Vaccination: Basic FAQs

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Vaccinations: WHAT YOU SHOULD KNOW

VIDEO LINK

How to Vaccinate your Dog at Home

- Should a pet who is ill or recovering from an illness be vaccinated?
- Will vaccination of an animal being treated with glucocorticoids be effective?
- What should be done if a young animal misses a dose of vaccine?
- Should an animal who had a severe vaccine reaction be vaccinated in the future?
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- Should pregnant or lactating dogs and cats be vaccinated?
- What are vaccine-associated fibrosarcomas?
- If the vaccination history of a dog is unknown, how many vaccinations should the dog receive?

Should a pet who is ill or recovering from an illness be vaccinated?

The decision as to whether an animal who is showing signs of disease should be vaccinated or not needs to be made on an individual basis. One must consider whether the benefits outweigh the risks. Results of a physical examination and possible laboratory tests will aid in the decision. Signs of

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illness in a young puppy or kitten may need to be interpreted differently than similar signs in an adult animal. For example, in an older animal with a skin disease unassociated with an immune problem, vaccination is probably OK.
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Will vaccination of an animal being treated with glucocorticoids be effective?

Short-term and low doses of glucocorticoids such as prednisone most likely would **NOT** interfere with the effectiveness of a vaccination. Animals on high doses of glucocorticoids and other immunosuppressants, however, may not respond adequately to a vaccination and may have an increased risk of adverse effects from the vaccine, especially if it is a modified live vaccine.
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What should be done if a young animal misses a dose of vaccine?

The age at which the animal received the last vaccination is the most important factor in determining boosters. To provide the best response, a puppy needs multiple vaccinations for distemper, parvovirus and hepatitis until he reaches at least 16 weeks of age. He should be given one booster again when he reaches one year of age. If his last vaccination as a puppy was before he reached 12 weeks of age, it is generally recommended that he be given a series of two boosters. The reasoning behind this: we do not know in an individual puppy how long the maternal antibody levels persist and may interfere with the puppy's response to the vaccine. In many puppies the maternal antibody is still present at 12 weeks of age so there may be inadequate response to the vaccine at that age.
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Should an animal who had a severe vaccine reaction be vaccinated in the future?

The decision to vaccinate an animal who has had a prior vaccine reaction must be made on an individual basis. The age and health status of the animal, severity of reaction, and risk of exposure to disease all need to be taken into account.

If there is minimal risk that an animal would be exposed to the disease, vaccinations for that disease are discouraged in an animal who has experienced a prior severe vaccination reaction. An adult dog with a history of a severe vaccine reaction, who has minimal exposure to other dogs, would probably not need to be revaccinated with canine distemper.

In situations in which there is a good likelihood that the animal with a history of a vaccine reaction will be exposed to the disease, vaccinations should probably be given, but as infrequently as possible. In addition, separate monovalent vaccines may decrease the possibility of an adverse reaction and should be given at least 3

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weeks apart. Modified live vaccines may be less likely to cause a reaction. If an intranasal vaccine is available, that may be preferable.

An animal with a history of a vaccine reaction should always be vaccinated in a veterinarian's office. Certain vaccines may be excluded from your pet's vaccination schedule or a different type of vaccine may be used. Administration of antihistamines and short-acting corticosteroids prior to vaccination may decrease the chance of a reaction. The veterinarian may place a catheter in the pet's vein so if a reaction does occur, medications and fluids can be given immediately. The animal should be closely monitored for a period of time (1/2 to several hours) at the veterinarian's office and then also at home. Even with these precautions, life-threatening reactions could still occur.
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Why do young animals need a series of vaccinations?

Puppies and kittens receive antibodies from their mother through the placenta and after they are born, through the colostrum (the first milk). The age at which puppies and kittens can effectively be immunized is proportional to the amount of antibody protection the young animals received from their mother. Antibodies are small disease-fighting proteins produced by certain types of cells called 'B cells.' The proteins are made in response to 'foreign' particles such as bacteria or viruses. These antibodies bind with certain proteins (antigens) on foreign particles like bacteria, to help inactivate them.

High levels of maternal antibodies present in a puppy's or kitten's bloodstream will block the effectiveness of a vaccine. When the maternal antibodies drop to a low enough level in the puppy or kitten, immunization by a commercial vaccine will work.

The antibodies from the mother generally circulate in the newborn's blood for a number of weeks. The complicating factor is that there is a period of time from several days to a couple of weeks in which the maternal antibodies are too low to provide protection against the disease, but too high to allow the vaccine to work and produce immunity. This period is called the window of susceptibility. This is the time when despite being vaccinated, a puppy or kitten can still contract the disease. This window of susceptibility can vary widely. The length and timing of the window of susceptibility is different in every litter and between animals in the same litter. Let us take canine parvovirus as an example.

A study of a cross section of different puppies showed that the age at which they were able to respond to a vaccine and develop protection (become immunized) covered a wide period of time. At six weeks of age, 25% of the puppies could be immunized. At 9 weeks, 40% of the puppies were able to respond to the vaccine

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and were protected. The number increased to 60% by 16 weeks, and by 18 weeks, 95% of the puppies could be immunized.

Since the length and timing of the window of susceptibility varies so widely, it is impossible for us to determine when is the best time to vaccinate each individual puppy or kitten. There are just too many variables. For this reason, young animals are given a series of vaccinations in hope that you can vaccinate the animal as soon as it leaves the 'window of susceptibility.'
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What is the earliest age at which an animal can be safely vaccinated?

In general, six to nine weeks is the earliest age at which a routine vaccination program should be started. Exceptions occur for animals who are in environments which would likely expose them to disease, e.g., humane shelters, breeding facilities, etc. These animals may benefit from earlier vaccinations. Vaccination with a parvovirus vaccine in puppies 5 weeks of age is recommended by some. Vaccinating puppies and kittens less than 4-5 weeks of age, especially with modified live vaccines, can cause severe problems.
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Should younger and smaller animals receive less than the full dose of vaccine?

The entire dose of the vaccine should be given at one time. Vaccines are not developed to give different doses to different size animals. Small breeds of puppies should receive the same dose of vaccine as puppies of larger breeds. All puppies regardless of age, body weight, breed, and gender are given the same vaccine dose.
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Why do some vaccinated animals still get the disease?

There are three main reasons why a vaccinated dog would still get the disease: First, the dog's immune system may not have been functioning adequately at the time of vaccination, so a proper response was not achieved. Secondly, and much less likely, there may have been a characteristic of the vaccine that produced a suboptimal response. For instance, the strain of virus in the vaccine may have been different than the strain that caused disease in the animal. Finally, there is always the possibility of human error such as improper storage or mixing of the vaccine. When a vaccinated animal still gets the disease, some term this 'vaccine failure,' although it is more likely a failure of the immune system to respond than a problem with the vaccine itself.

Parvovirus is a serious case in point. How can a puppy get the disease and possibly die if it was vaccinated? Unfortunately, for some reason, the vaccine did

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not stimulate the immune system enough to protect the puppy from disease. The reason may be interfering maternal antibodies, the vaccines themselves, the dog's own immune system, or genetics. By far, the most common reason in puppies is interfering maternal antibodies.
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How long does it take for a vaccine to work?

Vaccines do not stimulate immunity immediately after they are administered. Once a vaccine is administered, the antigens must be recognized, responded to and remembered by the immune system. In most animals, disease protection does not begin until five days after vaccination. Full protection from a vaccine usually takes up to fourteen days. In some instances, two or more vaccinations several weeks apart must be given to achieve protection. In general, modified live vaccines and those vaccines administered intranasally provide the fastest protection.
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Is one method of administering a vaccine better than another?

As with other factors relating to vaccinations, the best route of administration of a vaccine depends on the situation. Vaccines must always be administered as stated by the manufacturer. Sites at which the vaccine can be administered will appear on the vaccine label. Intranasal vaccines should NEVER be injected, and vaccines designed for injection should never accidentally get into the eyes, nose, or mouth.

In general, if an intranasal product is available, it will provide faster protection than an injectable vaccine. Intranasal vaccines are less likely to cause allergic reactions, and are more likely to provide protection if maternal antibodies are still present. In the case of *Bordetella*, intranasal vaccines may need to be given more often than injectable vaccines.

If more than one vaccine is being given, the vaccines should be given at separate sites, and never be mixed together.
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Is one type of vaccine better than another?

Again, the answer to this question depends on the situation. In general, immunity from a modified live vaccine will develop faster and last longer than that produced by a killed vaccine, so modified live vaccines are recommended over killed vaccines in most circumstances. The newer recombinant vaccines are less likely to cause allergic reactions.
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Should pregnant or lactating dogs and cats be vaccinated?

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In general, avoid using any medications, drugs, or vaccines in pregnant or lactating (producing milk) animals. Any vaccine component that is modified live could conceivably cross the placenta and cause defects or deaths of the fetuses. Some vaccines, however, have been tested in pregnant or lactating animals and can be used in circumstances in which the animal does not have immunity to a specific disease and needs to be immunized. If vaccination must occur, use a killed vaccine. Your veterinarian will be able to help you determine which vaccines can or should be given to your pregnant animal.

Vaccinating a lactating animal will not provide protection to her nursing offspring. The mother's immune system will take at least a week to react to the vaccine and produce higher levels of antibody. And remember, the newborns can only receive antibodies from their mother through the colostrum in the first 36 hours of their lives. By the time the mother's antibody level has increased, the offspring will no longer be able to absorb them. The vaccination, then, may help protect the mother, but it will not provide antibody protection to her nursing offspring.
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What are vaccine-associated fibrosarcomas?

A fibrosarcoma is a tumor of the connective tissue. These tumors tend to invade deeply into the underlying tissues. The frequency of these tumors is increasing in cats and has led researchers to believe some of the tumors may be caused by a local reaction to a vaccine. Although these tumors are seen more frequently, they are still rare. Current estimates on the incidence of these tumors are about one tumor per 5,000 to 10,000 cats vaccinated. These tumors are most commonly associated with the FeLV vaccine. These tumors are very rare in dogs.
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If the vaccination history of a dog is unknown, how many vaccinations should the dog receive?

There are many variables that could influence the answer to this question, including the type of vaccine being used and the age of the dog.

For dogs older than 4 months: For a dog who has never been vaccinated or whose vaccination history is unknown, it is generally recommended that the dog receive two distemper combination vaccinations 3-4 weeks apart. Revaccination after the completion of the series should be determined based on the veterinarian's and vaccine manufacturer's recommendations. Rabies vaccinations should be given by the veterinarian according to local law.

For puppies less than 4 months of age: Puppies less than 16 weeks of age should

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receive distemper combination vaccinations consistent with the puppy vaccination schedule. A minimum of two vaccinations should be given at a 3-4 week interval, with the last vaccine in the series being given at 16 weeks of age or later. Revaccination should occur one year after completion of the series and then as recommended by the local veterinarian and vaccine manufacturer. Rabies vaccinations should be given by the veterinarian according to local law.
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