

## Blood Tests - What Do They Tell the Vet?

Some vets take a blood sample with you present in the room, others need to take your pet to a place where there is a nurse available to help, but what does the precious red stuff tell your vet once they have collected it?

Hopefully, blood tests tell your vet that all is well with the internal mechanisms of your pet's body! Obviously the reason for your vet suggesting that a blood sample is collected is because you have noticed something is up with your pet and an examination has indicated that further information is necessary to make your pet well again.

Just the physical act of taking the blood sample can tell a vet how well or sick the pet is. A pet that objects to being restrained, hearing the noise of the clippers or the needle being inserted is likely to be much less ill than a pet that acts as if nothing unusual is happening! Then the appearance of the skin once the fur is clipped off can aid diagnosis - for example, a yellow discolouration to the skin would suggest a jaundiced pet and very likely a liver problem. Then we get to the appearance of the actual vein (this is the type of blood vessel we usually collect the blood from), whether it be the leg, neck or ear vein it should stand out like a little tube against the skin once the nurse occludes it. If the vein is not obvious then it may mean the pet is overweight (the vein is hidden in layers of fat) or very sick with a low blood pressure (the "tube" collapses as there isn't enough pressure or volume of blood to keep it open). And all this before any blood has even run into the special containers to transport it to the laboratory, never mind it being processed!

Once the needle has been inserted into the vein, the ease with which the blood runs into the sample containers can indicate how well hydrated the patient is. A slow flow with dark red blood that is difficult to collect suggests the pet is very dehydrated and therefore very poorly. A very quick flowing watery looking sample may indicate anaemia (too few red blood cells, making the blood thinner in consistency). Now hopefully the vet has the blood in a series of different containers, all with different coloured lids - pink, orange, yellow, white or brown (see picture) - and probably some smeared out onto two or three glass slides (this preserves cell shape better if performed immediately after sampling).



At this stage, looking at the blood in the containers may tell your vet a thing or two. As the blood settles in the sample containers (and this is often enhanced in the laboratory by 'spinning' the sample in a special machine to make the separate components visible - the blood cells sink to the bottom and the fluids that the blood cells usually float in at the top) it again can look abnormal in appearance. The fluid may appear yellow (jaundiced) or pink (red cells have become broken or 'haemolysed') or white (fatty), all adding information to the overall clinical picture your vet is getting of your pet's health status.

Then we get to processing the samples through the laboratory. This stage may be carried out 'in house' (at your vet's own premises) or at a special laboratory (requiring the samples to be sent by post or courier). Sophisticated machines can process tiny volumes of blood (0.4ml can be sufficient to analyse all the red and white blood cells - called a complete blood count). A number of different tests can then be performed and these are the ones we may dimly associate with abbreviations heard on the many medical dramas on television - CBC, PCV, 'lytes etc. etc. Let's move on to explain what these terms may tell your vet.

Complicated technical terms are used to describe each result and whether it falls within a designated normal range or not. There are basically three main components of blood that are commonly analysed:

### 1. Red and white blood cells (the Complete Blood Count or CBC):

Essentially changes in this category include:

- Increased cell numbers
- Decreased cell numbers
- Shape changes
- Colour changes
- Extra bits seen inside cells

Depending on which combination of results are returned, this will tell your vet if your pet is suffering from anaemia, infection, inflammation or stress. There are many subtle variations within this, for example the results may indicate that an infection is caused by a virus or parasite or bacterium, or whether an anaemia is due to blood loss or from chronic illness (perhaps due to an abscess or tumour).

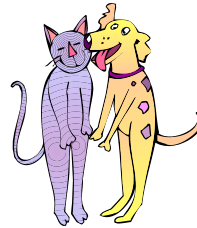
## 2. **Biochemistry, including electrolytes:**

This is the analysis of the fluid bit of a blood sample. These tests look at organ function, basically telling your vet how well the liver, kidneys, pancreas, intestines, heart, muscle etc. are working. With biochemical tests your vet will be looking for an increase or decrease in readings compared to an established normal range. The changes are often classified as mild, moderate or severe in nature. They may show damage or altered functioning of the body organs.

## 3. **Serology:**

This type of test is usually looking for a specific type of infectious agent, for example the *Encephalitozoon cuniculi* parasite in rabbits or Toxoplasmosis parasite in cats and dogs, and frequently measures antibody levels. Your vet is probably more likely to use this sort of test following on from the results of the other types of blood tests.

In conclusion, blood tests are most often used when a pet is sick, but they can be used to establish a baseline of what is normal for **your** pet rather than just normal for the average pet. If you are in the position where your pet is sick then it is important to understand that a blood test taken at a single point in time can be extremely useful in its own right, but by taking sequential tests your vet will be able to monitor your pet's response to treatment and be able to proffer a more accurate guide to long term outcome, hopefully achieving a set of results that are back to being perfectly within the normal range and indicating healthy pet status again!



## Quick Reference Guide



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