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## VACCINATION IN CATS

Recent advances in veterinary science have resulted in an increase in the number and type of vaccines that are available for use in cats. Currently cats can be vaccinated against six different diseases:-

- Feline panleukopenia (= feline infectious enteritis; feline parvovirus)**
- Feline herpes virus type 1 (= FHV-1; feline rhinotracheitis virus)**
- Feline calicivirus (= FCV)**
- Feline chlamydial infection**
- Feline leukaemia virus (= FeLV)**
- Feline immunodeficiency virus (=FIV)**

### How do vaccines work?

Vaccines work by exposing the body's immune system to a particular modified infectious agent. This causes the white blood cells to react to fight the infection by producing proteins (antibodies) which are able to bind to and neutralise the infectious agent (antigen). Antibodies work together with other white blood cells (lymphocytes) which are able to identify and kill cells within the body which have become infected by the agent (cell mediated response). After vaccinal exposure the body 'remembers' the particular antigens so that when they are encountered again it can mount a very rapid and strong immune response preventing the cat from showing clinical signs of disease. **It is important to realise that most vaccines work by preventing your cat from becoming ill and may not prevent it from becoming infected.** This means that if a vaccinated cat becomes infected with 'cat flu' it may still shed the disease producing organism which can infect unvaccinated animals which will then become ill. This is not a major consideration in the pet cat but may be important in the breeding colony.

### What is the difference between the various types of vaccine?

Four major types of vaccine are produced for use in cats.

1. **Modified live vaccines** - these vaccines contain live organisms that are weakened (attenuated) so that they do not produce disease but will multiply in the cat's body. It is not advisable to use modified live vaccines in pregnant queens or cats whose immune system is not working properly e.g. cats infected by feline immunodeficiency virus (FIV).
2. **Modified live intranasal vaccines** - for protection against cat flu. Intranasal vaccines are given as drops up the cat's nose rather than by injection under the skin. They have the advantage of causing a very rapid immune response to a single dose and can, in emergencies, be used to protect very young kittens, but can cause signs of cat flu in some cats so are not commonly used.
3. **Killed (inactivated) vaccines** - these vaccines are prepared using fully virulent organisms that have been killed by chemicals, UV light or radiation. Because, on their own, they do not give such a high level of protection, a chemical (adjuvant) is added to the vaccine to stimulate a better immune response.

4. **Subunit vaccines** - these are dead vaccines in which the infectious organism has been broken apart and only certain parts are included in the vaccine. In some cases this is achieved by using genetic engineering techniques.

### When should my kitten be vaccinated?

Generally kittens are vaccinated for the first time at 8 weeks and a second dose given at 12 weeks of age. A kitten will not be fully protected until 7-10 days after the second vaccination. Under specific circumstances your veterinary surgeon may advise an alternative regime.

### How often should booster vaccinations be given?

Adult vaccinations are generally carried out yearly. All cats should be boosted regularly, adult cats are also susceptible to these infections particularly as they grow old and their immune system becomes less efficient. Your Veterinarian will have records of which vaccine/s they need each year.

### Will vaccination always protect my cat?

Vaccination will protect the vast majority of cats but under some circumstance vaccine breakdowns will occur. There are many reasons for this including:-

1. Variations between different strains of viruses - this is particularly true of calicivirus where many different strains exist, not all of which are covered by the vaccines available.
2. Maternally derived antibodies - when a kitten is born it is protected in its early life by antibodies passed from the queen in the first milk (colostrum). These antibodies can also prevent vaccination from working properly. The amount of colostrum antibodies that each kitten receives is variable and so the age at which a kitten can respond to vaccination successfully will also vary. This is part of the reason why two or three injections are given in the primary course.
3. The cat was not healthy at the time of vaccination - 'stress' can prevent a good response to vaccination. For this reason your vet will give your cat a physical examination before a vaccination is given.
4. The cat may also be pre-infected with the 'cat flu' virus and incubating the disease.

If you feel your cat has contracted an infection for which it is vaccinated then let your veterinary surgeon know. Investigation to establish why vaccination has possibly failed can be undertaken.

### What are the risks of vaccination?

Generally the risks of vaccination are extremely low. Severe reactions being very rare. Many cats experience mild reactions at the site of vaccination where a lump may occur that can be painful. Generalised reactions are sometimes seen, the cat being quiet, lame and often off its food for 24 hours after vaccination. Occasionally more severe signs occur including vomiting, diarrhoea and profound depression. Under these circumstances your veterinary practice should be informed. Vaccine reactions appear to occur more commonly in kittens and some purebred cats.

### Which are the most important vaccinations to have?

Your veterinary surgeon will be able to advise you of the most appropriate vaccinations to give your cat. There are three core vaccines that all cats should receive but some cats may require additional vaccines depending on the environment they live in and what infections they may be exposed to.

#### Core vaccines (F3/ Tricat)

- **Feline panleukopenia infection** - This is now an uncommon disease that causes a severe and often fatal gastro-enteritis. Vaccination provides a high level of long lasting protection.
- **Feline herpes virus and feline calicivirus** - disease caused by these two viruses as well as sometimes chlamydia is commonly termed 'cat flu'. It is a common disease in unvaccinated cats and can cause long-term problems, including chronic and severe gum problems, chronic snuffing and permanent eye damage. Vaccination is required regularly as immunity is not long lived. Yearly vaccination is generally adequate but cats at high risk may need to be vaccinated twice yearly to provide better protection.

## **Additional vaccines**

- **Feline immunodeficiency virus (FIV or feline AIDS)** – This infection is generally transmitted either through breeding or more commonly via a bite from an infected cat. It is a very common disease and all outdoor cats are at risk unless they are in a completely enclosed area. The virus may not cause any problems for years but once it does the cat's immune system becomes suppressed and they suffer from all sorts of other infections. Mouth and gum problems are also common. Many cats die of complications from other infections. Vaccination is recommended for all outdoor cats, indoor cats are unlikely to be at risk. The vaccine is about 80% effective so taking appropriate precautions to prevent cat bites is still essential.
- **Feline Chlamydial infection** - This tends to be a particular problem in colony cats. Chlamydiosis is a bacterial infection causing a painful inflammation and swelling of the conjunctiva (the membrane around the eye) and has been associated with infertility in queens. Infection in colonies of cats can last for long periods as protection against reinfection is relatively short lived. Vaccination can help to prevent infection becoming established in a colony and can be used in conjunction with treatment where infection is already present.
- **Feline leukaemia virus infection** - Whilst the majority of cats are able to combat this infection some will become persistently infected by the virus. The vast majority of persistently infected cats will die from tumours or indirectly due to the immunosuppression caused by the virus. In Australia this virus is quite rare so this vaccine is not part of the core vaccine regime. Current vaccines provide a good level of protection and do not interfere with routine testing for the virus in breeding colonies. Because the virus tends to take many months before it causes disease infected cats can appear completely normal. For this reason your veterinary surgeon may suggest that your cat should have a blood test to make sure it is not infected before vaccination. Despite vaccination a few cats will still become infected with the virus.

**REGULAR VACCINATION IS AN IMPORTANT PART OF ROUTINE HEALTH CARE FOR YOUR CAT AND HELPS TO ENSURE YOUR CAT REMAINS FIT AND WELL.**