

# CBC and Chemistry Profile

- A CBC (complete blood count) and chemistry profile is an important component of wellness blood work that your veterinarian may want to perform during your pet's regular checkups.
- A CBC and chemistry profile can help determine the state of your pet's health and diagnose illness or injury.
- Minimal risk is associated with performing a CBC and chemistry profile, and the information gained is invaluable.

### What Is a CBC and Chemistry Profile?

Blood testing is commonly used to help diagnose disease or pinpoint injury in animals. It can also help determine the state of your pet's health during regular physical exam visits. Although a CBC or a chemistry profile can be performed separately, these tests are frequently done at the same time; when the results are interpreted together, they provide a good overview of many of the body's functions. As with any other diagnostic test, results of a CBC and chemistry profile are not interpreted in a vacuum. Your veterinarian will combine this information with physical exam findings, medical history, and other information to assess your pet's health status and determine if additional testing should be recommended.

### Complete blood count (CBC)

The CBC can help determine many things about your pet, including whether he or she is dehydrated, anemic (having inadequate numbers of red blood cells), or dealing with an infection. The CBC measures the quantity and quality of red blood cells, white blood cells, and platelets. The CBC results may list abbreviations for the various tests included in a CBC:

- **HCT** is the hematocrit, which indicates how many red blood cells are present. A low HCT might indicate anemia, and a high HCT could indicate dehydration.
- **Hgb** is the quantity of hemoglobin, which can help determine how well the red blood cells are carrying oxygen to the body's tissues.
- **WBC** is the total white blood cell count. Certain types of white blood cells may increase in number when there is infection or inflammation in the body. If the total number is low, it could mean several things, including a severe infection that has overwhelmed the body, or a bone marrow problem that is limiting production of white blood cells. There are several different types of white blood cells, which respond to different events in the body. **EOS** (eosinophils) are white blood cells that tend to increase in number when the body is dealing with an allergy problem or various parasites.
- **PLT** is the quantity of platelets (also called the *platelet count*). Platelets are involved in the body's blood clotting process, so if the platelet number is low, the patient may develop problems with the ability to form blood clots.

A complete blood count and chemistry profile is an important component of wellness blood work that your veterinarian may want to perform during your pet's regular checkups.

### Chemistry Profile

The chemistry profile measures a variety of chemicals and enzymes (proteins that are involved in the body's chemical reactions) in the blood to provide very general information about the status of organ health and function, especially of the liver, kidneys, and pancreas. The chemistry profile also shows the patient's blood sugar level and the quantities of important electrolytes (molecules like sodium, calcium, and potassium) in the blood.

- Chemistry values that help provide information about the liver include the ALKP (alkaline

phosphatase), ALT (alanine aminotransferase), AST (aspartate aminotransferase), and TBIL (total bilirubin).

- Chemistry values that help evaluate the kidneys include the BUN (blood urea nitrogen) and CREA (creatinine). Of these two values, the creatinine is a more sensitive indicator of kidney damage. There should be concern even if it's only slightly elevated.
- AMYL (amylase) and LIP (lipase) are enzymes produced by the pancreas.
- Electrolytes are checked for quantity and for proportion to other electrolytes. They include **Ca** (calcium), **Cl** (chloride), **K** (potassium), **Na** (sodium), and **PHOS** (phosphorus.) Electrolyte abnormalities can be associated with many types of health issues. For example, a low calcium level can result in muscle tremors or seizures.

### How Is a CBC and Chemistry Profile Performed?

To perform a CBC and chemistry profile, your veterinary team must first obtain a small blood sample from your pet. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. This is often a good way to find the vein quickly, and the hair will grow back.

Some veterinary offices have in-house blood analysis equipment, so they can perform a CBC and chemistry profile in the office and have results the same day. Other offices send blood samples to an outside laboratory for these tests to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.

Because a recent meal changes the blood and may affect the results of a chemistry profile, your veterinarian may recommend that your pet not receive any food for 8 to 12 hours before blood is drawn. In most cases, water can still be offered. Please let your veterinarian know if this temporary fast will be a problem for you or your pet.

Also, be sure to tell your veterinarian about any medications or supplements that your pet is receiving, as some products can alter the results of a chemistry profile.

### What Is a CBC and Chemistry Profile Used For?

A CBC and chemistry profile is an important component of wellness blood work. Your veterinarian may recommend wellness blood work during your pet's regular exams. Even if your pet is young and healthy, performing this testing periodically helps establish "normal" values for your pet. The next time blood work is performed, your veterinarian can compare the results with previous results to see if anything has changed. Depending on your pet's age and health history, additional tests (such as thyroid testing or urinalysis) may also be recommended as part of wellness testing. For seniors or chronically ill pets, your veterinarian may recommend blood work more frequently. Wellness blood work screens for many medical conditions, including diabetes and kidney disease. In many cases, early diagnosis and management can improve quality of life and the long-term prognosis for pets with chronic illnesses.

When a pet presents with clinical signs indicating an illness, a CBC and chemistry profile is often performed very early during the diagnostic process. Even if results of this initial testing are all "normal," this information can rule out a variety of medical conditions. If results of a CBC and chemistry profile are abnormal or inconclusive, your veterinarian may recommend additional testing to get closer to a diagnosis.

A CBC and chemistry profile is also part of routine blood work that is performed before a pet undergoes general anesthesia for a surgical procedure. If test results are abnormal, your veterinarian may recommend additional precautions to help ensure your pet's safety during the procedure. Your veterinarian may also recommend postponing the procedure or choosing an alternative treatment option.

Performing a CBC and chemistry panel poses minimal risk for your pet, and in many cases, the information your veterinarian gains from this testing is invaluable.