

# Excessive exercise responsible for three-quarters of heatstroke cases in dogs, study shows

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The most common cause of potentially-fatal heatstroke in dogs is being exercised by their owners, the largest study of its kind has found.

A team at Nottingham Trent University and the Royal Veterinary College found that exertion or exercise—which could include dogs walking, playing or running with their owners—was responsible for three quarters (74%) of heat stroke cases. Many of these cases were in the summer months.

Hot weather alone was responsible for 13% of cases, while travelling or being left in hot vehicles accounted for 5% of cases. Other triggers for heat stroke included undergoing treatment at a veterinary surgery or a dog grooming parlour, being restricted to hot buildings or trapped under blankets.

The researchers in dog welfare analysed the anonymised clinical records of more than 900,000 UK dogs, finding 1,222 had received veterinary care for heatstroke at some point during their lives, with almost 400 affected in a single year.

Heatstroke is a potentially fatal condition inflicted on dogs and is expected to become even more common as global temperatures rise. In the current study, 14.2% of affected dogs died as a result of their heatstroke event.

The team, writing in the journal *Animals*, found that male dogs and younger dogs were more likely to develop heatstroke triggered by exercise, with breeds including the Chow Chow, Bulldog, French Bulldog, Greyhound, English Springer Spaniel, Cavalier King Charles Spaniel and Staffordshire Bull Terrier at increased risk.

Older dogs and flat-faced dogs such as bulldogs and pugs were at increased risk of getting heatstroke just by sitting outside in hot weather.

Flat-faced dogs were particularly at risk of developing heat stroke if left in hot cars.

Early signs of heat stroke in dogs include panting, red or dark gums and tongue, confusion and unsteadiness leading to collapse, diarrhoea, vomiting and even seizure leading to coma. If the dog is not cooled and treated by a veterinary surgeon quickly, the condition can be fatal.

Some key findings from the latest paper include:

- The majority of heatstroke events were triggered by exercise, with 68% of those events occurring after just walking in the heat
- Heatstroke can occur all year round in the UK but the majority of cases are from May to August
- Breeds such as Chow Chow, Bulldog, French Bulldog, Greyhound, English Springer Spaniel, Cavalier King Charles Spaniel and Staffordshire Bull Terrier were highly associated with exercise-related heatstroke

"As the world gets hotter, we need to include our dogs in our strategies to stay cool, as they can suffer fatal consequences when we fail to keep them safe," said Emily Hall, a researcher and veterinary surgeon in Nottingham Trent University's School of Animal, Rural and Environmental Sciences.

She said: "It appears that people are hearing the message about the dangers of hot vehicles, but campaigns to raise public awareness about heat-related illness in dogs need to highlight that dogs don't just die in hot cars. Taking a dog for a walk or a run in hot weather can be just as deadly so consider skipping walks altogether during heatwaves, or be sure to take dogs out early in the morning whilst it's still cool.

"We hope our work will help to educate people about the causes of heatstroke in dogs and provide owners and veterinary professionals with crucial information that can be used to identify dogs most at risk and help with more rapid recognition and treatment."

Dr. Anne Carter, Senior Lecturer in Animal Science at Nottingham Trent University, said: "This deeper understanding of the risk factors and triggers for heatstroke in dogs is crucial. We suspect the number of cases of heatstroke could actually be far greater, as many dogs with the condition may not be taken to a veterinary surgery."

Dr. Dan O'Neill, co-author and senior lecturer in companion animal epidemiology at The Royal Veterinary College, said: "The UK is currently in the midst of an ill-fated love affair with flat-faced dogs. Demand for breeds such as the French Bulldog, Pug and British Bulldog has soared during the COVID19 lockdown. I appeal to owners to put the needs of the dog ahead of their own desire to possess something that looks cute.

"Flat-faced dogs have an innately reduced capacity to stay cool and therefore often suffer terribly during hot weather, exercise or even a short car journey. Please stop and think before buying a flat-faced dog."

This new study builds upon the team's recent work, in which they [reported](#) that brachycephalic dog breeds were particularly at risk of developing [heat stroke](#).

In July, the Nottingham Trent University researchers also warned about the dangers of leaving their dogs in parked cars after their study found that internal temperatures were hot enough from spring to autumn to pose a risk to dog health.

The latest study is part of the ongoing VetCompass research programme at the Royal Veterinary College, that aims to improve companion animal welfare and was supported by a Dogs Trust Canine Welfare Grant.

Paula Boyden, Veterinary Director at Dogs Trust, said: "This study is vital in our understanding of the key triggers for heatstroke in dogs and

in helping to formulate advice to owners. Older dogs and flat-faced breeds, who may find it harder to regulate their temperature, are particularly susceptible to [heatstroke](#) in warm weather so it is really important to make sure that you exercise your dog at their own pace and avoid exercising in the heat of the day.

"Be aware that [dogs](#) can overheat from exertion even on cooler days, so do monitor your dog when exercising and seek immediate veterinary advice if you are concerned."

**More information:** Emily J. Hall et al. Dogs Don't Die Just in Hot Cars—Exertional Heat-Related Illness (Heatstroke) Is a Greater Threat to UK Dogs, *Animals* (2020). [DOI: 10.3390/ani10081324](https://doi.org/10.3390/ani10081324)

Provided by Nottingham Trent University

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