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Neutering of Cats and Dogs

(A Balanced Approach)

Neutering your pet, whether they are a male or female, is done on a daily basis all around the world and is a routine procedure that carries few complications. The main reason for neutering being carried out is for population control, and in this respect it has made a huge difference to the welfare of many animals, and their owners. In the 1980s alone in the USA, 17 million dogs and cats were euthanased yearly, due to overpopulation. With the increase in incidence of neutering, this is now down to about 3-4 million per year. This is still a lot – is this acceptable? In the last few years the general consensus that all owners should neuter their pets has been under much debate, with regard to whether it is absolutely necessary, and if it is beneficial, or if there is some harm to doing so. This subject will always cause some debate and there is not always a black and white answer depending on your reasons for neutering. We are looking now at a more individualised view for each owner and animal, versus the traditional recommendation to neuter all cats and dogs, but in doing so this relies on a lot of individual owner responsibility. Are all owners responsible enough?
Unfortunately, while we would like to think that everyone in NZ is a responsible dog owner, it only takes a visit to an SPCA, a shelter or pound to see the number of unwanted dogs and cats to realise that this is not the case. The consequences of not neutering such as disease, trauma, cancers, mismatings and unwanted litters are something we as veterinarians still deal with on a daily basis.
You are under no obligation to neuter your dog in NZ. We feel that if you are not intending to breed from your dog neutering is a very good idea, and that the benefits heavily outweigh the risks. The timing of neutering surgery is under ongoing debate.
For completeness, there is hormonal contraception for bitches available. We advise its long term use with caution.

<u>Spaying and Castration:</u> Benefits vs. Risks

Neutering of a female dog is called spaying. Neutering of the male is called castration. In NZ the most common reason for carrying out this procedure is for population control, as it is in America and most parts of the world. Some countries in Scandinavia appear to not have a stray dog population; all dogs are microchipped and owners are ultimately responsible for locking up their dogs to ensure no roaming and therefore no unwanted pregnancies.
However the incidence of dog bites in Norway has been noted as being very high; likely due to increased aggression in unneutered dogs. Interestingly, because Norwegians “cannot control their cats and avoid them roaming” neutering is normal practice for cat population control.
With regard to neutering your dog, the most common reasons for doing this operation in NZ are still:

- To prevent unwanted pregnancy and litters.
- To prevent the often undesirable behaviours associated with heat cycles (bleeding, attractiveness to males, roaming and consequences of this (in particular car accidents), socialisation limitations, false pregnancies).

- To decrease inter male aggression, roaming in the male.
- Prevention of sexually transmitted disease (although rare in NZ).
- To limit the high chance of developing mammary tumours later on in life (50-60% of mammary tumours are malignant), and testicular cancer in males. Prostate disease is also minimised.
- To prevent life threatening pyometra (infection in the uterus) later on in life – a 23% chance of this happening if a female remains entire.

The risks and possible negative adverse effects of neutering can include:

- General anaesthetic risks as with any surgery
- Surgical risks such as intra-operative bleeding, infection, damage to other organs
- Obesity post neutering (discussed below)
- Urinary incontinence post-spay – probably the most common known complication in females, but rates of this vary from 1 to 15% depending on what study you read. It is readily treatable with hormone replacement type medications.
- A possible link with increased risk of cranial cruciate ligament rupture in large to giant breed dogs if neutered before puberty – more studies are showing this to be a high possibility however nothing has been definitely proven. But we are inclined to discuss this with owners in the timing of neutering of the large breeds especially males who appear to be at a higher risk to let them know of this possible link.
- A possible link to an increase in incidence of some cancers such as was shown in one UC Davis study – however we must be very cautious at the interpretation of some of the data and also the study in general as none of it has been definitely proven. We feel that the significantly higher risk of developing life threatening pyometra and/or malignant mammary cancer still totally outweighs the small possible risk of these other cancers. More studies need to be done.

Types of Surgery

Ovariohysterectomy (OVH) or Ovariectomy (OVE)

In NZ traditionally the surgery we perform is typically an **ovariohysterectomy (OVH)** – removal of both ovaries and uterus. We advocate this method. A dog has a bi-cornuate uterus with two horns and the usual method is to remove both of these horns where they join in front of the cervix. The reason for performing both an ovariectomy and hysterectomy has been to remove the source of hormones (ovaries) to get all the benefits of spaying and also to remove the uterus to prevent disease in this organ. In some countries in Europe they have traditionally performed ovariectomy **(OVE)** only and there is some reported slight increase in incidence with regard to possible complications in an **OVH** vs. an **OVE** (these are minimal and are still possible with either operation). An OVH generally would require a slightly larger wound and slightly longer surgical time; however this may also be surgeon dependant. Percentages of surgical complications varies depending on what report or study you read and can vary anywhere from 0.1% up to 20% for either method. In our clinic we would anticipate surgical complications as being less than 5%. Some reports from the USA show dogs that have had previous ovaries removed only, or tubal ligation to have required further surgery in the future to remove the uterus if diseased. There are also reports of dogs that have had ovaries removed after being unknowingly mated and then gone on to have puppies. With the possibility of exogenous hormone exposure (from the environment/topical preparations from humans etc), there is still a chance of developing uterine infection and tumours, and this is why most veterinarians in NZ continue to do a full OVH. The risk of developing uterine complications if left is low however and we can perform an OVE here in Cambridge if you wish. Both of these procedures can be done via laprascope (we don't have this capability at our clinic but we can refer you to a surgeon who does).

While the wound and any complications are generally smaller with this technique, in terms of surgical time and recovery post surgery, it is about the same as a standard spay operation.

Tubal Ligation

Tubal ligation involves the tube between the ovary and the uterus (fallopian tube) being ligated or cut and therefore the egg cannot pass into the uterus for fertilisation. This procedure is not generally carried out in NZ mainly because the only thing this method does is prevent pregnancy. It does not prevent the dog from cycling and therefore she has all the behaviours associated with being essentially an intact female. There is risk with this method of uterine or ovarian pyometra because the hormones are still present that induce these conditions, and this may even be increased compared to not spaying at all as foreign material is being introduced into the abdomen permanently to ligate and cut the tube. In fact some dogs that have had tubal ligation in Europe have then required further surgery due to complications from this method such as infections around the ligation site. We do not advocate this method.

Castration

Castration in the male involves surgical removal of the testicles. The procedure is straightforward, so long as both testicles are descended into the scrotum. If one or both testicles are not descended they need to be removed, as they are considered precancerous. This may involve removal from the abdominal cavity.

Discussion

With regard to female dogs and their reproductive cycles, we must remember that the endocrinology is different to that of other species and we need to be careful if we try to compare with other animals. Dogs generally cycle approximately twice a year for 3 weeks at time. The rest of the year they behave like a spayed female in terms of hormones. Also dogs do not go through menopause – they will continue to cycle throughout life. The risk of developing a pyometra in an entire female is 23% - almost one in four. Anecdotally many vets who graduated in the 1970s can recall the large number of pyometras and mammary tumours they saw on a regular basis, due to the lower number of females spayed back then. Often these animals were very sick by the time they were presented, and many of them had concurrent malignant mammary tumours. Euthanasia of these dogs was common. Because of the significant reduction of these life threatening diseases, we feel that spaying is hugely beneficial. Owners are often concerned that their animal will gain weight post spay and this is a very real concern. Neutering does affect the animal's metabolism. Food and exercise regulation must be taken into account post operation; not all spayed animals are overweight. Over feeding for their body state is the only thing that will cause obesity in a dog. The animal does not have control of their food intake – the owner does!

There is not a 'one size fits all' policy with respect to an ideal time to neuter. Size of dog will influence timing of surgery. Necessity may dictate that neutering is undertaken at varying times, according to specific situations. Please discuss with any of the vets if you have more questions.