

## **FELINE LEUKAEMIA VIRUS (FeLV)** **INFORMATION**

### **What is feline leukaemia virus?**

We might think the human race has had a hard time with all the infectious diseases which can attack us but thank goodness we're not cats. Not only do they have their equivalent of the Human Immunodeficiency Virus (HIV) in Feline Immunodeficiency Virus (FIV) but they can also be infected by an even nastier immunosuppressive virus-Feline Leukaemia Virus (FeLV). FeLV was first isolated over thirty years ago from a cluster of cats which were suffering from cancers of the white blood cells, hence the name. As time progressed, it became apparent that a more common consequence of infection is a gradual suppression of the immune system. Most cats are dead within two or three years of contracting the infection.

The virus belongs to a fascinating group of micro-organisms known as retroviruses. These have the ability to integrate into the host's genetic material, DNA. The viruses have a central core containing a substance known as RNA. The virus carries a unique enzyme which creates a copy of DNA from the RNA. When the virus infects a cell, its DNA copy inserts into the cat's genetic material. The virus then makes use of the cell's functions to multiply. The virus core is surrounded by an envelope which is very fragile. This means the virus is unable to survive for long outside the cat's body so spread of FeLV relies on close contact between individuals.

### **What disease does the virus cause?**

The virus, as its name suggests, can cause leukaemia (a cancer of the white blood cells) and other cancers such as lymphoma but a more common consequence of infection is a suppression of the immune system. Immunosuppression is thought to account for around half the deaths from FeLV. The affected cat is unable to fight disease properly and is susceptible to a wide range of infections that would not normally cause a problem. Cats may be affected by gum inflammation, skin infections, bladder infections and diarrhoea. Suspicions that all is not well with the immune system are raised if a cat has recurring infections or doesn't respond as well as expected to treatment. Another common occurrence in FeLV-infected cats is the development of a life threatening anaemia. Sadly most cats will succumb to the infection within three and a half years of the diagnosis. If a very young cat is affected, the virus can cause its demise in a matter of months. Very young kittens may fade and die within weeks of birth.

### **How is the virus transmitted?**

The virus is fragile and can't survive longer than a few hours outside the body so transmission between cats usually relies on direct physical contact. FeLV infected cats shed large quantities of the virus in body secretions-mainly the saliva but also urine and faeces. A one off encounter is highly unlikely to cause a problem. It generally takes a prolonged period of close contact between cats, involving activities such as mutual grooming and sharing of litter trays and food bowls, for sufficient exposure to the virus to allow transmission to a susceptible cat. Very young kittens or cats are most susceptible to the infection. Another potential source of infection is when a queen who is infected with FeLV is mated and gives birth to a litter of kittens. In this situation all the kittens will be born infected with the virus.

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### **What happens when a cat is exposed to FeLV?**

Not every exposure to the virus results in disease. A battle develops between the virus and the cat's immune system. In most cases, the cat wins and is successful in eliminating the virus from the body. In other cases, the virus wins and the cat becomes persistently infected. It is these cats that develop FeLV-related disease. The permanently infected cats are responsible for the transmission of FeLV to other cats. Age is a significant factor in determining whether or not a cat will become persistently infected. Cats are quite susceptible to infection up to 4 to 6 months of age. Beyond that, there is a degree of natural immunity and it can be quite difficult to contract the infection. The amount of virus a cat is exposed to can also influence the outcome. In the overall population it's estimated that around 1 to 2 per cent of cats will be persistently infected. If the virus gets into a multicat household, the proportion is increased to thirty per cent.

### **How can FeLV infection be diagnosed?**

In the early stages of infection, there is no physical evidence of ill health. The only way of confirming the presence of FeLV is by blood testing, a procedure which can be carried out very quickly and simply at your veterinary practice. In general this blood test is very reliable, particularly if the cat is unwell. In some situations we may consider it necessary to send a sample to a specialist laboratory, where more sophisticated tests are available. Some cats which have just been exposed to the virus may test positive but if they are given a little more time will overcome the infection. We may need to perform a second test around 12 weeks after the first to confirm persistent infection.

### **Is there any treatment for FeLV infection?**

Many FeLV infected cats will respond to treatment for their secondary infections but there is currently no specific treatment for the FeLV itself. What makes FeLV such an unpleasant disease is that once a cat has become persistently infected, there is absolutely nothing we can do about it. The problem is the integration into the host DNA. We can't eliminate the virus because we don't have any drugs which can specifically zap the viral DNA without damaging the cat's DNA. There have been some reports of partial success with certain conventional drugs or with complementary therapies but to date we have nothing that provides solid, reliable treatment. There is obviously massive research into ant-HIV therapy and because of the similarity in the viruses it is likely that if an effective HIV drug becomes available it will also work against FeLV.

Any attempt to treat a cat should always be carefully considered. If the cat goes outdoors it is a potential threat to other cats and is always at risk from secondary infections. If a decision is made to keep the cat indoors, the change in lifestyle may be excessively stressful for some individuals.

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### **How can infection be prevented?**

**Vaccines** are now available to protect cats against FeLV infection and their use is highly recommended in any cat that goes outside and has contact with potentially infected cats. As with other vaccines, an initial course of two injections is required, and annual boosters are necessary to maintain immunity. Although vaccination is very helpful in controlling FeLV and preventing infection, it is not 100% reliable (like most vaccines) and therefore it is important not to deliberately expose a vaccinated cat to FeLV. A cat which doesn't meet others has virtually no chance of picking up the virus. It's still sensible to consider the possibility of inadvertent exposure if you or a friend have recently handled a potentially infected cat and then handle the isolated cat. If your cat is boarded at a cattery, ensure they have no direct contact with other cats.

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### **Should I have my cat blood tested before it has the vaccination?**

If a cat already has the virus, the vaccine will be ineffective. It won't cause any harm but it won't protect. If a kitten has been acquired from a breeder, its parents are likely to have been tested before they were mated so you can be confident it hasn't encountered the virus. Rescue cats and kittens tend to have unknown backgrounds. On examination it's impossible to know if they have already encountered the virus. Statistically, if a cat is healthy on examination, there is a low chance of it already carrying the virus so vaccination can be performed quite confidently. If the cat has a health problem, it increases the chances of being positive. If there is any doubt about the status of a cat before vaccination it's advisable to carry out blood tests.

### **Is the vaccine safe?**

In the United States a small number of cats have developed skin growths at the typical site of injection. It's been suggested that leukaemia vaccination is the cause but this hasn't yet been confirmed. We are monitoring the possible emergence of similar cases in this country. Although this is naturally a concern for the cat owner, the condition is rare. The benefits of vaccination far outweigh any adverse effects.