

# Preparation for General Anesthesia and Surgery

With modern drugs and sophisticated equipment, the risk associated with general anesthesia and surgery is minimal for the healthy pet. However, the potential for complications still exists, and the best way to decrease the risk for your pet is to have a complete pre-surgical evaluation performed before the procedure. This allows the veterinarian to determine if your pet has any underlying problems that might lead to complications, and to make any adjustments necessary to safeguard your pet's health and comfort.

## ***What is involved in preparation for anesthesia and surgery?***

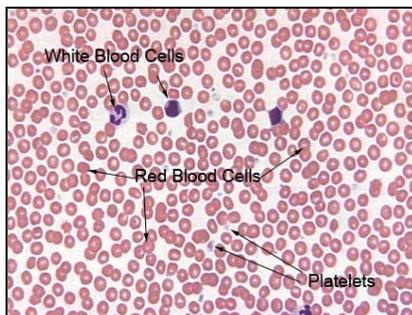
The amount of preparation will be dictated by the age and health concerns of your pet, and by the nature of the procedure being undertaken. In general terms, preparation can be divided into three stages: physical examination, routine blood testing, and additional testing.



### **The physical examination**

The physical examination includes

- a systematic visual inspection of the pet's head, neck, limbs, and body,
- palpation (feeling with the hands) of the body's outer surface (skin, fur, muscles etc.), and assessment of internal abdominal organs through the body wall ,
- auscultation (listening with a stethoscope) to the heart, lungs, and abdomen.



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### **Routine Blood testing**

Routine blood testing typically includes a complete blood count (CBC) and a serum biochemistry profile; these tests provide a wealth of important information about a pet's health status.

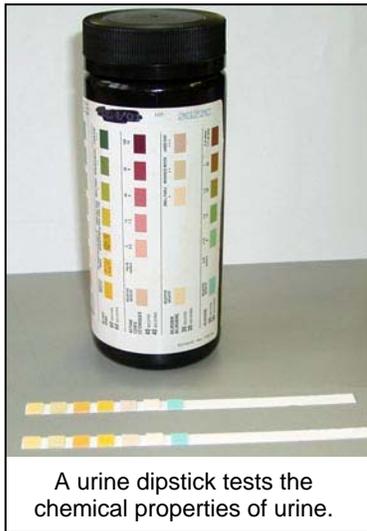
**Complete Blood Count** - this simple test analyses the cellular components of blood. These include red blood cells, which carry oxygen to the tissues, white blood cells, which fight infection and respond to inflammation, and platelets, which help the blood to clot. The CBC provides details about the number, size, and shape of the various cells types, as well as any abnormalities that may be present. (See handout

*Complete Blood Count*). If there are deficiencies in or there are abnormal cells present, then anesthesia is postponed, if possible, until the underlying problem is corrected.

**Serum Biochemistry Profile** - this is a series of tests for the major component of blood. These tests provide information about how organs of the body are working. Each test provides information about a specific organ or metabolic disease. For example, there are tests to assess the function of the liver, kidneys, and pancreas, and tests to identify the presence of diabetes, etc. (See handout *Serum Biochemistry*). Major abnormalities, especially involving the liver or kidney, or evidence of serious metabolic disease would justify delaying anesthesia and surgery until the underlying problem was corrected.

**Additional Testing** - there are a number of additional tests that may be performed, either as part of routine pre-anesthetic preparations, or in response to some irregularity, deficiency or abnormality identified on physical examination or routine blood testing.

**Urinalysis** - examination and analysis of urine is necessary for a complete evaluation of the urinary system. Urinalysis provides information about kidney function, inflammation in the kidneys or bladder, some metabolic diseases (e.g. diabetes), and the presence of urinary crystals. Urinalysis is recommended as a part of routine pre-anesthetic testing and is especially important whenever there are signs of problems involving the kidney or bladder.



**Hormone testing** - routine hormone testing prior to anesthesia and surgery is usually limited to evaluation of the thyroid gland. The thyroid gland acts as a "thermostat", setting the metabolic rate of the whole body (See handout *Thyroid Testing*). Thyroid testing is important for both dogs and cats, but for different reasons.

**In the dog**, thyroid disease usually involves a poorly functioning gland (*hypothyroidism*), which leads to sluggishness and weight gain, and may result in poor wound healing following surgery.

**In the cat**, thyroid disease usually involves an over active gland (*hyperthyroidism*), which leads to hyperactivity, weight loss, and increased stress on the heart and other organs. It is typically a disease of the older cat, and should be corrected before proceeding with anesthesia and surgery.

**Imaging** - x-rays, ultrasound, or other imaging techniques may be recommended prior to anesthesia and surgery, especially if abnormalities or irregularities are found on routine testing. If the veterinarian has concerns about your pet's heart function, or needs to know whether a cancer has spread, or wants to evaluate the best approach to the surgery etc. diagnostic imaging may provide answers.



**Electrocardiogram (EKG)** - an electrocardiogram involves attaching electrodes to specific points on the pet's body, similar to the procedure in humans. The electrodes detect tiny electrical signals sent from the heart with each heartbeat. These electrical pulses are transferred to a strip of graph paper by the EKG machine, giving a graphic printout or "tracing" of the electrical activity within the heart. The veterinarian can examine the tracing to determine if the pet has a normally functioning heart.

### **Summary**

Once all the test information has been gathered and analyzed, your veterinarian will decide if it is wise to proceed with anesthesia and surgery. In some situations the risk will be too great, and the procedure will be delayed to allow time to treat the underlying problem. In other cases the decision will be that it is safe to proceed as planned. For some pets, the decision will be to proceed, but with adjustments that minimize risk even further, such as using a different type of anesthetic I, administering pre-surgical antibiotics, giving intravenous fluids etc.

It is important to note that there is a small but unavoidable risk whenever a pet undergoes anesthesia and surgery. Pre-surgical preparation does not eliminate this risk, but it greatly reduces the potential for unexpected complications, and goes a long way towards ensuring your pet has a safe procedure, and a smooth and uneventful recovery.

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*This client information sheet is based on material written by Kristiina Ruotsalo, DVM, DVSc, Dip ACVP & Margo S. Tant BSc, DVM, DVSc.  
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