Vaccine Titer Testing

- Vaccine titer tests measure the level of specific antibodies in a pet's blood.
- Titer tests can help determine whether a puppy's or kitten's immune system has responded appropriately to an initial vaccine series.
- Some veterinarians use vaccine titer tests to help guide decisions regarding whether a pet should be revaccinated for certain diseases.

What Is Vaccine Titer Testing?

Vaccine titer testing is a way of measuring a pet's immune system response when the pet is vaccinated against a specific disease. Titer tests detect antibodies, which are proteins produced by the body when the immune system detects a disease-causing organism (e.g., virus, bacteria) or another "foreign" substance, like a vaccine. Antibody-stimulating substances are called *antigens*. Titer test results tell your veterinarian not only whether your pet has antibodies to a specific antigen, but also the level of these specific antibodies.

Vaccine titer testing requires your veterinarian to take a small sample of your pet's blood. The test is not painful, and the pet does not need to be anesthetized.

How Does It Work?

Titers are usually reported as a ratio—1:2, 1:500, 1:1000, etc. The ratio describes how many times the blood sample had to be diluted until antibodies could no longer be detected. A high vaccine titer (1:1000) is generally preferred to a low titer (1:2) and is generally considered more "protective." However, the relationship between vaccine titer ratios and the level of vaccine protection has not yet been clearly established for many diseases.

What Is It Used For?

Vaccine titer tests may be administered to puppies and kittens after their initial vaccination series to see whether their immune system has responded properly to certain vaccines. At birth, animals have some antibodies from their mother to help protect them from disease. These antibodies (known as *maternal antibodies*) begin to "wear off" a few weeks after birth and are generally at very low levels a few months after birth. If a puppy or kitten is vaccinated while levels of maternal antibodies are still very high, the maternal antibodies can reduce the vaccine's effectiveness against the disease. This is why puppies and kittens need a series of vaccines during their first few months of life: to deliver the appropriate disease immunity when the maternal antibodies have started to fade but before the pet is exposed to the disease.

A vaccine titer test can help detect the presence of specific antibodies. Low antibody levels may indicate that the vaccine has not been effective, that maternal antibodies are still interfering with the development of immunity, or that the puppy or kitten has a problem with its immune system. Depending on the situation, your veterinarian may want to revaccinate your pet.

Veterinarians may also use titer tests when making decisions about whether to revaccinate, or "booster," an adult pet. According to the American Animal Hospital Association's vaccine guidelines, vaccine titer tests have recently been established for some diseases, such as canine parvovirus and canine distemper. However, immunity is complex, and the absence of antibodies in an adult pet does not necessarily mean that the animal is no longer immune. It is important to follow your veterinarian's recommendations regarding when and how often a pet should be vaccinated as well as whether a vaccine titer test should be performed.

Some foreign countries require that pets vaccinated for rabies undergo a titer test before they can be admitted to the country.

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