

Heat Stroke

Definition

Heat stroke occurs when the body's temperature rises above normal limits due to heavy exercise or exposure to high heat/humidity. This handout provides information about how to avoid heat stroke, as well as how to recognize early indicators. Rapid recognition of heat stroke will allow you to seek prompt treatment, which can greatly increase the likelihood of a good outcome.

You, the pet owner, are a very important part of the prevention and early identification of heat stroke. Outcomes are always better when exotic pets are presented to the veterinarian early. Many owners struggle with determining the appropriate time to bring their exotic pet to the veterinarian. This handout provides basic background information on heat stroke, its signs, what treatment may look like, and easy-to-follow guidelines for when it's time to contact your veterinarian.

Signs & Symptoms

Most signs of heat stroke are relatively similar between different species, with a few species-specific differences. The common signs may include rapid or open-mouth breathing, pale or very red gum color, weakness, uncoordinated movements, seizures, or collapse. Some animals may exhibit signs of restlessness or attempt to find a cooler area. Note that exotic mammal species do not usually pant or breathe through their mouths to dissipate heat. **Any open-mouth breathing in small mammals is highly abnormal and an indication that emergency medical attention is needed.**

Common signs:

- Rapid or open-mouth breathing
- Pale pink or very red gum color
- Weakness
- Uncoordinated movements
- Seizures
- Collapse



Since different species have their own methods of retaining or dissipating heat, each exotic pet species will have a different tolerance for heat. This means that some species will decline and develop new or worsening signs faster than others. Rabbits and chinchillas will often show neurologic symptoms very early as their



QUICK FACTS

- Heat stroke can develop in conditions of high heat/humidity, or due to strenuous exercise.
- Any animal can be affected by heat stroke, but rabbits and chinchillas are susceptible to heat stroke at lower temperatures than most other pets.
- Heat stroke requires emergency medical treatment; you can begin basic supportive care measures at home/in the car by placing your pet in front of a fan or air conditioning unit, and misting them with room temperature or cool water.
- Avoid using ice packs or very cold water, as this will cause blood vessels to constrict and will counteract the body's natural cooling process.

bodies overheat, leading to damage of the brain's signaling cells and reduced blood flow to the brain. They may exhibit weakness, lethargy, uncoordinated movement, or even seizures. The blood vessels in their ears will become unusually prominent as they attempt to dissipate heat. Hedgehogs may enter a state of torpor if the ambient temperature is too hot or too cold; the animal will roll up and become unresponsive to stimulation with a greatly reduced respiratory and heart rate.

Initial First Aid

Heat stroke can rapidly become life-threatening and requires immediate veterinary intervention. Place your pet in front of a fan if available and transport them in an air-conditioned vehicle to help promote heat dissipation. You can mist your animal with cool to room temperature water or wipe them down with a damp towel.

DO NOT use very cold water or ice packs on a pet who is affected by heat stroke. Exposure to very cold temperatures will cause tightening of the blood vessels, which counteracts the body's natural mechanisms for getting rid of excess heat and can aggravate the situation.

Diagnosis & Treatment Options

A diagnosis of heat stroke is based on a combination of patient history and physical exam findings. An elevated body temperature is seen in most cases. Your veterinarian may recommend blood work to assess secondary damage to vital organs or blood clotting factors to develop an individualized treatment plan.

Treatment of heat stroke depends on the severity of the signs and organ dysfunction. Severe cases often require several days of hospitalization for administration of fluids through an intravenous or intraosseous catheter, as well as medications to control seizures, control blood pressure and reduce brain swelling. Heat stroke can severely affect the body's natural mechanisms of blood clot formation and breakdown; blood transfusions may be needed in some cases to replace blood clotting factors and other blood components.

Risk to Others

Heat stroke is not contagious. Most cases are caused by environmental conditions, namely high heat/humidity. For that reason, multiple pets in a household will likely be at risk of developing heat stroke at the same time, as will human family members.

Risk Factors and Prevention

Exotic pets vary in their sensitivity to high temperatures based on species adaptations for their natural environment; animals from colder regions tend to have poor tolerance of heat and humidity. These adaptations may include differences between anatomical features, such as the distribution (or absence) of sweat glands, density of the hair coat and face or ear shape. For example, chinchillas are known to be particularly intolerant of heat and humidity and temperatures above 80 °F (26.6° C) can rapidly lead to heat stroke. In contrast, hedgehogs tend to prefer warmer temperatures than other small mammals (75°F-85°F/24°C-29°C is considered ideal), but if the ambient temperature becomes too hot or too cold they will go into torpor (see explanation above).

In addition to normal anatomic and physiologic differences, certain pre-existing medical conditions can also put a patient at an even higher risk of heat stroke. Factors that increase patient risk for developing heat stroke include:

- Being overweight or obese
- A compromised respiratory system, including “brachycephalic” rabbits (most dwarf breeds), upper or lower respiratory infections, heart disease
- Age – very old or very young pets
- Most exotic mammals

To prevent heat stroke, avoid strenuous exercise or confinement in areas that do not have cooling, such as cars or direct sunlight. All animals including humans must acclimatize to their environmental conditions; if an animal is adapted to air-conditioned environments, avoid taking them outside in direct sunlight unsupervised for any amount of time. Avoid housing pets outdoors during the summer; at a minimum, shaded areas within their enclosure and access to water must be available at all times. Below is a summary of the acceptable housing recommendations for exotic companion mammals. For more information on housing and husbandry recommendations, ask your veterinarian for a copy of an AEMV Care Guide for your species of exotic mammal.

	Low	High
Hamsters	65F/18C	79F/26C
Chinchillas	50F/10C	68F/20C
Rabbits	55F/13C	80F/29C
Guinea Pigs	55F/13C	75F/24C
Ferrets	50F/10C	86F/30C

Table 1. Recommended housing temperatures for commonly kept exotic species. Don't see your pet listed? Ask your veterinarian for a copy of an AEMV Care Guide for your species.

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The purpose of AEMV is to advance the health and welfare of companion exotic mammals through information dissemination, scientific research, collaboration, and professional development.

Online Resources

Follow AEMV on Facebook (www.facebook.com/AEMVveterinarians) for exotic companion mammal tips and resources. Our website, www.aemv.org, offers a Find-a-Vet tool to help exotic companion mammal owners find veterinarians around the world.

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References

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