

Heat Stroke

Hyperthermia is defined as an increase in body temperature above the normal range of body temperatures. For dogs and cats, this is generally temperatures above 39°C. Hyperthermia can be classified as fever and non-fever hyperthermia. Fever hyperthermia occurs when there is either infection or inflammation in the body, leading to a rise in the core body temperature. Non-fever hyperthermia describes all other causes of increased body temperature. Heat stroke is a form of non-fever hyperthermia. It occurs when the heat-dissipating mechanisms of the body cannot cope with excessive heat. Heat stroke can be extremely serious or fatal and in severe cases can lead to multiple organ dysfunction.

Heat stroke may occur in any breed of dog. Long haired animals can be at slightly increased risk. Dogs with a 'brachycephalic' conformation (short-nose and flat face), such as pugs and bulldogs are at increased risk. In the clinical setting, pugs seem to definitely be the breed that presents with heat stroke most often. Very young dogs that tend to over-exert themselves during exercise or very old dogs with pre-existing illness seem to also be over-represented. Obesity can also increase the risk of a dog developing heat stroke.

Most of the cases of heat stroke present to the veterinary on extremely hot days (ie ambient temperature 35°C or above). Other possible cases can occur after dogs are locked in a car or other small area without adequate ventilation, if they do excessive exercise or have restricted access to water. There are certain underlying diseases that can increase the risk of heat stroke developing. In most cases these will be respiratory diseases such as laryngeal paralysis or heart disease. The most common symptoms of heat stroke include panting, excessive drooling, increase body temperature, very red gums, rapid heart rate, irregular heart beat, shock, breathing distress, vomiting or diarrhoea with blood present, altered demeanour, seizures, muscle tremors, wobbly gait, unconsciousness or production of little or no urine. In severe cases, these symptoms may then progress to respiratory or cardiopulmonary arrest (death).

A dog suffering from heat stroke should be immediately cooled by use of water and fans, and they should be transported to a vet as soon as possible. Cooling with ice should be avoided. Care should be taken not to overly cool a patient because in severe cases they may lose their ability to control their own body temperature and become too cold. Treatment at the vet clinic is generally symptomatic, but will usually include active cooling and intravenous fluids.

Unfortunately in severe cases some dogs can go on to develop severe complications. These may include irregular heart beats (arrhythmias), coma, kidney failure, multi-organ failure, blood clotting disorders and build up of fluid in the lungs. In the clinical setting, we see multiple dogs every year with heat stroke. Most are young dogs that have been exercised on very hot days. The majority of dogs I've seen have been successfully treated and have made a full recovery without complications. However I've also seen a few that have been dead on arrival at the clinic, and others that have gone on to develop serious complications that have resulted in death or euthanasia. In the case of heat stroke, prevention is far better than cure and I cannot stress enough how important it is to avoid heavy exercise on hot days, especially in the case of short-nosed dogs.

Dr Emma Robb BVCs Beach Street Veterinary Clinic.