

Immunology 101

DISTEMPER VACCINES

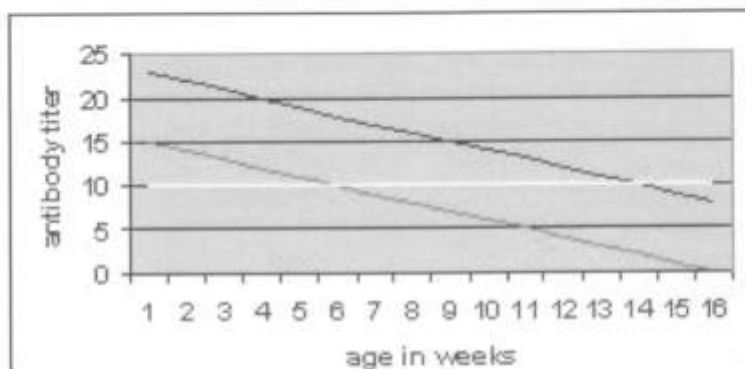
The AFA Policy on Vaccination of Ferrets for Canine Distemper (CDV) recommends that kits receive a booster series using one of the USDA licensed products currently on the market. In this article, we will look at why we need a booster series (after all, if the vaccine is any good, shouldn't one shot be enough?), what are the reasons for the timing of each booster injection, and what can happen if the guidelines are not followed.

The recommendations state to administer the vaccines subcutaneously in healthy ferrets at 8, 11, and 14 weeks of age, then annually. In cases of possible exposure to CDV, kits as young as six weeks may be vaccinated. Vaccines available against distemper are either a Modified Live Virus vaccine (MLV) *Fervac-D®*, or a Recombinant Vaccine *Purevax Ferret®*. With a MLV, the agent used is actually a live virus that is capable of growing in the ferret. Modified to prevent it from causing infection, it nevertheless must infect cells and replicate in order to produce enough copies of the virus for the ferret's immune system to recognize and produce antibodies against it.

For an MLV vaccine to work, the vaccine virus must survive in the ferret long enough to stimulate a response. If anything interferes with the vaccine virus's growth, there won't be enough virus to get an adequate response.

Mammals receive some temporary immunity against diseases from the mother in the form of pre-made antibodies that are transferred across the placenta before birth or delivered in the first milk (colostrum). In most healthy animals, this "passive immunity" hangs around for at least six weeks, and depending on the amount of antibody transferred, possibly a number of weeks longer.

If there are still enough of these antibodies in the circulation when the kit receives the MLV vaccine, the virus is neutralized before it can reproduce and no stimulation of the immune system takes place.



Legend: The blue and magenta lines represent two different kits. Kit #1 (blue) received a high level of passive immunity (starting at 25), Kit #2 (magenta) a lower level of immunity (starting at 15). If we assume that a titer of 10 (yellow) is required for protection against infection, then kit #1 becomes susceptible at 6 weeks of age and kit #2 doesn't become susceptible until 14 weeks of age.

In recombinant vaccines, although no actual live distemper virus is present, representative pieces of the virus are produced by the vaccination. It is these pieces (antigens) that stimulate the immune response. Just as the passive immunity antibodies can inactivate the live distemper virus in MLV vaccines, they can also attach to these recombinant pieces and prevent them from stimulating the kit's immunity.



PATTY ASHEUER

If we take a group of kits and measure the level of antibody (titer), we find the levels drop with time. At some point, a kit's titer drops below the protective level and the kit will be susceptible to infection. Since for some kits this point is as early as 6 weeks and for others it may be as late as 14 weeks, we begin our booster series at 6 weeks when there is a high risk of exposure to distemper to "catch" the earliest ones, and continue boosters until 14 weeks to catch the latest ones. In lower risk situations we begin the series at 8 weeks of age and follow the manufacturer's recommendation. If we only gave one vaccination at 6 weeks or 8 weeks of age, there would be a population of kits that would not respond and later be susceptible to distemper. If instead we waited until 14 weeks to give the first vaccination, many kits would have been susceptible to infection before 14 weeks of age and some would likely come down with fatal distemper. (See chart.)

There are many different canine distemper vaccines that are approved

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LIL' CRITTERS PHOTOGRAPHY

Congratulations

to Just a 'Business of Ferrets'
Isabella of Leizel's Weasels,
owned by Sara Hamilton,
named
Ferret of the Year 2003!

DISTEMPER VACCINES

for use in dogs but not approved for use in ferrets. What happens if we use one of these distemper vaccines? First is that many of these other products are combination vaccines designed to protect dogs from a host of diseases. Ferrets are not susceptible to these other diseases. Ferrets do not get canine parvovirus, canine adenovirus, or canine parainfluenza. Though injecting these into the ferret doesn't seem to cause disease, they are totally unnecessary and something the young kit just doesn't need to be dealing with. Another reason—and certainly one of the most important reasons not to use other distemper vaccines—is that all canine licensed distemper vaccines are MLV, which

means there is live virus in the injection. Since these products have not been designed for use in ferrets, there is a possibility that they might cause distemper. In addition, these vaccines have not been tested in ferrets and appropriate studies have not been done to see if ferrets are protected by them.

Distemper in the ferret is a terrible disease with fatal consequences. The AFA has developed the guidelines for the express purpose of protecting ferrets. In just this year alone, a number of distemper outbreaks in dogs have been reported. The disease is always out there and improperly vaccinated ferrets die as a result.

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In cases like this, I have had pretty good success doing a perineal urethrostomy for immediate relief, and at the same time doing a melatonin implant. In ferrets with adrenal hyperplasia, the melatonin can make a dramatic difference in two to three weeks.

LETTERS POLICY

Letters to the editor represent the beliefs of the letter writers and are not necessarily the opinion of the American Ferret Association. Letters to the editor should be e-mailed to info@ferret.org or mailed to PMB 255, 626-C Admiral Drive, Annapolis, Maryland 21401. Letters may be edited for clarity.

BREEDER ABBREVIATIONS

CP = Camelot Place
 DD = Double Dookers
 DM = Dowling's Masquerade
 FF = Fuzzy Farm
 FFP = Ferret Friends of Pittsburgh
 FH = Ferret Haven
 FOF = Furry O's Ferrets
 FSF = Fire Storm Ferrets
 FT = Ferretown USA
 FV = Ferret Village
 HCF = Hillcrest Ferrets

HF = Highlander Ferretry
 HG = Hidden Gem Ferrets
 IF = InterFerret (Japan)
 JBF = Just a Business of Ferrets
 LW = Leizel's Weasels
 MFX = Mystyx Effects Ferrets
 MMF = Mischief Makers Ferrets
 NB = Novel Beginnings
 PF = Planned Ferrethood
 PUYD = Put Up Your Dooks
 RN = Ravensnest Ferrets

SEMF = Southeast Michigan Ferrets
 SH = Shady Hollow Ferretry
 SHD = Scarlett's Happy Dookers
 SJC = S&J Critters
 SLF = Savannah Lakes Ferretry
 TF = Treasured Ferrets
 TH = The Hobbitry
 TLF = Timberland Ferrets
 TPP = Two Pole Pumpkin