Anhydrosis – Drycoat Syndrome
Puffs – Non sweating disorder

The skin is the major organ of the body and it has a multitude of tasks. One of these tasks is to regulate the horse's body temperature. This is achieved by the skin through sweating when the horse's body temperature is too high.

The sweat glands are densely packed in the skin – averaging 800 glands/cm^{2}. They are a tubular coiled gland that exits the skin at the hair follicle. They have a rich blood supply and are surrounded by nervous tissue. They appear to be stimulated by both the nervous system and hormones in the blood stream.

Horses are unique in that their sweat (and saliva) contain latherin – a soap like protein that reduces surface tension and spreads sweat easily over the coat. The cooling effect comes from the evaporation of sweat. It is the latherin that causes the white foam seen on some horse's coats when sweating.

Horses can lose up to twenty litres of sweat per hour and can lose 4 -30 kg of body weight when exercising. Electrolytes are secreted in the sweat and consist of sodium, potassium, magnesium, calcium, chlorides, sulphates, phosphates and bicarbonates. They lose three times more sodium than people and ten times more potassium.

When a horse exercises it produces heat in the muscles which is absorbed by the blood stream. As the blood circulates through the lungs some of the heat is lost as the horse exhales. As the blood circulates in the skin it loses heat by radiating it out. If the core temperature continues to rise the hypothalamus in the brain sends hormones to the sweat glands to tell them to produce sweat.

What causes horses to overheat?

- Hot and humid weather is a major stressor for horses as the humidity effectively prevents evaporation of sweat.
- Overworked unfit horses will sweat profusely.
- Nervous and agitated horses will also sweat profusely as their core temperature increases.
- Dehydrated horses can overheat because they cannot sweat adequately to lower body temperature.
- Inappropriate rugging of horses in hot weather
- Horses unable to access shade and cool water will also overheat.

What is anhydrosis?

Anhydrosis is the partial or complete inability to sweat in response to high body temperature. It can also spontaneously reverse.

What causes anhydrosis?

It can occur in any breed at any age and can occur overnight. The exact cause is unknown but chronic or acute lack of electrolytes can trigger anhydrosis. The sodium and potassium losses associated with sweating actually cause a decrease in thirst and appetite which leads to further dehydration.

It is also thought that constant and continuous stimulation of sweat glands, especially in very hot weather, may cause them to shut down.

What are the signs of anhydrosis?

There is very little, patchy or no sweat present after work or on hot humid days. They have a higher than normal body temperature and an elevated pulse. Recovery is slow after exercise and they may appear distressed. Puffing is a response of the body in trying to compensate for the lack of sweating. Their coat may appear flaky and dandruffy if they have had the condition for some time.

How to manage anhydrotic horses.

- Hose with cool water before and after exercise.
- Keep hosing and scraping water until the respiratory rate returns to normal.
- Only exercise in the cool of the morning or late evening.
- Keep susceptible horses in stables with fans, cool water mists and regular sponging down.
- Very cool drinking water will help lower core temperature faster than warm water.
- Allow paddocked horses access to dams or creeks to stand in.
- Only rug if absolutely necessary and use white 100% cotton rugs.
- If a particular horse is absolutely non-adaptive to a hot humid environment then it would be in the horse's best interests to relocate to a more temperate climate.
- Supplement with a complete mineral and vitamin product such as Equilibrium or LexveT to supply all the minerals needed for sweating.

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