



## The Critical Role of Vaccination in Puppy Health

Lalit kumaar E<sup>1</sup>, Rajat Sagare\*, Eashwar A<sup>2</sup>

<sup>1</sup>Second year student, Madras Veterinary College TANUVAS

\* Ph.D. Scholar, Department of Veterinary Clinical Medicine, Madras Veterinary College TANUVAS

<sup>2</sup>Fourth year student, Madras Veterinary College TANUVAS

<https://doi.org/10.5281/zenodo.10853006>

### *Abstract*

Vaccination plays a crucial role in the health and well-being of puppies by providing protection against infectious diseases. Early vaccination protocols are essential in preventing life-threatening illnesses and reducing the spread of contagious pathogens within the canine population. Vaccines stimulate the puppy's immune system to produce protective antibodies against specific pathogens, thereby establishing immunity and safeguarding against future infections. Through routine vaccination schedules administered by veterinarians, puppies are shielded from common infectious diseases such as canine distemper, parvovirus, adenovirus, and rabies. Additionally, vaccination contributes to public health efforts by preventing zoonotic diseases and minimizing the risk of transmission from dogs to humans. However, adherence to proper vaccination protocols, including timely booster doses, is critical to ensure long-lasting immunity and sustained protection throughout the dog's life. Education and awareness regarding the importance of vaccination among pet owners, breeders, and veterinary professionals are paramount in promoting responsible pet ownership and mitigating the impact of preventable diseases in the puppy population.

### **Maternal Immunity in Dogs**

Puppies are protected in their first few weeks of life (less than 8 weeks) by maternal derived antibodies (MDA). MDA nearly 3-5% comes through placenta while the foetus is within the uterus and remaining 95-97% MDA comes through colostrum (first milk secreted by mother after parturition) and these antibodies would be absorbed in puppy's gut only during 1-2 days of life or even few hours. So immediately after birth the pup must be fed with colostrum within 2 hours. And also considering dogs, on an average they give birth to 5-7 pups and we cannot assure that each pup gets the required amount of colostrum, so they get easily affected by bacteria, virus and other micro-organisms. And it is also to be noted that after 3 days of life when they are fed colostrum, antibodies would be broken by the enzymes of gut and they cannot be absorbed intact. So it is essential for the pups to be protected against the disease causing micro-organisms. So, VACCINATION IS MANDATORY. In pups we usually vaccinate after 6-8 weeks of age, therefore when the MDA begin to decrease in their blood and if we give vaccines before 6 weeks



of age MDA recognizes the antigens in the vaccines and destroy them not allowing the pup's immune system to develop memory cells against the disease.

### **How Vaccination Works**

Vaccines are nothing but only killed or inactivated form of disease-causing micro-organisms, which do not actually cause disease but only stimulates the immune system against these micro-organisms, so antibodies would be developed against these micro-organisms. Again, during their lifetime, when these micro-organisms enter the body, it's destroyed by the host immunity. Mostly these antibodies remain in the host body throughout their lifetime.

### **Symptoms And Spread of Some Fatal Diseases in Dogs**

#### **1) Rabies:**

Spread through: Bite of an infected dog

Symptoms: Aggression, excessive salivation, biting of objects, abnormal vocalisation

#### **2) Canine Distemper:**

Spread through: Direct contact with affected dogs (through inhalation of droplets)

Symptoms: Discharge from eyes and nose, lethargic, coughing, fever.

#### **3) Parvo Virus:**

Spread through: Virus excreted through faeces of affected animal, when healthy dogs go near the contaminated faeces it may get affected.

Symptoms: Lethargic, vomiting, diarrhoea, depression, loss of appetite, blood in stool, weight loss.

#### **4) Leptospirosis:**

Spread through: If dog come in contact with infected urine or urine contaminated soil, food, bedding or bite of an infected dog.

Symptoms: Weakness, reluctance to move from pain, increased thirst, vomiting, jaundice.

#### **5) Canine Hepatitis:**

Spread through: Direct contact with infected dog and contaminated fomites such as hands, utensils, clothing's.

Symptoms: corneal edema (blue eye), yellowing of skin or eye(jaundice), loss of appetite, dark urine, or pale-coloured stool.

#### **6) Canine Parainfluenza:**

Spread through: Transmitted through air, especially in kennels where there is a large number of dogs.

Symptoms: Eye inflammation, lethargy, sneezing, persistent cough.

#### **7) Kennel Cough:**

Spread through: contacted easily even through surface walls, and sidewalks.



Symptoms: Loud honking cough, sneezing, running nose

### **Vaccination Schedule:**

#### **1) DP vaccine:**

Against: Distemper, parvo virus

Duration: between 30-50 days of age

#### **2) DHPPiL vaccine:5 in 1 vaccine**

Against: Distemper, hepatitis, parvo virus, para influenza, leptospirosis

Duration: 1<sup>st</sup> dose :45<sup>th</sup> day

2<sup>nd</sup> dose: After 21 days of 1<sup>st</sup> dose that is at 66<sup>th</sup> day (1<sup>st</sup> booster)

3<sup>rd</sup> dose: again after 21 days of 2<sup>nd</sup> dose that is at 87<sup>th</sup> day (2<sup>nd</sup> booster)

#### **3) RABIES vaccine:**

Against: Rabies virus.

Duration: 1<sup>st</sup> dose: after 21 days of 3<sup>rd</sup> dose of DHPPiL VACCINE that is at 108<sup>th</sup> day

2<sup>nd</sup> dose: after 21 days of 1<sup>st</sup> dose that is at 129<sup>th</sup> day.

#### **4) KC vaccine:**

Against: kennel cough

Duration: at 30-40 days of age.

Yearly once boosters: for DHPPiL vaccine and rabies vaccine.

IN CASE OF RABIES DOG BITE: 5 doses (1<sup>st</sup> 3 doses are mandatory)

Duration: 1<sup>st</sup>, 3<sup>rd</sup>, 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>(or) 28<sup>th</sup> day.

### **Importance of Booster Vaccines:**

Booster vaccine is given to increase the antibody concentration in blood. Antibody titre must reach the minimum level such that when the disease-causing micro- organisms enters the body it would be immediately destroyed by antibody.

### **Importance of Vaccination:**

Vaccination stands as a cornerstone of preventive healthcare for puppies, holding paramount significance in safeguarding their health and well-being. Early vaccination protocols play a pivotal role in protecting puppies from a spectrum of infectious diseases, crucially averting potentially life-threatening illnesses and curtailing the spread of contagious pathogens within the canine community. By priming the puppy's immune system to produce antibodies against specific pathogens, vaccines establish a robust defense mechanism, fortifying the body against future infections. Standardized vaccination schedules, administered under veterinary guidance, provide essential protection against prevalent canine diseases like distemper, parvovirus, adenovirus, and rabies. Furthermore, vaccination serves as a linchpin in public health endeavors, effectively thwarting zoonotic diseases and mitigating the risk of disease transmission from dogs to humans.

The adherence to recommended vaccination protocols, including timely booster doses, is paramount to ensure sustained immunity and long-lasting protection throughout the puppy's lifespan. Promoting awareness and education among pet owners, breeders, and veterinary professionals regarding the critical importance of vaccination fosters responsible pet care practices and contributes significantly to minimizing the impact of preventable diseases in the puppy population.