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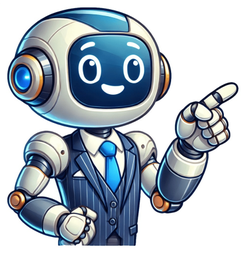

Dogs come in all different shapes, colors, and sizes, but there is one feature that stands out more than the rest: their ears. Why do we see both dogs with floppy ears and dogs with upright ears? The answer may lie in their evolution and may directly relate to their tameness. There may be other traits that coexist with their floppy ears that allow them certain benefits. To get to the bottom of this, we have to look to Charles Darwin, the father of evolution. When studying the differences between dogs and wolves, Darwin hypothesized that the domestication of dogs led to some significant physical and behavioral changes. In his book "On the Origin of Species," Darwin wrote that in every domesticated species on Earth, some of those animals have floppy ears. He added that the most probable explanation is that the drooping results from the ear muscles not being used because these animals are safe and aren't being alerted of danger. A collection of traits are thought to be associated with domestication syndrome: Floppy dog ears Smaller ears Smaller teeth Curly tail Juvenile behavior Smaller brain More frequent reproductive cycles Docility Lighter patches of hair Lower stress hormone levels These modifications were hypothesized to result from neural crest cells, which help determine various features of an animal, including facial, skeletal, and connective tissues; pigmentation; teeth; and adrenal glands, which affect the fight or flight response. They also regulate cartilage, which is largely what dictates whether a dog has floppy ears or upright ears. Evolution: Education and Outreach discusses a long-term experiment by Dmitri Belyaev in 1959 that was fueled by his interest in how wolves eventually became the domesticated dogs of today. Instead of conducting his experiment on dogs, he decided to see if he could remove the wildness from silver foxes through selective breeding. He and his team tested hundreds of foxes in each generation and selected 10 percent of them using a scale he created to find the tamest foxes. The goal was to see if the foxes became more tame in future generations and whether they exhibited the traits associated with domestication syndrome. Since silver foxes reproduce once a year, each year coincides with one generation of foxes. In six generations (six years) of selecting foxes to breed based only on tameness, the resulting foxes licked the researchers' hands, whined when humans left the room, liked being petted and picked up, and wagged their tail when humans approached them. This suggests that the traits associated with domestication syndrome are solely based on tameness. Less than 10 years after the experiment began, some of the foxes had floppy ears and curly tails, their stress hormones were reduced by half, and their serotonin increased, making them happier animals. They had more juvenile facial features, longer reproductive periods, and greater synaptic plasticity, which represents cognitive ability, or their capacity for learning and memory. The results of this experiment strongly suggest that dogs developed floppy ears from years of mating with other tame, friendly dogs who liked being around humans. Humans have changed the world in countless ways — and among them is the evolution of dog ears. Similar to how canine breeds come in a variety of sizes from mini doberman doggos to big St. Bernard round boys, dogs also have many different ear shapes. Their relatives, wild animals like the coyote and the wolf, have upright ears that help sharpen their hearing, so any rustle of potential prey is heard. But, as the above video created by NPR's Skunk Bear explains, many domestic dogs have floppy (and adorable) ears — it's similar to domestic pigs when compared to wild boars, and farmed goats compared to wild goats. So, as Seinfeld may ask, what's the deal with these floppy ears? According to Charles Darwin and other great scientific minds, it's part of something called domestication syndrome, which also includes pets' tendency to have shorter snouts and paler coats. The traits can be traced back thousands of years, when early humans first started domesticating animals and breeding them to suit their needs. With these choices came other physical side effects. While some early scientists couldn't pin down why these unplanned physical traits appeared, others had an idea: neural crest cells. RELATED VIDEO: You Can Learn So Much About Your Dog's Health by Looking in His Mouth! Neural crest cells form early in an embryo's development and spread to almost every part of an animal's body, affecting the way they develop, including how much adrenaline they produce. Less neural crest cells would mean less adrenaline production, and, as a result, an animal with a more diminished flight or fight response, a.k.a. a friendlier, more loyal companion. Scientists believe the diminished number of neural crest cells in domesticated animals also goes on to affect other parts of their bodies, like their ears, changing parts that a wild dog might need to survive. Thousands of years of selective breeding have made certain traits attractive to humans, like light coats and floppy ears, an almost permanent trait of certain breeds. Scientists aren't sure if this idea based on neural crest cells is complete, but it is nice to think your golden retriever mix has floppy ears because of years of loyalty. There's something especially sweet and puppy-like about dogs with floppy ears. And it's impossible to get "Do Your Ears Hang Low?" out of our heads when we see a basset hound's long ears waving in the breeze. Have you ever wondered why some dogs have pointy ears and others floppy? Or, if there's any purpose for long, droopy ears at all? An expert gave us some insight—and we're all ears. "Dogs with floppy ears are due to the domestication of dogs long ago," says Amber Karwacki, DVM at Heart + Paw in Philadelphia. The theory behind this, she says, is that domestication caused the adrenal glands to produce less adrenaline. As a result, the adrenal glands produced fewer stem cells, also known as neural crest cells. "These cells are responsible for different traits in a dog, including ears," Karwacki says. "Dogs with more of these cells will have upright ears, while dogs with less of these cells will have floppy ears." She explains that when these dogs started to have floppy ears, some breeders weren't too concerned because they were bred for other characteristics. On the other hand, Karwacki says, some dogs have floppy ears because the dogs were bred intentionally. Ever notice how a lot of hound dogs have floppy ears? Karwacki says this was no accident. Their ears were bred to be that way! "These dogs are used as tracking dogs, either for hunting or for search and rescue," she says. "Their ears help to swirl the scents on the ground closer to their nose and allow them to track better." So, not only are floppy ears downright adorable, but they can be functional, too. From pint-sized pups to gentle giants, here are some of our favorite dogs with floppy ears. dageldog / Getty Who can resist the basset hound's big, floppy ears and lovable, long face? Friendly and affectionate, basset hounds make great family dogs and are wonderful companions for children. These are a low-energy breed who love to lounge and spend time with their loved ones. But don't let their love for lazing around and short legs deceive you! They revel in putting their noses to the test—basset hounds are pros at tracking scents and thrive when out for long walks or playing scent games. Maria Sbytova / Shutterstock We can't get enough of seeing beagles' ears flop while they romp! Beagles are a small, spunky breed with a sharp sense of smell. A family favorite, beagles love to be around their people. These gentle and ever-so-playful pups require lots of exercise and activities to satisfy their natural working and hunting instincts, such as long hikes or walks around the neighborhood. Nose work classes could be a great activity to do with your beagle. Also, don't be surprised if he alerts you when he's suspicious of someone or something; he's just doing what he was bred to do! Olga-i / Shutterstock It's always a good hair day for the Afghan hound. Known as one of the most ancient dog breeds, Afghan hounds have been serving looks with their long ears and luscious coats for thousands of years. These sensitive sweethearts are catlike in that they're highly intelligent and independent. Bred to be hunting dogs, Afghan hounds can run up to 40 miles per hour and need plenty of exercise. They also require daily brushing to maintain their elegant appearance and prevent mats and tangles. Jeremy Woodhouse / Getty Bloodhounds are the definition of "inquisitive," thanks to their droopy ears, wrinkly faces and bodies, and incredible noses. These dogs love to explore wherever their extraordinary sense of smell takes them! An active and social breed, bloodhounds enjoy spending time outdoors and are at their best when they get lots of exercise and mental stimulation. Grisha Bruev / Shutterstock Behold, one of the sweetest breeds in all the dogdom: the Cavalier King Charles spaniel. This breed is highly adaptable and friendly. (And oh-so-handsome with his charming smile and soft, floppy ears!) He becomes pals with anyone and everyone, no matter if it's a canine, cat, or kiddo. These tiny and devoted dogs are happy when in company, though he's happiest around you! Cavalier King Charles spaniels are playful companions you can always count on to bring a smile to your face. otsphoto / Adobe Stock A striking silver-gray coat. Light blue eyes. Adorable, pendant ears. Meet the Weimaraner. This is a loyal breed filled with lots of energy and affection. Weimaraners, or Weims, make wonderful family dogs. They love people and children and will want to be by your side just about all the time. Bred to be working dogs, Weims make a great fit for an active family that can provide them with exercise, play, and a whole lot of love. Mario Forcherio/EyeEm/Getty Golden retrievers have long been known as the ultimate family dog. This breed is smart, sweet, and sporty. Bred as working dogs, golden retrievers require daily exercise to keep them happy and healthy, preferably going out for a run or playing a game of fetch. These fun-loving sweethearts are thrilled to spend any kind of quality time with you. Eudyptula / Getty The Australian shepherd is a naturally stunning breed with unique coat colors, striking eyes, and cute, floppy ears to match. Lovingly referred to as Aussies, they're playful and intelligent dogs who love to work. This loyal herding breed cherishes humans and is happiest when spending quality time together outside, whether it be to go for a run, hike, or games of fetch. Violeta Stoimenova / Getty Alexa, play "Glamorous" by Fergie. shih tzus are a majestic, loyal breed whose favorite pastimes include playing with toys and being on your lap. Known for their silky hair, unique underbite, and floppy ears, these pint-sized pups are just as outgoing as they are adorable. You can expect your shih tzu to turn heads and get showered with compliments wherever she goes. Despite loving the attention from strangers, it's you she wants all the love from! Jason Donnelly The Bernese mountain dog is a gentle giant who looks—and acts—like a teddy bear. Bernese mountain dogs, or Berners, are smart, devoted dogs who can't wait to shower you in love! These dogs have a history of being hardworking and loyal to their families, making them especially eager to please their humans. Berners are easygoing, low-energy pups who like exploring, playing, and spending time by your side. AleksandarGeorgiev / Getty Love the great outdoors? Meet your new hiking buddy, the German shorthaired pointer! This breed is instantly recognizable with its unique markings, floppy ears, and pointed stance! Bred for hunting, German shorthaired pointers (GSPs) are an energetic, loving breed that requires plenty of activity and affection. Whether it's playing fetch or going for swims, GSPs thrive when they can use their intelligence and athleticism. Mint Images / Getty The Vizsla, lovingly referred to as the Velcro Vizsla, is a loving, loyal companion who can often be found attached to her human's hip. A Vizsla's second favorite place? The outdoors. These high-energy dogs were bred to hunt and require daily exercise, no matter if it's jogging, running, or hiking. Vizslas are a hardworking and devoted breed who make wonderful watchdogs, search-and-rescue dogs, and therapy dogs. Diyosa Carter / Getty Take one look at a boxer and prepare for your heart to melt with those sweet puppy dog eyes and floppy ears! These muscular working dogs are as cute and cuddly as can be. Boxers' sweet demeanor, sense of humor, and strong loyalty have made them one of the most popular breeds in the U.S. These fun, curious dogs love their people and new adventures. gebut / Adobe Stock Although Irish setters are best known for their radiant red coat, it's hard not to swoon over those wavy-haired pendant ears! These fiery-colored pups are gracious, loyal companions who are excellent family dogs. Irish setters were bred as gun dogs and revel in any form of exercise, game, or job that puts their high energy and intelligence to good use. Thanks for your feedback! See files for Dogs There are dogs of many shapes and sizes, all with particular characteristics. These characteristics may be related to their body shape, coat type or even their ears. Some have short ears which stand erect. Some have long ears which droop down past the face. However, it is not common to have a dog breed with one ear erect and the other not. In these cases, it is possible that a pathology or related health condition may be the cause.In this AnimalWised article, we look at what happens when your dog has one floppy ear. We discuss whether it is a normal condition or whether something needs to be done about it. The same applies if both ears are floppy when they should be erect. You may also be interested in: My Rabbit Has One Floppy Ear Contents Some may be wondering if their dog's ears should be floppy. It is important to distinguish between normal floppiness in the ears and something which is abnormal. Firstly, if you have a puppy of a dog breed which would normally have ears standing up, don't worry.Puppies are born with floppy ears. They have not yet developed and the physical features they present as a puppy can be much more different when they are an adult. Simply being a puppy is one of the most common reasons your dog has one floppy ear. As the dog develops, one ear might become erect more quickly than the other, although it usually should follow suit rather quickly.How long it takes for a puppy's ears to stand up depends on the breed and the individual dog. For some it may only take 8 weeks, for others, it may be 8 months. However, generally a dog's ears should be standing up after they have finished teething. If the puppy's ears have stood up and then fallen again after some time, it is likely one of the problems below.Another factor is that a dog can move their ears. If you see a dog with one ear erect, but the other turned to the side. It may be they are listening out for something. We should distinguish between this and when there is a problem.Lastly, some dogs will simply never have erect ears. Due to breeding, some dogs have distinctive floppy ears. These breeds include:Cocker SpanielBloodhoundCavalier Kind Charles SpanielBasset HoundHavaneseCoonhoundBeagleDachshundAll of the dog breeds which have floppy ears will have both ears flopping downward. When one ear is floppy and the other is not, it is likely the sign of a health problem. The pinnae are the outer part of the ear. In dogs, these are either standing up or floppy, but can be of various sizes. When only one is erect and the other is floppy, it is a sign of concern for some guardians.As we have stated above, it is normal for puppies to have floppy ears according to their breed. However, this can be difficult to tell with a mixed-breed dog since we don't know if they are supposed to have erect ears or not. It may even be possible for two litter mates to have different degrees of ear floppiness. This is due to the genetic inheritance of their parents.If you know your puppy should have standing ears and they have reached the stage of development when this should have happened, it is important to know there may be a problem. One of the most important is diet. Puppies will need a specific type of nutrition to grow properly. When they are not fed enough protein and other vital nutrients, it is possible one or more of their ears will remain floppy.There are also some medical conditions which prevents their ears from standing erect. We will detail these the following sections. One factor which might mean your dog's ears don't stand up is due to ear cropping. In dogs which should have erect ears, some owner cut the otherwise long ear off. In these cases, even if the dog should have erect ears, you might not be able to tell. There are different conditions that can cause a dog to have one ear standing up and one droopy ear. However, they are normally accompanied by other symptoms. These other symptoms will usually be more obvious and prompt us to go see a veterinarian.When the dog does not receive treatment in time, such as what can happen with abandoned dogs, it is possible the ear will never stand up. Unfortunately, this is often the case with stray dogs. They may have one ear floppy or deformed due to malnutrition, fighting, disease, fungal ear infections such as malassezia, parasites or other causes. Some of the most common include:Bite wounds: when dogs fight it is not uncommon for the ears to be injured, since they are vulnerable and accessible areas. Animal bites are often complicated by ear infections. Except for minor injuries, they need to receive veterinary attention and even surgical intervention as a means to avoid deformations.Otitis media: otitis is a general term for inflammation or infection of the ear. This can occur on only the outside of the ear (otitis externa), but it can also occur in the inner (otitis interna) or middle (otitis media) ear. For the latter, it is common for the dog to regularly hold their head to one side and even shake it in frustration. It is caused by an infection (usually bacterial) entering the ear and it can affect other part's of the dog's face if acute. Some dogs are predisposed to otitis and, in these cases, may need surgical intervention to solve the issue. Sometimes our dog has a drooping ear that is also inflamed. It is common for this swelling to be due to an abscess. This occurs when pus around the infection site proliferates. A hematoma (blood collecting in the tissue) can also be the cause of ear swelling and drooping. The root cause is either fighting, parasites, injury or simply a hygiene issue. The latter is why it is important you clean your dog's ears regularly.Hematomas in the ear (auricular hematoma) can appear when the dog shakes their head too violently or scratches persistently. In these cases, we need to find out the underlying cause. Ear mites are common in some dogs and they cause the animal to scratch their ears to relieve the frustration. You will need to take the dog to the veterinarian to diagnose the problem and provide the right treatment.There are techniques and home treatments you can read about online which say they can stop a dog's ears drooping. Do not listen to them. They are usually either misinformed or selling an ineffective treatment. Go to see your veterinarian if you think your dog's drooping ear is a problem.One way to avoid ear problems is to keep them clean at all times. Watch our video to see how it is done by the professionals: This article is purely informative. AnimalWised does not have the authority to prescribe any veterinary treatment or create a diagnosis. We invite you to take your pet to the veterinarian if they are suffering from any condition or pain. If you want to read similar articles to My Dog Has One Floppy Ear - Causes and What to Do, we recommend you visit our Other health problems category. Bibliography Carlson and Giffin. (2002). Practical manual of canine veterinary medicine. Madrid: Editorial el Drac. Sign up for Big Think on Substack The most surprising and impactful new stories delivered to your inbox every week, for free. The grey wolf's sense of smell can detect prey nearly two miles away, and it can hear subtle sounds up to ten miles away. At night, it sees in the dark. When chasing prey, it can reach a speed of 35 mile per hour and deliver crushing bites with 1,500 pounds of pressure per square inch of jaw. Wolf packs have also been known to take down much larger prey, like moose or bison.As for their distant cousins, the domesticated dog, I once had a dog who would fart himself awake at night and stare accusatorily at me.Despite their differences, grey wolves are the closest living relative to the domesticated dog. They share an extinct, unknown ancestor, an apex predator that likely hunted ancient megafauna. But at some point, one of the descendants of that ancient ancestor learned how beneficial it was to hunt alongside humans. In tracking game, we became closer as hunters. Eventually, proto-dogs left the wildness behind and began to transform. Their ears became floppier, their coats grew lightly-colored patches. Their personality — perhaps after getting to know human children over centuries — became more playful and less fearful. The changes continued: their snout shortened, and their teeth and brain shrunk. Just like that, Fenrir transformed into Scooby-Doo. How did this change happen?The common logic says that the wolves' new environment, one spent in frequent contact with humans, put a pressure on them to become friendlier. Eventually, humans began breeding these dogs for certain desirable traits, such as a border collie's herding instinct or a pug's cute (and extremely unhealthy) squashed snout.This is true to an extent. But upon observing other animals undergoing domestication, scientists noticed something strange. They all seemed to change in the exact same way. Consider, for instance, the case of Dmitry Belyaev, a Soviet biologist who experimented with breeding wild foxes. The sole basis of his experiment was to take a generation of wild foxes and breed the ones friendliest to humans. The experiment is still ongoing today, nearly 60 years and many fox generations later. Now, the foxes are exceptionally friendly (though not quite ready to be pets). In addition, like domesticated dogs, their coats have splashes of lighter color, their tails curl, and their ears are floppy.Similar changes have been observed in domesticated cats, horses, pigs, ferrets, camels… the list goes on. Somehow, selecting for friendliness towards humans in animals — domesticating them — causes a constellation of seemingly unrelated physiological changes. Researchers have given this mystery a name: Domestication syndrome.Now, researchers have discovered a compelling reason why these changes are indeed related, and it has to do with something called neural crest cells. Hijacking stem cells for a friendlier wolfNeural crest cells are a kind of stem cell, meaning that as an animal's body develops in the womb, these cells differentiate into more specialized cells that eventually become different parts of the body. Crucially, neural crest cells contribute to the development of the adrenal medulla, which is part of the adrenal gland in the brain.This structure is responsible for releasing adrenaline and noradrenaline in response to stressful stimuli: essentially, it contributes to the flight-or-fight response, fear, and stress. Wild animals obviously need their neural medulla to be sensitive. For a grey wolf, the world is a dangerous place, not least because of humans. But if we want a wolf to be more like a dog, less inclined to fear humans and behave aggressively, then we would breed two relatively unafraid wolves together, selecting for a weaker neural medulla. If their adrenal medulla is less developed, then at some point the wolf's neural crest cells were somehow repressed during its development.Over time, selecting for animals with fewer neural crest cells produces a friendlier critter. But these cells play a diverse role in the body: they're stem cells, so they become many different things. Among these, neural crest cells become melanocytes, which create darker colors in skin or fur. Because the development of neural crest cells is degraded in domesticated animals, these cells don't have the chance to spread uniformly throughout the body. Instead, distant regions in the body become splotchy, which is why many dogs have lighter patches of fur above their eyes or on their chest. As the dog develops in the womb, its neural crest cells are located in the spot that will eventually become the base of the tail. Because these cells are repressed in domesticated dogs, they can't spread throughout the body. As a result, distant regions like the skull, brain, ears, and facial and chest fur are often affected. Wilkins et al., 2014 Cartilage, too, is derived from neural crest cells, which is why domesticated animals tend to have floppy ears. The skull and brain are also dependent on these cells, which is why domesticated dogs have smaller brains than wolves, shorter snouts, and smaller teeth.If you look at other animals besides dogs, these traits hold true. Domesticated horses have spotted pelts. Cats often have bands of color (although they rarely have floppy ears). Domesticated mice, foxes, ferrets, birds, and even fish all share some combination of these different traits. Human beings have bred these animals for friendliness, but as an unintended side effect, we have changed their physiology in drastic ways. While their appearance is drastically different, the changes in their genome can almost be considered subtle. There are many genes responsible for the production of neural crest cells. When any one of these genes is completely shut down, it's often fatal for the animal. Or, if these genes are downregulated too much, then we begin to see genetic disorders appear such as Waardenburg syndrome, Treacher Collins syndrome, or Mowat-Wilson syndrome (interestingly, one of the symptoms of Mowat-Wilson syndrome is excessive friendliness).In domesticated animals, many of these genes are just ever-so-slightly downregulated to put the right limit on neural crest cell production during an animal's development. As a result, you get a healthy, friendly, floppy-eared dog instead of an apex predator fetching the paper for you in the morning. Sign up for Big Think on Substack The most surprising and impactful new stories delivered to your inbox every week, for free. Charles Darwin was intrigued with so many evolutionary puzzles. One thing that vexed him was why so many domesticated animals, particularly dogs and livestock, tended to have drooping ears. "Our domesticated quadrupeds are all descended, as far as is known, from species having erect ears," Darwin pointed out in "The Variation of Animals and Plants under Domestication." "Cats in China, horses in parts of Russia, sheep in Italy and elsewhere, the guinea-pig in Germany, goats and cattle in India, rabbits, pigs and dogs in all long-civilized countries." Darwin noted that wild animals constantly use their ears like funnels to catch every passing sound. The only wild animal with non-erect ears, according to his research at the time, was the elephant. "The incapacity to erect the ears," Darwin concluded, "is certainly in some manner the result of domestication." A Russian geneticist bred silver foxes, choosing each generation based on their friendly personalities. Newfiewild/Shutterstock All sorts of things happen, Darwin noted, when animals become tame. It isn't just their ears that change. Domesticated animals tend to have shorter snouts, smaller jaws and smaller teeth, and their coats are lighter and sometimes splotchier. He called the phenomenon domestication syndrome. Darwin thought there had to be a reason for all those changes, even though there appeared to be no related link. For years, scientists offered theories, but none were readily accepted. About a century later, in the late 1950s, Russian geneticist Dmitri Belyaev, began an experiment using silver foxes. He hypothesized that the changes in animals were a result of breeding selection based on behavioral traits. Belyaev began breeding the foxes, choosing those that were calmest around people and less likely to bite. Then he bred their offspring, choosing the animals using the same criteria. In just a few generations, not only were the foxes friendly and domesticated, but many of them also had floppy ears. In addition, they had changes in their fur color, as well as their skulls, jaws and teeth. A new study published this week in the journal Genetics offers a theory as to why domestication had such an impact on a dog's ears, as well as other physical traits. Led by Adam Wilkins of the Institute of Theoretical Biology in Berlin, the study theorizes that perhaps an early man noticed a wolf that was different from the others. He wasn't afraid of humans and maybe even joined him for leftovers and eventually became a companion. This early wolf was possibly lacking an excess of adrenalin from the adrenal gland, which fuels the "fight or flight" response. The adrenal gland is formed by "neural crest cells." These cells also move to the different parts of an animal where these changes between wild and floppy-eared domestic animals are most obvious. The researchers theorize that if the neural crest cells don't reach the ears, then they become somewhat deformed, or floppy. If cells cause problems with pigmentation, that explains patchy, instead of solid fur. If cells are weak when they arrive at the jaw or teeth, they might grow to become slightly smaller. Surprises like floppy ears weren't anticipated, but were they a bad thing? ABC News asked Wilkins to find out. "I think not," he said. "In the case of domesticated animals, most of them would not survive very well in the wild if they were released, but in captivity they do perfectly well and while the traits of the 'domestication syndrome' are technically defects, they do not seem to harm them." Our dogs, for example, don't need to blend in with solid colored coats or have ears constantly on alert, looking for trouble. Plus it worked out quite well for humans. "And for us, the domestication of animals was a major advance that made the development of our civilizations possible," Wilkins said, "or at least they contributed substantially to that." Dogs still have all sorts of different ear shapes. Grigorita Ko/Shutterstock Obviously, not all dogs' ears are floppy. Plenty of breeds, like Nordic breeds (Malamute, Siberian husky, Samoyed) and some terriers (Cairn, West Highland white) are known for their prick or upright ears. As dog author and professor of psychology Stanley Coren, Ph.D. points out in Psychology Today, "Through selective breeding, human beings have modified the pointed prick ear shape of the wolf into a variety of different shapes. For example the French bulldog ... has large upright ears with the sharp tip altered into a smooth curve producing what dog people call blunt ears or rounded tip ears." Coren goes on to illustrate many pointed and drooped ear types with names ranging from pendant to rose, button to folded, candle flame to hooded. But all ears, belonging to all dogs, have one thing in common, Coren points out. "Rest assured that regardless of their shape, most dogs like to be scratched lightly behind their ears, especially if you make loving sounds at the same time." At Treehugger, we are advocates of animal welfare, including our pets and other domestic animals. The better we understand our dogs, the better we can support and protect their wellbeing. We hope our readers will adopt rescue pets instead of shopping from breeders or pet stores, and will also consider supporting local animal shelters. Tags: Breed ReviewsUpdated on Jan 21, 2024 Dogs, with their diverse breeds and distinctive traits, never fail to capture our hearts with their endearing quirks. One such charming feature that many dog owners have observed is the adorable flop of their canine companions' ears. Whether it's a playful Labradoodle, a majestic Afghan Hound, or a spirited Cocker Spaniel, the phenomenon of ears flopping forward is a common sight. In this article, we delve into the intriguing world of canine anatomy and genetics to unravel the mystery behind why dogs' ears often flop forward. Anatomy of Dog Ears Before we dive into the reasons behind floppy ears, it's important to understand the anatomy of dog ears. A dog's ear is composed of several parts: the pinna (also known as the ear flap), the ear canal, and the inner ear. The pinna is the visible part of the ear that we typically associate with a dog's ear shape. It is made up of cartilage covered with skin and has the ability to move and change shape to some extent. Genetics and Breeds The most significant factor that determines whether a dog's ears will flop forward or stand upright is genetics. Ear shape is largely determined by the presence or absence of a specific gene. Breeds with pricked or erect ears, such as German Shepherds or Huskies, have a genetic predisposition for standing ears due to the way the cartilage forms during development. On the other hand, breeds with floppy or drop ears, such as Basset Hounds or Cocker Spaniels, have a different genetic variation that results in ears that hang down. This variation affects the way the cartilage forms and creates a different ear structure. However, it's important to note that not all dogs within a breed will have the same ear shape. Genetic variation can lead to some individuals within a breed having floppy ears while others have erect ears. In some cases, even within litters of puppies, there can be variations in ear shape. In addition to genetics, age also plays a role in the development of a dog's ears. Puppies are born with floppy ears regardless of their breed. As they grow, the cartilage in their ears begins to strengthen and firm up. This process usually happens around 6 to 8 weeks of age, although it can vary depending on the individual dog. During this growth period, puppies' ears may go through various stages of floppiness or stiffness. Some puppies may have one ear that stands up while the other flops, creating a comical appearance. Eventually, as the cartilage matures and strengthens, the ears will either stand upright or continue to flop forward. This process may take several months, and it's not uncommon for a dog's ears to continue to change shape until they reach adulthood. So, if you have a puppy with floppy ears, don't be too quick to assume they will always stay that way. Health Issues and Floppy Ears While genetics and age are the primary factors in determining ear shape, some health issues can also play a role in dogs having floppy ears. Certain medical conditions can affect the integrity of the cartilage, causing the ears to flop forward even in breeds that would typically have erect ears. One such condition is called "congenital auricular cartilage malformation," which results in weakened or abnormal cartilage development. Dogs with this condition may have floppy ears that are more prone to infections or other ear-related issues. If you suspect that your dog's floppy ears are due to a health issue, it's best to consult with your veterinarian for a proper diagnosis and treatment plan. Behavioral and Psychological Factors Beyond the physical aspects, there may also be behavioral and psychological reasons why some dogs' ears flop forward. Dogs are highly sensitive animals that use their ears to communicate and express their emotions. A dog's posture, including the positioning of its ears, can convey a lot of information about its current state of mind. In certain situations, a dog may intentionally lower or flop its ears forward as a submissive or fearful gesture. This behavior is often seen when a dog is feeling anxious, uncertain, or stressed. By flopping their ears forward, dogs can appear less threatening to other dogs or humans, signaling their intention to avoid conflict. It's important to note that a dog's ear position should be considered in conjunction with other body language signals to accurately interpret their emotions. Flopped ears alone may not always indicate fear or submission, as some dogs naturally have ears that naturally fall forward in a relaxed position. Caring for Dogs with Floppy Ears For dogs with floppy ears, there are specific care considerations that owners should be aware of. Since floppy ears can create a warm and moist environment, they are more prone to various ear problems such as infections, ear mites, and accumulation of debris. It's crucial to regularly clean and inspect your dog's ears to ensure they remain healthy. This involves gently wiping the outer part of the ear flap and checking for any signs of redness, swelling, discharge, or unpleasant odor. If you notice any abnormalities, consult with your vet for proper diagnosis and treatment. Additionally, dogs with floppy ears may benefit from regular grooming to prevent tangling and matting of the ear hair. Trimming the hair around the ear can help improve airflow and reduce the risk of ear infections. However, it's essential to approach ear grooming with caution to avoid accidentally injuring the delicate structures within the ear. Embracing Floppy-Eared Dogs While we may have a preference for certain ear shapes or find floppy ears particularly endearing, it's crucial to remember that ear shape doesn't define a dog's worth or personality. Floppy-eared dogs can be just as loving, intelligent, and loyal as those with standing ears. In fact, floppy ears can add an extra dose of charm to a dog's appearance. They lend a soft and gentle expression to their faces, making them even more irresistible to cuddle and adore. So, whether your dog's ears flop forward, stand upright, or hang down, embrace their unique ear shape as part of their individuality. Focus on providing them with love, care, and a supportive environment to thrive in. Conclusion While genetics and age are pivotal factors influencing ear shape, it's crucial to recognize that health issues, behavior, and psychological factors also contribute to this charming trait. Understanding the multifaceted reasons behind floppy-eared dogs not only adds to our fascination but also holds significance for their overall health and well-being. As we celebrate the rich diversity of dog breeds, let us remain committed to cherishing and caring for these enchanting creatures, regardless of the orientation of their ears. Providing the right care and attention ensures that our furry friends enjoy a comfortable and fulfilling life, embracing their individuality with floppy ears and all. Some dogs developed floppy ears as a response to being domesticated from wolves. Others were purposefully bred with this feature to help with tracking. Some dogs have floppy ears because of domestication. National Geographic shares that when dogs evolved from wolves into household pets, they lost many of their "wild" physical traits. For example, their tails became more curled, and for some dogs, their ears became floppier. This is especially apparent in breeds like Bassett Hounds and Bloodhounds, which are known for their pendulous earflaps. Domestication Syndrome Gave Some Dogs Floppy Ears Four dogs with floppy ears. – Collage from Wikimedia Commons Famous biologist Charles Darwin observed that wild animals have erect ears because they use their ears as funnels to catch every passing sound. According to his research at the time, the elephant was the only wild animal with non-erect ears. Floppy ears, along with shorter muzzles, bulging craniums, and enormous eyes, were classified as "pedomorphosis" effects. Pedomorphosis, also known as "neoteny", is the technical term for the tendency to retain juvenile characteristics into adulthood. Darwin once wrote: "Not a single domestic animal can be named which does not have drooping ears in some country," acknowledging the possibility that dogs and other animals' ear drooping was caused by the ear muscles not being used to detect danger. He also listed the number of species in which this altered trait could be found almost a decade later. Darwin's observance led him to conclude that: "Domestication is the main reason behind dogs and other animal's inability to erect the ears." Studies Show That Domestication Also Affects Foxes' Ears A fox lying in the snow. – Image from Shiretoko-Shari Tourist Association on Wikimedia Commons Scientist Dmitry Belyaev began studying foxes in the late 1950s to confirm Darwin's findings. This "farm fox experiment" offered intriguing insight into the process of dog domestication. Dmitry began selecting the gentler foxes while discarding the most vicious, in a process that resembled dog domestication. This breeding program lasted 26 years and is still going on today. As the tamer foxes were bred, some interesting structural changes occurred. The most obvious was a drastic coat change. The tamer foxes began to lose their distinctive silver coat color in favor of a piebald coat. They no longer needed the silver coat to camouflage in the wild because they were not raised in captivity! In addition, the foxes evolved shorter legs, floppy ears, and curled tails, which are characteristics shared by many domesticated dogs today. Why Domestication Caused Floppy Ears A Basset Hound with long ears. – Image from Eda on Wikimedia Commons Scientists assume that over generations of domestication, canine embryonic development began to shift somewhere along the way. For unexplained reasons, stem cells began to malfunction. It means that cells that were meant to contribute to ear formation never made it to the top of the skull or arrived weakened. As a result, the ear is "deformed" and cannot stand on its own. The feature was passed down through generations of dogs due to continued breeding, and it is now a common occurrence. If this theory is correct, floppy ears are a flaw. Unlike other abnormalities generated by breeding, floppy ears have minimal harmful repercussions––save the increased risk of ear infections. Every Dog's Ear Works Similarly, Regardless of Shape A black and white dog with an ear peeled back. – Image from mjk23 on Wikimedia Commons Depending on the breed, a dog's ears may be long and floppy, small and pointy, or somewhere in between. But regardless of their overall shape, all dogs have one thing in common: their ears are designed to funnel sound waves into their inner ear, where they are converted into electrical impulses that the brain can understand. This design is so effective that dogs can hear frequencies well beyond the range of human hearing. In fact, some experts believe that dogs can hear up to four times as well as we can. Not only does this give them an advantage when it comes to hearing sounds that we can't, but it also makes them more sensitive to loud noises, like thunder and fireworks. How to Prevent Infection in Floppy-eared Dogs A diagram of a dog having its ear tested. – Image from Internet Archive Book Images Dogs with floppy ears are particularly prone to ear infections, which can be painful and lead to other health problems if left untreated. Breeds especially at risk include Basset Hounds, Cocker Spaniels, and Beagles. Cleaning your dog's ears on a regular basis can help prevent infections, and it's also a good opportunity to check for any signs of irritation or injury. In addition, regular ear cleanings can help to remove excess wax and debris, keeping your dog's ears healthy and free from infection. While some dogs may not enjoy the process, it's important to resist the temptation to skip it. A few minutes of discomfort now can save your dog a lot of pain and suffering down the road. A Great Dane with cropped ears. – Image from Lilly M on Wikimedia Commons Your droopy-eared dog may require special attention. Examine your dog's ears frequently to determine how often you should clean them. While any dog can get an ear infection, dogs with floppy ears are more likely to get one, especially if they swim frequently. An abscess can cause swelling in your dog's ear––a relatively common health condition that can happen when pus forms around the infection site. When it's time for regular cleaning, follow these steps to clean your dog's floppy ears: Clean your dog's ears when he's calm. Use an ear cleaner approved by a veterinarian for cleaning. Massage the base of your dog's ear. Take a cotton ball or gauze to clean the ear, but don't go any deeper than the length of one knuckle. Basset Hounds, Bloodhounds, Beagles—there are countless dog breeds best known for their adorable floppy ears. Big droopy ears that flop back and forth and flutter in the wind make for a cute pup, and science has a theory about why so many dog breeds have the distinctive trait. For their explanation, researchers first look to the wild. Dogs were domesticated from wolves, but comparing them now, few dog breeds have actual physical similarities to their wild ancestors—ears included. You could search for years, but you won't find a wolf with a pair of floppy ears perched on its head. When humans first started interacting with wolves, they introduced selective breeding. ABC News reports generations of breeding dogs for specific qualities has lead to unexpected repercussions. Humans have bred dogs based on appearance, athleticism, instinct, and several other factors. They've created breeds that are good at herding and hunting, and they've also altered breeds to make their backs longer, snouts shorter, and muscles bigger. And behind all those intended purposes, there were changes they never expected. Vet Organics calls it a "universal malfunction in the majority of dog breeds" and Charles Darwin called it "domestication syndrome." The theory suggests that while humans were dabbling in genetic engineering by pairing specific dogs in order to produce puppies with specific qualities, there was a change in stem cells. Adam Wilkins from the Institute of Theoretical Biology in Berlin said in an article with ABC News, "The history of breeding is rich in this sort of thing, you breed selectively for one trait and often get something unexpected that is linked to it in some unanticipated way." When comparing today's domesticated dog with their wolf ancestors, evidence shows several physical differences that could be a result of this domestication syndrome. Dogs have shorter muzzles, smaller jaws, smaller brains, less adrenaline, and—you guessed it—floppy ears. Scientists believe that somewhere down the line, canine embryonic development started to change. Stem cells started to malfunction for an unknown reason. Cells that were supposed to contribute to ear structure never made it to the top of the head, or if they did, they arrived in a weak condition. The result is a "deformed" ear that doesn't stand up on its own. Continued breeding passed the trait on through generations of dogs, and now it's a regular occurrence. If this theory holds true, floppy ears are technically a defect. Unlike other deformities caused by breeding (ruptured spinal discs in Dachshunds and flattened snouts in Boxers) floppy ears have few (if any) negative consequences. The biggest worry for dogs with floppy ears is keeping them clean. Floppy ears in dogs is now the norm. Even breeds thought of being highly alert have floppy ears. Dobermans, Pit Bulls, and German Shepherd are all generally pictured with pointy ears, but it's not uncommon for individual dogs to have droopy ears. Science says floppy ears are a defect caused by domestication, but every dog owner knows floppy ears are another reason why they love their four-legged best friends. But no matter how cute the dog is, their ears are a sign that even the smartest scientists and the best breeders can't predict the unintended effects of domestication and selective breeding. Researchers say there's a chance the continuation of selective breeding will lead to additional "defects." If that does happen, the results might not be as cute and harmless as floppy ears. Floppy ears in dogs are quite an invention! They are a defining characteristic of many dog breeds and despite their simple appearance, they hold various important functions. Need some examples? They are critical for communication, hearing ability, and health. The presence of floppy ears is often associated with selective breeding and domestication, a phenomenon seen in studies like the famous farm fox experiment. If this is new to you, read on to discover more about this intriguing experiment. So let's take a closer look into the physiological aspects of floppy ears in dogs and their impact on a dog's communication and hearing. Furthermore, we'll explore their evolutionary origins, and how they compare to dogs with erect ears. In dogs, as it happens in people, it can be said that their ear structure is for the most part composed of cartilage and muscles. The external ear, or pinna, consists of a flexible cartilage