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Demand for 'Cute' Bulldogs Is Destroying the Breed

A new genetic analysis finds a worrying lack of diversity among the popular dog breed.

English bulldogs are one of the most popular breeds in the world, but the features people love—short faces, squat bodies, and wrinkly skin—lead to numerous health

problems for the breed.

PHOTOGRAPH BY NICK NORMAN, NATIONAL GEOGRAPHIC

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d tenacity, but more than a
re-tough canine.

The dogs have breathing, skeletal, and skin problems, and, even worse, many can't naturally mate or give birth. If they develop breathing difficulties early, it's unlikely they will make it past the age of five.

Now, the first complete analysis of bulldog genetics, published July 28 in *Canine Genetics and Epidemiology*, reveals that the breed has very low genetic diversity.

That lack of genes poses a huge challenge for breeders hoping to naturally reintroduce healthier traits into the population, a practice called reverse breeding, says study leader Niels Pedersen, a veterinary researcher at the University of California, Davis. ([Read more about how dogs evolved in National Geographic magazine.](#))

“In our estimation, it will be difficult, and possibly impossible, to back off and reverse breed the dogs,” says Pedersen.

According to the American Kennel Club, bulldogs—also called English bulldogs—are currently the fourth most popular breed in the U.S.

MORE OF THE SAME

Researchers collected and analyzed DNA from 139 bulldogs—including a control group of healthy pups that live in North America, Europe, and

Argentina—and another group of dogs admitted to the UC Davis veterinary hospital for a variety of ailments.

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UNFORTUNATELY FOR THE
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In a healthy, diverse population, each individual would be expected to have a largely dissimilar genomic structure, but in the case of the bulldogs, large regions of the genome were the same in every individual sampled. ([See your dog pictures submitted to National Geographic.](#))

Furthermore, the researchers found a worrying lack of diversity in the region of the genome that regulates the dogs' immune system. The scientists observed no differences between the healthy dogs and the ailing pets at the hospital.

Part of the reason for the low genetic diversity is that modern bulldogs likely stem from a founder population of only 68 individuals. From this shallow gene pool, bulldogs lost even more diversity as they were selectively bred for short faces, squat bodies, and wrinkly skin.

LOVING THEM TO DEATH

Unfortunately for the bulldog, many of the physical features that make them desirable also make them unhealthy. (See "[Dogs' Brains Reorganized by](#)

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flat faces has resulted in an
e skull—that is now the
leads to a variety of

on, because bulldog

puppies cannot fit through their mother's birth canal and must be delivered via cesarean. Pedersen estimates that 80 percent of bulldog births result from artificial insemination and cesarean.

To [Adam Boyko](#), a geneticist at the [Cornell University College of Veterinary Medicine](#), the new research shows a "classic dog-breeding story."

"Look at how they looked a hundred to 150 years ago," says Boyko, who wasn't involved in the new study. Photographs from the mid-19th century show bulldogs with longer faces, straight tails, and minimal wrinkling.

"There has been a lot of intensive selection on bulldogs, and you had a bottleneck at the beginning as well; it reduces genetic diversity. Add in inbreeding and it can create a whole bunch of problems."

GROTESQUE, BUT CUTE?

With bulldog puppies rising in popularity—some puppies sell for up to \$30,000, says Pederson—it's obvious breeders are responding to market demand for "cuter" animals.

But the public and breeders need to make a concerted effort to save the bulldog.

Registries, like the American Kennel Club, could help by loosening their breed standards. Broader standards would allow for new traits

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ls.

m,” says Pedersen. (See

people would call a

most beautiful thing ever

Follow Aaron Sidder on [Twitter](#).

This post was updated on July 29th, 2016. The original article stated the bulldog was the fourth most popular dog in the world; it is actually the fourth most popular dog in the U.S.

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WALLABIES A red-necked wallaby (*Macropus rufogriseus*) photographed at Lincoln Children's Zoo in Nebraska

PHOTOGRAPH BY JOEL SARTORE, NATIONAL GEOGRAPHIC PHOTO ARK

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