

# 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 approximately 800 glands per square centimetre. 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 nervous stimulation and hormones in the blood stream.

Horses are somewhat unique in that their sweat (and also saliva) contains latherin – a soap like protein that helps reduce surface tension which then spreads the sweat more easily over the coat. The cooling effect comes from the evaporation of the water in the sweat. It is the latherin that causes the foam seen on the horse's coat when sweating.

Horses can lose up to 15 litres of fluid in sweat per hour and can lose between 4 -30 kg of body weight when exercising. Electrolytes are also 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 pump out sweat.

### What causes horses to potentially overheat?

Hot and humid weather is a major stressor for horses as the humidity effectively prevents evaporation of sweat.

Unfit horses being overworked 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 and 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 not known 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 the sweat gland especially in very hot and humid climates will lead to exhaustion of the sweat gland receptors and they stop responding.

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There is also suspicion that there could be underlying hormonal or metabolic problems that compromise the ability to sweat properly.

### 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 copious amounts of 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 later in the 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 only 100% white 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.

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