

## POLYDACTYL CATS: EXTRA TOES ARE IN THE GENES

*Longhaired and white Bianca, who was born in Arizona, and scrappy orange tabby Ralph from the Bronx have something in common: the six toes they each have on their front paws. In cats, having supernumerary toes – a condition called polydactyly – is genetic. It shows up in cats that have the dominant gene, Pd. This means that a cat needs to have only one copy of this gene from either parent to have the trait.*

*The gene specifically affects the tissue formed at the very end of the limb, where the toes will form in the developing embryo. The tissue at the end of the limb is called the apical cap. Sometimes the limb cells will stimulate the cap cells, causing the cap to be larger than would normally be expected. These feline embryos will develop extra toes.*

*Polydactyly occurs in forepaws more often than hind paws. It never occurs in hind paws unless the forepaws also have extra digits. But the numbers of toes on each affected paw can differ. Ralph and Bianca both have six toes on each of their forepaws, but some cats have six on one and seven on the other. Other combinations also occur.*

*Studies done on polydactylous cats — beginning in the 1940s and continuing into the 1970s — showed that the trait probably initially occurred in cats who came over from England to the Boston area with the Puritans in the mid-1600s. It's also possible that the mutation developed in cats already in the Boston area. Scientists surmise that the immediate descendents of these cats may have lived on board on trading ships, and soon found their way to Halifax and Yarmouth, Nova Scotia – which now have sizeable multi-toed cat populations. When researchers were taking censuses of polydactylous cats, they found that areas close to Boston had greater populations of these cats than New York City or Chicago.*

*If your cat has supernumerary toes, make sure you clip the toenails on the extra toes. They tend to grow too long and may grow in a semicircle back into the paw. It's more difficult for polydactylous cats to keep these extra nails short.*

*Although having a lot of toes does not seem to confer either an advantage or a disadvantage for the cat, the animal does look different. Ralph's paws are large. But the extra (and claws) help make Ralph extremely efficient at tearing up cardboard boxes!*

