

HOW TO KEEP YOUR DOG SAFE AND HAPPY IN HOT AND HUMID WEATHER

Kari Tilson

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Introduction.

Being a dog owner and living in the very Southern part of Florida, where the temperature generally is ranging between 70-100 degrees F and where the humidity is high throughout the entire year, you are bound to ask yourself a few questions when it comes to dogs and heat; How to keep your dog comfortable? How much physical activity can your dog take in the heat? What should you take into consideration when you walk your dog in hot climates? How can you keep your dog cool when it is burning hot outside? How important is fluid? In short: How can you take the best possible care of your dog in this kind of hot and humid climate?

The dog's anatomy.

On both humans and dogs **the skin** is the largest organ of the body. The skin consist of 3 major layers: the *epidermis* (the outermost layer), the *dermis* (the middle layer) and the *subcutis* (the innermost layer). Other important parts of the skin include *skin appendages*, such as hair and claws, and subcutaneous fat and muscles.

The **epidermis** (= stratified squamous epithelium; a many-celled tissue with horny, flat, overlapping surface cells), is the outer part of the skin and provides a *protective barrier* to the outside world by blocking against intruders, such as viruses, bacteria, larger parasites, and physical and chemical agents. The skin is also a highly important *sensory organ* and is covered with sensory nerves, with nerve endings in the **dermis** (= dense, fibrous connective tissue). These provide constant information about temperature, touch, pressure, pain, tension and different kinds of irritants. There are also immune cells in the dermis, which help to defend against infectious agents that pass through the epidermis. Another function of the skin *is regulating the body temperature*. Hair follicles, claws, oil and sweat glands grow out of the epidermis and dermis. The hair coat protects the skin from physical and ultraviolet light damage, and helps regulate the body temperature. The warm-weather coat has shorter, thicker hairs and fewer secondary hairs ("undercoat"), and this allows air to move easily through the coat, which facilitate cooling. The **subcutis** (= or hypodermis; loose connective tissue) contains subcutaneous fat and muscles and provides insulations, a reservoir for fluids, electrolytes and energy, and works as a shock absorber and protects the skin from excessive pressure.

While humans - and horses – sweat through their skin to cool off and lower their body temperature, dogs function in a different way. Dogs have very few sweat glands (= apocrine tubular glands), and most of them are in the footpads. The dog's sweat glands produce only a scant, thick secretion that does not wet the skin. Dogs cool their body off primarily by panting and breathing. When the mouth is open, the air is flowing back and forth over the saliva-moistened surface of the tongue and mouth cavity, and in this way the blood in the superficial vessels is cooled off. Dogs also dissipate heat by expanding (= vasodilating) blood vessels. The dilated blood vessels help cool the dogs blood by bringing the hot blood closer to the surface of the skin, allowing it to cool before returning to the heart. On the other hand, if it is cold, the blood vessels in the dermis

and subcutis will contract to reduce the blood volume near the surface, and in this way conserve body heat.

The danger of Heat Exhaustion and Heat Stroke.

Since it is difficult for a dog to get rid of excessive heat on a warm day, or when exercising, it is important to always monitor your dog carefully and be aware of these signs of overheating, fatigue and heat stroke:

Excessive panting or difficulty breathing

Red-colored gums

Thick ropey saliva in the mouth

Warm to the touch, with red, “flushed” skin (near the ears, muzzle, underbelly)

Dragging behind

Dry gums that are sticky to touch

Vomiting

Acting wobbly or walking drunk

Collapse

Elevated heart rate

Seizures or tremors

Dark, concentrated urine

Bloody or black, tarry diarrhea

Sweating or moisture from the paws (Even if this is rather uncommon)

If you should notice any of the above mentioned symptoms, you should immediately stop the physical activity, get your dog in the shade and cool him down. If you have a bottle of water, pour it over your dog’s head, and get him to a veterinarian as soon as possible.

A dog’s normal body temperature is between 100,5 to 102.5 degrees F. In veterinary medicine heat stroke is defined as a body temperature above 103 degrees F (39 degrees C). If the dog’s temperature rises to 105 or 106 degrees F, he may suffer heat exhaustions. The higher the body temperature, the more life-threatening it is to your dog. Heat stroke can lead to brain and organ damage, and even death, and as the core temperature approaches over 106 degrees F (41 degrees C), the sooner and more likely death can occur. Be especially aware if you have a dog breed that is at risk for heat stroke or has medical problems that is affecting the ability to breath well. These dogs are for example: dogs with flat faces (Shih-Tzus, Pekingese, English Bulldogs, Bowers, Pugs, Bullmastiffs, etc.), dogs with laryngeal paralysis (an abnormality of their voice box cartilage), dogs that have already had a previous stroke, dogs with dark coat, obese dogs, and dogs with heart and lung disease.

There are cooling products on the market that can help your dog to cool off in the heat, such as various gel dog beds, cooling vests, or a wet bandana/scarf to hang around your dog’s neck. Also, try to find shade for him when he is outside or when you walk him, and be aware that asphalt is warmer than grass, and that even sand can become painfully hot to walk on for your dog, and can even hurt his paws. Let him cool off in water, give him frequent breaks and give him plenty of fresh water to drink.

In order to prevent your dog from suffering a heat stroke or from heat exhaustion, you should always keep the following advises in mind:

Don’t leave your dog unattended in a car – even with the windows cracked

Don't exercise your dog in excessive heat and humidity. Even a sunny day at 80-85 degrees F is too hot. If the humidity + temperature added together is higher than 150, it is too hot!

Don't leave your dog outdoor in the sweltering heat without shade, shelter or plenty of water.

The difference between outside temperatures and temperatures inside a car.

In addition to various local laws, Florida as a state has animal cruelty laws stating that a person may be charged with animal cruelty if an animal is deprived of life-sustaining water and shelter. In other words, leaving a dog unattended in a hot car – where the dog is both deprived of necessary water, and cool and sufficient shelter - could easily result in an animal cruelty charge under state law. (Ref. www.leagalbeagle.com/76154)

As dog owners, we all know how tempting it is to leave our dog *just for a few minutes in the car, while we run a very quick errand*. Well, as already mentioned, in the State of Florida you can be punished for it. Second, and even more important, it takes very low outside temperatures and very short time for a car to warm up and become unbearably and dangerously hot. If your dog is left in the car, this can cause irreversible brain, organ and neurological damage to him, and in worst case even lead to death. So take the dog with you, or leave him at home, where he will be cool and safe till you get home. The temperature inside your car can rise almost 20 degrees F in just 10 minutes, and after 60 minutes the temperature in your car can be more than 40 degrees higher than the outside temperature. This means that even on a 70-degree day, it can be 110 degrees inside your vehicle. According to several studies (two of them performed by the Louisiana Office of Public Health and by Stanford University School of Medicine), cracking the windows do not help and will not make a difference (Ref. www.avma.org/public/PetCare and www.accuweather.com).

Since 2016 it is now legal in Florida for a civil citizen to break into a car to save pets or people believed to be in danger of harm or suffocation. This is especially relevant when the vehicle is sitting under a hot Florida sun, and when the increase in temperature inside the vehicle can cause serious consequences. On March 8 2016, Gov. Rick Scott signed a state law House Bill 131, which “creates immunity from civil liability for property damage that may occur when an individual attempts to rescue a minor, elderly or disabled adult, or domestic animal from a motor vehicle.” However, if you see a situation like this, you should first:

Check if the door is locked, to see if the dog or human have a chance to get out without breaking into the vehicle

There should be a reasonable belief that the dog or human is in “imminent danger of suffering harm”

Call 911 or other law enforcement agency before or immediately after breaking into the vehicle

Remain by the vehicle with the animal or human in a safe nearby location, until authorities arrive.

(Ref. www.petcha.com/florida-passes-law-allows-citizens-to-break-into-cars-to-free-domestic-animals-trending/)

The following Table shows how outside temperatures differ from the temperatures inside a car:

Estimated Vehicle Interior Air Temperature v. Elapsed Time

<u>Elapsed time:</u>	<u>Outside Air Temperature (F):</u>					
	70	75	80	85	90	95
10 minutes	89	94	99	104	109	114
20 minutes	99	104	109	114	119	124
30 minutes	104	109	114	119	124	129
40 minutes	108	113	118	123	128	133
50 minutes	111	116	121	126	131	136
60 minutes (1 hour)	113	118	123	128	133	138
Over 1 hour	115	120	125	130	135	140

(Ref. www.avma.org/public/PetCare : Courtesy Jan Null, CCM; Department of Geosciences, San Francisco State University)

So what can we do to protect our dogs in warm and humid weather? I contacted one of our local **Veterinarians, Dr. Ronit Berdugo, DVM, CVA, of “Island Paws of Key West”**, to get some answers to my many questions.

Q: What would you say is a comfortable temperature for a dog?

A: *“I would say air conditioned 78 degrees or less. And dry air is more comfortable for them than humid conditions.”*

Q: When they say a dog get rid of excessive heat mainly by panting, but also by vasodilating (expanding) blood vessels, are the blood vessels all over the skin, or mainly in the face and by the ears?

A: *“They also cool themselves and get rid of heat along their groins, under their arms, and foot pads and between their toes.”*

Q: When it is hot outside, or even just warm and sunny, what do we have to be aware of when we walk our dogs? A: *“With hot and sunny conditions, be aware if white light colored breeds. They are at risk for developing skin cancer. Their eyes are just as sensitive to sun exposure.”*

Q: What time of the day should we walk our dog, when we know it is going to be a warm day? A: *“Definitely walk dogs in the early morning or evening hours, to decrease sun exposure.”*

Q: What about the asphalt? Can the heat from the asphalt hurt or be damaging to the dog’s paws? A: *“Hot asphalt can definitely burn foot pads. I have seen this happen many times in my career. The thick skin peels off, leaving painful raw underlying tissue.”*

Q: How far should we walk, and how intense can the physical activity be for a dog, when it is warm outside? A: *“How far and how physical you can exercise your dog on a hot day, depends on many things. For example, in brachycephalic breeds (pugs, bulldogs, and others), they can overheat more easily since it is harder for them to breath*

efficiently. A young, well conditioned Labrador can exercise harder and longer than an older Schitzu, for instance. I think it is most safe to exercise a dog, where there is ample shade, and opportunities to take breaks."

Q: If it simply is too hot outside to walk your dog safely, are there other safer options to give your dog some physical activity? A: *"Under the right conditions, dog parks can be a great alternative to running or walking your dog long distances. Carry fresh water for them to drink. Swimming is a wonderful alternative - in a pool or the ocean."*

Q: There any certain dog breeds we have to be extra cautious with, when it comes to physical activity and heat, such as breeds with thick (dark) fur with undercoat, or breeds with flat noses. Can you explain this a little bit more? A: *"Dogs with thick coat will become hotter, as will a dog with a darker coat. We don't recommend shaving however, because the overcoat actually protects them from sun exposure. You can safely groom your dog's undercoat though, to make it thinner."*

Q: Why is it extra dangerous for an obese, or overweight, dog to be outside in the heat? A: *"Obese dogs aren't well conditioned, so any exercise has to be done carefully. They will pant harder, to cool off. Their hearts has to work harder to push blood thru a bigger body, and their lungs may be compressed by the extra weight they are carrying."*

Q: How is heat and humidity affecting dogs in various stages of life (puppies, young, adult, senior)? A: *"Heat and humidity is probably best tolerated by a lean, young adult dog."*

Q: Are there any cooling product you would recommend for dogs in warm weather? R: *"Some ideas for cooling include tile in the house, standing fans, spray bottles for their groin, underarms and feet, and gel dog beds."*

Q: What would you do if you see a dog in a car? A: *"If I am not mistaken, it is now legal in Florida and Monroe County to break a dog out of a car. This is what I would attempt to do. I would rinse the dog with a hose all over its body, and assess its mucus membrane color and overall status."*

Q: Why is fluid so important to dogs, especially when it is hot? A: *"Dogs lose fluid (dehydrate) when they pant, and they pant when they are hot. Like us, dogs need fluid. Most dogs eat an all kibble diet, so they depend exclusively on water to keep hydrated."*

Summary:

So, when all this is said, how can we keep our dogs safe, comfortable and happy when it is warm and humid outside?

Well, since a dog mainly get rid of excessive heat by panting and easily can overheat, try to give your dog a chance to regularly cool off, one way or another. Let him cool off in the shade or inside. Give him plenty of fresh water and bring extra water when you take him for a walk. Get out and walk early in the morning - or second best, late in the

evening -, when it is not so hot outside. Walk him in the shade, or on the shadiest side of the road. Walk him on the wet grass, which is cooler than asphalt or even the sand. Let him cool off in water: ocean, rivers, creeks and streams (- Be aware of alligators though!), pools, sprinklers, or give him a cooling shower before you take him out. There are cooling products that can help your dog to stay comfortable, such as a gel dog bed, cooling vest or a wet bandana/scarf to hang around your dog's neck, or you can cool him down by keeping him in a room with tile floor and a standing fan. If it is too hot to walk him outside, simply keep him inside until it has cooled off outside. In the meantime you can throw a ball and make him run back and forth inside your home, play hide and seek, or anything similar that can activate your dog and give him some kind of temporary physical and mental activity and stimulation.

In order to avoid problems with the law, and more importantly, to avoid serious damages or death to your dog, never leave him unattended in a car.

In order to keep your dog safe and happy, you have to think on behalf of him. Put yourself in your dog's situation and chose what is most comfortable and pleasant for him. Be prepared, pack your bags, including plenty of water, and bring your four-legged friend(s) with you on your next trip to Florida!

Recommended reading/websites:

Dog Anatomy. A Coloring Atlas, by Robert A. Krainer, DVM, MS and Thomas O. McCracken, MS

www.merckvetmanual.com/dog-owners

www.pethealthnetwork.com

www.petmd.com

www.animallaw.info

www.avma.org/public/PetCare

www.aldf.org

www.accuweather.com

www.petcha.com

www.leagalbeagle.com