

Deciding Whether and When to Neuter a Golden Retriever

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A focus on the serious issues of pet overpopulation and unwanted puppies has led to the common practice of neutering dogs prior to sexual maturity, often near the age of six months. While this clearly helps reduce unplanned breedings and thereby may serve the public interest, research is increasingly showing that it may not be in the best health interests of an individual dog with a responsible owner. Breeds of dogs vary considerably with regard to their rate of maturity and risk for specific diseases, and the interaction of these factors with natural hormones should properly be taken into consideration when deciding whether and when to neuter a dog. However, appropriately tailoring neutering recommendations to a breed requires awareness of the ways in which neutering and the age of neutering affect specific breeds, and it may be impossible for veterinarians to know this in detail for every breed.

Therefore, below is a review of health consequences to consider when deciding whether and/or when to neuter a Golden Retriever. The term “Golden” will be used when the data are specific to Goldens, and most of this data come from a large breed health survey scientifically conducted and analyzed by a veterinary epidemiologist () The term “dogs” will be used when the data are applicable to many breeds, and supporting references are provided. In some cases the findings have been substantiated across many breeds, but relative risk is also defined specifically for Goldens. The term “neuter” refers to either sex.

Please note that there are both health benefits and detriments associated with neutering and various neutering ages, so decisions will need to balance these complex factors. It is relevant to consider what diseases are more and less common in the breed, and also what diseases have greater or lesser consequences to the dog, so that information is also provided. For example, it is important with reference to cancer risk to know that 18% of all Golden Retrievers die from hemangiosarcoma but that testicular cancer is rare (less than 1/2 of 1%), so that appropriate weight can be given to the effect that neutering has on each of those cancers.

Health Consequences Associated with Neutering and the Age of Neutering

- Neutered dogs have a higher incidence of hypothyroidism than do intact dogs. Male Golden Retrievers neutered prior to one year of age have an 80% increased risk of hypothyroidism and female Golden Retrievers neutered prior to one year of age have a 60% increased risk of hypothyroidism, as compared to those neutered after one year of age or not neutered. Hypothyroidism is a common but treatable disease in the breed.
- Neutered dogs have a greater incidence of hip dysplasia and torn cruciate ligaments than intact dogs, and there is some evidence to suggest that this risk is most pronounced in dogs neutered prior to sexual maturity. Hip dysplasia is common in Golden Retrievers, and torn cruciate ligaments are less common but not rare. Both of these diseases can be treated surgically, but treatment is costly and success is variable depending on many factors.
- There is some evidence that the incidence of cardiac hemangiosarcoma is greatly increased (2-5 times) in neutered dogs, and that the risk of splenic hemangiosarcoma may also be increased in neutered dogs. Hemangiosarcoma is the most common cancer in the breed, causing the death of approximately 1 in 5 Golden Retrievers. Most of these tumors occur in the spleen, with fewer but still a substantial number in the heart. This is a rapidly progressing and incurable cancer.
- Several studies indicate that the incidence of osteosarcoma (bone cancer) is significantly higher in neutered dogs than in intact dogs, but there is some evidence that this increase is not as great when neutering occurs after sexual maturity. This cancer affects about 5% of Golden Retrievers, and is not curable.

- Dogs neutered prior to sexual maturity grow taller than their natural genetic potential, and their bone structure is altered toward a more narrow, lanky appearance. Taller Golden Retrievers have shorter life spans than shorter Golden Retrievers. Among male Golden Retrievers, the shortest males live 2.2 years longer than the tallest males; and among female Golden Retrievers, the shortest females live 1.1 years longer than the tallest females. It is unlikely that neutering a Golden Retriever prior to sexual maturity will alter the dog's potential height from extremely short to extremely tall, but it will make a noticeable difference in height and thus potentially in life span.
- Neutered females have a greatly increased risk of urinary incontinence as compared to those not neutered, but there is some evidence that this increased risk is less significant for dogs neutered after sexual maturity. Urinary incontinence is neither common nor rare in Golden Retrievers, and can often (but not always) be treated successfully.
- Females neutered prior to their first heat cycle have less than ½ of 1% chance of developing mammary cancer (breast cancer). In females neutered after the first cycle but before the second, this risk increases to 4%. And if a female is not neutered until after her second heat cycle, this risk increases to about 13%. If detected early through regular mammary exams, most but not all mammary cancers can be treated successfully with surgery and sometimes additional therapies.
- Males with one or more testicles located in the abdomen (cryptorchidism) are at high risk for testicular cancer and should be neutered prior to 15 months of age, which eliminates this risk. It is not necessary to neuter these dogs prior to sexual maturity to avoid testicular cancer. Testicular cancer is rare (less than ½ of 1%) in dogs with both testicles normally descended into the scrotum.
- Females that remain intact are exposed to a significant risk for pyometra (a life threatening uterine infection) that rises with every heat cycle, particularly after the age of five years. Pyometra is a common and rapidly progressing disease in Golden Retrievers that must be diagnosed promptly to be successfully treated.
- Males that remain intact frequently develop an enlarged prostate gland (benign prostatic hyperplasia) as they age, particularly over the age of seven years. This is

not a serious disease, and while it can sometimes be managed medically, neutering affected dogs is curative. This is not to be confused with prostate cancer which is uncommon in the breed, although more common in neutered males than intact males.

Taking all of the above factors into consideration, there is good evidence to support that it is in the best overall health interests of the dog to neuter female Goldens after sexual maturity, at approximately one year of age. This typically allows a female to have one heat cycle but not two, which keeps the risk of mammary cancer low while still providing her with some important health benefits gained by maturing with natural hormones. Of course, the female must be kept on leash or securely fenced away from males for the full three weeks of her heat cycle to avoid unwanted pregnancy, so this should not be undertaken unless the owner is able to be certain that there is no possibility of an accidental breeding.

There are no clear significant health benefits to neutering a normal male, so this decision should be based on factors other than the health of the dog, such as preventing unwanted breedings, reducing the risk of male-to-male dominance/aggression, and reducing roaming behavior and urine marking. If a male is going to be neutered, there is good evidence to support that it is in the overall best health interests of the dog to neuter male Goldens after sexual maturity, at approximately one year of age. Neutering a male after two years of age has less impact on behavior, so if behavioral considerations are important to the owner, neutering should be done prior to the age of two.

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