



## Thrombopathia or Thrombocytopenia In Dogs

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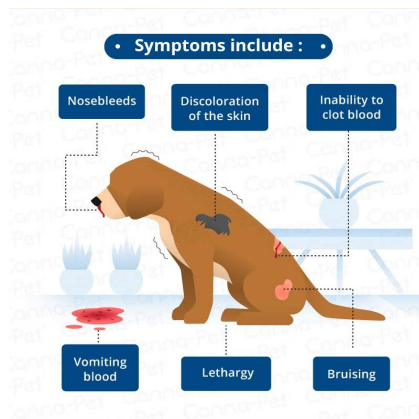
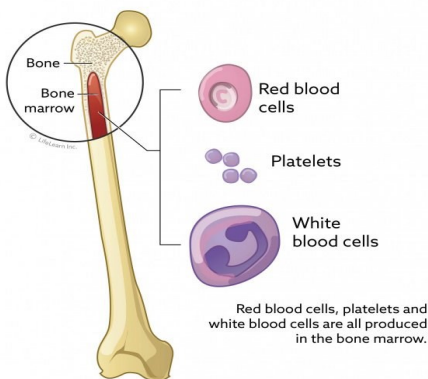


Thrombopathia is also known as hereditary thrombopathy, thrombocytopenia, platelet disorder, immune mediated thrombocytopenia, and autoimmune thrombocytopenia.

Thrombopathia (Newfoundland Type) is an inherited bleeding disorder affecting dogs. Affected dogs have abnormal platelet function.

### So, what are blood platelets?

Blood consists of plasma (a straw-coloured fluid) in which are suspended red blood cells (the oxygen carrier cells), many types of white blood cells, which help fight infection, and blood platelets. The platelets are produced in the bone marrow, and their main role is to activate the blood clotting mechanism. They trigger a response causing a sticky mesh to form in which cells become entangled, forming an oozy clot which seals the damaged vessel. In dogs affected by Thrombocytopenia, these platelets do not function normally to form a proper clot. This leaves the blood vessel to bleed into the body, or in the case of a traumatic outer injury, haemorrhage.



In thrombopathia (Newfoundland type), the blood platelets are unable to stick properly to one another and therefore cannot clot normally. The risk for excessive and spontaneous bleeding can range from mild to severe. The most common symptoms in affected dogs are recurrent nose bleeds and excessive bleeding of the gums when a dog sheds its teeth or chews on hard objects. Affected dogs can also bruise easily, get blood filled masses (haematomas) under their skin and within muscles with mild trauma. Bruises may appear on the skin, the dog may lose appetite, be lethargic and weak.

They can have internal bleeding, and bloody or dark tarry faeces. Dogs may show signs of lameness or stiffness if bleeding in the joints is present. Iron deficiency and anaemia are also seen, as well as problematic bleeding during seasons.

Although dogs with this disorder are at risk for spontaneous haemorrhage and internal bleeding, affected dogs may not be identified until surgery or trauma occurs, at which time excessive bleeding is noted. Veterinarians performing surgery on known affected dogs should have ready access to blood banked for transfusions. Dogs can have a normal lifespan with this condition although they are susceptible to life-threatening bleeding with an accidental injury or any surgical procedure.

## *Causes of Thrombocytopenia*

The production of a smaller number of platelets by the bone marrow; destruction of platelets by the immune system; too many platelets involved in clotting process; and loss of platelets.

### *What diseases or conditions are associated with thrombocytopenia?*

Many severe diseases have thrombocytopenia as one component of the condition. Infections, neoplasia (cancer), immune system disorders, and pancreatitis can result in thrombocytopenia, as can anti-cancer drug therapies.

### *How common is thrombocytopenia?*

Thrombocytopenia is quite common. Some surveys have shown as many as 5% of all dogs admitted to veterinary hospitals have a low platelet count. There have been increasing reports of this disease in Newfoundlands in the U.K.

### *Is thrombocytopenia hereditary?*

Yes. Thrombocytopenia is an autosomal recessive inherited disorder, more usually found in Basset Hounds and Finnish Spitz. Unheard of in Newfoundlands in the past or not recognised and therefore unreported perhaps, but with the advent of the internet and huge strides in diagnosing disorders this problem is now raising its head within the breed. Both parents of the dog must have the mutated gene to pass it on to the litter. (See mode of inheritance below).

*This condition is easily diagnosed with a simple blood test to look at platelet quantity and function.*

### *Treatment*

Unfortunately, there is no cure for this condition at present, but it can be controlled, in some cases, with medication. Dogs that are diagnosed need to be carefully monitored and kept away from situations that could cause them injury, which is highly a restrictive lifestyle for any dog and family. The advice is to spay females to stop them having seasons, but the surgery holds some risk. Males too should be neutered or never used for breeding.

### *Prevention.*

Dogs can be tested for this condition with a simple cheek swab with the following results.

- Clear = does not have any copies of the mutated gene not a carrier of the condition, will never be affected and can be used for breeding.
- Carrier = carries a copy of the mutated gene and a copy of a normal gene, it would never develop the condition itself.
- Affected = carries two copies of the mutated gene

### **Mode of inheritance**

<u>Sire</u>	<u>Dam</u>	<u>Offspring</u>
Clear	Clear	100% Clear
Clear	Carrier	50% Clear ; 50% Carrier
Clear	Affected	100% Carrier
Carrier	Clear	50% Clear ; 50% Carrier
Carrier	Carrier	25% Clear ; 50% Carrier ; 25% Affected
Carrier	Affected	50% Carrier ; 50% Affected
Affected	Clear	100% Carrier
Affected	Carrier	50% Carrier ; 50% Affected
Affected	Affected	100% Affected