

Complete Blood Count (CBC)

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A complete blood count is a useful tool in the diagnostic process. A CBC is useful in determining many blood parameters as well as indicating if an infection is present. There are several components to the CBC. CBCs can be done manually but the speed of an automated system coupled with the amount of information that can be generated by such a machine make it a very useful diagnostic tool. We use such a system, a Lasercyte, which helps us generate CBCs rapidly and very accurately.

Hematocrit/Packed Cell Volume (PCV)

This is a number that is reported as a percentage of red blood cells in the circulation. This component is able to provide a quick picture as to whether an animal is lacking red blood cells (anemia) or is hemoconcentrated (an increased percentage of red blood cells in the circulation due to dehydration, usually, or overproduction).

Absolute Red Blood Cell Count

This is the actual number of red blood cells per a set volume of blood (typically a tiny amount such as a microliter) and is reported as so many millions of cells. It provides a quantitative measure of the number of red blood cells present. It is useful in determining if anemia is present.

This number is generated by an automated blood cell counting device or part the evaluation by diagnostic equipment that performs the various parameters of the complete CBC in an automated fashion. We utilize such a machine, called the Lasercyte, which provides us with complete CBC results within 15 minutes.

Red Blood Cell Parameters

Certain characteristics of the red blood cells are able to be evaluated by an automated CBC machine, such as the Lasercyte. These characteristics are important in helping to evaluate production of the red blood cells and can also be useful in arriving at a diagnosis.

Reticulocytes

Reticulocytes are immature red blood cells. They appear different than mature red blood cells and are identified automatically by the Lasercyte. The importance of reticulocytes are that they indicate the degree of red blood cell regeneration. Normally there will be a small percentage of reticulocytes in the blood as the body is continually recycling red blood cells. If a pet is anemic due to blood loss, typically there will be an expected increase in red blood cell production to overcome the loss, represented by a high reticulocyte count. This is called a regenerative anemia. If the pet is anemic due to an illness and lack of production the reticulocyte count would be low, hence a non-regenerative anemia. The reticulocyte count is a useful means for evaluating the state of a

pet's health by the ability to regenerate red blood cells. This number is reported as both a percentage and an absolute number.

White Blood Cell Count

White blood cells are an essential part of the body's defense system. There are different types of white blood cells and they play various roles in the response to disease. Our Lasercyte machine is able to evaluate a blood sample and recognize the different types of white blood cells. The Lasercyte can automatically do a total count (absolute number) of white blood cells as well as the percentages of the types of cells.

Absolute White Blood Cell Count

The absolute number indicates the total number of white blood cells in a microliter of blood. The number can give an indication of the response of the body to infection by the increased numbers of white blood cells. Obviously the number of white blood cells indicate the degree of response to an infection; a large increase in white blood cells could indicate a significant response to an infection or could indicate a disease condition like leukemia (which is essentially cancer of the white blood cells represented by huge increases in particular types of white blood cells). More typically, modest to moderate increases in white blood cells are seen in response to an infection. In addition to the total number the Lasercyte will determine the absolute number of EACH TYPE of white blood cells. This is important because increases in different types of white blood cells indicate different conditions.