was previously a good eater. Repeated episodes of founder and loss of condition will make your horse lame, tired and listless and you will not be able to ride him out or train him on a daily basis. Consult your vet for advice. This condition is becoming more common in middle-aged horses and you should recognise and start treatment and nutritional management as soon as possible. More information on 'Cushings Disease' can be obtained by emailing Gary at [newsletters@kohnkesown.com](mailto:newsletters@kohnkesown.com) requesting Fact Sheet No. C3.

**Did you know that .....**

Your horse's tendons which run down the back of the legs (called flexor tendons) are very strong and specialised structures. They transfer muscle contraction movement from the upper part of the leg to the fetlock, pastern and hooves. They act like strings of a marionette puppet as there are no muscles below the knee or hock in a horse or pony. They act like a spring to provide elastic suspension to the limbs during exercise, storing energy as they stretch and recoil as the limbs bear weight. They can actually generate heat internally, much the same way as a rubber band warms up if you repeatedly stretch it a few times. During exercise, the body temperature can rise to 40-41°C as heat is produced during energy use. The hooves warm to about 41-42°C as heat is produced by friction on the ground. Tendons can heat to 45-46°C during strenuous exercise, peaking at 5-10 minutes after exercise. Heat retained in tendons after exercise can damage the internal core fibres. It is important to remove any protective wraps or bandages to aid the cooling, hose off the lower limbs and hooves with cold water within a few minutes, or apply an ice pack to the rear of the limbs after exercise to minimise internal damage.

***Handy Hint 9: White Crystals in the Coat***

*Under hot conditions, during and following exercise, your horse will sweat to remove heat to help cooling and avoid overheating. If your horse develops white crystal-like particles on the neck or along the topline, it is a sign that the horse is sweating heavily. If you notice wet patches on these areas after removing the rug each morning, it is likely that your horse is sweating heavily under the rug. In this case, provide a lighter, breathable rug overnight and certainly during the day if your horse needs a sheet to protect its coat. Avoid poly cotton or synthetic rugs.*

## **ANHYDROSIS**

The inability to sweat efficiently can be a major problem in horses housed or worked under hot, tropical conditions.

Horses and humans are the only mammals which secrete sweat from skin glands as a means of evaporative cooling during exercise and hot weather. Sweating is an efficient form of thermoregulation, complemented by radiation, convection and lung cooling during respiration in working horses. The average 500kg horse has around 3.5 square metres of skin surface for the evaporation of sweat. '**Non-Sweating Disease**' or '**Anhydrosis**' is relatively common in the mid coast to north Queensland and Northern Australia (Darwin and the upper Kimberley's)

The condition is most likely to develop under hot tropical conditions or non-seasonal humid conditions where horses have less time to adapt to the elevated humidity. It does not develop under hot, dry conditions, so that increased humidity appears to be a trigger factor. Horses under the stress of training and competition under these conditions can progressively lose their ability to sweat, developing into a more severe form of non-sweating disease or anhydrosis (spelt anhidrosis in USA). Anhydrosis is a similar non-sweating condition which can affect humans under hot conditions.

The number, size and secretion rate of sweat glands decrease as the condition develops. Some horses develop a partial degree of anhydrosis to become 'shy sweaters', noticed as patchy sweating on the lower neck, shoulders and flanks as sweat glands become inactive, whilst more severe cases cease to sweat and lose their primary cooling mechanism. In severe cases, the sweat glands shrink (atrophy), become inactive and never reactivate to resume sweat secretion. Some horses sweat under cooler winter conditions, but begin to sweat less as the heat and humidity of summer in Queensland and Northern Australia increases. **As humidity increases, the amount of sweat produced does not increase, but its evaporation rate from the skin is decreased, retaining more heat.**

If your horse has symptoms of Anhydrosis, email Gary at [newsletters@kohnkesown.com](mailto:newsletters@kohnkesown.com) and request Fact Sheet No. C8.

## **Other Management Aids During Hot Weather**

1. If a very hot or humid day is forecast, plan to work your horse as early as possible in the morning when the cool morning air will help sweat and heat loss. If the ambient air temperature is below 30°C, it will take 1-2 hours to completely cool out your horse after exercise. Try to complete training by 9 am, wash to cool your horse and let him out to a shaded paddock area during the hot part of the day. If you work your horse in the evening on a hot day, even the early evening

ambient temperature will be higher than early-mid morning temperatures, and it may take 4 or more hours for your horse to completely cool out.

2. If your horse is obviously very uncomfortable on a hot day in a paddock, yard or stable, and is sweating heavily to cool, then bring him in and hose, scrape and walk him in a shady place a couple of times a day during the hottest part of the day.
3. Where you have a horse with a dark coloured coat, put a loose fitting white, light weight cotton or 'flag' material cover sheet on during the hot days, as it will reflect the heat and help insulate his skin with a layer of air under the sheet and allow warm air to escape from under a loose fitting sheet.
4. Where a horse is confined to a stable overnight, install a variable speed ceiling fan to help move air over his body. Insulate the roof and install at least one 'whirly-bird' hot air extractor at the highest point in the roof for each 150 cubic metres of stable air space, calculated by multiplying length x width x height to roof in metres.
5. In extremely hot, still, humid conditions, hose or sponge him down, scrape off and then apply a cold wet beach towel or a strip of hessian bag covered with 3-5 cm of crushed ice tightly around the underbelly area for 3-5 minutes. Wrap it around his belly like a sling and hold the top edges together by your hands or large 'bull dog' paper clips, especially after exercise. This will help to rapidly remove heat from the belly 'heat sink', assist heart rate recovery and shorten the time of hard panting or blowing after exercise. Repeat cold water applications, scraping and walking your horse to further cool him out. This technique is used by some endurance riders if their horses have a slow return of heart rate at a check point or hold point under hot conditions.
6. **During exercise under hot conditions, give the horse regular cool down periods at the walk to reduce overall heat accumulation. If possible, sponge his body down with cool water (Refer to Handy Hint No. 3).**
7. A wet hessian strip 2 metres long x 600 mm wide (e.g. an old hessian chaff bag cut down the sides and opened out to form a long strip) can be used as a "cooling wick" during the hot part of the day. Saturate the hessian in cold water and spread it along the backline while your horse is standing feeding in a stable breezeway, under the shade of a tree or in front of a fan. This will help evaporate heat from the body to assist cooling. Repeat 2-3 times a day, but ensure the skin along the topline does not become too soft, as invasion by fungal microbes can lead to a "rain scald" type condition.

#### ***Handy Hint 10: Provide Hydration Fluid after Training/Travelling***

*Studies have shown that horses prefer to drink cool (not cold) water from the 'hose end' or preferably luke-warm water after exercise. Many riders condition horses to drink molasses water or weak rehydration fluids after exercise each day. One cheap and highly effective way of rehydrating a horse after daily exercise, travelling or after a competition, is to provide 5 litres of luke-warm water (e.g. add hot water from a thermos to cold water) containing 50g (2½ tablespoonsful of plain fine table salt (it dissolves quickly) and 50g glucose or dextrose (glucose assists sodium uptake from the small intestine) to ensure its palatability. A horse can be conditioned to drink the warm, salty water after each training session by offering it in the wash bay in a small tub or bowl/dish. After a couple of days, he will begin to drink the fluid and once 'hooked', it is an easy, effective way of rehydrating a horse within 5-10 minutes after training or travelling, or following a competition before the return trip to home stables. After the warm, salty drink, offer him cool water to drink to further aid rehydration.*

### **Feeding in Hot Weather**

Some minor feeding adjustments are useful during the summer months to help a horse perform better and to avoid heat stress and fatigue. **A horse which is in heavy condition or one that is nervy or excitable, or worked over long distances, is more likely to be affected by hot weather. A heavily sweating horse is also prone to electrolyte loss and dehydration which could hamper its performance.**

The ration can be modified to reduce the amount of 'waste' heat produced in the hindgut during the fermentation and digestive processes. Hay and fibrous foods, such as oats and wheat bran, produce more wasteful heat during hindgut digestion compared to dense carbohydrate feeds such as corn and barley, and least of all, fats. The fermentation process in the large bowel which digests roughage, fibrous foods, and excess protein is heat producing, which can be useful to keep a horse warm in cold weather. In a working horse, extra digestive heat increases the "heat load" which needs to be lost during hot weather and immediately after exercise. Excess protein in protein meals or lucerne/clover hay can generate 6 times more heat compared to equal weights of carbohydrates or fibre as it is digested in the hindgut by microbes. It is a helpful to limit lucerne hay and chaff combined to a maximum of 3kg per day combined and make-up the roughage requirement with good quality cereal, meadow or grass hay to help reduce heat waste during hindgut digestion. If a horse is in heavy condition, it may be at risk of an increase in the level of soluble sugars and non-structural carbohydrates (NSCs), which in turn may trigger an insulin hormone spike in the blood and result in laminitis. The hay should be soaked in luke-warm water in a large tub containing double the volume of water compared to the hay, for 60 minutes, to help leach out the dangerous soluble sugars to help minimise the insulin response in an insulin resistant horse or pony. The wet hay can be air dried for a few minutes and then fed to provide an additional source of fluid.

More information on **Feeding Horses during Hot Weather** can be obtained by emailing Gary at [newsletters@kohnkesown.com](mailto:newsletters@kohnkesown.com) requesting Fact Sheet No. N4.

More information on the management of Equine Metabolic Syndrome (EMS) can be obtained by emailing Gary at [newsletters@kohnkesown.com](mailto:newsletters@kohnkesown.com) requesting Fact Sheet No. C17.



Accumulated heat can cause elevated heart and respiratory rates as the body temperature is increased exercise. The animal may pant forcibly after exercise for up to 10 minutes to lose heat. In turn, this leads to higher sweat loss and increased risk of dehydration, body salt depletion and overall heat stress in a working horse.

### Additional Management Guidelines After Exercise In Hot Weather

1. Remove all gear, particularly heavily padded bandages from the limbs, to allow the tendons to lose heat accumulated during exercise. Wash, sponge or hose down a hot horse after exercise with cold water to quickly cool down the body. Applying an ice pack to the lower limbs after exercise will help to cool the tendons more efficiently. Avoid applying a 'mud' poultice until the limbs and tendons cool down as a thick mud poultice may restrict heat loss during the cool out period.

#### *Handy Hint 11: Hosing the Underbelly to Remove Heat after Exercise*

Recent studies suggest that cold water hosing directed under the belly for 30 – 60 seconds during the 'cool down' from exercise accelerates heat loss from the heat transferred (dumped) into the water reserves ('hindgut heat sink') in the hindgut contents after exercise. Scrape off the warm water between walking and re-hosing. It can facilitate cooling out and recovery and limits panting in horses working under hot conditions. Walk the horse for 1 minute to redistribute the blood heat to the gut, then hose off under the belly again for 30-60 seconds to complete 'cooling out'. If the horse is very hot and distressed, it is a good idea to repeat the underbelly hosing, scraping off and walking **routine** a few times to assist cooling.

2. Allow cool-out before travelling. It is important that a hot horse is cooled out for at least 10-15 minutes before travelling. Confinement in a trailer, particularly with another recently exercised horse, can increase the amount of heat trapped within the trailer space and promote extra sweat loss. It may lead to heat stress when travelling on a hot day. Ensure adequate airflow through roof and side vents when travelling.

#### Did you know that:-


The severity of dehydration is classified into mild, moderate and severe, relative to the degree of fluid loss.

Degree of Severity	Total Protein Reading	Skin	Belly	Mouth Membranes
<b>Normal Hydration</b>	60 – 64 g/L PCV 0.34 – 0.40	Elastic, soft, flexible	Let down normally.	Moist and pink
<b>Mild Dehydration</b> (up to 4% fluid loss)	65 – 67 g/L PCV 0.40 – 0.45	Dull coat, slight loss of skin elasticity	Slight tucking up.	Darker and less moist
<b>Moderate Dehydration</b> (up to 5-6% fluid loss)	70 – 76 g/L PCV 0.46 – 0.50	Dull, dry coat, slow skin pinch test 2 secs	Obvious tucking up 25-35 kg bodyweight loss.	Darker, dry and sticky
<b>Severe Dehydration</b> (above 7% fluid loss, lack of water, severe diarrhoea & fever.	Above 76 g/L PCV above 0.50 Very serious condition.	Dull skin, skin pinch >3 secs	Tucked up severely, 35-50 kg body weight loss.	Very dark, sticky and slow capillary refill. Immediate veterinary attention and iv fluids necessary to save a horse's life.

#### *Handy Hint 12: Assisting Heart Rate Recovery under Hot Conditions*

If you are working and competing your horse, if he becomes over heated due to dehydration or intense exercise effort such as eventing or endurance riding under hot conditions, then his heart rate recovery will be delayed until he can off load heat by sweating, strapping or panting. Cooling him down efficiently by 'strapping' with a sponge and cool water, hosing him down, or applying ice on a bag 'sling' under his belly area, will all help to hasten heart rate recovery to avoid him being vetted out.

**Disclaimer:** The information and recommendations in this information sheet have been presented as a guideline based on the veterinary experience and knowledge of the author, Dr John Kohnke BVSc RDA. Whilst all care, diligence and years of practical experience have been combined to produce this information, the author/editor, Dr John Kohnke, accepts no responsibility or liability for unforeseen consequences resulting from the hints and advice given in this information sheet.

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**NOTE:** Equestrian Australia has published policy directives which provide guidelines on cooling measures for horses exercising under hot conditions. This information supplements the more general information contained in this summer heat discussion sheet. Readers and event organisers are urged to read these guidelines when working or competing horses on a hot day.