



# Golden Retriever

## Update

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## Study Evaluates the Effects of Early Neutering and Spaying in Golden Retrievers

**A** search for a quality Golden Retriever to handle in junior showmanship led Liz Bultman to breeder Rhonda Hovan. As they got acquainted by e-mails, Hovan was impressed that Bultman wanted to be sure that Hovan would not require her to neuter or spay the dog at an early age.

The possible health effects of early spaying and neutering is a topic Hovan, the research facilitator for the Golden Retriever Club of America, holds close to her heart. "For years when I looked at adult dogs that I'd bred, I saw marked physical differences between those sold as show prospects and those sold as pets," says Hovan, of Akron, Ohio, who has bred Golden Retrievers under the Faera prefix for more than 40 years. "The dogs sold as pets were tall and lanky, with no bone and pointy muzzles. I'd look at them and wonder how they got so tall."

Hovan began to realize a key difference was that the Goldens intended as show prospects were kept intact. Those sold to families as companion animals, or pets, were routinely neutered. Hovan, like most breeders, requires pet owners to spay and neuter dogs. She began noticing that the age at which dogs were spayed or neutered played a role in the way they looked as adults.

Following the guidance of her mother, a board-certified canine and feline practitioner with a large number of Golden Retriever clients, Bultman presented her concerns to Hovan.

The junior handler explained that early spay and neuter surgeries may contribute to cruciate ligament and other orthopedic injuries.

Her mother, Terri Hartung, D.V.M., DABVP, who practices at the Redmond-Fall City Animal Hospital in Redmond, Wash., says, "I remember when people allowed a bitch to have one heat before spaying her. Then, people began neutering young puppies, and now most people seem to have settled on the age of 6 months for neutering or spaying. A balance needs to be established about what is best for an individual dog."

Historically, the rationale for neutering or spaying dogs seems evident: no unwanted litters, no indiscriminate breeding by ill-informed owners, no bitches coming into season, and reduced aggression and roaming tendencies in males. However, recent findings give breeders reasons to think twice about the age recommendations they give puppy buyers for spaying and neutering pets.

Among the concerns associated with spaying or neutering prior to sexual maturity are increased risks of hip dysplasia and torn cruciate ligaments, possibly decreased life span, some evidence for increased incidence of hypothyroidism, hemangiosarcoma and osteosarcoma. On the flip side is concern that intact bitches are at risk for mammary cancer. (See Health Considerations of Early Spay and Neuter Surgeries on page 2.)

### Beyond Behavioral Changes

The health effects of neutering and spaying on Golden Retrievers and Labrador Retrievers has been the focus of a recent study. Comparing data on disease incidence and a dog's reproductive status, the researchers have documented correlations that go beyond behavioral changes. The data analysis continues, with publication in a peer-reviewed journal expected in 2012.

Lead investigator Benjamin Hart, D.V.M., Ph.D., DACVB, distinguished professor emeritus in the Department of Anatomy, Physiology and Cell Biology at the University of California-Davis School of Veterinary Medicine, says, "The time had come to examine the biological and disease-related issues associated with neutering. There is much misconception related to the impact neutering has on an animal and whether the age of neutering makes a difference."

The study, which was funded by the AKC Canine Health Foundation, tapped into disease epidemiology data from the national parent breed clubs and the Foundation. The veterinary database at the University of California-Davis Veterinary Teaching Hospital provided information about diagnoses and tests performed on 789 Golden Retrievers and 2,018 Labrador Retrievers.

"We knew that we needed the research to be breed-specific, rather than generalizing across breeds," Hart says. "We chose Golden and Labrador

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retrievers because they are popular breeds that would give us the large population numbers needed to generate data for a solid analysis.”

One resourceful tool was published results from a national health survey conducted in 1998 by the Golden Retriever Foundation and the Golden

Retriever Club of America. The comprehensive questionnaire gathered information from club members via mailed surveys, with the results posted on the parent club website ([www.grca.org](http://www.grca.org)). The database included information about 1,444 Golden Retrievers from 746 respondents.

A clinical animal behaviorist, Hart has devoted his career to studying the behavioral effects of castration on dogs, cats and horses. “Behavioral issues, particularly in males, are often cited as a reason to neuter early,” he says. “As far as we know, in all the animals we examined scientifically, the age of

### Health Considerations of Early Spay and Neuter Surgeries

Health Risk	Finding	Source(s)
Hip Dysplasia & Torn Cruciate Ligaments	Sex hormones are needed to achieve peak bone density. Neutering before puberty produces taller dogs by delaying the closing of the growth plates and allowing the dog to continue to grow past puberty. Body proportions and the relative length and weight of various bones are altered, which can lead to increased incidence of hip dysplasia and torn cruciate ligaments.	Slauterbeck JR, Pankratz K, Xu TK, Bozeman SC, Hardy DM. Clin Orthop Relat Res. 2004;429:301-305.; Zink C. Early Spay-Neuter Considerations for the Canine Athlete: One Veterinarian's Opinion. 2005. <a href="http://www.caninesports.com/SpayNeuter.html">www.caninesports.com/SpayNeuter.html</a> ; Gilsanz V, Roe TF, Gibbens DT, Schulz EE, Carson ME, Gonzalez O, Boechat MI. Am J Physiol. 1998;255:E416-E21.; <a href="http://www.ncbi.nlm.nih.gov/pubmed/18052804">http://www.ncbi.nlm.nih.gov/pubmed/18052804</a>
Decreased Life Span	Neutering before puberty produces taller dogs, and increased height corresponds with shorter life spans in Golden Retrievers. The shortest male Golden Retrievers live 2.2 years longer than the tallest males; the shortest bitches live 1.1 years longer than the tallest bitches.	Waters DJ, Kengeri SS, Clever B, Booth JA, Maras AH, Schlittler DL, Hayek MG. Aging Cell. 2009;8(6):752-755.; Golden Retriever Club of America National Health Survey, 1998-1999.
Hypothyroidism	Golden Retriever males neutered before 1 year of age have an 80 percent greater risk of hypothyroidism. The risk is 60 percent for Golden bitches spayed before 1 year of age.	Zink C. Early Spay-Neuter Considerations for the Canine Athlete: One Veterinarian's Opinion. 2005. <a href="http://www.caninesports.com/SpayNeuter.html">www.caninesports.com/SpayNeuter.html</a> ; Panciera DL. J Am Vet Med Assoc. 1994;204:761-767.; Golden Retriever Club of America National Health Survey, 1998-1999.
Hemangiosarcoma	A retrospective study showed neutered dogs and spayed bitches have a two to five times greater risk of cardiac hemangiosarcoma. Hemangiosarcoma is the cause of death for one in five Golden Retrievers.	Zink C. Early Spay-Neuter Considerations for the Canine Athlete: One Veterinarian's Opinion. 2005. <a href="http://www.caninesports.com/SpayNeuter.html">www.caninesports.com/SpayNeuter.html</a> ; Ware WA, Hopper DC. J Vet Intern Med. 1999;13(2):95-103.; Golden Retriever Club of America National Health Survey, 1998-1999.
Osteosarcoma	Osteosarcoma affects 5 percent of Golden Retrievers, and several studies have shown the cancer to be significantly more common in neutered and spayed dogs.	Zink C. Early Spay-Neuter Considerations for the Canine Athlete: One Veterinarian's Opinion. 2005. <a href="http://www.caninesports.com/SpayNeuter.html">www.caninesports.com/SpayNeuter.html</a> ; Cooley DM, Beranek BC, Schlittler DL, Glickman NW, Glickman LT, Waters D. Cancer Epidemiol Biomarkers Prev. 2002; 11(11):1,434-1,440.; Golden Retriever Club of America National Health Survey, 1998-1999.
Urinary Incontinence	Results of studies not consistent, but early spaying seems to increase the occurrence of urinary incontinence in bitches. Early neutering also may correlate with increased urethral sphincter incontinence in males.	Zink C. Early Spay-Neuter Considerations for the Canine Athlete: One Veterinarian's Opinion. 2005. <a href="http://www.caninesports.com/SpayNeuter.html">www.caninesports.com/SpayNeuter.html</a> ; Stocklin-Gautschi NM, Hassig M, Reichler IM, Hubler M, Arnold S. J Reprod Fertil. Suppl. 2001;57:233-236.; Aaron A, Eggleton K, Power C, Holt PE. Vet Rec. 1996;139:542-546.
Mammary Cancer	For bitches not spayed before the second heat cycle, the risk of mammary cancer increases to 13 percent. If allowed to have one heat cycle, the risk is 4 percent, and if spayed before the first heat cycle, the risk decreases to less than 0.5 percent.	Schneider R, Taylor CR, Taylor D. J Natl Cancer Inst. 1969;43:1,249-4,261.

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neutering makes little difference whether a behavior is changed. Only about 25 to 30 percent of the dogs we studied show a major change in behavior after neutering.”

### An Individual Basis

In her veterinary practice, Hartung takes time to learn about the lifestyle and goals of pet owners. She estimates that among her clients with large breeds, about 75 percent of male dogs are neutered after 1 year of age and 50 percent of bitches after their first heat.

“I lean toward neutering dogs younger when I think there is risk of an accidental litter or if the temperament of the dog warrants it,” she says. “People who enjoy activities like going to dog parks don’t want to sit out during a bitch’s heat cycle. For these clients, I emphasize the important of practicing obesity prevention.

“I also urge owners to regularly do breast exams on bitches throughout life so mammary growths can be detected when they are tiny. In countries where most bitches are left unspayed, the statistics are clear that intact bitches are at increased risk for mammary cancer.

The question is how does spaying at 12 months, which is very different from leaving a bitch intact throughout life, alter the risk?”

Hartung’s recommendation for people who compete in sports with their dogs is to wait until a dog is older. “There is quite a bit of orthopedic data and anecdotal information about the potential ill effect of early neutering on performance dogs,” she says. “Agility is huge in our area. I advise people to wait.”

Hovan, too, supports waiting to spay bitches until after their first heat cycle and waiting to neuter males until they are between 12 and 24 months of age. After researching the topic, Hovan wrote a reference-supported article, titled “Deciding Whether and When to Neuter a Golden Retriever,” which she shares with puppy buyers and suggests that they share with their veterinarians.

“Most buyers are surprised when I point out the risks and benefits,” Hovan says. “I have a discussion with them in which I tie into my health guarantee the age of neutering, exercise recommendations and target weights.”

Hovan notes that while waiting past

6 months of age to spay or neuter a pet puppy may be contrary to recommendations by many pet welfare organizations, it works best for her and her Faera Golden Retrievers sold to families as pets. “In my view, it comes down to the careful selection of puppy buyers, providing education and follow-up with owners to be sure they make the right decision for their Golden Retriever puppy and themselves,” she says.

More research is needed to document the health effects of early spaying and neutering, Hartung says. “The reason people get different recommendations is because veterinarians try to weight their own experiences with incomplete and sometimes conflicting studies, anecdotes and the particular situations of their own clientele,” she says. “I welcome more hard data on this topic.”

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