



When to Neuter

An evidence-based look at the pros and cons of early sterilization

Now that your new puppy is settling nicely into his new home, you'll probably be checking your list of puppy needs for the near future. If your pup isn't already neutered or spayed, you must decide whether he'll be sterilized. Once you decide, you'll likely wonder when the best time would be to have the procedure done.

There's probably no better subject for our first column on evidence-based canine health care than the benefits and risks of early-age sterilization. Evidence-based medicine for dogs, as well as people, involves making health decisions based on the best, most up-to-date scientific research in addition to their doctor's opinions and experiences. There's a wealth of expert *opinions*, but research into the health effects of early-age sterilization is harder to come by.

Spaying (the surgical removal of a female's uterus and ovaries) and castration (the removal of a male dog's testicles) are necessary for decreasing the population of unwanted animals in shelters and rescues. Neutering, however, deprives dogs of sex hormones that have many effects on their health, some beneficial and some not.

Weighing Benefits Against Risks

Veterinarians know a lot more now about the health benefits and risks of neutering than they did a decade ago. They used to think removing a dog's testicles could help protect him from prostate cancer. We now know it doesn't.



In fact, neutered dogs are two to four times more likely to develop the usually fatal cancer than intact dogs. Castration does eliminate the risk of testicular cancer and other prostate problems, but these are not as deadly as prostate cancer. Although spaying prevents uterine infections and ovarian cancer, it increases the risk of urinary incontinence.

Because early-age neutering has only recently become widespread, we have few studies to show us its risks and benefits. These studies show neutering at an earlier age reduces surgical complications as well as the dog's recovery time from anesthesia and surgery. And they confirm that spaying a female before she is sexually mature substantially lowers her risk for mammary cancer—the most common, often fatal cancer in dogs. They also show neutering dogs before they mature may increase certain risks.

For example, depriving growing dogs of sex hormones can allow some bones to grow longer than they normally would. This can place unhealthy stress on parts of their skeleton, especially in larger breeds. Dogs neutered before maturity are at increased risk of hip dysplasia, of rupturing the anterior cruciate ligaments (ACL) in their knees, and some other skeletal problems, which can lead to disability, chronic pain, and large veterinary bills. And they are at greater risk for bone cancer.

People often cite the benefits of neutering on dog behavior as another reason to neuter early, but studies show the effects of neutering on aggression varies so greatly among breeds that no generalization can be made at this time.



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Health Benefits and Risks of Early-Age Sterilization

BENEFITS

Male and Female:

Surgery and anesthesia times are shorter
Faster recovery from anesthesia and healing
Fewer surgical complications

Female:

Reduces risk of mammary cancer, especially when spayed before second heat cycle

RISKS

Male and Female:

3-4 times higher risk of bone cancer if sterilized before maturity (dog finished growing)
Greater risk of hip dysplasia if sterilized before 5 months
Greater risk of ACL ruptures if sterilized before maturity
Risk of uneven bone growth that may lead to altered conformation and increased stress on bones and joints if sterilized before maturity

Female:

2-3 times greater risk of blood-vessel cancer of heart or spleen (hemangiosarcoma)
Greater risk of urinary-tract infections caused by immature genitalia
Greater risk of urinary incontinence, especially if spayed before 3 months

Male:

Nearly doubles risk of blood-vessel cancer of heart (hemangiosarcoma)

Risks and benefits come from summaries of published research provided by the American College of Theriogenologists, the National Animal Interest Alliance, the *Third International Symposium on Non-Surgical Contraceptive Methods for Control*, the *Journal of the American Veterinary Medical Association*, and the Association of Animal Behavior Professionals.

Making a Decision

The risks and benefits of neutering are not the same for all dogs, which is why most experts agree that a dog's sex, age, breed, health condition, temperament, and activities must be considered when deciding to neuter.

Humane organizations neuter puppies before offering them for adoption to reduce the need to euthanize unwanted animals. But when deciding on neutering an individual pet, population control should be a less important concern than the health of that animal, the American College of Theriogenologists says.

Neutering has health benefits and risks, and both should be considered, Hennis Maxwell, DVM, says. Maxwell is a diplomate of the college, which

provides board certification for veterinary reproduction specialists. "There is no totally correct answer to the question about the optimum age for the procedure," he says. "Owner concerns, breed predisposition, and specific situations related to each case and patient can all be weighed in making that judgment."

To make the best decisions for the pets they love, owners should ask their veterinarians to explain the evidence for benefits and risks regarding all treatment options. 🐾

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