

## **What is a vaccination and how does it work?**

In veterinary medicine, vaccination has proven to be a blessing for animal health. Diseases such as canine parvovirus, canine distemper, rabies, feline leukemia, equine influenza, blackleg in cows, Marek's disease in poultry, and many more diseases, have been greatly reduced – and in some cases, nearly eliminated – by vaccination.

Vaccinations protect humans and animals from specific diseases that make them sick. They boost the body's own defense system, which is also called the immune system. Vaccines contain dead or inactivated organisms - or purified products derived from them - that protect from an infection without causing the suffering of the disease itself.

So how does a vaccine work? Well, when a vaccine is introduced into an animal it causes the animal's defense system to build antibodies to fight off the kind of germ contained in the vaccine. These antibodies are large Y-shaped proteins that are recruited by the immune system to identify and neutralize foreign objects like bacteria and viruses. Without antibodies even the most innocuous of germs would kill us and our animals.

The body can make antibodies in two ways: by getting the disease or by getting the vaccine. Getting the vaccine is a much safer way to make antibodies. Antibodies stay inside animals for a long time. They remember how to fight off the germ and if the real germ that causes this disease enters the body in the future, the defense system knows how to fight it off. Sometimes, the defense system will remember how to fight a germ for the rest of the life of an animal, but often, it needs a booster to maintain the necessary level of antibodies to fight off the germ.

Sometimes vaccines prevent one disease. Sometimes they are combined to protect from several diseases with one shot. For example, the vaccines commonly given to puppies protect against 5 or 6 diseases.

Historically, many animal vaccinations have been given annually. These recommendations were based on the best available knowledge at the time. As research has continued, it appears that some vaccines may protect animals from disease for longer than was previously felt. This information has been incorporated into new vaccine guidelines, e.g., some canine vaccinations are now given every three years, instead of annually.

Whether you are a pet owner or a farmer you should always remember to have your animals vaccinated. If you neglect to do this you will put at serious risk the life or health of your animal companions or livestock.

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