

Feeding Guidelines for New Kittens

Affected Animals: Kittens.

Description: Kittens weigh about 100 grams at birth and gain between 50 and 100 grams each week until they reach five to six months of age. Weaning kittens from their mother's milk before six weeks of age may slow their growth and result in overly cautious or aggressive behavior when they reach adulthood. Usually, the mother cat will wean the kittens when they are between seven and 10 weeks of age. During the weaning, they should be fed a dry commercial cat food that is specifically formulated for growing kittens.

Cat and kitten foods are available in canned, dry, or semi-moist forms. Most veterinarians recommend feeding a dry kitten product because this type of food is less expensive than canned or semi-moist foods, and the crunchy kibble helps to minimize tartar build-up. Canned and semi-moist products, however, are more palatable than dry food and can be provided as periodic treats. Once the container has been opened, both canned and soft-moist products must be covered and stored in the refrigerator.

Cat foods made specifically for kittens should be nutritious and should support growth; look for the words "complete and balanced" on the label. Complete and balanced products contain all the necessary nutrients, in the appropriate amounts, for young, growing cats. Although not required by law, most name-brand commercial manufacturers test their growth products by feeding them to mother cats and kittens. Owners should check the label for the Association of American Feed Control Officials' claim confirming that the product has been tested in animal feeding trials.

Because cats are natural nibblers, averaging 12 to 20 small meals every 24 hours, they should have access to food at all times. In addition, clean, fresh water should always be available. In considering where to feed the kitten, owners should take into consideration how they plan to manage training and housebreaking, and whether there are additional pets or children in the household. Some common feeding places include a quiet corner of the basement, the kitchen, a bathroom, the garage, a bedroom, or even beside the owner's chair in the living room.

Young cats that have reached the age of six to nine months and have been spayed or neutered may experience a slight decrease in caloric needs and an increase in body weight. In response, the owner should switch gradually from free-choice feeding to portion-controlled meals. The avoidance of excess body weight is important in preventing obesity, which can lead to health problems as the cat gets older.

Feeding instructions listed on pet food packages are reasonable recommendations to follow for about two weeks after the new kitten's introduction to the household; after that, an adjustment should be made based upon the animal's body condition. A kitten in good body condition

should have an hourglass shape when viewed from above, or from the aerial view, while a kitten that is overweight will have lost definition around the midsection. The ribs should be able to be felt but not seen; if the ribcage is visible, the kitten may be too thin and the owner should consider increasing the total calories offered. However, if the individual ribs cannot be distinguished because too much fat is covering the ribcage, the owner should consider reducing the caloric intake.

Most cat owners want to feed treats or snacks of some kind, and there are several commercial cat treats available in grocery stores, pet specialty shops, or available on the internet. The use of treats as rewards during training is appropriate, but the portions should be small because most treats, snacks and human scraps fed to cats are a source of extra calories. To avoid problems such as obesity and diarrhea, treats and snacks should not make up more than 10 percent of the kitten's total caloric intake, and this guideline applies to adult cats as well.

For several reasons, dog food products and vegetarian diets are inappropriate to feed to cats and kittens. The daily protein requirement is higher for cats than dogs because liver enzymes of cats are constantly running at a higher activity level, and this results in the need for a fixed amount of dietary protein to be used for energy. Cats have an essential requirement for the beta-amino acid taurine, which is needed for normal function of several organs including the eye and the heart. Only animal-source proteins provide taurine and arginine, another important amino acid for cats, in the diet. Cats also require animal-source fats to provide the essential fatty acid called arachidonic acid, whereas dogs can convert dietary sources of linoleic acid to arachidonic acid and thus do not need animal fats in their foods. And unlike dogs, cats cannot convert the amino acid tryptophan into the B-vitamin niacin, or beta-carotene into vitamin A, so these critical nutrients must be provided in the cat and kitten food.

Feeding Guidelines for New Puppies

Affected Animals: Puppies.

Description: Deciding on what, how much, and how often to feed are the key questions that need to be addressed by the primary caretakers of a new puppy. Before introducing a puppy to a new household, owners should find out the type of food the animal has been fed, as well as its feeding schedule. Providing a similar diet will help ease the transition to the home environment.

Dog foods are available as canned or dry products. Most veterinarians recommend feeding a dry growth product because this type of dog food is less expensive than canned foods and the crunchy kibble helps to minimize tartar build-up. Canned products, however, are more palatable and can be

used as periodic treats during puppy training. In addition to the extra cost, canned products must be covered and stored in the refrigerator once the can has been opened.

Dog food products made specifically for puppies should be nutritious and should promote growth; look for the words "complete and balanced" on the label. Complete and balanced products contain all the necessary nutrients, in appropriate amounts, for young, growing dogs. Owners should also check the label for the Association of American Feed Control Officials' claim, which confirms that the product has been tested in animal feeding trials.

For puppies less than 16 weeks of age, offering small meals three or four times each day may ease the transition to the new home. In addition, by feeding a meal every few hours, owners will have more opportunities to observe the animal's food intake and to train it to eliminate outdoors directly after each meal. Once the animal is six months old, the feeding schedule can be gradually shifted from the multiple daily feedings to two meals of equal portions, given in the morning and in the evening.

In considering where to feed the puppy, owners should take into consideration how they plan to manage training and housebreaking, and whether there are additional pets or children in the household. Some feeding places include a kennel, the garage, the kitchen, the bedroom, or even beside the owner's chair in the living room.

Some puppies do very well when food is made available all the time—an approach called *ad libitum* or free choice feeding. However, many young dogs tend to overeat with this method, and the extra weight they carry as puppies can lead to health problems as they get older. Feeding instructions listed on pet food packages offer reasonable recommendations to follow for about two weeks with the initiation of the diet; after that, owners should adjust the quantity of food provided at each meal based on the animal's body condition.

A puppy with good body condition should have an hour-glass shape when viewed from the aerial view, or from above. In contrast, a puppy that is overweight will not have any definition or shape around the midsection. Owners can assess body condition by running their hands over the dog's ribcage to feel the ribs. The ribs should be distinguishable by palpation, but not visible. The animal may be too thin if the ribs can be seen; if so, the owner should increase the total calorie intake. However, if there is too much fat over the rib cage, and the puppy's ribs cannot be distinguished, the total amount of calories allowed should be reduced.

Most puppy owners want to feed treats or snacks of some kind, and there are several commercial pet treats available in grocery stores, pet specialty shops, and even on the Internet. The use of treats as rewards during training is appropriate, but the portions should be small because most treats, snacks, and human scraps fed to puppies are a source of extra calories. To avoid problems such as obesity and diarrhea, treats and snacks of all kinds should not make up more than 10 percent of the puppy's total caloric intake; this guideline applies to adult dogs as well.

Ctenocephalides canis, Ctenocephalides felis
Flea

Affected Animals:

Fleas can infest dogs and cats of all ages, sexes, and breeds. Animals that spend a lot of time outside are at increased risk of getting fleas.

Overview:

Fleas are familiar pests; few pet owners escape the trials of ridding their dog or cat of this common parasite. However, fleas can be eradicated more easily today than ever before. For example, advanced flea control products available through veterinarians require only a single monthly application to the back of the neck or along the spine to achieve reliable flea control on the pet.

A flea is a tiny, laterally flat, wingless insect that subsists on the blood of its host. It has long legs that enable it to jump tremendous distances, such as from one animal to another. A flea's life cycle consists of the adult, egg, three larval stages, and pupa. Currently available flea control products are effective at deterring fleas at one or more of these stages, with the exception of the pupa, which defies current treatments. Although dogs and cats are the preferred hosts for fleas, they can exist on other mammals if necessary.

Clinical Signs:

Presence of fleas or flea feces, itching, hair loss, moisture dermatitis or "hot spots", and more severe symptoms can be noted in animals with flea bite allergy. Tapeworm infestations can occur as a result of ingesting fleas.

Diagnosis:

Diagnosis is based on the presence of fleas, flea feces, itching, and hair loss.

Prognosis:

With a proper flea control plan and dedicated treatment, fleas usually can be kept under control. Flea control is a more difficult endeavor in year-round warm climates.

Transmission or Cause:

Fleas are found in the environment. Their survival depends on a warm-blooded mammal for nourishment and they thrive in warm, humid environments. The most common type of flea is the cat flea, although its name is actually a misnomer, as it does not prefer cats and infests dogs just as frequently.

Treatment:

Getting rid of fleas involves treating all animals, and eradicating their

presence from both the indoor and outdoor environments. Navigating through the myriad of flea control products available today can be extremely confusing; in addition, some products are toxic to particular species. A veterinarian can recommend several different products and can help design a complete treatment program. The house and outdoor environment either can be treated by the owner or by a professional exterminator.

All flea control products work at one or more stages of the flea's life cycle. Attacking the fleas at different stages will result in faster eradication. The only stage that is resistant to treatment products is the pupa stage. The pupa is wrapped in a cocoon that renders it virtually indestructible. Eventually, though fleas at this stage will be eradicated when they emerge as an adult flea.

Fleas can hide in many places indoors, so piles of old newspapers and magazines should be disposed, and non-carpeted surfaces and crevices should be mopped and disinfected. Vacuum cleaner bags should be changed and discarded after each use, since the eggs can survive within the bag and be deposited back into the carpet when the vacuum cleaner is used next.

Prevention:

Most flea collars are not particularly effective in the fight against fleas. Some special collars that control flea eggs, however, can be more helpful. The best eradication is achieved with advanced topical products that require a single monthly application at the back of the neck or along the spine; these products currently are available only through veterinarians.

**Ancylostoma caninum, Ancylostoma tubaeforme, Ancylostoma braziliense,
Uncinaria stenocephala**
Hookworms

Affected Animals:

Hookworms from the *Ancylostoma caninum* species affect dogs, while hookworms from the *Ancylostoma tubaeforme* species affect cats. Parasites from the *Ancylostoma braziliense* species, found in the southern United States, can infect both canines and felines. In Canada, the *Uncinaria stenocephala* affects canines and felines as well. Puppies and kittens are more at risk for serious illness from hookworms. Hookworms tend to do less damage to felines than to canines.

Overview:

A parasite that frequently infects puppies and kittens, hookworms actually have heads that "hook" into the small intestine, where they begin to eat away

at the tissue and suck blood. This parasite has been called a “voracious blood sucker” and can pose severe health problems for puppies and kittens that do not have a large blood supply to begin with and can suffer badly from blood loss; anemia, diarrhea, weight loss, weakness, and sometimes death can result. Hookworms are considered a human health hazard since the infective larvae can penetrate the skin and migrate locally, called cutaneous larval migrans.

Clinical Signs:

Clinical signs of hookworm infection can include pale gums due to anemia; diarrhea which can be bloody, dark or tarry looking; weakness; weight loss; and sudden death in severely infected puppies and kittens. Sometimes the hookworm larvae cause itching due to burrowing into the skin of the animal.

Diagnosis:

Diagnosis involves performing a fecal flotation examination and identifying the hookworm eggs under a microscope. A complete blood count of red blood cells, white blood cells, and platelets will reveal if the animal has anemia, or a low number of red blood cells.

Prognosis:

With proper deworming treatment, mature animals that are not affected severely have an excellent prognosis. In puppies and kittens that are severely anemic, the prognosis is guarded to poor. Sudden death from rapid blood loss is possible in the very young.

Transmission or Cause:

Transmission to dogs and cats occurs by several methods. The dog or cat can eat the infective hookworm larvae, which is passed and develops within the feces of an infected animal. The worms can also penetrate through the skin, or they can be passed in the mother’s milk to the nursing puppies or kittens. In rare cases, the parasites can be transmitted through the placenta before birth. Dogs and cats that eat an animal infected with hookworms—such as a rodent—may also become infested with the parasite. Humans can fall victim to the skin penetrating abilities of hookworms and develop irritating skin lesions called cutaneous larval migrans.

Treatment:

If a pregnant dog or cat has hookworms, treatment requires deworming the mother with a medication such as fenbendazole or pyrantel pamoate, which should be given from the third trimester (40th day of the pregnancy) through the second week of the lactation period. If this preventive measure is not done before the birth of the puppies or kittens, treatment can be given to the newborns every two weeks until they are 12 weeks of age. Treatment for puppies and kittens that are anemic may require a blood transfusion and other supportive care such as intravenous fluid.

Prevention:

All animals should be dewormed regularly to prevent infection and shedding of eggs into the environment. Feces should be picked up and disposed on a weekly basis, if not more frequently. Kennel areas should be cleaned regularly with a disinfectant such as water-diluted bleach.

Toxocara canis, Toxocara leonina
Roundworms, Ascariasis

Affected Animals:

Dogs and cats can develop adult worm infections within the digestive tract. The larval stage of the roundworm can cause serious damage in the human, but they cannot develop into the adult form in species other than the dog or cat. Dogs are affected by both the *Toxocara canis* and the *Toxocara leonina* species, but cats only become infected from the *Toxocara leonina*.

Overview:

Almost all puppies are born already infected with roundworms, which are the most common intestinal parasite of the dog. *Toxocara canis*, a species of roundworms, is capable of migrating across the infected mother dog's placenta and into the unborn puppies. Neonates also can ingest the infective form of the roundworm when nursing infected milk from their mother.

Other possible modes of roundworm infection include either ingestion of infective eggs from the environment or from prey that harbor the parasite. Large numbers of eggs can be spread into the environment by an infected dog. These eggs are a human health hazard if accidentally ingested and can cause vision impairment or other serious diseases.

Roundworm adults are fairly long, white, and tubular in shape and have been said to resemble half-lengths of spaghetti noodles. These worms swim inside the small intestine and feed on the animal's digested food. Because roundworms can grow to be eight to 12 centimeters long, an infection of multiple adults is capable of causing inflammation and distention of the bowel loops. This can lead to colic, interference with normal contractions of the intestines, and the inability to absorb the nutrients that the dog's body needs. A severe roundworm infestation actually can result in a blockage of the intestines and possible death.

Roundworms can lead to a host of medical problems in dogs, including stunted growth among puppies that are infected early in their development. Puppies are more likely than adult dogs to develop serious symptoms. Fortunately, there are safe and effective treatments and measures of

prevention that will keep canines healthy and limit the spread of infection to others.

Clinical Signs:

Diarrhea, a poor hair coat, colicky pain, decreased appetite, and a pot-bellied appearance to the abdomen may be seen. Some animals can develop liver problems, pneumonia, or stunted growth. If roundworms get to the stomach, the animal may vomit up some of the worms.

Symptoms:

Diarrhea, a poor hair coat, abdominal discomfort evidenced by moaning or groaning, decreased appetite, and a pot-bellied appearance to the abdomen may be seen. Some animals can develop liver problems, pneumonia, or stunted growth. If roundworms get to the stomach, the animal may vomit up some of the worms.

Ascarid infection
Roundworm infection

Affected Animals:

Cats or dogs. Kittens are affected more commonly than adult cats. Outdoor cats are more likely to become infected with roundworms, especially if they hunt.

Overview:

The intestinal parasite that affects cats most often, feline roundworms are an especially common problem among kittens and outdoor cats that hunt. There are two species of the roundworm, or ascarid, which infect cats: *Toxocara cati* and *Toxocara leonina*. These worms can be passed on to kittens in the milk they nurse from their infected mother; cats also may get them by eating small animals that harbor the parasite. In addition, a cat may become infected by licking its paw after walking on soil contaminated with infective roundworm eggs.

Diarrhea and vomiting are common symptoms of roundworm infestation, and, when severe, can lead to dehydration. Generally, the infection has a more serious impact on kittens than on adult cats, which may show no outward symptoms of the disease. Nevertheless, all cats and kittens, even those who are asymptomatic, should be dewormed because roundworms can cause illness in humans.

Young children who play in uncovered sandboxes or dirt where outdoor cats have been known to defecate are especially at risk for contracting the parasite. Although uncommon, roundworm infection can lead to serious diseases in humans, including blindness and disorders of the central nervous system.

Clinical Signs:

Usually, signs are noted only in kittens with moderate to heavy worm burdens. Abdominal discomfort, vomiting, diarrhea, potbellied appearance, dull haircoat, unthriftiness, and stunted growth can occur. Adult roundworms sometimes can be seen in vomit or diarrhea. Cats with mild infections usually will be asymptomatic or have a loss of body condition.

Symptoms:

Usually, signs are noted only in kittens that are moderately to heavily infested with roundworms. Abdominal discomfort, vomiting, diarrhea, potbellied or bloated appearance, dull or unkempt fur, general appearance of poor health, or stunted growth can occur. The white, tubular adult roundworm sometimes can be seen in the vomit or diarrhea. These adults have been said to look like half pieces of spaghetti noodles. Cats with mild infections usually will have no signs or mild loss of body condition.

Orchidectomy

*Neutering, castration, **Cats and Dogs***

Affected Animals:

Young dogs may tolerate the surgery better than older dogs, but dogs of any age can have this procedure performed safely if the appropriate precautions are taken.

Overview:

Orchidectomy, or neutering, is a procedure that is performed on many male dogs. There are ethical reasons, as well as behavioral and medical conditions, that warrant this surgery. Although an orchidectomy requires general anesthesia, it is a short and simple procedure. Most dogs will return to their normal behavior by the following day. Nevertheless, they will need to have their activity levels reduced for the week following surgery; a rest period will allow the incision to heal properly.

Most veterinarians will discuss the benefits of neutering during one of the initial puppy visits. Because of incorrect "old wives' tales" about neutering circulating in the public, many new owners feel hesitant about this surgery. However, the veterinarian can dispel many of these myths and discuss any other specific concerns.

Description:

Techniques for neutering vary slightly depending on the position of the testicles. If the testicles are located in the normal position within the scrotum, an incision is made in the skin just above the scrotal sac. The testicles are pulled out of the incision and the spermatic cord is ligated or tied off with

suture material. The spermatic cord is then cut, examined for bleeding, and allowed to return to its normal position inside the incision. Both testicles are removed through a single incision. The incision is sutured closed and the dog is kept rested during recovery.

If the testicles are not in the normal location, the veterinarian will try to locate them by palpation. The testicle can be anywhere from inside the abdomen to within the tissues leading to the scrotum. If the testicle is located under the skin along the ventral abdomen, the incision is made just above it. The remainder of the surgery is performed similarly to the procedure described above. With an abdominally located testicle, an incision into the abdomen is made, avoiding area blood vessels. The testicle is connected to certain structures by the vessels and ductus deferens of the testis. Once the abdominal testis is found, the structures can be tied off so that the testis can be removed. In older dogs with a retained testicle, the removed testis should be submitted to a pathologist to be evaluated for cancer.

Prognosis:

The prognosis is good. Possible complications include bleeding at the surgery site, bruising and swelling, infection, and self-induced trauma caused by the dog's licking the incision. If complications arise, they should be addressed by the veterinarian for treatment and correction.

PreprocedureCare:

The veterinarian should perform a preoperative examination to assess the patient's overall health. Older dogs should have bloodwork and possible chest x-rays taken prior to the procedure so that any underlying diseases can be identified and addressed.

PostprocedureCare:

The dog should be kept rested for seven days following surgery, and prevented from licking the incision. Outdoor dogs should be kept indoors until healed. For seven days following the procedure, dogs should be leashed while walking outside. Running, jumping, and climbing stairs also should be discouraged during the healing process. Owners should check the surgery site daily to detect any complications.

Prevention:

It is recommended that dogs be neutered at a young age to reduce the possibilities of anesthetic risks and complications of surgery. The procedure can be tolerated by older dogs, but preoperative tests and monitoring are advised.

Ovariohysterectomy

*Spaying, neutering, "fixing" , **dogs and cats***

Affected Animals:

This surgery is typically performed when the dog is approximately six months old, but can be done before or after this time. Older dogs usually require more extensive preoperative testing to assess the risk of anesthesia complications.

Overview:

Ovariohysterectomy is the surgical removal of the ovaries and uterus. Known more commonly as a spay procedure, the surgery is performed on many female dogs. The indications for the procedure include preventing unwanted litters of puppies and the nuisance of repeated heat cycles; decreasing the probability of mammary or breast cancer; and in treating many reproductive tract disorders, including most commonly pyometra infection within the uterus, and uterine neoplasia. Spaying a dog before her first heat cycle decreases the chances of mammary cancer by greater than 90 percent. The surgery is more difficult when the dog is in heat or pregnant, as both of these conditions result in increased uterine size and blood supply.

Description:

The surgery is performed under general anesthesia so that the dog is completely unconscious. An incision is made into the abdominal cavity to allow access to the entire reproductive tract. Each ovary is loosened from its attachment near the kidney and double-ligated, or tied off with two separate sutures. The tissue is transected or cut with a scalpel blade and observed for bleeding. The ligaments of the uterus are detached and the uterus is double-ligated just above the cervix. This tissue is cut and examined for bleeding. Before closing the surgery site, all ligatures or sutures are checked again to ensure that there is no bleeding. The abdominal incision is then closed in three layers. The internal muscle layer, the subcutaneous tissue, and outer skin are all sutured separately. Absorbable sutures are used internally and dissolve on their own.

Some veterinarians select skin sutures that are nonabsorbable, requiring a suture removal appointment seven to 14 days following the surgery so that they will be able to evaluate the incision. Other veterinarians elect to close the skin with absorbable suture and skin glue, which does not require a return visit to the veterinarian unless there are complications.

Prognosis:

The prognosis is good for young, healthy dogs. If there are complications, the prognosis will depend upon the individual case.

Possible complications of ovariohysterectomy include hemorrhage, infection, recurrent estrus cycles due to the inadequate removal of the ovarian tissue, body weight gain if diet and exercise are not monitored, accidental ligation of a tube leading from the kidney to the urinary bladder called a ureter, and urinary incontinence due to the lack of estrogen. Other complications that can be seen with any abdominal surgery include anesthetic problems, suture reactions and infections, delayed wound healing or breakdown, self-inflicted trauma, and seroma, or blood-tinged fluid accumulation at the surgery site.

Most of these can be prevented by careful surgical technique and proper postoperative care. If the proper precautions are taken, the risk of complications is minimal. If complications do occur, however, the veterinarian should be notified promptly. Dehiscence, or separation of the incision layers, can be an emergency situation requiring surgery to replace abdominal contents. Dogs can chew out their sutures and cause great damage to the abdominal organs in a very short period of time.

The veterinarian will determine the appropriate treatment for any complication that may occur. Some examples of treatments include controlling bleeding by exploring the surgery site and ligating the leaking vessel; draining the fluid from a seroma and applying a pressure bandage; and providing hormone supplements to control hormonal urinary incontinence.

PreprocedureCare:

All surgical patients should receive a preoperative examination by the veterinarian. Dogs that are in their heat cycle may have the surgery postponed until the cycle is over. If the dog is an older animal, the veterinarian may take blood tests and possibly chest x-rays to check for any underlying diseases.

PostprocedureCare:

Most dogs are extremely tolerant of pain and show no signs of discomfort from the procedure. Unfortunately, as a result, they may attempt to resume their normal level of activity immediately after surgery, and this puts them at risk for complications. Strict monitoring is important. The dog should not be allowed off the leash for seven to 14 days after surgery, and should be prevented from licking the incision, running, jumping, and climbing stairs. Outdoor dogs should be kept inside for two weeks. The incision should be checked daily for any signs of swelling, redness, or heat. If the dog tries to lick the incision, an Elizabethan collar or similar device can be used to prevent the behavior.

Prevention:

Preventing complications involves daily inspection of the incision, preventing the dog from licking the surgery site, and keeping its activity level to a

minimum for a period of seven to 14 days following the surgery. Any problems should be brought to the veterinarian's attention as soon as possible.

**Cestodes including *Dipylidium caninum* (most common) and various
Taenia species
Tapeworms**

Affected Animals:

Dogs and cats.

Overview:

A common intestinal parasite, tapeworms do not cause harm to the dogs they infect, although minor irritation to the anal area may occur. There are two primary ways that dogs can become infected with tapeworms. Dogs can swallow a flea accidentally when they are chewing or licking themselves. If the swallowed adult flea contains infective tapeworm larvae, then the dog can become infected with the most common species of tapeworm, *Dipylidium caninum*. Less commonly, dogs can become infected when they eat a rabbit or rodent, which can harbor different species of the *Taenia* tapeworm.

The adult tapeworm is made up of many small segments called proglottids, each about the size of a grain of white rice. Usually, single proglottid segments—which contain tapeworm eggs—break off the tail end of the tapeworm, and are passed into the stool. These segments sometimes will remain visible on the dog's rear after it has had a bowel movement. They may also crawl out of the anus when the dog is very relaxed or sleeping.

Clinical Signs:

If many tapeworms are present, mild weight loss may occur. Other signs include scooting or dragging the rear end across the floor due to perianal pruritus and proglottids noted around the anus or in the feces. These segments can be moving or pasted to the perianal fur.

Symptoms:

If many tapeworms are present, mild weight loss may occur. Other possible signs include scooting or dragging the rear end across the floor due to mild irritation, and "white rice-like pieces" seen in the stool or around the anus. These segments can be moving or pasted to the fur.

Description:

There are two species of tapeworms that affect dogs. *Dipylidium caninum*, which an animal gets by accidentally ingesting an adult flea containing the parasite, is the most common tapeworm found among dogs. *Taenia* species are transmitted to dogs that eat rabbits or rodents carrying these

tapeworms. Neither type of tapeworm causes significant harm to canines, although minor irritation or itching of the anus may occur.

The adult tapeworm is composed of many small segments, called proglottids, and can reach a length of eight inches. The mature end segment of the tapeworm, which contains eggs, will break off and pass into the stool. These proglottids, which have been said to resemble “grains of white rice,” may also appear on the animal’s fur, near the anus.

Diagnosis:

The tapeworm infestation can be diagnosed if tapeworm segments, which look like grains of white rice, are visible in the stool or around the anus. In addition, a veterinarian may perform an examination of the tapeworm eggs under a microscope to determine the species of the tapeworm. Proglottids usually do not show up on a routine fecal flotation test because they are too big and heavy.

Prognosis:

With proper medical treatment, the prognosis is excellent.

Transmission or Cause:

Transmission of *Dipylidium caninum* tapeworms occurs when an animal swallows an adult flea that contains the tapeworm larvae. Ingesting a rabbit or rodent harboring the parasite results in transmission of the *Taenia* species of tapeworms.

Treatment:

Although most over-the-counter dewormers are not effective against tapeworms, an examining veterinarian can prescribe medications that are very effective and will dissolve the tapeworms. Tapeworms may return in two to three weeks after the medication is administered if fleas are not eliminated or if the animal continues to eat rabbits and rodents.

Prevention:

Prevention of tapeworms requires strict flea control. Dogs should be monitored to make sure they do not hunt rabbits or rodents. In addition, many new products are available for the prevention of both fleas and ticks.

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With proper medical treatment, the prognosis is excellent.

Transmission or Cause:

Transmission of *Dipylidium caninum* tapeworms occurs when an animal swallows an adult flea that contains the tapeworm larvae. Ingesting a rabbit or rodent harboring the parasite results in transmission of the *Taenia* species of tapeworms.

Treatment:

Although most over-the-counter dewormers are not effective against tapeworms, an examining veterinarian can prescribe medications that are very effective and will dissolve the tapeworms. Tapeworms may return in two to three weeks after the medication is administered if fleas are not eliminated or if the animal continues to eat rabbits and rodents.

Prevention:

Prevention of tapeworms requires strict flea control. Dogs should be monitored to make sure they do not hunt rabbits or rodents. In addition, many new products are available for the prevention of both fleas and ticks.

Trichuris vulpis

Whipworms

Affected Animals:

Dogs. Very rarely, cats are affected by whipworms.

Overview:

Whipworms are whip-shaped parasites that upon entry into a dog's gastrointestinal tract usually attach to the dog's large intestine and cecum.

The cecum is a blind pouch extending off the large intestine that has its own valve and can be compared to the appendix in humans. Dogs can get whipworms by eating dirt that contains the infective eggs of the adult parasite.

Whipworms are a dangerous parasite because they can cause intestinal inflammation, bleeding, and sometimes the loss of protein. Puppies with heavy infections can become seriously ill. Occasionally in severe cases of infestation, whipworms can alter the dog's potassium and sodium electrolytes causing central nervous system problems such as seizures.

Clinical Signs:

Clinical signs include diarrhea that may contain mucus and blood; weight loss; and in severe cases, electrolyte abnormalities such as hyponatremia and hyperkalemia that may cause seizures.

Symptoms:

See Clinical Signs.

Description:

Whipworms are parasites that use their whip-shaped bodies to attach themselves to a dog's cecum and large intestine, where they cause irritation and damage to the lining of the intestines. The worms can cause inflammation, bleeding, and sometimes the loss of protein from the intestines. Whipworms have been known to cause seizures that may be due to the electrolyte disturbances affecting the central nervous system. Puppies who get this parasite can become seriously ill.

Diagnosis:

To diagnose whipworms, the veterinarian will perform a procedure called a fecal flotation examination that uses a microscope to identify whipworm eggs. Sometimes multiple fecal samples are needed to find the eggs for two reasons: they are not always passed every time the dog has a bowel movement, and the eggs are passed in smaller numbers than those of other parasites.

Prognosis:

With proper medical treatment, the prognosis is excellent.

Transmission or Cause:

Transmission of whipworms occurs when a dog eats soil containing whipworm eggs that have matured to the infective stage, a process that takes about one month. The infective eggs are very hard to kill and are resistant to both heat and drying; they can survive in the dirt for a very long time—from several months to years. Thus, even if the dog is treated for

whipworms, re-infection is common if the environment is not kept clean and free of feces.

Treatment:

Treatment of whipworms involves the use of medications such as fenbendazole, which is given daily for three days, again three to four weeks later, and then again after a three month period. Treatment is needed in repeat dosages because whipworms take three months to mature. The examining veterinarian will be able to prescribe the appropriate medications, dosages and treatment plan.

Prevention:

Prevention is accomplished by treating the infected animal for whipworms, and keeping the dog's environment clean and free of feces.