

Norwich Terriers, 5-15

Title: Ears Up! Do we really need to tape?

Ear carriage was not of great importance to the early English breeders who bred for a good-tempered, hardy little terrier capable of dispatching small vermin. In those early years, both prick-eared and drop-eared were crossed, and most ears were cropped (that is, until cropping became illegal). Although the early breeders did not intend to establish two varieties of Norwich Terriers, when the breed was recognized by The Kennel Club in 1932, ears became all important with many of the first show breeders favoring the prick ear. Experience had also shown that crossing drop and prick ears often resulted in uncertain ear carriage in the offspring, and even when correctly carried, whether drop or prick, breeders could not be sure what the next generation would produce. Inevitably, by the early 1930s the breed was dividing on ears. This was not without dispute. In fact, the president of the first Norwich Terrier Club (England) resigned when, despite his opposition, the standard included drop ears. Quarreling over the matter continued for nearly two decades, with some futile attempts to prove which ear carriage was the original, and therefore correct. Even the ear carriage of the breed's first champion was the subject of controversy. Earning his championship in 1935, three years after breed recognition, Ch. Biffin of Beaufin had ears which were "neither perfectly dropped nor perfectly erect". Drop-ear breeders declared Biffin as their own, while his litter sister was of importance in the prick-ear Norwich ancestry. In 1979 (15 years after separation of the Norwich and Norfolk in England), the American Kennel Club transferred all Norwich drop-ears to their new Norfolk breed stud book.

The prick ear is in the ancient cluster of genes —not surprising since dogs need ears to communicate. Whereas all adult wild canines have erect ears, domestic dog breeds are fixed for various ear positions, including either drop or prick ears. In Norwich Terriers, the little puppy ears are up at birth, but often drop for awhile and then pop back up. It is not uncommon to have one ear up and the other down, or to see ears up and down over several weeks. One explanation has been that ears drop when teething starts and come back up when adult teeth are in —the theory being that the body uses calcium as needed for teeth development, drawing from less essential activities like the development of ear frame cartilage. Breeders with a promising show prospect sometimes tape puppy ears when slow to come up. But, do we really need to tape ears?

To explore this question, we can turn to studies about the genetic architecture of key traits. In contrast to humans, the fairly recent process of breed formation has altered ancestral genetic variation of some key traits. In humans, the genetic architecture of most phenotypes (such as body size and shape, lipid levels, and so forth) appears to be controlled by hundreds of genes, with each gene contributing a small amount to the overall heritability of the trait. In contrast, in dogs, mutations with a large phenotypic effect appear to underlie many traits. The result is a wide phenotypic diversity of dog breeds from a narrow genetic base. Ear carriage is a key trait that varies noticeably among breeds.

Scientists at the National Institutes of Health have used a breed-mapping approach to investigate the genetic architecture of morphological variation. In one study using DNA from over 900 dogs representing 80 domestic dog breeds (and some feral dogs), they tested over 60,000 points of variation to find loci regulating a number of traits including head shape, body size, length and ear position. By looking for correlations between allele frequency and average phenotypic values, the scientists identified the genomic region associated with ear position and

reported that the derived allele at this locus was nearly fixed in “floppy eared” breeds consistent with the drop-eared position. Furthermore, these drop-eared breeds show sharply reduced heterozygosity which suggests that this region of the dog genome has undergone strong selection for drop ears. (<http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1000451>)

These findings are consistent with the evolution of Norwich Terriers and our experiences as breeders. We have, in fact, reshaped their genome on ear carriage. It is relatively uncommon to have problems with ears. One interesting exception occurred in the 1980s in descendants of the bitch Ch. Todwil’s Gentle on My Mind. She was a drop-eared puppy in a Norwich litter who was registered as a Norfolk Terrier in the United States, and (no surprise) produced “bad” Norfolk ears! According to those close to well-known breeder Joan Read (Chidley), she didn’t fuss with Norwich ears, even in the occasional puppy ear that was a bit slow.

Norwich ears usually come up. Even so, some breeders tape at four months to take the worry out of it. I’ve heard reports of late bloomers that took nine months. Most likely the timing of upright ears in Norwich simply follows the normal maturity process of cartilage, (and the timing with teething is coincidental), but is there a window of malleability? We don’t know. If done properly, there is no harm in taping a Norwich puppy’s ears for possible benefit (and our own peace of mind). But, perhaps we should also consider the bigger picture. If we tape ears, then we do not know what would have happened if left un-taped. And, if we keep puppies with difficult ears in our breeding program (ears that would not have come up without the tape), do we risk regression back to ears that are not perfectly erect (Biffin’s ears)? Of course we do.

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