

THE POTENTIAL HEALTH IMPLICATIONS OF EARLY NEUTERING IN LARGE BREED DOGS

There has been ongoing research into the potential effects of neutering and spaying large breed dogs prior to them reaching "Puberty", around 11-12 months in males and the first "heat" or estrus in females.

A recent research paper looking at samples of around 1500 dogs per group, specifically Golden Retrievers and Labrador Retrievers, assessed the incidence of orthopedic diseases including hip and elbow dysplasia and ACL (Cruciate) injuries as well as several forms of cancer.

The results show a significant increase in the risk for orthopedic problems in both these breeds if neutered before sexual maturity. The cause of this increased risk is thought to be due to the effect that rising hormones have on long bone growth. The rise in estrogen/progesterone and testosterone with puberty in dogs induces closure of the growth plates in the long bones, stopping further growth. Dogs neutered before puberty don't experience this rise in hormones and their long bones particularly continue to grow for a longer time resulting in greater height when growth does cease than their un-neutered counterparts.



This increased height changes the bio-mechanics of joint function and appears to cause some instability in developing joints leading to an increased incidence of orthopedic problems.

The effect on the incidence of certain cancers seems to be the most pronounced in Golden Retrievers and especially in female Golden Retrievers. The assumption is that hormones and especially estrogen have a protective effect or improve immune surveillance in decreasing cancer incidence. There appears to be no or minimal effect on increasing the risk of cancer in the Labrador Retrievers in the study.

The authors of the study also have soon to be published data on German Shepherds showing the same increased risk of orthopedic problems with neutering before puberty.

Although this research was directed at the 2 most popular dog breeds in North America we see ACL or Cruciate injuries as the most common orthopedic injury in all large and giant breed dogs.

Based on this information it is our general recommendation that clients consider delaying neutering of large breed dogs (60 – 100 lbs at maturity) until 11-12 months of age or after their first heat and giant breed dogs (100+ lbs at maturity) to 14 months or after their first heat. The study showed no difference in risk with age of neutering for smaller breeds which would include all breeds less than 40-50 lbs at maturity.

For more information on the study: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0102241>

The cost of the spay surgery for a mature large breed dog will be slightly higher than the cost of spaying an immature dog. The reason for the increased price is due to the somewhat longer anesthetic and surgery time given more development and vascularity of the reproductive organs post heat.