



01488-A: Health Implications of Spay and Neuter: Golden Retriever and Labrador Retriever

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Breed(s): Golden Retriever, Labrador Retriever

Disease(s): [Hip Dysplasia](#)

Project Summary

Studies in the last 10 years have pointed to broad adverse disease risks attributed to neutering. Yet, other work has profiled apparent increases in intact female dogs with mammary cancer and pyometra. Lacking specific information about disease risks, owners are left in the air as to how to use this information in decision making about spaying and neutering because the existing data-based studies have focused on just one breed and one disease, or combined all breeds together. Considering the differences among breeds in body size and the predisposition towards certain cancers or musculoskeletal disorders such as hip dysplasia and cranial cruciate ligament tears, one cannot currently weigh the relative advantages of proceeding with spay or neuter, and, if so, whether it should be conducted before or after puberty.

The absence of data-based, breed-specific information about the possible adverse effects of spay/neuter (hereafter referred to as neuter) on several diseases of importance to a **specific breed** represents a gap in the information needed to allow caregivers to become active participants in decisions related to the long-term health of their dogs. **In addition, given the strong attention that pet breeders give to breeding for a reduced tendency towards specific diseases that may plague a breed, one should know what diseases, if any, are affected by neutering for overall management of a disease important to the breed in question.**

This study focused on comparing the effects of neutering on increases or decreases in the risks of various diseases, primarily in the Golden Retriever and secondarily the Labrador Retriever. Disorders of the musculoskeletal system, particularly hip dysplasia, elbow dysplasia and cranial cruciate ligament tear were of major concern. Given the role of gonadal hormones in controlling the closure of bone growth plates, it should not be surprising that elimination of testosterone in males or estrogen in females through neutering may result in a significant increase in one or more musculoskeletal disorders. Cancers, including lymphoma, mast cell tumors, osteosarcoma,

hemangiosarcoma and mammary cancer, were the next set of diseases examined. Lastly, urinary incontinence and pyometra were examined.

The database for Golden Retrievers included 789 cases examined from the computerized hospital record system of the UC Davis, Veterinary Teaching Hospital, with case records going back 15 years prior to the start of the project. When the data were examined without regard to age at time of neutering, the incidence of most syndromes was low enough that even a 2- or 3-fold increase in the incidence of a disease syndrome between neutered and intact females or males did not reach significance.

With 2,018 cases for Labrador Retrievers, analyses resulted in more frequent statistical significance, profiling an impact of neutering, particularly on musculoskeletal disorders. Hip dysplasia was significantly increased in both sexes and elbow dysplasia in males. The study involving a differentiation between neutering done at 1 year of age or sooner (early), and that done after 1 year (late), in Golden Retrievers was very telling. When all three musculoskeletal disorders were combined to determine the risk of an early neutered dog acquiring at least one of these disorders, there was a risk of about 25% in males and 20% in females, compared to a 5-6% risk in intact dogs.

While still preliminary, these results are of serious importance to breeders and owners of Golden Retrievers. **Of the cancers, lymphoma was significantly increased in both female and male dogs neutered at or before 1 year. Mammary cancer was very rare in both intact and neutered females, as was pyometra.**

This project lays out, more than any other study, the consequences of early neutering, and when completed, should provide useful information in managing the major decision as to when, and if, to neuter their puppy.