



Heat Stroke in Canines

Heat Stroke/Heat Prostration - Terms & Definitions

- Fever: a regulated increase in body temperature secondary to inflammation or infection
- Hyperthermia: literally means “high temperature”, regardless of cause
 - This is normal during exertion in a hot environment, but becomes unsafe when the body’s core temperature rises above appx.104°
- **Heat Stress:** sometimes used as a term to define the early stages leading to heat stroke.
- **Heat stroke:** Occurs when the heat load on the animal’s body greatly exceeds the capacity of the panting mechanism to dissipate heat
 - Core temps approaching 108° are critical and result in central nervous system dysfunction and multiple organ dysfunction

Heat Stroke - Predisposing Factors... Environmental

- High external temperatures, though it can occur even in more mild temperature environments, e.g. 70-80° days
- High humidity
- Lack of ventilation - think cars
- Limited shade or water exposure to help dog cool down

Heat Stroke - Predisposing Factors... Dog-related

- Dogs often have a lack of awareness about regulating their own activity
- Dehydration
- Obesity
- Upper airway conditions - brachycephalic/“flat-nosed” breeds (e.g. pug, boxer, pekingese); laryngeal paresis/paralysis (constricted opening of airway)
- Long coats
- Age factors

- Poor conditioning - reduces the dog's ability to dissipate heat
- Overexertion, too little rest/cool-down time
- Some breeds are more predisposed, though this is often related to brachycephaly and coats

Impending Heat Stroke... the early phase (heat stress)

- Rectal temperature in or approaching the 103-105° range
- Increased thirst
- Shade-seeking
- Excessive panting
- Reddening gums
- Weakness
- Decrease in urine output

Early Phase Management

- Stop activity
- Find shade
- Encourage drinking
- Let them cool in stream or lake
- Wet them down with water, especially underside, armpits, groin

Heat Stroke (temp. over 105°) - Clinical Signs

- *Excessive panting
- *Excessive salivation
- *Hyperemic (reddened) gums
- Core body temperature over 105° - rectal temperature needed to confirm
- Rapid heart rate/beats per minute - can easily check femoral pulses or listen to heart (your ear against dog's chest)
 - Normal **resting HR** is 60-90 (larger dogs) and 90-120 (smaller dogs)
 - Be concerned with large dog HR >100, small dog HR > 140 (when rested)
- Respiratory distress
- Vomiting +/- Diarrhea, especially bloody
- Dull mentation
- Staggering, tremors, collapse, seizures

Heat Stroke - Field Treatment

- Early recognition is important --> stop activity, find shade, offer water (If near a vehicle --> air conditioning)
- Spray or wet down with cool or room temperature water or apply wet towels, especially to underside hairless regions, axillae ("armpits"), groin
- Apply isopropyl alcohol (like in hand cleansers) onto skin of groin, belly, armpits, bottoms of pads... less haired regions
- Fan convection... wave towels to cool them off

- **Don't dunk in cold lake/stream at this point.** We don't want peripheral vessels to constrict down when we need them to lose heat
- Stop cooling when core temp hits 103° to avoid rebound hypothermia
- If concerns of heat stroke in the field, even if field cooling seemed to resolve the issue, it's best to get dog back to the car and to the vet for additional monitoring and testing for any signs of organ damage

Heat Stroke - Veterinary Treatment options

- Treatment involves early intervention + continued monitoring and intensive supportive treatment.
- Temperature monitoring
- IV fluids
- Bloodwork to monitor for any organ damage (kidneys, liver)
- Monitor for neurological signs (poorer prognosis)
- Clotting times
- Respiratory support (O2) if needed
- Directed meds... i.e. treatment aimed at specific compromised systems

Heat Stroke - Prevention

- The core temperature (above 104°) rise must be curtailed before it rises so high it starts causing life-threatening harm
- Don't leave dogs in vehicles on hot days. Just don't.
- Avoid excess work on hot, reflective surfaces
- Condition dogs to exertion, and avoid overworking overweight/obese dogs
- Beware taking brachycephalic dogs or winter dog breeds winter dog breeds hiking, especially in warmer weather or warmer periods of the day
- Provide water frequently to maintain hydration
- Let dog cool self down in streams, lakes
- Restrict activity in the heat
- Lots of rest time, shaded areas
- Monitor temp closely

Heat Stroke - Prognosis

- Prognosis for heat stroke is guarded, with a survival rate as low as 50% in some reports
- One episode of heat stroke may predispose to others due to damage to the temperature regulation center in the brain
- **Prevent, Prevent, Prevent!**

Jeff Dahl, DVM
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