

Hypothyroidism and Dogs

HYPOTHYROIDISM

You may have noticed your dog is putting on a few pounds lately although you haven't changed its diet. After taking your pet to your veterinarian, it has been discovered that your pet has an under active thyroid gland. Just what is hypothyroidism?

Hypothyroidism is a disorder in which the thyroid gland (two small lobes located in the neck) secretes insufficient thyroid hormone. Hypothyroidism isn't life threatening, but it does diminish quality of life. Once diagnosed, however, the disorder is relatively easy to treat.

The thyroid gland produces the thyroid hormones that are critical to maintaining your dog's normal metabolic rate. This is the speed at which the body converts nutrient energy into energy fueling the body. If the thyroid gland degenerates or becomes inflamed, it can no longer produce sufficient quantities of hormones. As a result, cells don't convert the nutritional energy it needs into biologically usable fuel as fast as usual.

This decreased cell function causes a number of physical changes in a hypothyroid dog. Nearly half of such dogs gain weight (with no change in diet). Over a third become lethargic and mentally dull, and just under a third show hair or skin abnormalities. Hair-producing cells slow down, so there is less hair growth and more hair loss. Skin-producing cells slow down, so there is more wrinkling and seborrhea (dandruff) . Also, hypothyroid pets may suffer an increased propensity to joint disease, especially ligament damage.

Some veterinarians also suspect a link between behavior problems and hypothyroidism. Increased aggression is the most commonly suspected behavior change, but some veterinarians speculate that a few hypothyroid dogs may develop anxiety- related or compulsive behaviors. If your pet develops a sudden behavioral change, have your dog's thyroid status examined.

Since the physical signs of hypothyroidism develop gradually and vary from dog to dog, the disorder often goes undiagnosed. But veterinarians have found that hypothyroidism typically develops after 2 years of age and is more common in certain breeds such as golden retrievers and Doberman pinschers. While all owners should be on the lookout for changes in their dog's appearance or behavior that suggest hypothyroidism, owners of middle-aged dogs or genetically predisposed dogs should be especially watchful. If you notice any signs, consult your veterinarian. By simply taking a sample of your dog's blood, it can be determined if the dog has hypothyroidism. At Columbia Veterinary Associates, we are recommending testing as part of our senior health examinations.

Diagnosing hypothyroidism would seem to be as simple as measuring thyroid-hormone levels in the blood. However, this simple technique can give an inaccurate diagnosis because some illness such as Cushing's disease- overactive adrenal glands-- and

medications, such as cortisone suppress the level of circulating thyroid hormones. The most accurate test is the - thyroid stimulating hormone -TSH- response test. In this test, the veterinarian measures thyroid-hormone levels in the dog's blood, administers TSH (a chemical that stimulates thyroid-hormone secretion), then remeasures hormone levels to determine whether the thyroid gland responded by producing additional thyroid hormones. While the TSH response test is reasonably accurate, it is expensive to administer. Also, this hormone is now difficult to find because of decreased production by the manufacturers.

Newer tests are available, that are as accurate (although not 100 percent) and less expensive than the TSH response test. With these tests the a combination of the levels of thyroid hormone -T4- and a specific thyroid hormone-Free T4 - as well as the level of TSH in a dog's blood are measured. Hypothyroid dogs have both a high TSH level and a low free-T4 level.

Veterinarians treat hypothyroidism by prescribing supplemental thyroid hormone, which the owner must administer to the dog orally once or twice a day. These medications are initially prescribed according to your pet's weight. Your veterinarian will closely monitor your dog in the initial stage of treatment by retesting the thyroid level- T4- to make sure the animal is getting the appropriate dosage. Too little hormone won't alleviate the signs, while too much can cause a dog to develop hyperthyroidism (excessive thyroid hormone causing agitated and overactive behavior, weight loss, excessive drinking, and excessive urination). Once thyroid- hormone levels have stabilized within a normal range, your veterinarian will likely check the levels every six months to every year. The dose levels of medication used to treat this disease in dogs is much higher than the rate use to treat hypothyroidism in people.

Once treatment begins, most hypothyroid dogs are increasingly active and show fewer behavior problems within a week. Hair growth typically accelerates in about a week, too, although bare spots may take months to fully grow in. Most dogs begin to lose excess weight within 2 to 4 weeks of starting treatment.

If you suspect hypothyroidism, consult your veterinarian. The treatment for hypothyroidism is straightforward, and the medication is relatively inexpensive.

Luxating Patella

Article Written by Dr. Daniel A. Degner, Board-certified Veterinary Surgeon (DACVIM)



Key Points

Dislocation of the knee is painful and results in lameness

Evaluation of limb alignment may be recommended, especially in large breed dogs to assess the need to correct this; failure to address this can result in increased failure rates

Concurrent cruciate ligament injury may be present in dogs that have a dislocated kneecap, therefore this also needs to be addressed

Prognosis generally is good - the higher the grade of the patellar luxation, the greater the failure rate unless more corrective surgeries are done

Introduction

- The patella (commonly known as the kneecap) normally rides in a groove at the bottom of the femur at the level of the knee joint in a groove called the trochlear groove; Fig 1 and 2 show a front view of the knee joint; Fig 1 demonstrates the patella in the groove, where as Fig 2 demonstrates the knee cap dislocated out of the groove (P=patella; F=femoropatellar ligaments which hold the patella in the groove; PL=patellar ligament; G=trochlear groove that the patella rides in). Fig 3 demonstrates a skyline view of the trochlear groove and the patella - you are looking down the thigh or femur bone at the knee joint; take note of the deep groove that is found in a normal animal.
- Patellar luxation is caused by congenital abnormality usually at the level of the hip joint and results in abnormal formation of the kneecap, which cause it to eventually ride outside of the groove. The groove becomes very shallow and the attachment of the patellar ligament of the patella may be malpositioned on the tibia bone. If the patellar luxation occurs in immature animals, the tibia and femur bones become twisted.

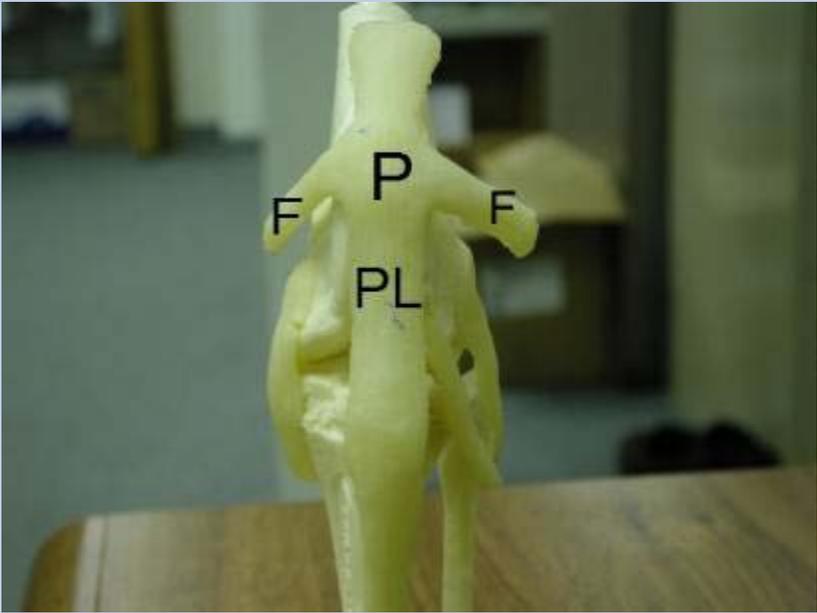


Fig 1

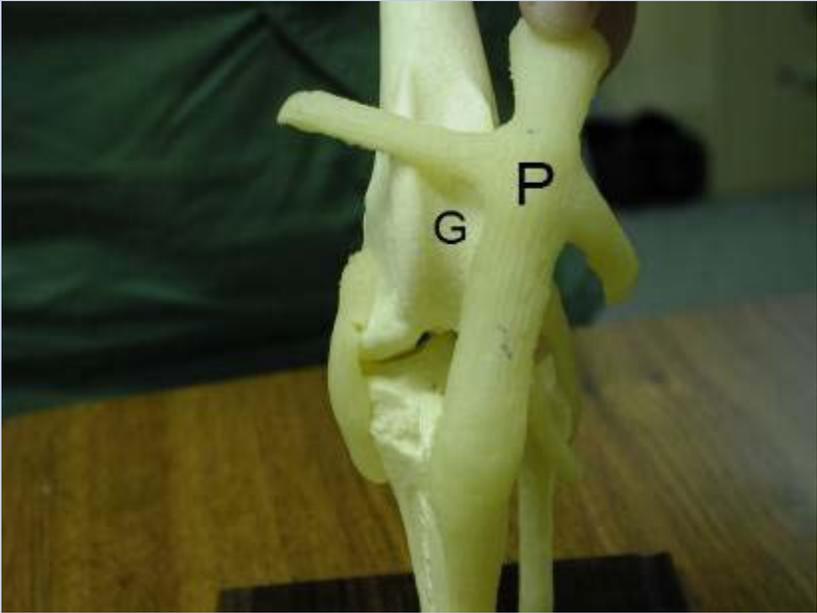
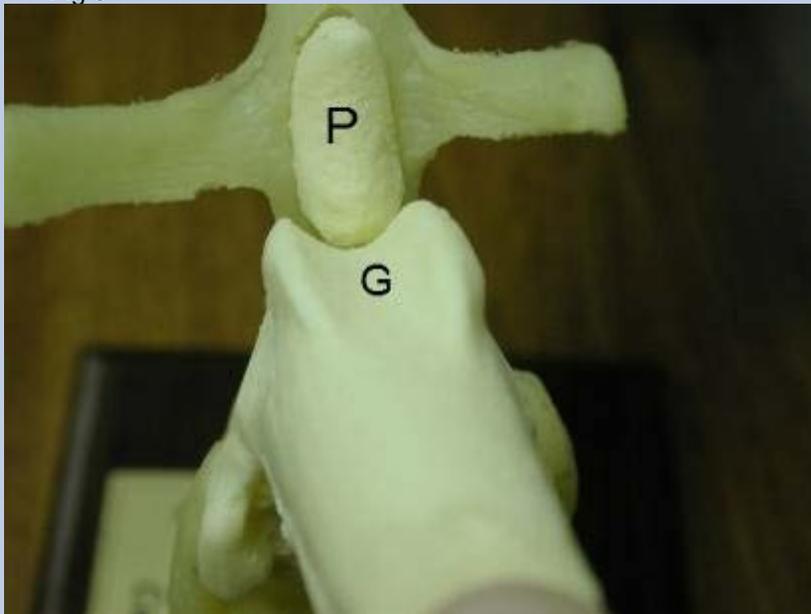


Fig 2

Fig 3



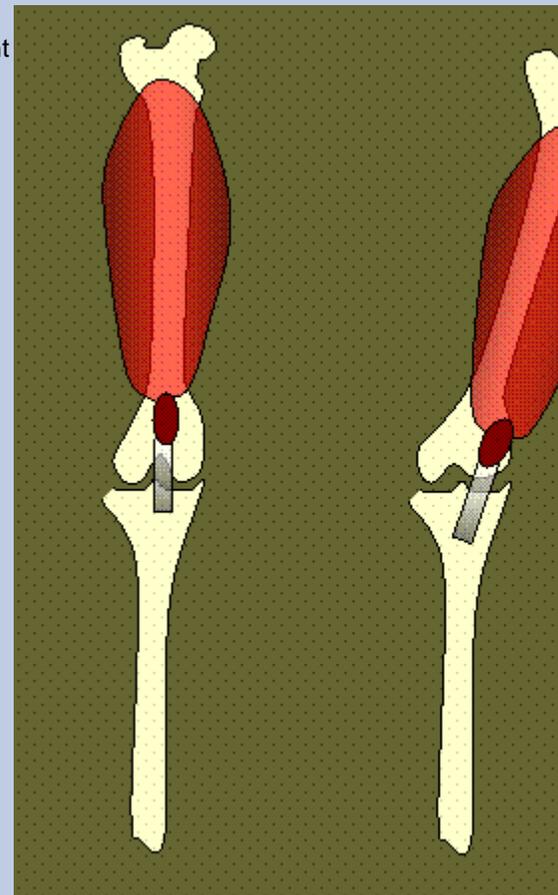
- Below left is a an illustration of a normal limb with normal alignment of the femur bone, tibia bone, quadriceps muscle group (red), patella (brown) and the attachment of the patellar ligament (grey) to the tibia. Below left is a dog that has a deformity of the femur bone which causes the hind limb to be "bow-legged" and has resulted in the patellar luxation.

Clinical signs

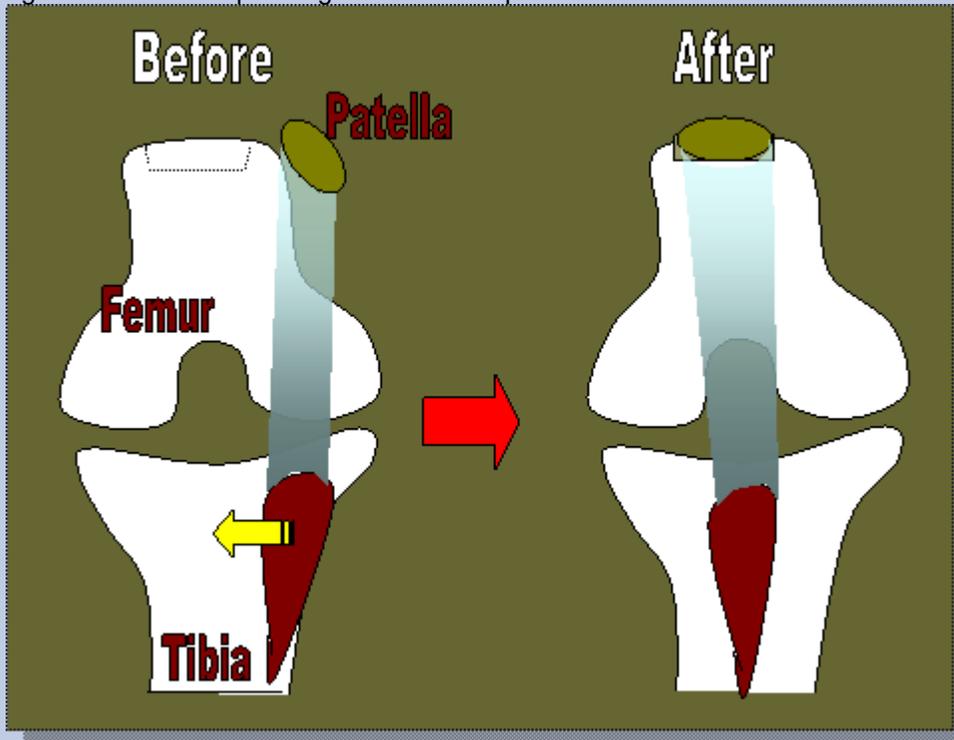
- Lameness
- a skipping gait
- pain
- stiffness of the hind limb
- Some pets show only a single sign, whereas others show many signs of the condition
- Failure to treat the condition could lead progressive debilitating arthritis of the joint

Surgery

- If the groove that the patella rides in is shallow or misshapen, it is surgically deepened; we usually use an advanced technique to perform this called the block osteotomy
- If the attachment of the patellar ligament to the tibia, called the tibial crest, is in the wrong position, it is repositioned
- The capsule of the knee joint is tightened; this tightens the femoropatellar ligament
- In some dogs the femur bone is fairly twisted and needs to be cut and realigned



- A support bandage is usually not used after surgery so that physiotherapy can be started soon after surgery
- Below is an illustration of a front view of the knee joint before and after surgery; take note that there is no groove for the patella to ride in and the patella is dislocated to the side of the knee joint; the tibial crest (brown upside down tear shape) which is out of position is cut off of the tibia bone and moved over to realign the patellar ligament; the illustration on the right shows the deepened groove with the patella seated in it and the tibial crest moved over to a better position on the femur.



Convalescence

- By 10 to 14 days after the surgery your pet should be touching the toes to the ground at a walk
- By 2 to 3 months after surgery your pet should be using the limb well
- If your pet does not follow a normal progression of recovery, the surgeon should be notified

Prognosis

- Surgery has approximately a 90% success rate. Success is defined as the return of good function of the limb
- Unfortunately surgery will not remove the arthritis that may already be present in the knee. As a result, your pet may have some stiffness of the limb in the mornings or after laying down for a nap. In addition, your pet may have some lameness after heavy exercise
- By having the surgery done earlier, the chance of developing significant arthritis is decreased
- Dogs that have a higher grade of patellar luxation may have increased risk for relaxation of the patella
- Large breed dogs that have patellar luxation may have increased risk for relaxation of the patella if a corrective femoral osteotomy is not performed

Potential complications

- There is an inherent risk of anesthetic death with any procedure requiring anesthesia, however, this is very small
- Infection of the surgical site, although not common, can occur
- If exercise is not minimized for 8 weeks after the surgery, breakdown of the repair may occur, thus requiring a second surgery

Frequently Asked Questions After Surgery

When should my dog have the first bowel movement after surgery?

- Many dogs will not have a bowel movement for the first 4 to 5 days after surgery
- Reasons that a dog will not have regular bowel movements after surgery include:
 - The dog has been fasted prior to surgery
 - Dogs do not eat well during the hospital stay
 - They frequently do not eat well when they get home
 - They are fed highly digestible food that produces little stool
 - Pain medication that contain narcotics (such as tylenol with codeine, tylenol 3, tylenol 4, morphine) can be constipating
- If a pet does not have a bowel movement on the 5th day of being home a stool softener such as metamucil can be fed
 - Dose of metamucil 1 tsp per 25 Kg mixed in with each meal (canned dog food)

My pet had surgery and will not eat. What can be done?

- Dogs
 - Most pets will not eat their regular dog food after surgery, especially if it is kibble.
 - Offer a cooked diet having a 1:1 ratio of a protein source and carbohydrate source. The protein source can be any meat (example: chicken breast, turkey breast, lean hamburger) that is low fat and should be cooked and any residual fat skimmed off. The carbohydrate can be pasta, potato or white rice.
 - Try canned dog food; to enhance the flavor sprinkle a very small amount of garlic powder or chicken or beef broth (Chicken-in-a-Mug™ or Beef-in-a-Mug™ products)
 - Try Gerber strained meats for babies such as the chicken, beef, turkey, or veal
 - Try Hill's A/D diet available at most veterinary hospitals
 - Hand feeding; place a small amount of food in the mouth so that they get the flavor
 - Warm the food slightly in a microwave as the food will be more aromatic; remember to stir the food before feeding and test the temperature on the bottom side of your wrist; it should only be luke warm.
 - Remember that most pets will not eat the first day or two after they get home from surgery
- Cats
 - Offer smelly foods that contain fish such as tuna or smelly cat foods
 - Try Gerber strained meats for babies such as the chicken, beef, turkey or veal
 - Hand feeding; place a small amount of food in the mouth so that they get the flavor
 - Warm the food slightly in a microwave as the food will be more aromatic; remember to stir the food before feeding and test the temperature with your finger; it should be only luke-warm.
 - Some cats will only eat dry food, try kibble if your cat normally has been fed that food
 - Petting and stroking your cat frequently will help to stimulate appetite
 - Remember that most pets will not eat the first day or two after they get home from surgery

- Appetite stimulants such as cyproheptadine may be helpful
- If your cat refuses to eat anything for 7 days a stomach tube should be placed to provide nutrition so that a serious liver problem (hepatic lipidosis) does not develop

My pet is vomiting now that he/she is at home. What can be done?

- The first thing for you to discern is whether your pet is vomiting or regurgitating. Both will result in fluid or food being brought up. Vomiting always will have heaving or retching of the abdomen prior to expulsion of the vomitus. Regurgitation is not associated with heaving and the dog usually just opens the mouth and fluid or food will be expelled. Usually the regurgitant will be clear or brown colored fluid.
- Next is to identify the cause of the vomiting or regurgitation.
- Causes and treatment of vomiting after surgery
 - When some pets return home after a stay in the hospital they may drink excessive amounts of water at one time and then vomit; if this appears to be happening the water should be limited to frequent smaller amounts.
 - Medications such as antibiotics or tylenol/codeine are common cause of vomiting after surgery. In order to see which medication is causing the problem the administration of each drug should be separated 2 hours apart. Usually the pet will vomit or appear nauseated (drooling and sick look) within 1 hour of administration of the medication that they are sensitive to. The antibiotic in some cases may be changed to a different one, or may be discontinued. The tylenol/codeine should be discontinued and another type of pain medication tried to help minimize vomiting.
 - Stomach upset from anesthesia is a potential cause of vomiting and will pass within a couple of days.
 - Unusual cause of vomiting after surgery is internal organ failure. Blood testing will confirm this problem. For this reason vomiting should not be ignored if it persists for more than 24 hours.
 - If your pet had surgery of the bowels or stomach, vomiting is always a concern, as it may indicate that infection of the abdominal cavity, called peritonitis, is present. Do not ignore this sign.
 - Symptomatic treatment of vomiting involves with holding food for 12 to 24 hours, then introducing small amounts of bland food such as rice and lean cooked hamburger, if your pet does not vomit after that then. In order to decrease the acidity of the stomach Pepcid AC 0.5 mg/kg given by mouth twice daily for 5 days can sooth an upset stomach. Metoclopramide is a good anti-vomiting medication for dogs and cats. You should always consult a veterinary healthcare professional before administering medication.
- Causes and treatment of regurgitation after surgery
 - The most common cause of regurgitation is reflux of acid from the stomach into the esophagus while your pet is under anesthesia. Acidic fluid from the stomach can cause a chemical burn of the esophagus and result in a bad case of heart burn, which is called esophagitis. This results in poor motility of the esophagus so water and food will accumulate in this structure. In most cases esphagitis is self-eliminating and will resolve within two or three days.
 - Regurgitation also can be caused by a neuromuscular degeneration of the esophagus and this problem will persist. It is not associated with surgery, rather other underlying diseases.
 - If the esophagitis is severe the esophagus may develop one or more strictures. A stricture is a narrowing or stenosis of the esophagus, does not allow passage of food down the esophagus, thus the pet has persistent regurgitation. This problem should be brought to the attention of your doctor within the first two weeks so that it can be treated by ballooning the stricture (minimally invasive procedure as it is done with the aide of an endoscope). If an esophageal stricture is chronic surgery is needed.
 - Symptomatic treatment of regurgitation caused by esophagitis includes feeding bland food, and administering a coating agent such as sucralfate. You should consult a

veterinary health care professional if the regurgitation continues for more than a couple of days.

How do I know that my dog is in pain following surgery?

- Signs of pain include
 - crying
 - biting if you get near the surgical site
 - grimacing (lips are pulled back and the dog looks anxious)
 - tragic look of the face
 - restlessness and not wanting to sleep; pacing
 - if abdominal surgery was done the pet will not lie down on the incision, or will continually sit up in spite of appearing very tired
 - the worst pain will be for the first 2 to 3 days after surgery

What can be done for pain at home for my dog?

- Pain medication such as tylenol with codeine, butorphanol, Duragesic (fentanyl patch) anti-inflammatories such as Deramaxx, Rimadyl, or Etogesic; in some cases a sedative such as acepromazine will augment the effect of pain medication and allow your pet to sleep
- If an orthopedic surgery has been done cold packing the surgical site may be helpful
 - A cold pack may be a pack of frozen peas, crushed ice in a Ziploc bag, or a cold gel pack; place a thin barrier between the skin and the cold pack. An alternative to a cold pack is to freeze water in a styrofoam cup; after frozen cut the bottom of the styrofoam cup out and in circular motions (directly on skin) cool the surgical site around the incision. Cooling the surgical site helps to numb the area

How do I know that my cat is in pain following surgery?

- Pain is more difficult to assess in cats versus dogs as signs can be more subtle and they usually do not vocalize
- Signs of pain in a cat include the following:
 - biting if you get near the surgical site
 - growling or deep cry
 - not wanting to eat
 - hiding and not wanting to be near owner (remember that this could also be caused by the cat just being upset about leaving home and coming back)

What can be done for pain at home for my cat?

- Pain medication such as buprenorphine or a Duragesic (fentanyl) patch
- Tylenol will kill a cat as they lack abundant glutathione enzyme in the liver
- Anti-inflammatories can be used, but the dose is much less than dogs and they should be given only for a few days

Is it okay for my pet to lick the incision?

- If a dog licks his incision it will actually delay the healing process because they usually lick too much and traumatize the area.
- Licking can remove stitches and cause the incision to open
- Licking can become a severe habit that is difficult to break

- Licking can cause infection as the mouth has many bacteria
- Dogs will frequently lick the incision when the owner is not watching such as at night time; if the skin looks red or excoriated the most common cause is from licking.
- To stop your pet from licking the following can be tried:
 - Elizabethan collar can be placed on the neck; this will not help stop your pet from scratching at the region
 - Cervical collar (bite not collar) is a less awkward device and can be effective at stopping a pet from licking the surgical site
 - If the incision is over the chest a tee shirt can be put on your pet and the waist of the shirt fastened in place with an ace bandage or duct tape.
 - If the incision is over the paw or lower limb a bandage or sock could be put on and kept up with tape.
 - Bitter apple can be applied around the incision; many dogs will continue to lick after application of this topical
 - Bitter Apple and Liquid Heet™ (obtain this from a drugstore...it is used for sore muscles) mixed in a 2:1 ratio can be applied around the skin incision
 - Antipsychotic medication in some cases is needed

• **A Quick Look At: Leggs-Perthes**

- **Also Known As:**
- Leggs-Calve-Perthes Disease, aseptic or avascular necrosis of the femoral head
- **Symptoms:**
- This disease is usually seen in young (under one year old) toy and miniature breed dogs such as Miniature Pinschers and Manchester Terriers, particularly Toy Manchesters. The clinical signs of Leggs-Perthes usually occur between 4 months and one year, with the typical range being between 6 and 9 months of age.
- Normally, Leggs-Perthes consists of lameness in one rear leg although it can occur in both rear legs and often appears shortly after an injury. It can show as acute pain (dog cannot bear weight on one or both hind legs) or as intermittent subtle lameness in one or both rear legs. The pain may be mild to very severe. Some dogs have mild forms of this condition and require minimal medical treatment. In other dogs, the condition causes considerable pain and deformity of the hip joint and requires surgery. An x-ray will confirm the presence of Leggs-Perthes. Muscle atrophy of the affected leg is not uncommon. If the atrophy is severe, it can slow the recovery period considerably and may make medical treatment less likely to work.
- **Cause:**
- Leggs-Perthes occurs when the bone that makes up the ball portion of the hip is damaged from a lack of blood supply. The femur head is no longer able to receive nutrients from the blood and the bone cells begin to degenerate and die off. Eventually, the overlying cartilage may collapse. It is not clear why this occurs. Since a higher incidence of Leggs-Perthes is noted in several dog breeds, including terrier breeds, Miniature Pinschers, Poodles and possibly Schipperkes, it is assumed that there may be a genetic component to the disease. In Manchester Terriers, the genetic component appears to be a strong influence and heritability is suspected to be high. Several studies have indicated that Leggs-Perthes may have a multigenic (more than one gene) means of inheritance, or that LP may not be completely expressed. In other words, a

Manchester may have the affected gene(s), but does not show signs of Leggs-Perthes. More research needs to be done in this area.

- **Treatment:**

- Treatment of Leggs-Perthes varies according to the severity of symptoms. In mild cases, strict rest and treatment with non-steroidal anti-inflammatory drugs (NSAIDs) may be sufficient. In some cases, immobilizing the affected leg using a special sling may help recovery.
- Unfortunately, many dogs have advanced cases of Leggs-Perthes by the time they are examined by a veterinarian and surgery is the only option. Often, severely affected dogs have become totally lame and have stopped using the affected leg(s), resulting in muscle atrophy. In these dogs, surgically removing the femoral head (ball portion of the hip joint) is often the only way to help the dog. Removing this section of the bone lessens painful bony contact in the hip joint. Recovery from this surgery can be slow, and sometimes up to a year elapses before good use of the affected leg returns. During the healing process and with therapy, a new false joint is formed by muscle and tissue, and the dog may recover completely. If the muscles have not atrophied at the time of surgery, the recovery time is usually much less. Pain relief and anti-inflammatory medications may also be helpful.
- Currently, there is a strong tendency by veterinarians to treat this as a medical condition prior to surgery. A general rule of thumb used is to allow non-surgical therapy a month to show a beneficial response. If one is not seen, surgery should be considered.

- **Your Breeding Program:**

- Since there is a high likelihood there is a genetic component to Leggs-Perthes in Manchester Terriers, affected dogs **should not** be used in a breeding program.
- The OFA has developed a health database to assist breeders in eradicating Leggs-Perthes from their breeding programs. The OFA evaluations and the resulting database of information will help breeders to make better decisions.
- More information is available at <http://www2.offa.org/leggperthinfo.html> but the basic process is summarized as follows:
 - Owners submit x-rays of their dogs in the standard hip extended view, along with \$25 (US) application fee to the OFA.
 - Dogs must be at least one year of age.
 - X-rays must be of good enough quality for the OFA to reach a diagnosis.
 - When submitting the x-rays, the owner decides whether or not to allow abnormal findings to be made public. All normal findings are automatically published on the OFA web site.
 - A Board Certified Radiologist analyzes the x-rays for evidence of Leggs-Perthes.
 - Normal dogs are given an OFA Leggs-Calve-Perthes (LCP) number.
 - Dogs that show evidence of Leggs-Perthes are not given a number and the OFA provides a report with the findings.
 - The OFA submits quarterly reports of the dogs receiving LCP numbers to the dog's parent club, as well as overall statistical data.

- You can download an OFA Leggs-Perthes application form (in PDF format) at the web address noted above. The same x-ray can also be used to evaluate hip displaysia. A dog over the age of 12 months that is given a normal OFA report or hip number is therefore also normal for Leggs-Perthes and is automatically eligible to receive an OFA LCP number.

WHAT TO PUT IN YOUR FIRST AID KIT AND OTHER USEFUL INFORMATION

Important things to know when treating an ill patient:

A dog's normal temperature is 99.5 - 102.2 F (cats 100-101.5 F)

A dogs plus is 60-120 beats a minute

Respiration - 14-22 breaths per minute

1TSP= 5 ml.

Things to include that can be used to treat dogs medically:

Pepto bismol - Liquid - 3-4 tablespoons every 6 hours

Benadryl (allergic reactions/bee stings etc.) - 1-2 mg. per lb. every 8 hours

Aspirin - pain - 5 mg. per lb every 12 hours

Honey - to raise blood sugar

Hydrogen Peroxide to induce vomiting - 1-3 tsp every 5 minutes

Other Useful things to have in your first aid kit:

Gauze

Vetwrap

Panty Hose (to use as a muzzle)

Adhesive Tape

Sterile Pads

New Skin for burns

Antibiotic ointment

Betadine

Rubbing Alcohol

Saline Solution for eye rinse

Vaseline

Scissors

Tweezers or Forceps

Hemostats

Wire Cutters

Ice Pack

Clean Cloth for washing areas

Syringe

Latex Gloves

Heat Pack

Stick to use as a splint

Nail Clippers

Thermometer (rectal or ear type)

Bulb syringe

Cotton Balls and QTips

Safety Pins

Razor Blade

Needle

Ear Wash

From Your Vet:

Antibiotics

Metronitizol (sp)

Eye Ointment

Cortisone Spray

Panalogs

(anything he/she feels is safe for you to administer in an emergency)

Always have your vet's number handy - regular and emergency numbers

EMERGENCY INFORMATION SHEET

(Everyone who travels with their pets should carry one of these sheets in the glove compartment of the vehicle,

one in their wallet or purse and one attached to one of the crates that has been laminated and is visible to anyone

who would have to go into your car/van incase you were in a wreck or other emergency)

ATTENTION - INCASE OF EMERGENCY!!!!!!

Owners Name:

Address: _____

Phone: _____

Pet's

Name: _____

Breed: _____ Sex: _____ Date of

Birth: _____

Medical Information:

(This animal is current on all shots - it is of no threat to anyone he/she might come into contact with) the attending

veterinarian is: Name: _____

Phone # _____.

(If dog is not wearing a collar when in their crates, this animal's leash is located:

and you will be in no danger should you open the crate and attach the lead.)

This pet has the following medical conditions that must be treated:

This pet's regular veterinarian is:

Name: _____

Address:

Phone: _____

What you should know about this individual animal:

SHOULD I BE UNABLE TO ATTEND TO MY ANIMAL DUE TO INJURY OR DEATH:

Contact:

Name: _____

Address:

Phone: _____

Animal should be boarded in the nearest animal boarding facility or veterinarian.
PLEASE do not take my pet

to an Animal Shelter or Humane Society. The above person has agreed to pay all fees
to retrieve said animal

and they have my permission to remove said animal from the boarding facility. Said
person also agrees to pay

any medical bills for said animal.

Should my first emergency contact be unavailable please contact:

Name: _____

Address:

Phone: _____

Said individual has also agreed to the above.

Should one of my animals be on the loose following a car/van accident - please contact
the above individual who will assist in the search should I be unable to participate.

Your cooperation in this matter is greatly appreciated. This animal is a member of my
family and it is my wish that it receive the best care possible.

Signature: _____

Date: _____