

# Cat Health: Vaccinations



Most veterinarians agree that cats should be vaccinated against diseases that are widespread, cause serious illness, or are highly contagious. These vaccines are called “core” vaccines. Other vaccines may be recommended based on the risk of individual cats being exposed to particular diseases; these are called “non-core” vaccines. Vaccines don’t always provide absolute protection against a disease. Sometimes, they only reduce the severity of symptoms if a cat becomes infected. It is best to consult with your cat’s veterinarian to come up with the best vaccination schedule for your feline companions. There are no viable alternatives to vaccines.

## What Are Vaccines?

Vaccines are liquid suspensions of dead or weakened viruses or bacteria that reduce the risk of infection by those organisms. Several types of vaccines are available for cats:

- **Modified Live Vaccines.** Modified live vaccines trigger an immune reaction, but have lost most or all of their ability to cause infectious disease.
- **Killed Vaccines.** Killed vaccines are made from dead organisms, which can’t cause infection but can stimulate an immune response. Modified live vaccines typically cause a faster, more effective, and longer-lasting immunity than killed vaccines.
- **Recombinant Vaccines.** Some newer vaccines use recombinant technology and genetic engineering to alter potentially infectious organisms.

## How Do Vaccines Work?

The immune system protects the body from things it perceives as foreign and harmful such as bacteria and viruses—antigens. Vaccines stimulate immunity by introducing killed or modified infectious agents into an animal’s bloodstream. Some vaccines provide life-long protection, while others protect for a limited period of time. Because one exposure to an antigen might not trigger long-term immunity, many vaccines are given in a series. A cat is considered fully vaccinated two weeks after a vaccine series is completed. Most vaccines need to be boosted periodically to re-prime the immune system.

Kittens get antibodies from their mother across the placenta, and later in milk, which creates “passive immunity.” Females vaccinated two to four weeks before being bred pass the most maternal antibodies to their offspring. Maternal antibodies are concentrated in the colostrum of mother’s milk. Newborns need colostrum within the first eight to thirty-six hours after birth so they can absorb the large antibody molecules before their digestive tract matures.

**Vaccinating very young kittens is pointless, because maternal antibodies bind to antigens in the vaccine and prevent a normal immune response.** Kitten vaccinations are usually given in a series to be sure that the animals get complete vaccine-induced immunity, without interference from maternal antibodies.

## How Vaccines Are Administered

Most vaccines are given by injection, either under the skin or into the muscle. Some are administered in drop or mist form into the nostrils or eyes. The most novel way to give vaccines is to put them directly onto the skin. Multiple vaccines given in one shot are called combination or multivalent vaccines. In the past, many combination vaccines contained five or more antigens. The current trend is to reduce the number of antigens in multivalent vaccines, to increase effectiveness and decrease the burden on the vaccinated animal’s immune system.

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### **Vaccine Effectiveness**

Vaccines are extremely effective although no vaccine is 100 percent effective all the time. Vaccine failure is the exception, but many factors could cause vaccines to fail:

- Improper handling, storage, administration, or dosage errors
- Disinfectants on the injection site
- Failure to boost regularly
- Poor health; stress, malnutrition, weak or compromised immune system
- Immune system overload (too many vaccines; too frequent vaccination)
- Disease incubating at time of vaccination
- Heavy parasite load
- Hormonal fluctuations
- Presence of immunosuppressive drugs in the animal
- Pregnancy or maternal antibody interference
- Old age

### **Vaccine Safety**

Most vaccines are considered safe. The most common adverse reactions are tiredness, running a low-grade fever, and loss of appetite. Some cats develop a small, non-painful lump where the vaccine was injected, which usually disappears within a month. If a lump at the injection site lasts longer than a month, the cat should be examined by a veterinarian.

In rare cases, a cat will develop facial swelling or have a severe allergic reaction to a vaccine called “anaphylaxis,” typically accompanied by vomiting, diarrhea, difficulty breathing, and less commonly, collapse. Intense facial itchiness may also occur. Anaphylactic reactions are usually not fatal, as long as the cat is taken to a veterinarian and treated immediately.

Some vaccines, especially feline leukemia and rabies vaccines, are associated with the development of sarcomas—a cancer of the connective and soft tissues.

### **Core Vaccines**

Core vaccines are given in a short series to kittens between six and eight weeks of age, and followed by booster shots at varying intervals. The vaccination protocol may vary based on geographical location, the cat’s age and health, and the preferences of the veterinarian and guardian.

#### **Feline Panleukopenia Virus (FPV; parvovirus; distemper)**

Panleukopenia is a potentially fatal disease that causes vomiting, diarrhea, dehydration, fever, and often sudden death. Young cats are especially susceptible. Kittens born to infected mothers can suffer permanent brain damage, if they survive the infection. Vaccination is highly effective against this disease. Usually, a vaccination series is given, followed by a booster at one year and every three years thereafter.

#### **Feline Viral Respiratory Disease Complex (FVRDC) (feline herpes virus and calicivirus; rhinotracheitis)**

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Feline herpes virus and calicivirus infect the airways of cats, causing runny eyes and nose, sneezing, oral ulceration, reduced food intake, and general discomfort. The infection spreads by direct cat-to-cat contact, aerosols from sneezing and contact with infected surfaces. The FVRDC vaccine may not prevent infection altogether, but it usually reduces the severity of the disease. High-risk kittens may be vaccinated as early as six weeks of age; most cats are vaccinated at eight, twelve and sixteen weeks, followed by a booster after one year and then every three years thereafter.

### **Rabies**

Rabies symptoms are highly variable. New feline rabies vaccines are much safer than older formulations. Usually kittens are given a single rabies vaccine between 10 and 16 weeks of age, followed by boosters either annually or one year later and then every three years thereafter, depending on the vaccine used. In many areas, vaccinating cats (and dogs) against rabies is mandatory under state law.

### **Non-Core Vaccines**

#### **Feline Leukemia Virus (FeLV)**

Feline leukemia causes a multitude of disorders, including tumors, bone marrow and immune system suppression, weight loss, chronic infections, and anemia. FeLV vaccines are not completely protective in all cases, but they may reduce the severity and duration of the disease. FeLV vaccines may be recommended for cats entering a household with an infected cat or for those with a heightened chance of exposure to cats of unknown viral status. Most veterinarians recommend testing a cat's FeLV status before administering the vaccine.

#### **Feline Immunodeficiency Virus (FIV, "Feline AIDS")**

Extremely contagious, feline immunodeficiency virus transmits by direct cat-to-cat contact, which often occurs through bites during a fight. FIV is related to the human AIDS virus, but cross-infection between species apparently does not occur. Cats infected with FIV typically experience a gradual reduction in immune system function, which predisposes them to developing chronic infections. There is no known cure. Preventing exposure to FIV positive cats is the best way to avoid disease. FIV vaccine can support this effort, but it does not provide complete protection. Discuss the risks and benefits of vaccinating against FIV with your veterinarian.

#### **Bordetella Bronchiseptica**

*Bordetella bronchiseptica* bacteria causes severe respiratory tract disease, especially in young kittens and is extremely contagious. The disease typically responds readily to antibiotic treatment, so routine vaccination is generally not recommended. Symptoms include coughing, nasal and eye discharge, fever, lethargy, and weakness. Cats that come in contact with infected cats in shelters and multi-cat households, that travel to shows, or those exposed to free-roaming feral cats may be good candidates for vaccination.

#### **Chlamydia (Chlamydomphila Felis)**

*Chlamydomphila felis* infects the eyes and respiratory tract of cats, causing "feline pneumonitis." The vaccine against this organism typically reduces clinical signs and shortens the course of the

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disease, but does not protect against infection. Antibiotic treatment is usually quite effective in controlling symptoms of and resolving chlamydia infection.

### **Feline Infectious Peritonitis (FIP, Coronavirus)**

FIP is caused by feline coronavirus. It is usually transmitted when uninfected cats come into contact with the feces of infected cats. Many cats are infected with coronavirus, but few actually develop the disease. The efficacy of the FIP vaccine is controversial, and the duration of any immunity that it may provide is short. Most veterinarians do not routinely recommend this vaccine.

### **Giardia**

This single-celled protozoan parasite of the gut causes bloating, diarrhea, gas, and rancid, foul-smelling feces that are typically soft, watery, bloody, and filled with mucus. Some infected cats don't show clinical signs and appear relatively normal. Current protocol is not to vaccinate cats against giardia. The infection is easy to treat, and the effectiveness of the vaccine is questionable.

### **Ringworm**

Ringworm is a superficial fungal infection that affects outer layers of the skin and hair follicles, producing round, raised, red, scaly areas of hair loss and inflammation. Many cats carry the infective fungi and shed infective fungal spores. These spores spread infection to other animals. Ringworm infection causes almost no harm to animals. However, it is highly contagious, and it can spread to people, especially children. Ringworm vaccine may reduce the severity of symptoms, but it is not reliable in preventing infection.