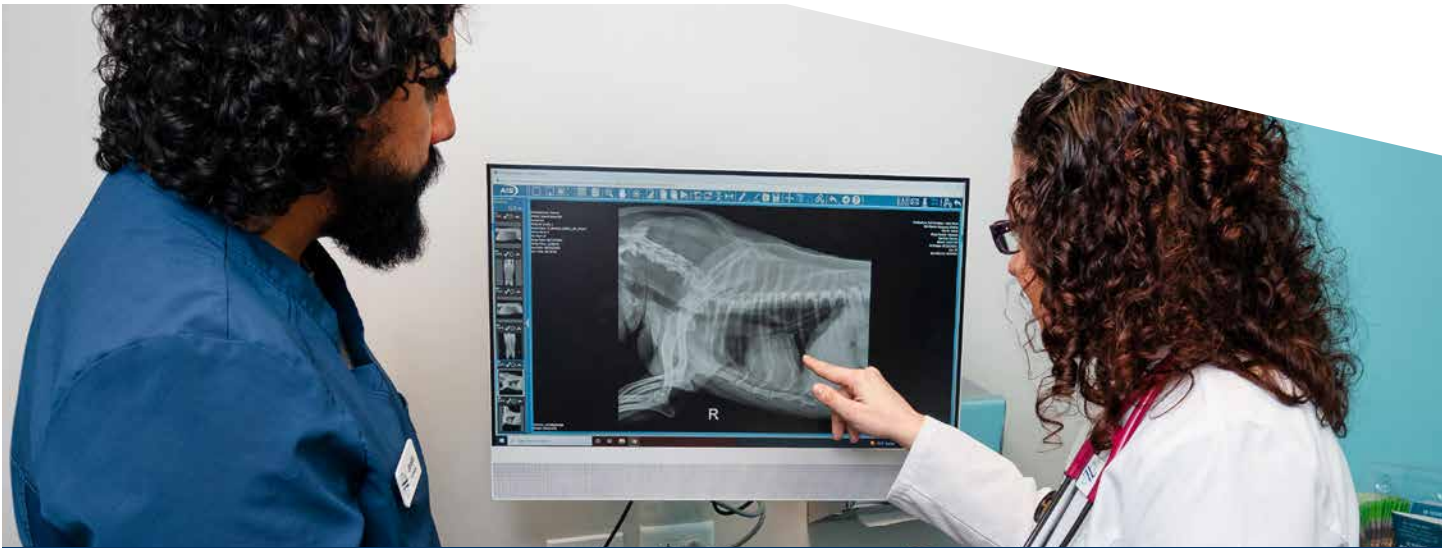




## CHAPTER 4



## chapter 4

# Diagnostics

## Fecal Floats, Ear Cytology & Radiology

### **Fecal Parasite Screening:** Why is it important?

Parasites can cause serious illness (weight loss/vomiting/diarrhea), anemia, and even death in pets. Some parasites are zoonotic (roundworms & hookworms), which means they can infect humans.

Fecal flotations are important to determine what parasites are present and what treatment needs to be given.

No single medication is effective against all possible parasites, so flotation is very important!

Supplies needed to obtain and run a fecal float:

Fecal loop:



Lubricant:



Slides:



Cover Slip:



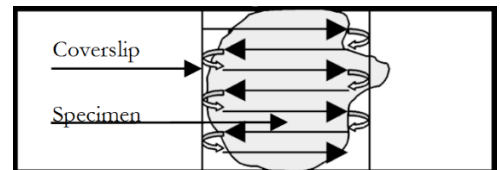
Centrifuge Tube **OR** Float Cup



# How to Run an In-House Fecal Float

Fecal samples can be run in **fecal float cups**, or through the centrifugation method in which the sample is first spun in the **centrifuge**:

- Place a small amount of the obtained sample into the fecal centrifuge tube
- Add fecal float solution 1/2 way up the tube & mix the sample in thoroughly
  - **Fecasol or other fecal float solutions allow the eggs to float to the top**
- Place fecal tube in the centrifuge
  - Set SPEED on Fecal setting: **\*NO HIGHER than 1.5 or 1300rpm\***
  - Set TIMER for 5 minutes
- Once the centrifuge has finished, remove the sample from the centrifuge
- Add more Fecasol to the fecal tube ALL the way to the top
- Place coverslip on top — making sure the Fecasol solution is touching the coverslip
- Set another timer for 10 minutes
- Once timer is finished, place the coverslip on a slide, then place on the microscope to read on low power (10x)
- Focus on 10x on one corner of the cover slip. “Zig Zag” back and forth covering the entire surface of the coverslip
- Have an experienced VA or VT demonstrate how to focus the microscope and how to look at the slide
  - **Refer to in house fecal reference chart for examples of ova**
- Alert the veterinarian whether the fecal was NPS (no parasites seen) or which egg type was identified for proper treatment
- Add findings into that patient’s record
- Alert the owner if the test is NPS. If it is positive the doctor will typically alert the owner and go over what Treatment is needed
- Add the test and any treatments to the invoice



# Parasites & Deworming

Parasites are commonly seen in veterinary medicine. Monthly prevention, as discussed earlier, is the easiest method of dealing with many of these nuisances. Unfortunately, these parasites are still commonly seen by pet parents that do not give a monthly prevention, and preventatives do not cover all of the below parasites. In this section we will discuss the most commonly seen parasites, and their deworming protocols.

## Internal

### Heartworm

- Large worms that live in the chambers of the dog's heart
- Transmitted by mosquitoes
- Often fatal if left untreated in dogs
- Heartworm testing is required every 12 months for prescription refill of heartworm prevention.

**Intestinal parasites** include worms (roundworms, hookworms, tapeworms, whipworms), and single-cell parasites like coccidia and giardia.

Intestinal parasites can cause:

- Diarrhea
- Lack of appetite
- Bloating appearance
- Anemia and death in very severe cases

These parasites are commonly spread by fecal-oral transmission while dogs are sniffing in the grass or in close contact.

When we examine a fecal sample, we are looking for eggs of these internal parasites.

Link to Companion Animal Parasite Council:

<https://capcvet.org/guidelines>

Link to American Heartworm Society:

<https://www.heartwormsociety.org/veterinary-resources>

# External

**External parasites** include fleas, ticks, and mites (those than can cause mange). Less commonly seen are lice and scabies. These parasites can infect the owner's home, other pets, and sometimes even humans!

## Deworming

Puppies, kittens, and adult cats and dogs are routinely dewormed for internal parasites. Fecal testing is recommended every 6-12 months. If parasites are identified or suspected, the following treatments are often used to rid the pet of the infestation:

- **Fenbendazole** (Panacur) is a commonly used dewormer that comes in a white liquid or powder which can be given by mouth or sprinkled over food. Given once daily for a course of 3-5 days, this will kill hookworms, roundworms, and whipworms.
- **Pyrantel Pamoate** (Strongid, Nemex), similar to Panacur, is used for hookworms and roundworms.
- **Ponazuril** is indicated for the treatment of protozoal and coccidia infections.
- **Metronidazole** (Flagyl) is an antibacterial (antibiotic) and antiprotozoal drug that can be used for giardia.

Other medications such as Drontal Plus tablets are a mixture of several of the above active ingredients and can be used to effectively target multiple parasites. Check with your veterinarian or manager as to which dewormers your clinic carries.



# Ear Cytology

**An ear cytology should be run when the patient is showing signs of an ear infection. Some symptoms may include:**

- Shaking head or scratching at ears
- Ear debris or discharge present
- Red, inflamed, or swollen ears
- Odor from ears

## **Why we should run an Ear Cytology:**

When ear infections are left untreated damage or rupture of the ear drum can occur. This can lead to internal ear infections and possible permanent hearing loss. In severe cases, keratoconjunctivitis (dry-eye), Horner’s Syndrome (drooping of the upper eye lid, elevation of the third eyelid, and constriction of the pupil) can occur. Vestibular disease can occur when severe ear infections are left untreated and progress to otitis interna. These symptoms manifest as a head tilt, loss of balance, nausea, and uncontrollable shifting eye movements known as “nystagmus”.

Supplies needed to obtain and run a sample:

**Cotton-tipped Applicators:**



**Slides:**



**Flame:**



**Clothes Pins:**



**Stains:**



**Immersion Oil:**



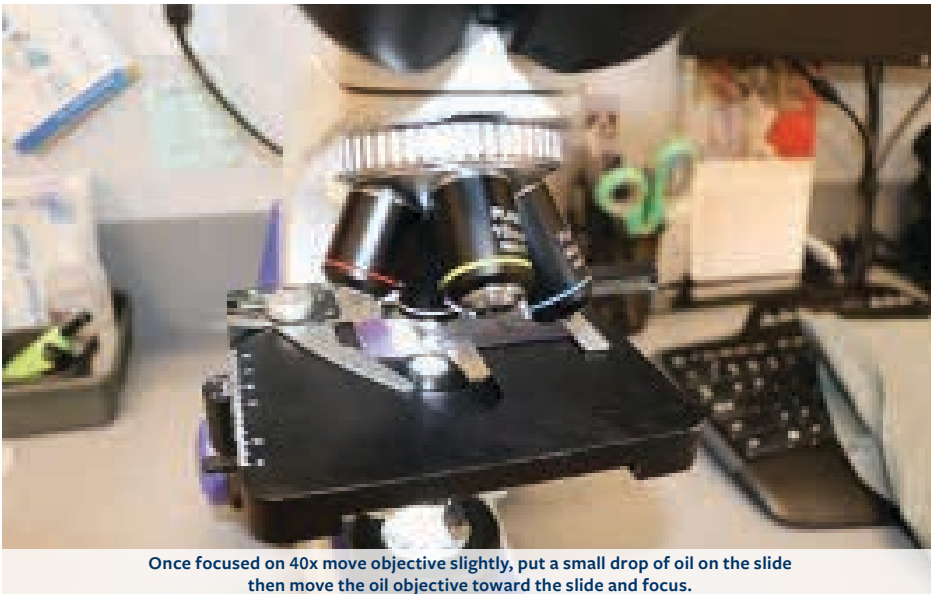




Place slide on stage, focus on 10x first.



Once focused on 10x, focus on 40x



Once focused on 40x move objective slightly, put a small drop of oil on the slide then move the oil objective toward the slide and focus.



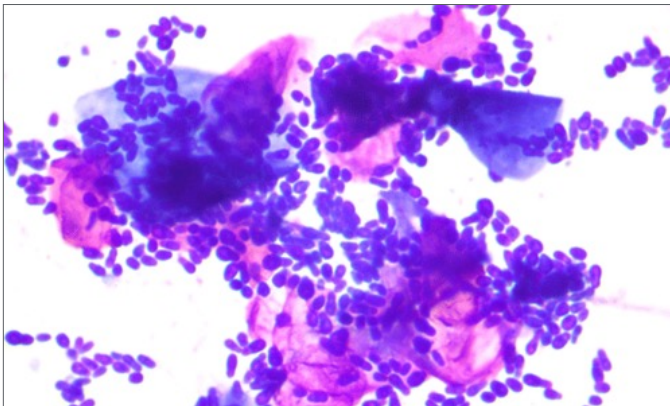
Once read, remove slide and clean objective and stage thoroughly.





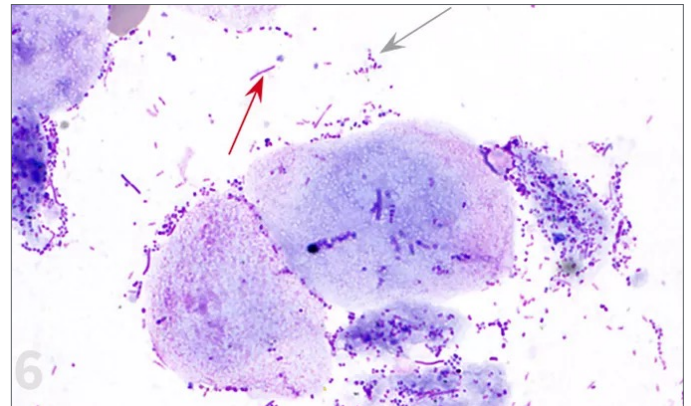
# How to Run an Ear Cytology

- Obtain samples from both ears using a cotton-tipped applicators.
- Distinguish which sample came from the left and right ears:
  - The left sample should be rolled with gentle pressure in an “L” shape on the left side of the slide. The right sample should be rolled onto the right side of the slide. It is important to roll with gentle pressure and not smear or use excessive pressure as this may disrupt the sample.
- Use a lighter to quickly run a flame under the slide to help adhere the samples to the slide (no more than 3 seconds).
- WEAR GLOVES and use a CLOTHES PIN to dip the slide into the stains.
  - Blue → Red → Purple
  - Dip 6-10 times (10-15 seconds in each solution)
  - Rinse slide with light water pressure in the sink then allow to air dry
- Have an experienced Vet Assistant/Technician look at the slide and point out any findings (cocci, yeast, etc.) that are seen under the microscope.
- Advise the doctor of the findings and add the results to the patient’s record.
- Do not forget to add the test and any treatments to the invoice!



## **Yeast-malassezia**

*footprint, peanut or snowman-shaped*



## **Bacteria**

*red arrow = rod bacteria  
sausage-shaped; may link together in chains*

*gray arrow = cocci  
purple dots of varying sizes; may group together in clumps*

# How to Perform Ear Cleaning

Dogs (and cats) should have their ears cleaned routinely to prevent infections.

## To Clean

1. Hold the ear straight up, so you can visualize the opening of the ear canal.
2. Some breeds like poodles will may need to have the hair in the ear canal plucked before cleaning, or the inner ear shaved of hair.
3. Direct the nozzle of the ear cleaner into the ear canal and squeeze gently until the solution pools in the ear canal.
4. Gently massage the base of the ear to loosen up any debris.
5. Allow the patient to shake their head to help loosen and remove the debris from deep within the canal.
6. Use cotton or soft gauze to wipe away any debris loosened from the ear canal.
  - Have the veterinarian or experienced Tech/Assistant show you how to use a cotton-tipped applicator to gently get debris from the sides of the ear canal.
7. The flushing process can be repeated several times for very dirty ears.
  - Remember to dry the patient as best as you can and brush their hair out around their head if they have long hair before returning them to the owner!
  - We recommend owners use approved ear cleaner only at home, as using water or homemade solutions can cause ear irritation or make infections worse.

**Note: It is also important to remove hair from the ear canal if necessary. This procedure not included with an ear cleaning and is charged separately, if performed.**



STEP 01



STEP 02



STEP 03



STEP 04



STEP 04 & 05



STEP 06

# Radiographs

An important diagnostic tool, **radiographs** help diagnose:

- Broken bones

They are also used to image the chest and abdomen for findings like:

- Foreign body ingestion and/or obstruction
- Cancer
- Urinary issues, example: bladder stones
- Bloat
- And many other illnesses

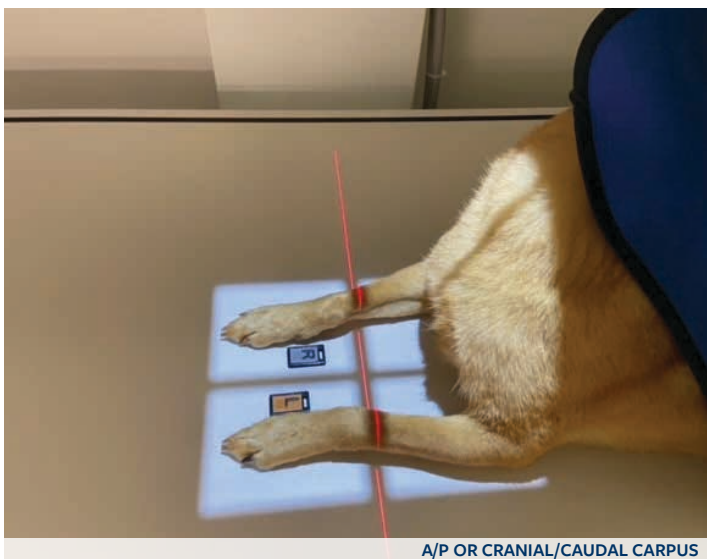
Your veterinary manager will review your state's safety and best practices. However, there are general guidelines to follow when taking radiographs to ensure your safety.

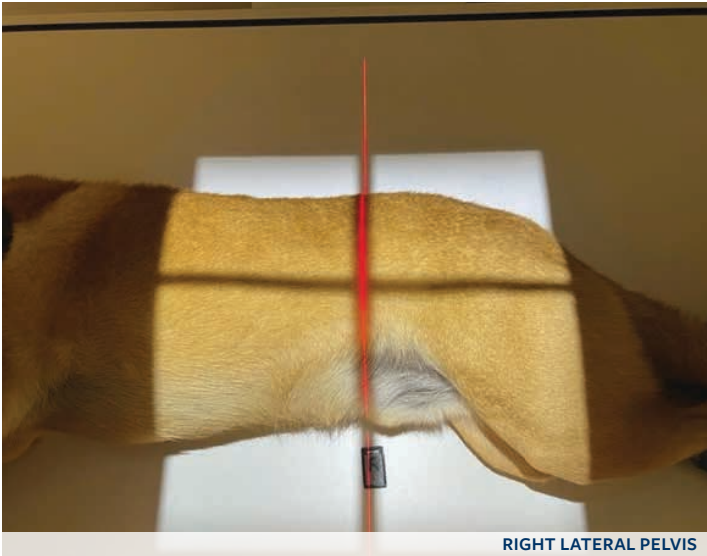
- Always wear your dosimeter badge! Ensure it is clipped on your thyroid guard for accurate readings. The badge is sent quarterly for a report on your individual radiation exposure.
- Always wear lead shielding including gloves, gown, and thyroid guard. Your manager will demonstrate the proper fit for these items.
- Stand as far away from the beam as possible. This can include leaning away when restraining a pet, or using sedation so you do not need to physically hold the pet. Never have any part of your body in the primary beam!
- Position the pet properly for each radiographs to avoid re-takes and extra, unnecessary exposure
- Ensure Left or Right marker is positioned in the beam before taking image
- Take abdominal x-rays on expiration. Take thoracic x-rays on inspiration.

The digital x-rays used by NewDay are less radiation exposure than the older, film-based machines. Taking x-rays is very safe and monitored closely to ensure compliance. This important diagnostic tool gives us a look directly into our patient's body.

When taking x-rays, 2-3 "views" of each area are taken. For example, if imaging a dog's chest, two images will be taken with the pet in lateral recumbency (flat on their side) from both the right and left, and one with the pet on their back as seen below. An abdominal series typically consists of 2 views, one from the side and one with the pet on their back.

# Radiograph Positioning





RIGHT LATERAL PELVIS



V/D ABDOMEN



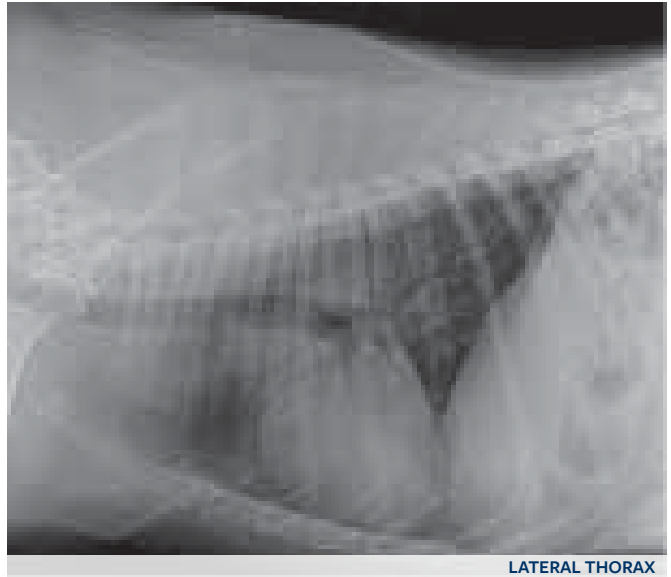
D/V THORAX



V/D PELVIS



V/D THORAX



LATERAL THORAX



V/D ABDOMEN



RIGHT LATERAL ABDOMEN

This manual is an basic overview of some of the tasks used daily in the clinic. Not everything could be covered in this edition. Look for this to be updated and expanded in the future.



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