

## SPAYING AND NEUTERING

### *What is it?*

Spay is an old slang word for ovariectomy (OVH or OHE), the removal of both ovaries and the uterus. There are several theories where the word comes from. One is that the instrument used to hook the uterine horns and pull them up resembles a spade. One is that it is derived from an old German word referring to the ovaries. It is only used when speaking about female surgery.

Neuter technically means “neither sex” and should refer to either sex’s surgery, but has come to commonly be used only for males. Castration is used only for male surgery. The technical term is orchiectomy, the removal of the testicles.

### *What does the surgery entail?*

For both sexes, food is pulled up the night before surgery, but water is allowed up to surgery. This is because some anesthetics can cause vomiting and if food is vomited and accidentally aspirated, it can cause really bad pneumonia as the food decomposes in the lungs. Water is not a problem because liquids leave the stomach very quickly and should water be vomited and aspirated, it is absorbed.

### Spay surgery

The dog/cat is anesthetized and placed on her back. The abdomen area is shaved and surgically scrubbed. An incision is made along the midline of the body, parallel to the length of the body, through the skin and the line where the abdominal muscles meet. For dogs, this incision is closer to the umbilicus. For cats, it is closer to the pelvis. The abdomen is opened. A hooked instrument is used to find the uterine horns and pull them up and out of the body. This exposes the ovaries. Ligations are placed around the blood vessels leading from the kidney area to the ovaries. The uterus is exposed to the level of the cervix. Ligations are placed around the uterus and its vessels near the cervix. The ovaries and uterus are then removed. The abdominal muscles are closed. Then 2 layers of sutures under the skin. Sometimes the last knot buries well and sometimes not. If not, then it will be cut at the recheck. Skin glue is applied to cover the incision edges. From surgery, the dog/cat goes to recovery, a warm room, to finish waking up.

## Neuter surgery

For cats, the cat is anesthetized and placed on its side. The hair over the testicles is plucked out and the area is cleaned. A small incision is made through the skin of each side of the scrotum, and the testicle is pulled out through the hole. Ligations are placed around the vessels and vas deferens (sperm carrying tube). The incisions are left open to heal---this is a touchy area and any attempt to suture causes major irritation. From there, the cat goes to recovery.

For dogs, the dog is anesthetized and placed on his back. The skin is shaved in the area between the tip of the prepuce (skin over the penis) and the scrotum, and the area surgically scrubbed. An incision is made along the midline closer to the scrotum. The testicles are pushed from the scrotal sac to each side of the incision. A second, deeper, incision is made over the testicle and it is pulled out. Ligations are placed around the vessels, vas deferens (sperm tube), and tunic (covering of the testicular unit). The 2 deeper incisions are closed. Then 2 layers of under the skin sutures are placed. If the final knot doesn't bury, it will be cut at the recheck. Skin glue is applied to cover the incision edges. From there the dog goes to recovery.

### ***What anesthetics are used?***

Generally, morphine is given pre-op. along with a sedative, which could be either midazolam (valium family) or Domitor (sedative and pain reliever). This is given IM. About 20-30 minutes later, an IV catheter is placed to start IV fluids (except in cat neuters, as they are very quick). We usually use a combination of ketamine and midazolam, or propofol alone as the IV anesthesia. Then the animal is intubated for isoflurane gas anesthesia for the duration of surgery. Again, because of the very short surgery time, male cats for neutering do not get IV anesthetics. After the IM injection, they are masked down with isoflurane and the surgery is completed.

### ***What about monitoring?***

The pet is observed for breathing, heart rate, blinking or not, eye roll (you see more of the white of the top of the eye under anesthesia).

We use an audio patient monitor. This is a stethoscope that runs down the esophagus, so it lies very near the heart. It is hooked to an amplifier so everyone in the room is able to hear it without using ear pieces.

We also use a pulse oximeter/capnometer. The oximeter is placed on the tongue (like a soft clothes hanger). It reads the heart rate and the percent of oxygen in the blood. The capnometer fits along the tubes feeding the gas/oxygen mixture to/ from the pet. It measures the number of breaths.

### ***What about pain?***

The morphine (+/- Domitor) pre-anesthetic is given pre-op. Most dogs will also receive Rimadyl, but small dogs and cats are usually given Metacam. Rimadyl and Metacam are NSAID type pain relievers. Later in the day, as more pain relief is needed, another injection of morphine or of buprenorphine (another narcotic) is given. The pet goes home with oral Rimadyl or Metacam for a few days.

### ***What about recovery time at home?***

You will most likely be surprised at how fast your pet comes around. The nite of the surgery, some animals will want to eat/ drink and some won't. They all should be eating and drinking by the following morning. You will definitely notice that your pet isn't 100% when picked up the day of surgery, but most are back to normal by the next day. Ideally, they shouldn't do a lot of running or jumping for several days. Sometimes this requires cage confinement. Most pets will leave incisions alone, but there are a few who will lick or chew at the incision. These pets will require the use of some kind of special collar so that they can't get to the incision. Owners need to observe the incisions frequently and call if there is swelling, redness, or oozing. After the recheck in 10 days, most pets can do anything they want to (although baths should probably wait another week).

### ***Why should I spay/neuter?***

Females spayed before the age of 2 years old are way less apt to get breast tumors. The more heat cycles they experience, the more estrogen they receive, the more apt to get tumors they are. Spaying before the first heat can decrease breast tumor formation by up to 98%.

Older female dogs are more prone to pyometra (pus in the uterus), which happens after a heat cycle. They are very ill. Spaying can be curative, but with the tests to diagnose the problem, hospitalization for IV's and antibiotics, and longer surgery times needed, it can cost 4-8 times as much as a young healthy animal spay.

Spaying stops the female from having estrus (heat) cycles. In the dog, this would mean no more dripping blood. In the cat, no more caterwauling/ writhing around when in heat. In both cats and dogs in heat, some will urinate around the house (it leaves a scent trail for males to find them). They are less apt to want to run away.

Neutering eliminates the possibility of testicular tumors. It prevents hormonal related (benign, non-cancerous, but messy) tumors around the anus and tail. It stops hormonal enlargement of the prostate (benign prostatic hyperplasia, or BPH). It is unknown whether it truly has a protective effect against prostatic cancer (it is a very uncommon cancer), but if the cancer occurs, it is part of the treatment. Some males become extremely anxious when a female is in heat and they can't get to her. Both cats and dogs are more apt to run away to find females in heat, and to fight with other males for her.

Both male cats and dogs have strong smelling urine when intact. Neutering will decrease that odor.

Neutering male cats usually completely stops them from urine marking.

Your Lake County rabies tags are significantly cheaper when the animal is spay/neutered versus intact. Currently, a 1 year tag s/n is \$10, while intact is \$40. A 3 year tag s/n is \$25, while intact is \$125.

### ***Are there any side effects with spay/ neuter?***

Spaying and neutering can decrease the metabolic rate. Therefore, the pets need to be watched closely to see if their diet needs to be changed to avoid obesity. Spay/neuter does NOT cause obesity---overfeeding/ under exercising does.

Although spay/neuter can be done as early as 8 weeks of age, most private practice veterinarians do not perform the surgery until the animal has finished the vaccine series, usually at 4 or more months. There are some people who advocate waiting until the animal is 1 year old. Especially in larger breed dogs, there are those that feel that waiting til after 1 year will reduce the problems with hip dysplasia (it is a genetic disease, you either have it or don't, but many things can affect how *bad* you have it). Some also feel that early spay/neuter tends to cause the animal to grow overly large (ie, tall/ big, not fat).

Some females will show signs of urinary incontinence, usually years after the surgery. This is usually easily fixed with medications. Ultra low doses of

estrogens and phenylpropanolamine are both used.

Spay/neuter will NOT calm a hyperactive dog. The only calming affect is if the animal is a little nutsy when either she is in heat, or he knows there is a female he can't get to.

Some people feel that, in those breeds more prone to it, spay/neuter increases the incidence of hypothyroid disease. But, this disease is readily treated with a fairly inexpensive hormone replacement pill.