

HEATSTROKE

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Heatstroke occurs when the body's normal compensatory mechanisms are overcome. Dogs are inefficient at cooling because they don't sweat — they can only cool themselves by panting. Certain conditions such as brachycephalic faces and laryngeal paralysis can predispose dogs to heatstroke. The dog's normal responses to increased temperature are panting and dilated blood capillaries at the skin's surface. That increase of blood flow close to the skin's surface permits more heat to escape from the blood into the air. Interestingly when the dog has a fever of 105 or 106 F, the physiologic processes aren't as affected because in a fever the hypothalamus in the brain re-sets the body's "normal" temp to a higher set point. This is also why mammals shiver when they have a fever — the body is working hard to maintain the new higher "normal" temp. Heatstroke is different because the normal body temperature hasn't been re-set.

How can heatstroke happen to dogs that belong to smart owners like us?

- Dogs left in car
- Crated dog left near heat vent
- Local weather changes
- Travel related weather changes
- Unexpected shutoff of A/C at home or in motor home
- Dark coated dogs in the sun absorb more heat than light coated dogs

Early signs of heat exhaustion:

- Heavy panting
- Bright red gums/tongue (and ears in Frenchies with pink ear linings). The gum should show rapid capillary refill; that is when you draw your fingernail along it the gum should whiten, but then quickly turn red again.
- Increased salivation early (often thick, ropy saliva), then no salivation
- Weakness
- Confusion / lack of attention
- Possibly vomiting / diarrhea

Severe heat stroke signs:

- Rapid heartbeat / pulse (practice finding this on your dog under normal conditions and make a note of its normal heartrate)
- Vomiting blood (indicates dog is going into toxic shock)
- Bloody diarrhea “ “ “ “ “ “ “
- Severe ataxia (staggering)
- Coma
- Gums may turn greyish, blueish, lavender.

So I see a dog in distress; what should I do?

- Move dog to shade/cooler place immediately
- Take temperature rectally. You should know your dog's normal heartrate as it can vary from about 100 to 102.5, with an average of 101.5 F
- Mist dog heavily with tepid water to cool (BUT NOT COLD) water and turn a fan on it. If no electric fan is available, fan it yourself. The aim is to move air over the dog's body so as to cause the water to evaporate and "pull" heat with it (evaporative cooling).
- **DO NOT PLUNGE DOG INTO ICE OR ICE WATER!!!!!!!!!!** The capillaries at the surface of the skin, which are desperately trying to transfer heat from blood to environment, will constrict in response to the cold, thus slowing heat loss and possibly even raising the dog's core temperature. Even tepid water is much cooler than the dog's body temp. The most important need is to get the air circulating. How much cooler do you feel when it is hot and humid but there is a light breeze, versus hot and humid and no breeze? Do **NOT** lay wet towels on the dog. These warm up rapidly and can actually trap the heat. **Air movement past the dog's damp skin is the key!**
- Don't use large amounts of alcohol for cooling as it can be absorbed through the skin and reach toxic levels.

Continue to monitor the dog's rectal temperature and stop cooling efforts when it gets down to 103 F. At that point you can dry the dog off and move the fans back a bit, as you don't want its temp to drop too far too fast. If the dog is alert it is ok to offer a little cool (NOT ICY) water. Continue taking the rectal temp for awhile to make sure the temp continues to fall. Should it start to rise again, re-mist and fan some more.

If the dog was in actual heatstroke — not just the early stages of heat exhaustion — it is vital to get him/her to a veterinary clinic where he/she can be monitored around the clock for two or three days. That's because when the body temp goes above 106 F, the cells actually "cook" — normal body processes quit, cellular proteins denature (fall apart), and a cascade of changes occurs which can lead to liver and/or kidney failure cerebral edema (swelling of the brain), and DIC (disseminated intravascular coagulation). DIC refers to a clotting process that has spiraled out of control. Microscopic blood clots form in all the capillaries throughout the body incredibly quickly — so fast that the body's clotting factors are all used up. This then leads to internal hemorrhaging and death. Most dogs who survive heatstroke require round the clock monitoring by a vet for a few days to make sure liver and kidney function return to normal.

If you are able to get a dog in heatstroke to the vet quickly enough, treatment will mostly be supportive: close monitoring, IV fluids, measurement of fluid intake/output, temperature monitoring, steroids.

Dogs who have suffered from severe heatstroke are at increased risk of episodes for the rest of their lives due to damage to the thermoregulatory center in the brain. So remember;

PREVENTION IS BETTER THAN TREATMENT!