



Client # \_\_\_\_\_

Patient Name \_\_\_\_\_

**Puppy Vaccination Protocol:**

- 6 Weeks: Comprehensive Physical Exam  
DA2PP Vaccine (Distemper, Adenovirus Type 2 Hepatitis, Parainfluenza, Parvovirus)  
Intestinal Parasite Test and Basic Deworming  
Nutritional Counseling  
Dental Counseling
- 9 Weeks: Comprehensive Physical Exam  
DA2PP Vaccine (2<sup>nd</sup> Booster)  
Intestinal Parasite Test and Basic Deworming
- 12 Weeks: Comprehensive Physical Exam  
DA2PP Vaccine (3rd Booster)  
Lepto Vaccine  
Rabies Vaccine  
Kennel Cough Bordetella Intranasal Vaccine  
Intestinal Parasite Test and Basic Deworming (if needed)  
*Influenza Bivalent Initial*
- 15 Weeks: Comprehensive Physical Exam  
DA2PP Vaccine (4th Booster)  
Lepto Vaccine (2<sup>nd</sup> Booster)  
Intestinal Parasite Test and Basic Deworming (if needed)  
*Influenza Bivalent (2<sup>nd</sup> Booster)*  
Schedule Spay/Neuter Surgery

**We recommend Spay/Neuter by 6 Months of Age.**

Annual exams and vaccinations should be scheduled one year from the date the rabies vaccination was administered.

**Puppy Package Contents:**

Vaccine Protocol  
House Training Puppies  
Crate Training  
Socialization  
Leash Training  
Toy Safety  
Puppy Biting  
Puppy Kindergarten  
Parasites: Roundworms, Hookworms, Tapeworms, Whipworms  
Rabies  
Coccidia  
Leptospirosis and Why Vaccination is Important

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Signature of Client

Print Name

Date

*This Signed Copy Goes In Client Chart.*

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Staff Member



## Puppy Package

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## **House training Puppies**

House training puppies is easy, right? How hard could it be? Little puppies learn it all the time, right?

Sadly, that's no longer the case. Most families are now two or more generations removed from farm life. Many people have grown up without dogs and don't have the ability to read dog body language that comes of being with dogs during the time the human brain most rapidly develops language ability, which is prior to age 6 years.

While a typical scenario for dog ownership used to be a house on private property that could be fenced, now many puppies have to be house trained from households with no outdoor area of their own. Until the puppy's vaccination series is complete, walking around on ground where dogs outside your own family also walk is of questionable safety. This is especially true of tiny breeds.

More puppies these days are being raised in cages than in the past. Large commercial-breeding operations and pet stores can achieve efficient sanitation this way, but it's at the expense of the puppy's preparation to become a dog in a human household. These puppies as well as the popular shelter puppies up for adoption share the disadvantage of being raised too close to their own waste. Adopting—or purchasing, if that's the thinking involved—a puppy from one of these sources guarantees extra house training problems.

We also have a popular notion that dogs are as easily trained to litter boxes as cats. Cats have instincts that fit using litter boxes. Dogs do not. Many dogs who were never house trained to use the outdoors when relatively young are now losing their homes because they have accidents elsewhere inside the house. They are confused as to exactly where in the house is “okay.” This concept is too complex for a dog's brain.

Successful house training depends on aligning your handling with the dog's instincts and helping the dog develop the habits you desire. It also depends on holding up your end of the bargain: giving the dog a good schedule of chances to eliminate.

The dog is never going to “understand” house training. Elimination means completely different things to humans as to dogs. A puppy who acts upset when you find a house training accident is not “feeling guilty” because the puppy “knows it's wrong.” The puppy is showing submission to you, and possibly even fear of you. Nothing is being accomplished toward house training, and the puppy's temperament may be suffering harm right then and there.

You can make a brilliant success of house training your puppy, whether you've ever done this task before or not, if you have the proper resources for the dog you have chosen. It is important to realize that “success in house training” is relative by the size and breed of the dog, though.

Many small male dogs will never be able to handle the full run of your home without accidents, and that is also true of some tiny females. This is a real shock to those people who have chosen a tiny dog because they didn't want to deal with house training! The litter box confusion between cat and dog management is causing some serious problems for these little dogs.

There is no reason for house training problems to ruin your home if you properly manage a dog who is not house trained. Breeders do this routinely. Some tiny male dogs used for breeding can never be house trained.

But while the dog is a puppy you can do the right things to create the best possible chance of house training. There are windows of opportunity to develop these habits most easily in a puppy. If you fail to house train the puppy starting the minute the little paws step foot on your property, it puts the dog at a disadvantage. This disadvantage will grow and grow, and at some point it may become impossible for even an expert to house train the dog.

People will get rid of a dog over house training problems before they will get rid of one who bites people! Crazy as that is, it means failing to house train your puppy is profoundly unfair to the pup. You might be willing to live with an unhouse trained dog (but don't bet on it—the mess will wear a person down as time passes)—but if for some reason you have to give the dog up to another home, no one else may be willing to live with that problem.

All of this means you need to do some things before bringing home a puppy:

1. Study house training so that you have a plan in advance.
2. Choose a puppy or dog who fits the facilities, time, and ability you have to offer.
3. Bring the puppy home only at the time you are able to make house training a priority and see it all the way through. Most dogs are not capable of adequate bowel and bladder control for full house training until around 4 months of age. Small dogs frequently require much longer. Complete house training is rarely accomplished in a weekend, though you can get a management program started in a long weekend or vacation.
4. Wait to adopt a dog until you are able to provide suitable elimination opportunities. Until then, you can get a different species of companion animal who will thrive in the facilities and with the attention you can provide.

## **Schedule**

The first element of house training is a good schedule. The schedule means you commit to taking your puppy outside at certain, regular times. The puppy is then able to learn to count on those opportunities to relieve bowels and bladder.

You can't explain to the puppy all the things you would like to explain about house training. Nor can the puppy tell you exactly what is going on with that little body. In fact, the puppy doesn't get enough warning at first to even make it outside. After all, that means getting your attention, persuading you to stop what you are doing to take the puppy out, waiting while you get ready and while you escort the puppy whatever distance it is to the outdoors and through however many doors, until finally, relief.

Besides the huge obstacles to the puppy having to be responsible for motivating you to provide access to the potty area, this method opens potential for behavior problems.

Dogs who have to ask to go out to potty often ask to go out for other things. Dogs taught that you will only let them out when they bark may become problem barkers.

Dogs who develop a fear of going out (such as fear that you will stick the dog out there too long) may not tell you they want to go out—because they don't! They need to, but they don't want to. That's a lot of worry to pile on a dog.

Fortunately, scheduling solves this problem. Some simple guidelines will get you started:

1. Leave a puppy without access to a potty area during the day no longer than the number of hours equaling the pup's age in months plus one. This means an 8-week puppy should not be left without a chance to potty for more than three hours. If you are gone 8 hours to work, a puppy this young should have more than one potty break.
2. Don't leave a dog of any age longer than 8 hours without access to a place to potty. This creates a problem for people with long commutes, but violating the guideline can cause physical problems in the dog as well as serious fears that include separation anxiety. It's easy to see why dog walkers, pet sitters, and doggie day cares have plenty of clients.
3. When you are at home and awake, give your dog a potty opportunity at least once per hour. The fact that your dog can hold it all night or 3 to 8 hours during the day at some point does NOT mean the dog can or should be asked to do so around the clock. On the contrary, the dog's body has to catch up on waste elimination to compensate.
4. Watch your dog or puppy for signs that once per hour is not often enough. Some small dogs and young puppies cannot hold it this long. If your pup was doing okay on that schedule and suddenly cannot make it, take the pup for veterinary evaluation. Many things can cause house training problems, and for behavioral as well as medical reasons, need to be remedied promptly. Habits for life are being formed now, and you want everything aligned so those habits will be the right ones.
5. Before you leave the house for work, take the pup out to potty at least twice. Take the dog out promptly when you return, even if you were gone a fairly short time. Also take the dog out before and after every time you are going to take the dog with you on a trip away from home. It's important to establish this pattern so your dog can count on it. That helps the dog learn to relieve before your departure and to trust that you will be home in time and you will take the dog out in time to make it until you get home.
6. Associate a word or phrase with elimination in order to have a cue to give when you're away from home or in some other situation where you need to tell the dog this time and place is acceptable for elimination. Use any words you like, such as "go potty" or "hurry up" or "better go now."
7. Take your puppy out to potty any time the dog "asks," with body language indicating the need. Sometimes a diet change, treat, exercise, or other reason causes the scheduled time to be too long to wait.

Most humans and dogs naturally develop communication about this—but don't count on it for house training. A schedule is far the better basic structure.

The dog dancing or bouncing, staring at you, resting the chin on your knee or pushing a nose at your hand can all be good signals. To encourage a dog to use a particular signal, just be sure to respond positively to that signal, in this case by taking the dog outside. Some people like a bell at the door, too.

8. If you think your dog has developed a habit of asking to go out more often than needed, you can try extending the time just a little. But truthfully, letting the dog out a few extra times is a lot less work than cleaning up a mess because you didn't "believe" what the dog was telling you! Every accident takes away from the habit you are trying to build, and puts the wrong scent into the house, too. It's worth a lot of effort to help your dog avoid accidents.

9. As your puppy matures, you may be able to reduce the schedule of outings. Watch for which outings the dog does not use for elimination, and you may be able to drop those. Keep in mind, though, that any change in a dog's physical state can cause the dog to need to eliminate urgently, or more often than normal. Aging dogs often have this change. Do not consider this a "behavior problem." It's a physical need that we have a responsibility to meet.

## **Crate Training**

Every puppy needs to learn the skill of resting calmly in a crate. This skill will be needed at the veterinary hospital, for traveling, and for restricted activity due to illness. It's also a lifesaver for many young dogs during the destructive chewing stage that starts at several months of age and can last until age 2 to 3 years in some breeds.

After a dog has become trained and reliable in the house, the crate will often be needed only for specific reasons rather than everyday use. One critical situation that can call for bringing out the crate again is separation anxiety. The ability to relax in a crate can save a dog's life during this crisis.

Usually it works best to crate the puppy in your bedroom when you're sleeping. If you want the dog to share your bed, wait until the adult temperament emerges. Then if it turns out the temperament is not suited to bed privileges, you will not have the difficult job of teaching the dog to stay off the bed. Teaching a puppy to stay off the bed from the beginning is much easier, both for you and for the pup.

People tend to make the mistake of giving the puppy attention for making noise in the crate. When you do this, you confirm the puppy's instinct that being alone is death (it would be, in the wild), and that calling for help will bring someone. Having the crate in your bedroom for sleeping tends to help because the puppy can hear, smell and possibly see you. Not being alone, the puppy usually finds it easier to get used to the crate. Your sleeping helps set the scene for the puppy to sleep, too.

Keep the puppy on a good schedule of food, water and outings so the puppy's body will have the best chance of making it through the night without a bathroom break. If the pup does need a break, make it very low-key with dim lights and soft voices and no playtime. If you completely avoid going to the puppy when the puppy is making noise, problems usually pass quickly. But make no mistake; lost sleep comes with the puppy-adoption

territory! Don't miss the chance to start your puppy off right, or you will lose a lot more sleep over a longer period of time, because crate-training will take much longer.

The worst thing to do is let the puppy yell for a long time, and then go to the puppy. Doing that teaches the puppy to persistently make noise in the crate. It communicates to the pup that you want to be notified with lots and lots of noise! It also causes the puppy enormous stress that can become a lifelong response to being confined in a crate. Adult dogs in this stressed state can break out of crates and badly injure themselves. This is not the future you want for your puppy.

What you want the puppy to discover is that nothing bad happens from being alone in a crate. You also want the puppy to learn that it's okay to let you know of a need, but you will not come in response to loud racket. Check on the puppy after the puppy has become quiet again.

If your puppy isn't making it through the night without a potty break, schedule it so that the puppy doesn't have to wake you up and ask. Realize, too, that the puppy's body will awaken and need to potty whenever someone in the household gets up. That person or someone else will need to give the pup a potty break.

Don't trick a puppy about the crate. Give a treat when the pup goes in, but don't be sneaky about shutting the door. Don't put the puppy into the crate when the puppy is sound asleep, to wake up trapped in a crate. That can cause the puppy to distrust both you and the crate.

Be careful not to abuse the crate. When you are at home and awake, supervise the puppy in person rather than using the crate. Puppies need exercise, mental stimulation and guidance from you in order to grow up healthy and happy. Too much crate time is not humane. Puppies sleep 14 hours a day or so. If the crate time is scheduled so the pup can use it for sleeping, that's ideal.

Make the crate a pleasant place to rest. A few safe chew toys and a treat can help the puppy relax and drift off to dreamland. Everyone in the household can sleep better with a crate-trained puppy.

### **Basics and Tips**

Decide where you want your puppy to eliminate at your home. An outdoor fenced area that does not expose your puppy to other people's dogs is ideal. If you have this, you can house train your puppy straight to the outdoors—with perhaps some indoor paper use in a confinement area if you have to leave the pup too long during your work day or the puppy can't make it through the night.

If you don't have a yard, you may be able to rig up a box of grass sod or other arrangement on a patio. Like teaching the puppy to use the outdoors early in life, this creates a clear concept of the indoors as the "den area," and the outdoors as the appropriate place to eliminate. This is the fastest, clearest, and most enduring route to house training



If you do not have safe outdoor facilities to use prior to full vaccination, you may have to wait to switch to outdoor house training until around 16 weeks, or whatever time your veterinarian gives the go-ahead. It is important that your puppy have SOME experience eliminating on grass as early in life as possible. If your breeder has done this, you're covered. If not, maybe you can find some safe grass for a few outings.

Some particularly conscientious breeders of toy puppies keep the pups until immunization is complete. If the breeder is able to provide the pup with proper social experiences, this is ideal. Tiny puppies are fragile to many things, including seizures from going too long between meals. The breeder should have the expertise, schedule and facilities to give the needed care.

Puppies need more frequent meals than adult dogs. Find out what food and meal schedule the puppy has been on in order to have some of that food on hand before the puppy arrives. On the first veterinary visit, ask about feeding and make any recommended changes.

Only on your veterinarian's instructions should you ever suddenly change a puppy's food. Dogs have to have time to develop the right friendly bacteria in their intestines before they can digest a new food. A puppy new to your home is under stress, and the intestines are immature. You need to make these transitions gradual unless there is a good reason to do otherwise. Just a sudden food change can cause serious diarrhea.

Everything your puppy eats is part of the diet. For house training, you need a low-fiber diet, such as a low-residue dog food. Dogs have different digestive systems than humans, and too much fiber is not good for them. It also makes it harder for them to hold their bowels.

Don't let anyone overfeed or feed junk. Unless your veterinarian recommends otherwise, give your puppy scheduled meals rather than leaving food out all the time. This has behavior benefits as well as health benefits. Follow your veterinarian's instructions because different situations call for different feeding.

Never punish your puppy over house training. It does not work, and it creates more serious problems than house training accidents. These include making the dog defensive about other things, making the dog hide from you to eliminate, causing the dog to lose trust in you, and even creating an aggressive personality. Punishment doesn't solve the house training accidents anyway, so it's just a problem all the way around.

When you first arrive home with your puppy, take the puppy to the place you have chosen for elimination. If that is a certain small part of your yard, have that area marked off with some sort of clear physical boundaries. A decorative fence, landscape timbers or flowerbed edging will do.

Each time you walk outdoors with your puppy, say "Let's go outside!" You can also ask your puppy "Do you want to go outside?" Associate the word "outside" with going out the door. The "go potty" phrase is not for this. "Go potty" means it's okay for the puppy to eliminate right here, right now. Don't confuse the two cues. You don't want the puppy to think you mean to potty inside on the floor when you say "outside."

In the right place, say “go potty” phrase, and wait for the puppy to eliminate. Praise softly, and try to reward in a way this puppy would like—as you get to know the puppy, you’ll develop more options for rewards. These could include praise, petting, treats, a game, more time to play outside, going back inside immediately, or going for a walk. Be careful with the timing of your reward to make sure the pup has completely finished eliminating. Some puppies need to do it twice before they are really done. Many puppies need to run around a little bit—as do many adult dogs.

Don’t leave the puppy outside alone. You need to know when the puppy eliminates in order to reward at the right time and to adjust the schedule, and the puppy needs to be free from worry about being stuck out there alone. Some people find it helps to keep a log of when the dog potties. Certainly you want a written record of any time the puppy has diarrhea, because if it continues, the veterinarian will need this information.

If you “catch the dog in the act” of having an accident, the rule about no punishment still holds! Hustle the puppy outside quickly, with no more than a “no—outside” spoken in a normal, calm tone of voice. Once out there, say your “go potty” cue and wait. If the dog does it, that is a huge success, and you want to give great praise and reward. If you weren’t fast enough, still be upbeat with the dog outside. Just BEING there needs to make your dog feel your approval.

Dogs do not understand house training because to their instincts the urine and feces is not offensive, dirty, insulting, or shocking. If your dog is not too small and your house is not too big, the dog can often develop a sense of the house as the “den” area to keep clean. Otherwise, you’ll need to confine the dog to whatever area the dog can manage. Sometimes people with tiny dogs are unwilling to do this, thinking the dog will not get enough exercise. But a tiny dog needs less room for exercise!

House training does not automatically transfer to someone else’s house, so keep your dog on leash, in a crate, or in a portable exercise pen when visiting. This goes for any age dog. Males in particular will feel duty bound to mark a new place. Take this responsibility off your boy dog!

You don’t need a large yard for house training, but you do need to pick up feces frequently, preferably every day. If you’re trying to cultivate nice plants in the area or if it doesn’t get much sun, you’ll also need to water frequently to dilute the urine.

As you can see, house training a puppy requires a great deal of individual attention. It’s difficult to impossible to do this for two puppies at the same time. Experts will avoid taking on the task, and anyone else is likely to have extreme difficulty succeeding at it! For best results in house training as well as most every other aspect of successfully raising a puppy, raise one before acquiring another.

## **Cleaning**

Not knowing the right products to use for cleaning presents a major obstacle to house training. There is no reason to have a ruined carpet or reeking home while house training a dog. If you do have odor, the puppy’s instincts will be overwhelmed by it and you will get more accidents—the pup can’t help it.

With the wrong products, owners may not be able to smell the odor (temporarily—eventually it comes back), but dogs can. One dog in the house having accidents that are not properly treated leads to other dogs doing it—including dogs who move there later. The scent is a signpost to the dog's instincts that this is the bathroom.

Once the spot has begun to dry, the only reliable product to use is a bacterial enzyme odor eliminator product. These come in various brands. The product must penetrate as deeply as the urine did. In many cases you will need to apply it more than once. You may also need to keep it active awhile by covering it with warm, moist towels. In severe cases, you may need a professional cleaning service.

This is one more reason to watch your puppy at all times the pup is not in the safe confinement area. When you see an accident happen or find it immediately after it has happened, you can use undiluted clear vinegar instead of the more expensive enzyme product as it actually aids training.

Apply the vinegar (or any other cleaning you do) without commenting to the dog. Vinegar gives a scent message to the dog that discourages the dog from using that spot again soon. It's a big boost to house training

Remember, no punishment. Just put the vinegar on the spot—liberally—and let it dry. It doesn't matter whether the dog sees you do it or not. You can hasten the drying process in carpet by placing layers of newspaper or thick toweling over it and stepping on that. It will pull liquid out of the carpet and pad.

These same methods work on other surfaces, too, including beds. It's not advisable, though, to have a dog on your bed for more than a few minutes before the dog is house trained. And it's best if as much of your house as possible is washable when raising a puppy!

Don't use ammonia for cleaning around a puppy or dog. It smells like urine, and can lure the dog to eliminate there.

## **Teamwork**

House training is probably the first major goal that you and your puppy will achieve together. At various times in your dog's life will come times the body needs special care. House training is one way the two of you prepare for that. Sick dogs, injured dogs and aging dogs often have special requirements you don't expect.

House training the puppy is when you learn to aid your dog instead of losing patience and throwing a tantrum! It's also when your puppy learns to trust you and to look to you for help with physical needs. It's an important part of learning to live together, so give it your best. Your dog will meet you at least halfway—dogs always do.\_\_\_\_\_

## **Socialization**

Puppies grow up too soon, as anyone who has ever loved one can tell you. When your pup has grown, you've lost not only some of the cuteness, but also a once-in-a-lifetime opportunity to get him off to a good start in life.

It's always easier to prevent problems than to try to fix them later, and one of the most important ways to do this is by socializing your puppy.

Introduce a puppy to all the new things you can -- people, places and other animals. When a puppy isn't exposed to new things, social development stops or even regresses. The goal of socializing is a confident, outgoing dog who isn't shy or aggressive. A good pet, in other words.

"But wait!" you say. "What about disease? My veterinarian told me to keep my puppy at home until his last puppy shot. And you're saying I should go out? Is that safe?"

Your veterinarian is right: Your puppy is at risk for contracting diseases from other dogs before his full immunity is in place. This is why you shouldn't go anywhere where dogs you do not know hang out -- parks, dog events or pet stores -- until your veterinarian gives the go-ahead. But that doesn't mean you should leave your puppy at home.

Use common sense. Plan safe outings. And take a puppy class, because the trainers know the risks and work to minimize them by keeping the training area sanitized. And when that last puppy shot is in, at 14 to 16 weeks, pull out all the stops when it comes to socialization.

Why take any chances at all? Because doing so is important. An unsociable dog, whether fearful or aggressive, is at a high risk for ending up in a shelter, with little chance at being adopted again. Some experts argue that, in the long run, behavior problems kill more dogs than parvovirus does, which puts the importance of proper and safe socialization in perspective.

Dogs are genetically predisposed to have more potential to become part of human society than wolves or coyotes, but it's not always easy for them. When you give your pup an understanding that living with humans means that new adventures are not to be feared, you are sharing a wonderful gift.

So socialize, and remember that the world is full of scary things, especially to a little puppy. At times, even the boldest of puppies is paralyzed with uncertainty when faced with something he's never seen before. Your response to his fear is very important.

Don't soothe your pup. Petting him and saying, "It's OK, baby" (or something similar) gives your puppy the idea that being scared is OK and that you're rewarding him for the behavior. Instead, be matter-of-fact and encouraging.

Let him work it out, and when he takes that step forward, praise him for his courage. Then move on, one more step into your life together. - *by Dr. Marty Becker and Gina Spadafori*

## **Leash Training for Puppies**

A puppy may refuse to budge while on leash one day, and try to drag you down the street on the same leash the very next day! Dogs who walk well on leash face fewer dangers and have more fun. It's well worth the time to develop this skill with your puppy.

## **What's this Thing on My Neck?**

The first step in leash training is to get the pup used to a collar. Expect the pup to scratch at it. Put the collar on when the pup is eating and playing under your supervision. Distract the puppy from thinking about the collar.

Remove the collar only at a time when the pup is NOT trying to get out of it. If you take the collar off when the pup is obsessing over getting it off, you encourage the pup to fight the collar. To the puppy, it seems that fighting the collar worked, and got that nasty collar removed!

Just like wearing a watch or a ring feels strange to you at first, the strange sensation of a collar can annoy a dog. In the same way that your senses habituate to the jewelry, the dog will get used to the collar when handled properly. Of course the collar needs to fit and should not be of a stiff or uncomfortable design. A lightweight nylon collar with a buckle or snap is a good choice.

Remove the collar whenever your pup goes into the crate. Consult your dog's breeder and veterinarian about safety with the particular breed or mix as far as leaving a collar on when the dog is outside unsupervised. Ideally a puppy wouldn't be left outside unsupervised, but if the puppy is going to be in this situation, the risks must be weighed. Some breeds are especially prone to the collar catching on something and strangling the dog (the reason collars are to be removed whenever a dog is crated). On the other hand, a dog left outside unsupervised is at risk of being lost, and collar identification saves dogs' lives. Both of these risks are also factors for dogs outside in covered kennel runs.

Some puppy breeders give you a head start on leash-training your new puppy by tying a piece of colored yarn or rickrack around the neck of each pup. This practice varies from breeder to breeder and from breed to breed-what's ideal for some is not a good idea for others. Whether the breeder has done this or not, your puppy will likely start ignoring the sensation of wearing a collar within a few days of your conditioning.

## **Is This Another Tail or a Toy?**

The next step is to add a leash. Some pups seem overwhelmed by an entire leash all at once. In these cases you can start with a string, shoelace, or something of the sort. Add length as the puppy gets used to it.

Experienced dog people learn that chewed leashes can be useful later, and this is one of those times. Dogs tend to chew through leashes several inches from the snap. This leaves a "tab" of leash material with a handy snap on it to attach and detach easily from the collar. Tabs occasionally come in handy for other training, too, so if your mouthy young dog "creates" one for you from a leash, be sure to save it!

Attach the leash or the short item to the collar when the puppy is eating or playing, and let the pup get used to it being there. As with the collar, don't remove it when pup is making a fuss about it. Remove it at a time the pup has forgotten it's there.

Do not leave a leash on an unattended dog. It can catch on things and trap the dog in dangerous and traumatic situations. Leashes are only safe during supervised times.

Distract your puppy into play or other interaction with you whenever the puppy seems bothered by the leash or starts to chew it. It's fine to apply Bitter Apple to the leash, but realize this substance does not last long as a chewing deterrent, and will need to be reapplied for every session. Doing this can keep leash-chewing from ever becoming a habit, and save you money, work and the worry of a loose dog.

### **Training Techniques**

Before you pick up the other end of the leash with it attached to the puppy, you need to first put in some time conditioning your puppy to come to you and to move with you. Treats are ideal for this training. Don't be afraid the puppy will always need treats to walk on a leash. Leash walking has its own rewards, but a young puppy doesn't know that yet. The treats will help get things moving in the right direction.

Feeding time is a good time to work on this conditioning, when you have the dish in your hand and an eager puppy at your feet. Back away from the puppy. Use your body language and the puppy's name to attract the puppy to follow. Move around a bit with your puppy, making it a fun game, before putting down the dish and thus delivering a great reward.

At other times when your puppy is likely to be interested in games and treats, use a bit of food from the puppy's next meal to condition the puppy to look at you and move with you [see article [Attention, Please!](#)]. Keep moving away from the puppy, encouraging the puppy to follow you. Young puppies naturally do this anyway, so the training is easy and fun.

At all times, be prepared to reward your puppy with little treats, games and other things the puppy likes, for moving with you, coming to you, and looking at you. Make this a habit, and develop your body language and voice to what works best with THIS puppy.

Each puppy is different. Pups have different things they like best, and different things they respond to in different ways. You can build your puppy's desires to interact with you by how you use your praise, treats, petting, and the games you and your puppy play together. All of this factors into your leash training as well as all other training, both in puppy-hood and later.

### **The Leash Has Two Ends**

With your puppy used to the presence of the leash attached to the collar and used to moving with you, you're ready to pick up the free end of the leash. Now it's time to visualize the real goal of leash walking.

When a dog freezes up on leash and won't move, obviously you can't get anywhere. So part of the goal is for the dog to relax when wearing a leash. You're off to the right start there, having conditioned your dog to the presence of the leash with no pressure.

A dog pulling on leash can suffer damage to the throat, which is potentially very serious in some breeds. The person trying to hold the other end of the leash may not be able to control the pulling dog, and can even be injured. Therefore a huge part of our goal in

leash training is to teach the dog to walk with the leash LOOSE, no pulling. This is not only for the purpose of having control, but also to be humane to the dog.

Ironically, it's not the dog who causes the pulling-on-leash problem. Humans instinctively hold the leash tight. A dog's completely normal and natural response to a tight leash is to pull. If the dog did not pull against the pressure, the dog would be constantly off-balance.

From the first minute you pick up the leash, keep it loose. Follow the dog at times, and at other times use the skills you have been developing to induce your dog to follow you. Resist the impulse to pull the dog around on leash, or even to guide the dog with the leash. Work hard at remembering to communicate through your voice, body language and various motivators. Keep building those abilities! Keep your attention on your mental communication with the dog, rather than trying to communicate through the leash.

If your puppy makes an attempt to pull you, your job is to stand still. The message to the puppy is simply that pulling on the leash is fruitless. It doesn't work. When things don't work, people and dogs eventually quit doing those things! You can help yourself and your puppy so very much by making sure that right from the start, pulling on the leash never works for your puppy. Then pulling will never become a habit, and your puppy will be spared innumerable problems-as will you!

As soon as the puppy notices that trying to pull you didn't work because you stopped, switch into your attention-getting, puppy-follow-me mode, and get that puppy moving with you! This is the game. And to a puppy, it really does need to be a game. Make it fun for the puppy. It will be fun for you, too, and that's one of the great benefits of living with dogs!

### **Toys as Tools for Dogs**



People are sometimes surprised to learn that human children need toys. Children use toys as tools for mental, emotional and physical development. Toys fill the same functions for dogs.

#### **Chewing for Dental Health and Stress Reduction**

Dogs need to chew. Dogs who search the house for chewing outlets can frustrate owners who are trying to control damage to possessions and injury to dogs. But if you look at these dogs several years later, you often see that their teeth are in better shape than the teeth of dogs who easily gave up puppy chewing. That's a good reason to encourage puppies and dogs of all ages to chew frequently on suitable toys.

Chewing toys can straighten permanent teeth that have started to come in crooked, and can help baby teeth shed without the need for anesthesia to remove them. Provide the dog with a variety of textures to chew. Notice especially what items of yours the dog

seeks out for chewing, and try to provide toys of similar texture. These may be exactly what the dog needs for the teeth at that time.

You'll notice that dogs who like to chew will often get a toy and settle with it when they are feeling antsy and there's nothing active for them to do with their energy. They will often chew until they get sleepy and doze off, much like a person reading in bed. Toys also help dogs cope with being left home alone.

One excellent use for toys is to redirect the dog from licking or chewing itself. Teach your dog to "go find a toy," and chew the toy instead whenever you see the dog licking or biting itself. This can save you and the dog some painful, frustrating and expensive medical problems.



To encourage a dog to chew more, make the chew item more edible. Consult your veterinarian about the safety of any particular food/toy item, and of course be sure it's not a substance your dog is allergic to or can't handle due to a medical problem. Some toys, such as the Kong, have a design that allows you to put food inside.

INVEST in toys with your new puppy or dog. Start out with an assortment of textures, keep a variety of textures available to the dog at all times, and bring home new toys frequently. Don't be cheap about toys. They are tools that your dog needs.

### **Toy Safety**

Different dogs use toys differently. Because of this, we can never say a particular toy is both safe and effective for all dogs. One dog may tear up certain toys too quickly and swallow too much of the torn-up toy. Another dog may tear a toy up slowly, but into BIG pieces, and then swallow things that cannot safely pass through the digestive system.

These chewing behaviors change as time passes, too. A toy the dog previously chewed slowly with plenty of time for you to remove it before it was too torn up; suddenly the dog may become very skilled at chewing that toy up far too quickly. Adding another dog to the household is one thing that can cause the first dog to start swallowing toys faster, competing with the other dog.

Some toys are simply not healthy for a dog to eat, or not healthy for your particular dog to eat. When in doubt, consult your veterinarian.

Dogs have broken teeth on dog toys, and your veterinarian can advise you about that with your particular dog. As dogs learn to quickly destroy softer toys, the logical step is to move up to harder toys, but the potential for breaking teeth must be considered. Harder toys are useless, too, if the dog won't chew them. Some dogs are only going to chew on something they can taste or get off little bits of the toy to swallow. They want a payoff for their hard chewing work, and who can blame them?



Generally you'll want to start your puppy with soft chew items in a variety of textures and watch closely how your puppy uses them. As the puppy moves up in size, strength, and jaw power, you may need to move to toys that require more work before the dog can get pieces off. It is important to keep the puppy and adolescent dog interested in toys if possible. Not only does this help with dental health and stress relief, but also it forms the lifelong habit of chewing dog toys instead of people's stuff. The dog's youth is your golden opportunity to build a healthy and extremely valuable chewing habit.

## **Toys and Multiple Dogs**

Safety also calls for management of toys when you have multiple dogs. Scout may have been fine with rawhide, pig's ears or whatever spread all over the place before you adopted Foxy, but now he resents her grabbing something he considers to be part of his food. Resentment is the least of it, really-pack dynamics often demand of a dog's instincts that he or she protect that food from other pack members.

Dogs will fight over food and highly desirable toys (which to them are also food) who would never have started fighting for any other reason. But then too often, the fighting continues over other issues even after you've improved your toy management. So make toy management part of your life when you go from a single dog to multiple dogs-and anytime you add a new dog to the family pack-BEFORE the dogs have to fight it out. Be sure to do it if dogs come to visit, too.

One way to manage is to use those highly desirable toys only when the dogs are physically separated. The new dog will probably be crated whenever you're not home, and both dogs can have the highly desirable toys when they are separated. Just remember to remove those toys before you reunite the dogs-the dogs WILL remember, and if you don't do this management, they can get edgy and highly contentious in competing. To them, possession is nine-tenths of the law. Foxy is not going to be thinking, "Mom gave me one and she gave Scout one. I've finished mine, and fair is fair, If Scout wants his around the house, I'll just leave it alone." That would be human thinking, not dog thinking! And for his part, if Foxy hasn't finished her toy, Scout will likely be ready to pounce on it the minute the crate door opens.

If your dogs seem to be the exception in the first few weeks they're together, beware! This situation can change at any time, lifelong. It is really better just to never let it become an issue between the dogs. It's one way your leadership can make life much better for them, and of course also for your human family members.

Dogs will use toys to work out aspects of their relationships with each other in ways that are hard for us humans to understand. Often you can leave out the less edible toys with your multiple dogs if you provide plenty of toys to reduce their need to compete over one. They will sometimes compete anyway, and you'll have to decide whether or not their competition is serious enough that they should no longer have that type of toy when they are together.

Sometimes it's just a moment of one dog keeping order in the pack by pointing out that he has the authority to take a toy from the underling if he wants to. Give the dog who lost the toy another one, without taking the first toy away from the dog who confiscated it. If he takes the second toy, too, and the third, this may be his message. If she gives it up

without a fuss, you may be wisest to simply let that communication between them stand. Be sure to provide her with chewing opportunities when he won't confiscate the toy, such as when you take him out and she's staying home, for the sake of her teeth.

No doubt about it, toys are one area in which an only dog benefits. Scout can have his favorite chewies and toys with treats in them out in the house all the time if he's the only dog.

In this way dogs use toys as social tools. They also will sometimes use toys to get other dogs engaged in a game. Picking up a toy and running off with it can start a game of chase. The dominant pack member may choose this method when he cares nothing about the toy, but wants to encourage an underling who is afraid of him to join him in a game. You can do the same thing to help draw out a shy dog who is new to you.

### **Instincts**

In the wild, dogs would collect food when given the chance, and store any extra for later. That's why your dog may bury toys and bones. You can make use of this instinct if you have a dog digging up your back yard. Designate a digging area with clear boundaries (landscaping timbers, little picket fence, rocks, whatever), and frequently bury things there that the dog likes. Digging for what the dog sees as buried treasure will be more fun than digging in your flowerbed!

If you're going to play the bury-the-toys game with multiple dogs in the yard, remember not to use toys they value too highly. Also remember to bury plenty, so they are busy looking for more instead of competing for the same few.

### **Toys to Promote Healthy Dog/Human Interaction**

When it comes to your relationship with your dog, toys are your tools as well as the dog's tools. The way you use toys with your dog has a profound effect on the nature and quality of your relationship.

Retrieving is the healthiest and safest game to play with a dog. It is completely unnecessary to use harsh methods to teach your dog to retrieve in play. Positive trainers have devised a large number of effective protocols for retrieving training. Once the human understands retrieving, the dog learns easily.

Dogs who learn to retrieve find it inherently rewarding. They may be uncertain at various points in the learning process, but once they have the idea, they see it as a dandy game. After all, they have powerful instincts to carry things in their mouths. How else would they carry anything? When carrying something becomes a part of interacting with the beloved human, the human becomes even more interesting than before, and more beloved, too.

Retrieving allows you to exercise your dog without heavy exertion on your part. For the dog's orthopedic safety, keep your throws low enough that the dog doesn't jump up and land on just the hind legs. This is an unstable landing for a dog that can lead to injury. Because of the difficulty of controlling the height flying disks will fly when caught by air

currents, beware of throwing those for your dog. Don't throw anything heavy for your dog to catch, either, because that can break teeth or cause other injuries.

Tug-of-war as a game to play with your dog using toys is controversial because, while it can be a component of a skillful training program, it isn't safe for all dogs or all humans. If you're not a skillful trainer, it's best to forgo the tug-of-war. Don't permit children to play tug-of-war with your dog. If your dog's behavior during tug-of-war becomes aggressive or difficult to instantly control, no more tug-of-war with that dog. If your dog has had this response, that's another reason to teach the retrieve. It improves your control of the dog's mouth, and motivates the dog to give you the item.

### **Toys as Powerful Motivators**

There are dogs who find toys even more motivating than food! You can build the power of toys to motivate your dog, starting as soon as your dog comes to live with you. Teach retrieving through the use of a positive method from the time you first meet your puppy or dog. Keep a variety of toys on hand and note which ones most excite your dog.

Control the toys so that the dog looks to you for games with them, but remember to also have toys available to the dog at all times for the dog's physical, mental and emotional health. The toys your dog can't have out all the time because of chewing them up too fast may be your prime candidates for training times. The chance to chase, catch, or settle for a few minutes of satisfying destructive chewing with THIS toy will be a Very Big Deal to your dog!

Retrieving is so motivating to dogs that it actually builds the dog's desire to please you. It's a different kind of drive than giving the dogs food treats as training rewards. Sometimes your training objectives will be better achieved with food, sometimes with toys, and sometimes with a creative combination. Your praise, verbal encouragement, excited voice, and body language can enhance these motivators-and at the same time, these motivators enhance the dog's future interest in your voice and body language. Toys actually build your communication with your dog!

### **Invest Wisely**

You can see the wisdom of investing in good toys for your dog. It may seem that "Scout has plenty of toys," but if he's also chewing on the furniture, you may be surprised at the power of bringing home something new and exciting to perk his interest in his own toys.

You may also be surprised at which toys he finds most exciting. As in anything you want to use to motivate and care for your dog, it pays to stay alert to his preferences and his behavior with his toys. These are important clues for creating the best life with Scout or Foxy or any other dog. Toys are great tools for dogs!

## Puppy Biting



Puppies bite. This is not a form of aggression, but a form of play and communication. It's important to train a puppy not to bite in play or to communicate, as this behavior can become unacceptable and even dangerous in an adult dog. This is a very important lesson for a puppy to learn.

For many puppies, all it takes is the owner "Yipping" when puppy teeth touch human skin for them to stop this behavior. Give a "Yipe!" and stop the game for about 15 minutes after you've had to yipe to get pup to take teeth off you. That's what another puppy would do, and it helps the puppy understand. This sound needs to be what a puppy would do when the idea is "Ouch! That hurts! I don't like it! Stop it right now!"

In the litter, that offended puppy would then retaliate in some way, or refuse to play with the rough puppy for awhile. Some puppies have strong predatory instincts that are overstimulated when a person yipes, and for these puppies this would then not be an appropriate method.

Also, make sure no one is playing "mouth games" with the puppy, encouraging it to put teeth on humans for any reason. You need to react with your "yipe" or other intervention every time teeth touch a human, whether it hurts or not, so the puppy will understand this vital concept: no teeth on people. Even a gentle touch could get someone hurt if they jerk their hand away, and people will do that, especially kids.

My favorite intervention for a dog putting teeth on people in play is not a quick fix, but it has nice benefits and is very safe to do with most dogs. I simply hold the mouth closed for 15 seconds (work up to this time--at first it might frighten the dog to hold for more than about 5 seconds), while praising the dog. I say "[Dog's name], Close Your Mouth. GOOD Close Your Mouth!"

This teaches the dog the words for the behavior I want--and eventually you can remind the dog about the mouth by just saying those words. But that stage won't last long, because if you are very consistent about doing this intervention every time the puppy puts teeth on people, eventually the puppy will never do so at all.

By handling the mouthing from a positive point of view with praise--although it's still a correction: done every time the dog mouths a person's skin, it shows the dog the correct behavior of keeping teeth off people and praises the dog for doing it--you gain other benefits, such as accustoming your dog to being comfortable having someone control its mouth.

You do have to be consistent and stay with this over a period of time to get really solid results. Dogs not taught about teeth on people do not automatically outgrow it, so this is

time very well spent training your dog. This method works on adult dogs as well as puppies, and is much safer for both you and the dog than harsh corrections.

Teaching a dog never to put teeth on humans is for family dogs. For some types of work dogs might do, the trainer may not want to create this strong inhibition against putting teeth on human skin. In those cases, the trainer may manage the puppy mouthing behavior by simply putting a toy in the dog's mouth. We can definitely take a cue from these trainers by redirecting our dogs' mouthing behavior into their toys, after we have carefully shown the dog not to mouth us.

I also find it useful to teach the dog the word "Kiss" for licking. When the dog is highly stimulated in play and seems to need to touch me in some manner, I can remind the dog "Kiss" and then praise the dog for licking me.

In the early stages of working on mouthing behavior with a puppy or new dog, keep in mind that you want to teach any new behavior/command in a quiet situation with minimal distractions. So start teaching "Close Your Mouth" with the praise at times when the dog is quiet. Soon you can do it quickly and smoothly whenever mouthing occurs, even if the dog is excited. But you will in the process be bringing the dog's excitement level down and helping your dog develop self-control.

The praise is important to helping the puppy or dog learn to have no fear of a human taking control of its mouth. You are praising the puppy for accepting the restraint at that instant, not for the mouthing done 3 seconds ago.

And be sure you don't cause your dog to bite its lips or tongue when you restrain the mouth--it should be comfortable for the dog, as it should be any time you require your dog to obey any command of yours.

## **Puppy Kindergarten**



Puppy kindergarten can give you and your pup a great start together. People with limited dog experience benefit tremendously from well-run puppy classes, where instructors explain the mysteries of puppy behavior and teach handling skills. Unlike training classes for adult dogs, puppy classes tend to include instructions in issues such as house training and other management.

Perhaps you've trained a dog before and don't feel the need for help training this one. The puppy needs the experience, even if you don't. Chances are, though, that you'll learn new things, too.

Dog trainers continue to come up with ideas that work better for more dogs. They're constantly improving on ways to teach the humans. Many dogs who would have been considered untrainable in the past are now easy to train thanks to new understanding of how to motivate them. The training equipment continues to evolve, too, and you will need instruction to use some of the tools.

Whatever dogs you've trained before, there's one guarantee: this puppy is different! Every dog is different. Even two puppies from the same litter are different from each other, will respond differently to things, and will require different handling from their humans. A good instructor has much to teach you and to help your young dog. This is an opportunity you don't want to miss.

Your puppy needs this learning environment during critical development stages. If socialization during these stages is missed, some puppies will never be as successful as they could otherwise have been at fitting into your home or whatever else you hope to do with your dog. Sadly, when a dog can't function safely with humans, it can ultimately mean a lost home and a lost life.

Good basic handling and training prevent most problems from turning into serious issues as the dog matures. We all want to enjoy our puppies and have them grow into safe dogs who spend long and happy lives in our homes. Puppy kindergarten is a great start to making this happen.

### **When Is Your Puppy Ready?**

Puppies mature at different rates, but classes typically try to get the pups into class prior to 6 months of age. That heads off a lot of potential behavior problems. Occasionally an older dog may be allowed in the class to overcome shyness, but only if this dog would not pose a threat to the puppies.

You need to consult your veterinarian about the best timing for your puppy to take class. This will depend on the pup's health and immune status as well as what illnesses are going around.

Discuss when to start your pup in class with the instructor, too. Ask if they've had any contagious puppies in class recently; if so, wait longer before starting. There should be careful screening of all puppies allowed in the class to make sure they will not pose undue risks to the other puppies.

In some cases you may need to just do what you can on your own in safer settings while you wait for your pup's immune status to be stronger. The instructor may have some reading suggestions for you. (See [Socializing Dogs to People](#), [Socializing Dogs to Places](#), and [Socializing Dogs to Things](#)), Keep in mind, though, that dog handling is a skill that needs to be learned. Reading is not going to be enough to learn it.

Some puppies need one or more private lessons before joining a class. Some trainers actually do all the training in private lessons, and have the classes only for dogs who are involved in their private lessons. Whatever kind of program you work with, go there without your puppy first to observe and make sure you are comfortable with how the dogs are handled.

### **Goals and Benefits of Puppy Kindergarten**

Several things can be accomplished through puppy kindergarten classes, especially if you keep these objectives in mind:

1. Your pup can begin a lifelong love of going to dog events and gatherings that include other well-behaved dogs.
2. A good class is an opportunity for a weekly outing with your puppy with the supervision of a skilled instructor to help you.
3. Your puppy can gain a love of learning new things that will last for life. Old dogs can indeed learn new tricks if they developed a love of learning early in life and kept it up throughout adulthood. This comes back to bless you even as the elderly dog needs to learn new skills to compensate for losing some sight, hearing and mobility. It's amazing what dogs can learn, once they know how to learn and have the confidence that they can do it.
4. You and your puppy develop a working relationship that enables you to safely take the puppy out for other social experiences and continued training.
5. A puppy who might otherwise have grown up fearful and defensive can gain confidence and overcome early problems with people and other dogs.

### **Doing Class Right**

Communicate with the instructor about your goals for your puppy prior to the beginning of class. This might be best done in a brief phone conversation at the instructor's convenience. The instructor will be able to help you better in class by knowing your goals. A pup being raised as a therapy dog or to live with preschool children may need different class experiences than a pup being raised for agility or Schutzhund competition. The school may have different puppy classes for different goals.

Don't overtire your puppy. Step out of the class action to the sidelines or outdoors if your puppy starts to appear tired, stressed, hot, or in need of a potty break. Don't disrupt the class, but do take good care of your puppy.

If there is a time when the puppies in class interact with each other, keep your puppy's participation in the interaction brief, and bring the puppy out of the dog-to-dog interaction on a happy note.

Don't let your puppy be picked on in class, and certainly don't let your puppy bully any of the others. Either of these situations could be detrimental to your dog's future ability to

work safely and comfortably around other dogs. Puppy class is to help your dog with this, not create a problem.

If something is recommended that makes you uncomfortable, step out. Make sure you understand and are comfortable with the situation, the equipment, the method, or whatever your concern is, BEFORE you do it with your dog. The instructor probably knows more about dogs than you do, but there may be important aspects of your dog's personality that the instructor has not had the opportunity to notice. What is a good technique for one dog can be a bad technique for a different dog.

Don't disrupt the class, but don't let anything happen to your puppy that concerns you. The beauty of a training class is that situations can be set up for training. If you're not ready, you can learn more about it and then the situation can be recreated when you are ready to try it. If this means taking the class again, it's worth it to learn how to handle your puppy in the way that is best for the two of you.

In your regular daily practice of the class homework, keep in mind both the short attention span and physical stamina of a puppy AND the length of the class. A puppy can't work attentively for a solid hour. Crummy practice produces crummy training! But the puppy needs to be able to hang out under control for the hour the class will probably last.

So how do you condition your pup for this? Put a leash on your puppy and find a good training place. You may walk there, drive there, or start in your living room. The plan is to have the puppy under basic control for an hour, with "on" and "off" times for actual training and working.

Let's say you start by putting on the leash. This is a good opportunity to help your pup remember not to jump all over you when excited. Control starts now. Check your timer!

Next you might decide to start with a little stay practice in the living room. Or maybe you go ahead out the door with your puppy. Remember not to let your puppy dash out the door without permission!

If you're going to do your training on a walk, keep the timer going as you walk a bit (keep that leash loose!) and stop frequently to work on a cue or two (sit, down, puppy looking to your eyes at the sound of the name, and other things you're learning in class).

If you're going to drive to a training location, start your timer when you actually get there. Drive time will be in addition to class time, so don't count it as part of your practice time, either.

Carry along a favorite toy or two and some tiny treats. Besides using these things to motivate your puppy, a little play (not too wild!) is a controlled break and stress reliever for pup. At some point on your walk or at home before or after the walk, practice stays. Practice stays every day. Stays make you the leader of your dog, without ever having to battle over leadership. (See [Stay Training](#))



Spend a little time stimulating the pup with the toy for retrieving (See [Retrieving in Play](#).) For this you may want to take a longer line with you, or do it at home before or after the walk. Skip retrieving practice at any time your dog's mouth seems uncomfortable from teething.

As your pup matures a little (around 6 months, less or more depending on the dog) start adding structure to the retrieve. Spend a few moments a day on gentle "hold it" and "give" training. Drop something now and then and let the pup hand it back to you. Your genuine praise for the pup putting a dropped object into your hand will make your dog light up.

Walk along for several steps with your full attention on the puppy and the puppy's full attention on you. Then release the pup's attention while you continue to walk in a more relaxed manner—but always with the leash loose, no tension on it. Work in a few sessions of "attention walking," during your session, never too long at a time.

You'll learn more and more things to include in your hour of controlled time with your pup that is part training, part play, and 100% learning. A dog is constantly learning, either the things we want or the things we don't want.

Play is just as important to learning as all other interactions you have with your dog. Puppy kindergarten class will teach you some fun things to do with your puppy in addition to "serious" training. Remember, life is a game to your puppy. That's as it should be, because puppies, like children, learn best through play.

### **Reasonable Expectations**

There's good news and bad news about what your puppy learns in puppy kindergarten. The good news: your puppy will have a great foundation for all future learning and the best possible chance for a great attitude about the world and the people in it.

The bad news is that what your dog learns as a puppy is going to have to be taught again! Thought you'd take your puppy through puppy kindergarten and that would result in an obedience-trained dog? It doesn't work like that.

Puppies get their little brains turned on and turned in the right direction through early training, which provides a wonderful start. Then adolescence hits. The dog sees the world in a new way, which is fitting as maturity brings the need to take on more responsibility.

In the wild the adolescent dog would need to help the pack provide food and security. Enormous physical and mental changes occur in the adolescent dog—including the dog who is spayed or neutered—and all training has to be repeated from a new perspective.

You are now dealing with a different dog! But if you and this fascinating creature have gone through puppy kindergarten training together, you're both well-equipped to step up to an adult level of dog training. This is the point in your dog's life when REAL bonds are formed, when the dog is ready to actually choose to be your partner. It's an exciting and rewarding time.

## Before the Cuteness Wears Off

When your puppy is still little and cute, certain lessons are easily taught that would require much more work if delayed. Walking on a loose leash, paying attention when you call the name, coming when called, keeping feet on the floor to greet people, keeping teeth off humans and other essential skills for living in a human world are most easily taught to your puppy over a two or three month period in early life.

Puppy kindergarten is enormously helpful to humans and dogs, and provides about the best entertainment possible. For a small fee you get to participate in something that is mentally, emotionally, and physically healthy for you and your dog. Seeing the other puppies and sharing the experience with the other puppy-loving humans adds to the fun. Be sure to take the opportunity to do this with and for your puppy.

## Roundworms: Dogs & Puppies

*Toxocara Canis* and *Toxocara Leonina*: Roundworms of Dogs and Puppies



There are two species of roundworms affecting dogs and puppies: *Toxocara canis* and *Toxascaris leonina*. Both are treated with the same medication protocol so when eggs are seen on a fecal flotation exam it may not be necessary to determine which species is present. *T. leonina* can infect both dogs and cats, so identifying this roundworm might be helpful in indicating which pets in the household are at risk for further contagion.

**Note: Fresh feces are not infectious.**

### *Toxocara Canis*

#### How Infection Occurs

In dogs, there are four ways by which infection with *Toxocara canis* occurs:

- Consuming infective worm eggs from soil in the environment (generally through normal grooming).
- Nursing from an infected mother dog.
- Consuming a prey animal (usually rodent) that is carrying developing worms.
- During embryonic development when an infected mother dog is pregnant (most puppies are infected this way).

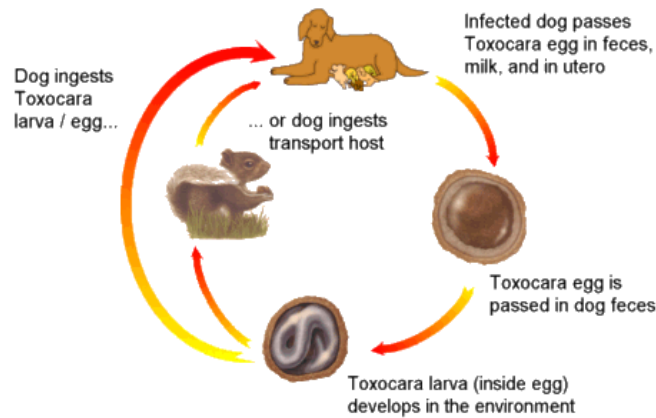


*adult Toxocara worms*

Note: cats cannot be infected with *Toxocara canis*.

## Life as a Roundworm

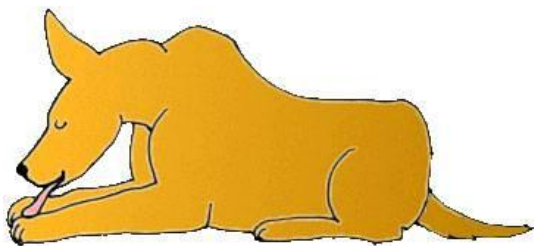
*Toxocara canis* has one of the most amazing life cycles in the animal kingdom. It is crucial to understand this life cycle if effective treatment is to be pursued.



*Step One:* *Toxocara* eggs are passed in the host's feces.

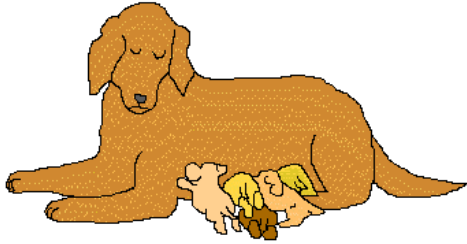
If a fecal sample is tested, the eggs can be detected but the eggs are too young to infect a new host at this stage; the worm inside must develop for a month or so before it can establish infection. During this time of worm egg development, the feces has melted into the environmental soil and is no longer evident; the worm eggs are loose in the garden (or other environmental) dirt. If environmental conditions are favorable, it takes about a month for the egg to become infective but *Toxocara* eggs are famous for weathering harsh environmental conditions. Eggs can remain infective for months to years.

Note: Fresh feces are not infectious. **Soil contaminated with feces is infectious.**



*Step Two:* The egg containing what is called a second stage larva is picked up from the dirt by a dog or by some other animal, usually in the course of normal self-grooming. The egg hatches in the new host's intestinal tract and the young worm burrows its way out of the intestinal tract to encyst in the host's other body tissues. If the new host is a dog, the

life cycle proceeds. If the new host is a member of another species, the larvae wait encysted until the new host is eaten by a dog.



**Step Three:** These second stage larvae can remain encysted happily for years. If the host is a dog, the larvae mostly encyst in the host's liver. When the time comes to move on, the larvae excyst and migrate to the host's lungs where they develop into third stage larvae. They burrow into the small airways and travel upward towards the host's throat. A heavy infection can produce a serious pneumonia. When they get to the upper airways, their presence generates coughing. The worms are coughed up into the host's throat where they are swallowed thus entering the intestinal tract for the second time in their development.

If the host is pregnant, the larvae do not migrate to the lung after they excyst; instead they home to the uterus and infect the unborn puppies. The second stage larvae make their way to the puppies' lungs to develop into third stage larvae.

If the host is a nursing mother, second stage larvae can migrate to the mammary gland instead of the lung after excysting. Puppies can be infected by drinking their mother's milk, though, due to the intrauterine cycle described above, the litter would probably already be infected.

**Note:** When dogs are dewormed with traditional dewormers, this affects only worms in the intestinal tract. It does not affect encysted larvae. It is difficult to prevent mother-to-puppy transmission and routine deworming is not adequate. It is possible to prevent infection in unborn puppies by using a specific daily protocol of fenbendazole (your veterinarian can provide details) or with the new generation product AdvantageMulti® that contains moxidectin.

**Step Four:** Once back in the intestine, the larvae complete their maturation and begin to mate. The first eggs are laid about one week after the fourth stage larvae have arrived in the intestine and about 4 to 5 weeks after infection has first occurred. From here the cycle repeats.

### **Why is Infection Bad?**

Roundworm infection can have numerous negative effects. It is a common cause of diarrhea in young animals and can cause vomiting as well. Sometimes the worms themselves are vomited up which can be alarming as they can be quite large with females reaching lengths of up to seven inches. The worms consume the host's food and can lead to unthriftiness and a classical "pot-bellied" appearance. Very heavy infections can lead to pneumonia as the worms migrate and, if there are enough worms, the intestine can actually become obstructed.

It should also be noted that human infection by this parasite is especially serious (see below). It is important to minimize the contamination of environmental soil with the feces of infected animals so as to reduce the exposure hazard to both humans and other animals.

### **How do we Know if our Dog is Infected?**

You may not know if your dog is infected, and this is one of the arguments in favor of regular deworming. Regular deworming is especially recommended for dogs that hunt and might consume the flesh of hosts carrying worm larvae. Puppies are frequently simply assumed to be infected and automatically dewormed.



Of course, there are ways to find out if your dog is infected. If a dog or puppy vomits up a worm, there is a good chance this is a roundworm (especially in a puppy). Roundworms are long, white and described as looking like spaghetti. Tapeworms can also be vomited up but these are flat and obviously segmented. If you are not sure what type of worm you are seeing, bring it to your veterinarian's office for identification.

Fecal testing for worm eggs is a must for puppies and a good idea for adult dogs having their annual check up. Obviously, if there are worms, they must be laying eggs in order to be detected, but by and large fecal testing is a reliable method of detection.

### **How do we get rid of Roundworms?**

Numerous deworming products are effective. Some are over the counter and some are prescription. Many flea control and/or heartworm prevention products provide a monthly deworming that is especially helpful in minimizing environmental contamination. Common active ingredients include:

- Febantel (active ingredient in Drontal and Drontal plus)
- Pyrantel pamoate (active ingredient in Strongid, Nemex, Heartgard Plus and others)
- Piperazine (active ingredient in many over the counter products)
- Fenbendazole (active ingredient in Panacur)
- Milbemycin oxime (active ingredient of Interceptor, Sentinel, and Trifexis)
- Moxidectin (active ingredient in AdvantageMulti).

There are two important concepts to keep in mind about deworming. Medications essentially anesthetize the worm so that it lets go of its grip on the host's intestine and passes out with the stool. Once it has been passed, it cannot survive in the environment and dies.

This means that you will likely see the worms when they pass, so be prepared as they can be quite long and may still be alive and moving when you see them.

The other concept stems from the fact that all the larvae in migration cannot be killed by any of these products. After the worms are cleared from the intestine, they will be replaced by new worms completing their migration. This means that a second and sometimes even a third deworming is needed to keep the intestine clear. The follow-up deworming is generally given several weeks following the first deworming to allow for migrating worms to arrive in the intestine where they are vulnerable. Do not forget your follow-up deworming.

### What about *Toxascaris Leonina*?

The life cycle of *Toxascaris leonina* is not nearly as complicated. They do not migrate through the body in the way that *Toxocara* does. Instead, the *Toxascaris* second stage larva is consumed and simply matures in the intestine, a process that takes 2 to 3 months. Like *Toxocara*, *Toxascaris* can infect hosts of other species, though with *Toxascaris* the larvae can develop into third stage larvae in these other hosts while with *Toxocara* larval development is arrested in species other than the dog.

Note: *Toxascaris leonina* can infect both dogs and cats alike.

### Hookworms

The hookworm (*Ancylostoma caninum*, *Ancylostoma braziliense*, *Uncinaria stenocephala*) is one of the classical internal parasites of puppies, the others being [roundworms](#), [tapeworms](#), and [coccidia](#). Hookworm infection has several features that are of interest to the caretakers of dogs:



Hookworms (particularly *Ancylostoma caninum*) suck blood.

- Hookworms can be transmitted to unborn pups.
- Hookworms can infect humans.

Before elaborating on these aspects of hookworm infection, it is important to understand the life cycle of the hookworm, encompassing how infection happens, how the parasite lives, etc.

#### Life Cycle of the Hookworm

The adult hookworm lives in the small intestine of its host. It hangs on to the intestinal wall using its six sharp teeth. Unlike other worms that just absorb the digested food through their skin as it passes by; the hookworm feeds by drinking its host's blood. The adult worm lives and mates within the host and ultimately, the female worm produces eggs. Hookworm eggs are released into the intestinal contents and passed into the world mixed in with the host's stool.

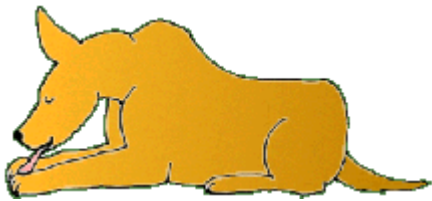


Hookworms living inside the intestines

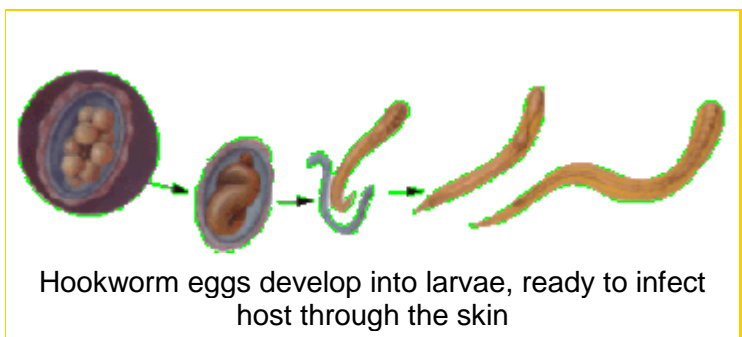


hookworms living in soil

The egg hatches in the environment and develops from a first stage larva (the hatchling) to a second stage larva and finally a third stage larva, which is ready to infect a new host.



The larva can infect its new host in several ways. One way is to penetrate the host's skin directly through the feet or belly or whatever part of the skin is touching the ground. Another way for the larva to gain entry to the new host is to be present in soil that is licked and swallowed by the host as it cleans itself.



Once the larvae are inside the host, they make their way to the intestine where some worms simply stay and mature into adulthood. Other individuals are bolder, tunnel out of the intestine, and migrate to the lung tissue. In the lung, the larvae develop into fourth stage larvae and when they are ready they break out of the lung, climb up the trachea, get coughed into the throat and swallowed. Once back in the intestine, these well-traveled worms will complete their maturation to adulthood, rejoining friends that never left the intestine on a migration.

Not all the worms that begin this treacherous migration complete it. As they emerge from one tissue to move on to the next, some fall into a state of arrest where they go dormant and encyst. These larvae remain inactive periodically emerging and continuing their migration.

The adult worms live by sucking blood from the intestine. Their eggs are passed by the host into the environment where a new host picks them up. The developing larvae may migrate widely through the new host's body before settling down to complete their maturation.

Now let us return to the points we want to emphasize.

### **Hookworms Suck Blood**

Hookworm infection can be looked at as a natural check in the canine population as it is frequently lethal to young puppies. A young puppy is growing and that includes making enough new blood to serve not only its needs but also the needs of its growth. Growing requires a tremendous red blood cell production from the puppy's bone marrow, yet in the hookworm-infected puppy this process is being sabotaged by numerous tiny vampires within. The puppy may be effectively bled to death.

Infected puppies are commonly pale, weak, and have long-standing deficiencies. They may or may not have diarrhea.

Treatment involves deworming with one of several products: mebendazole (Telmintic®), fenbendazole (Panacur®), or pyrantel pamoate (Nemex®, Drontal®, Strongid T®). Deworming should be repeated in approximately 30 days. These products are not absorbed into the host's body from the GI tract and can only kill the worms living within the GI tract. The point of the second deworming is to kill worms in the process of migration at the time of the first deworming, allowing them an additional month to complete their migration. We currently do not have a deworming strategy effective against the encysted larvae in other areas of the host's body.

Simply killing the worms will not be sufficient to save the life of a severely affected puppy. Like any other blood loss, a transfusion may be needed to keep the puppy alive until it can replace its own lost red blood cells. An iron supplement is frequently needed as well.

### **Hookworms are Transmitted to Unborn Pups**

Infection of a very young puppy can occur in two ways not addressed in the above description of transmission.



Typically an infected mother dog will have encysted larvae all around her body. Throughout the adult dog's life, some larvae will awaken, break out of



their cysts, and complete their migration to the GI tract.

Pregnancy hormones unfortunately serve as little wake-up calls to encysted hookworm larvae, only this time the little worms migrate to the unborn puppies and to the mammary gland.

Some members of the litter will be born infected. Others will become infected by drinking the contaminated milk of their own mother. If this is not enough to infect the entire litter, others will become infected from the soil of their own nest, which will quickly become contaminated, with the stool of the infected litter.

It is clear why puppies are at risk over adult dogs when it comes to hookworms. The Centers for Disease Control and Prevention recommends automatically deworming puppies for hookworms beginning at age 2 weeks in areas where hookworms are common.

### **Can We Prevent Transmission from the Mother?**

The answer is yes but daily deworming is required through the second half of pregnancy and into the nursing period. A regular single deworming will not be effective in protecting the litter. A special protocol using fenbendazole (Panacur®) has been found to be effective in preventing both roundworm and hookworm infection in unborn puppies.

Ask your veterinarian about this method if you are contemplating breeding a female dog.

Female dogs using Proheart6 for heartworm prevention are believed to pass fewer hookworm larvae on to their pups.



Cutaneous Larva Migrans (CLM) occurs as red, inflamed lesions in the skin where the larvae of canine hookworms burrow under the skin

### **Hookworms Can Infect Human Beings**



Contaminated soil is an important hookworm source when it comes to a human disease called cutaneous larva migrans. Running

barefoot through the park or beach may seem pleasant but if the soil has been contaminated with canine fecal matter, the eager infective larvae may be waiting to penetrate your skin.

Hookworm infection in the skin is intensely itchy but usually treatable. The local restrictions on bringing dogs to local beaches and the strict clean-up laws reflect concern for hookworm (and roundworm) infection in people.

Humans can also become infected by eating improperly washed vegetables, which may harbor contaminated soil. Humans have been found with hookworm intestinal infection. This would be a challenging diagnosis as it is not usually expected but the good news is that it is treated fairly easily when it is discovered.

Please visit the CDC's hookworm fact sheet at:

[http://www.cdc.gov/ncidod/dpd/parasites/hookworm/factsht\\_hookworm.htm](http://www.cdc.gov/ncidod/dpd/parasites/hookworm/factsht_hookworm.htm)

### **Decontaminating the Environment**

Many people are concerned about how to decontaminate the backyard or property that has housed an infected dog. The good news is that unlike roundworms that are extremely hardy in the environment, hookworm eggs deplete their energy reserves in a few months and die. Further, hookworm eggs do not survive freezing temperatures. If you use bleach to clean an area, the protective coating is removed from the hookworm egg and the egg will become dehydrated and will die. Borates raked into the soil will also kill hookworm eggs but will kill grass and vegetation as well.

### **Prevention**

Most heartworm preventives will also prevent hookworm infection.

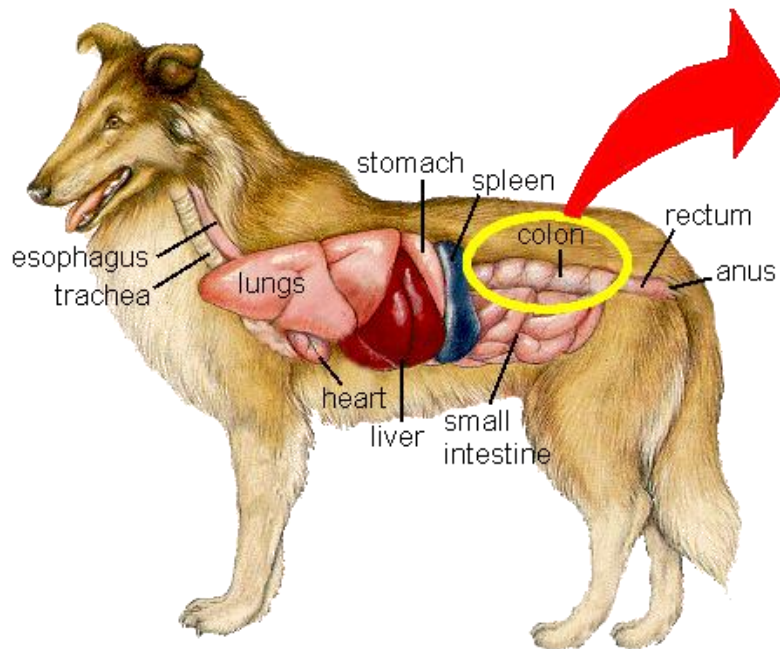
### **Whipworms**



*Adult whipworm*

(*Trichuris Vulpis* and relatives)

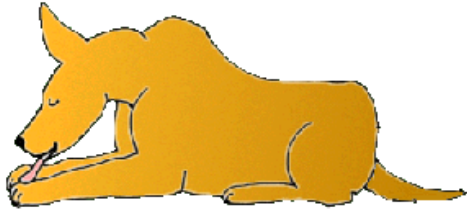
This worm is one of the "big four" intestinal parasites with which our canine friends must contend: [roundworms](#), [tapeworms](#), [hookworms](#), and whipworms. The whipworm that affects dogs (*Trichuris vulpis*) is substantially smaller than the other worms (a mere 30-50 mm in length, about two inches maximum) and is rarely seen as it lives in the cecum (the part of the large intestine where the small and large intestine meet). The head (or more accurately, the digestive end of the worm) is skinny versus its stout tail (or reproductive end), which gives the worm a whip shape, hence the name.



In the host's digestive tract, food passes from mouth to esophagus to stomach to small intestine to large intestine to rectum and then to the outside world. This means the large intestine is one of the last stops for nutrients and by this point in the journey, nutrients have largely been broken down and absorbed. The large intestine, also called the colon, serves to absorb water, store fecal material, and provide a home for a spectacular number of bacteria that are able to digest leftover food. The large intestine is the home of the whipworm. The adult worms bite the tissue of the intestine, actually embedding their heads inside, and suck blood there.



Eggs are laid inside the large intestine and pass with the stool. Once in the outside world, the eggs require about 2 to 4 weeks to form embryos and become capable of infecting a new host. (This means that contaminated soil is the source of infection, not fresh feces.)



The new host is infected by consuming the egg, usually during grooming. The egg hatches in the small intestine releasing a larva. The larva dives into the local glandular tissue and after about a week emerges into the small intestine and is carried downstream into the large intestine with the digested food. Once in the cecum or large intestine, its permanent home, it embeds in the tissue there, and after a total 74 to 87 days from the time the egg was swallowed, the young whipworm is ready to mate.

A few whipworms generally do not pose a problem for the host but if large numbers of worms are embedding themselves in the large intestine tissue, tremendous inflammation can result leading to a bloody, gooey diarrhea. Usually there is not enough blood loss to be dangerous but the diarrhea readily becomes chronic and hard to control. A second syndrome of infection has emerged but is not well understood, this being symptoms mimicking those of Addison's disease ([hypoadrenocorticism](#)). Here, a waxing and waning weakness with inability to conserve salt ultimately creates a dehydration crisis. The syndrome mimics Addison's disease in every way except that testing for Addison's disease will be negative and deworming yields a complete recovery.

Because female whipworms only periodically lay eggs (whereas other female worms lay eggs continuously), a fecal sample tested may easily be negative for eggs. This makes confirmation of a whipworm infection a challenge. It is common to deworm for whipworms if the symptoms are suggestive of them even if the fecal test is negative. Most common deworming agents do not work on whipworms so something special must be selected. The most common products are [fenbendazole](#)(Panacur®), and febantel (Drontal Plus®). Because of the long maturation cycle of young worms, a second deworming some 75 days or so after the first deworming is needed to fully clear the infection (easy to forget). Often another deworming in between these doses is recommended to further control the whipworm numbers.

More recently, regular [heartworm](#) prevention products have been developed to remove and control whipworms: Sentinel and Interceptor both will cover whipworms and their regular use covers the second deworming as well. Heartgard products do not carry a high enough dose of [ivermectin](#) to kill whipworms, though at other doses ivermectin could be used with appropriate cautions.

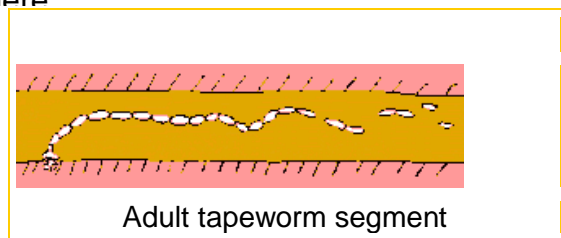
Soil contaminated by whipworm eggs is contaminated for years. It is virtually impossible to remove the eggs from the soil or kill them. Happily, however, this is one pet intestinal parasite that is not readily transmissible to humans.

## Tapeworms (Common tapeworms, *Dipylidium caninum*)

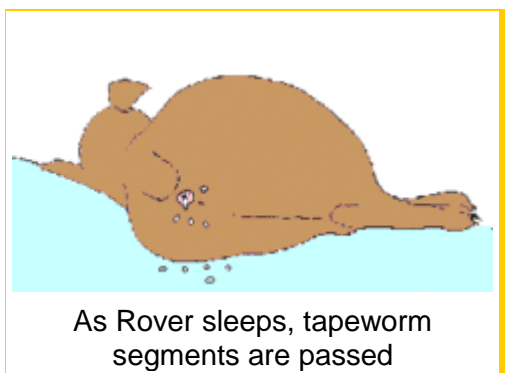
### Biology of the Parasite

The adult *Dipylidium caninum* lives in the small intestine of dogs or cats. It is hooked onto the intestinal wall by a structure called a rostellum, which is sort of like a hat with hooks on it. The tapeworm also has six rows of teeth it uses to grab on to the intestinal wall. Most people are confused about the size of a tapeworm because they only see its segments, which are small; the entire tapeworm is usually 6 inches or more.

Adult *Dipylidium*. The segments are easily seen. The thick end is the tail where



Once docked like a boat to the host's intestinal wall, the tapeworm begins to grow a long tail. The tapeworm's body is basically a head segment to hold on with, a neck, and many tail segments. Each segment making up the tail is like a separate independent body, with an independent digestive system and reproductive tract. The tapeworm absorbs nutrients through its skin as the food being digested by the host flows past it. Older segments are pushed toward the tip of the tail as new segments are produced by the neck piece. By the time a segment has reached the end of the tail, only the reproductive tract is left. When the segment drops off, it is basically just a sac of tapeworm eggs.



The sac is passed from the host's rectum and out into the world, either on the host's stool or on the host's rear end. The segment is the size of a rice grain and is able to move. Eventually the segment will dry up and look more like a sesame seed. The sac breaks and tapeworm eggs are released. These eggs are not infectious to mammals. The tapeworm must reach a specific stage of development before it can infect a mammal.

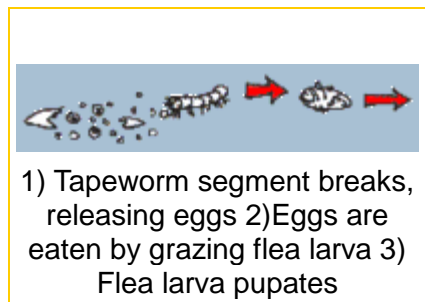


tapeworm segments

Larval fleas are generally hatching in this vicinity and these larvae are busy grazing on organic debris and flea dirt (the black specks of digested blood shed by adult fleas to nourish their larvae). The flea larvae do not pay close attention to what they eat and innocently consume tapeworm eggs.



Tapeworm segments and flea dirt are found together in Rover's bed.



1) Tapeworm segment breaks, releasing eggs 2) Eggs are eaten by grazing flea larva 3) Flea larva pupates



Rover licks himself and swallows fleas

As the larval flea progresses in its development, the tapeworm inside it is also progressing in development. By the time the flea is an adult, the tapeworm is ready to infect a dog or cat. The young tapeworm is only infectious to its mammal host at this stage of development. The flea goes about its usual business, namely sucking its host's blood, when to its horror it is licked away by the host and swallowed.

Inside the host's stomach, the flea's body is digested and the young tapeworm is released. It finds a nice spot to attach and the life cycle begins again. It takes 3 weeks from the time the flea is swallowed to the time tapeworm segments appear on the pet's rear end or stool.

Controlling fleas is essential to prevent recurring infections with this species of tapeworm.

See information on [flea control](#).

## FAQ

### Why is it Called a Tapeworm?

This creature gets its name because its segments and body are very flat and look like a piece of tape.

### What do they look like?

Inside a pet, the adult tapeworm can be a half a foot long or more. It is made of small segments, each about the size of a grain of rice. The tapeworm's head hooks onto the pet's intestine with tiny teeth and the worm absorbs nutrients through its skin. Each segment contains a complete set of organs but as new segments grow in at the neck area and older segments progress to the tip of the tail, the organs disintegrate except for the reproductive organs. When the segment drops off from the tail tip, it is only a sac of eggs.

This segment is white and able to move when it is fresh and, at this time, looks like a grain of white rice. As the segment dries, it looks more like a sesame seed.

### Where do they Come from?

There is no other way for a pet to get *Dipylidium caninum* except from fleas.

Many people who had thought their pet could not possibly have fleas find out about the infestation this way. The tapeworm segment breaks open, releasing its eggs. A larval flea consumes the egg along with the flea dirt that it normally eats. As the larval flea matures, so does the baby tapeworm. When a grooming dog or cat licks the flea and swallows it, the dead flea is digested in the dog's stomach, releasing the baby tapeworm. The tapeworm is passed to its new home in the dog or cat's small intestine, where it attaches and lives its life.

This parasite does not harm the pet in any way as there are plenty of nutrients passing by to serve both the host and its tapeworm (tapeworms require very little nutrients.) Still, high performance dogs, who need every calorie working for them, may show a decrease in performance because of a tapeworm infection.

There is another type of tapeworm that may be confused with *Dipylidium caninum* and that is the *Taenia* genus of tapeworms. This tapeworm has a segment that looks different and has a different mechanism of infection.

### How do you Know if your Pet has them? Why do they Sometimes Fail to Show up in a Fecal Test?

Because the eggs are passed by the pet in packets (segments), they often do not show up on the fecal exam; the packet must break open for the eggs to be seen. Consider that the pet has tapeworms if segments are seen under its tail, around its anus, or on its feces. Segments can be passed in small groups connected to each other, leading the owner to describe a worm that sounds larger than a grain of rice. Tapeworm segments are also quite flat.

Some people will mistake maggots in the stool for tapeworms. Maggots are not seen in freshly passed stool and are not flat.

### **Can People get them?**

Theoretically, yes, people can get them but they must be infected the same way dogs and cats are: by swallowing an infected flea.

### **How do we Get Rid of Them?**

Tapeworms are killed by different medications (one is called praziquantel), which is administered by injection, tablet, or topically. The tapeworm is killed and digested with the pet's food. It is not passed in the stool later.

### **Why do some Veterinarians Recommend Two Treatments and others only Recommend One Treatment?**

Only one treatment is needed to kill the tapeworms in the body; however, many clinics recommend a second injection in three weeks. The reason for the second injection is this: If the owner finds out at the time of their office visit that they need to control fleas to control tapeworms, they will need at least a month or so to control the fleas.

After the first treatment is given, there is no reason why the pet cannot immediately get reinfected. It probably will reinfest itself at some point. By seeing the animal in three weeks and giving another treatment after the fleas are controlled, there is a good chance that the tapeworms will not be back three weeks later. It takes three weeks from the time the pet swallows the tapeworms to the time segments can be seen by the owner.

On the other hand, who knows when the pet will swallow another infected flea? Our recommendation is that a single treatment be administered whenever segments are seen.

### **If One Pet Has Tapeworm Segments, can it be Assumed that they all Do?**

No, just because one pet in the household has swallowed an infected flea does not mean they all have. Our recommendation is to deworm only the pets who have obvious tapeworms.

### **Why Might a Pet Continue to get Tapeworm Infections?**

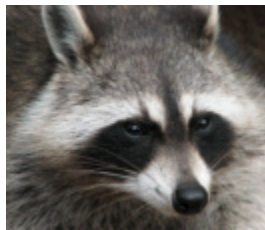
While many people would like to blame the medication as ineffective, the truth is that there must be an on-going flea population in the pet's environment. The key to eradicating *Dipylidium caninum* is flea control.



## Rabies

Descriptions of rabies go back thousands of years as rabies has classically been one of the most feared infections of all time. It is caused by a bullet-shaped rhabdovirus that is relatively unstable in the environment; establishing infection requires direct contact with infected mucous membranes. In most cases, disease is transmitted via bite wound. Only mammals are susceptible to infection, and wildlife is the primary animal group where infection occurs. When wildlife comes into contact with humans or domestic animals, rabies becomes a public health problem. Despite vaccination being readily available, every year the U.S. reports hundreds of dog and cat deaths from rabies, not to mention several human deaths. Worldwide some 55,000 human deaths from rabies occur and rabies remains an important and nearly untreatable illness even now in the 21st century.

Rabies is nearly untreatable once symptoms begin despite all the resources of modern medicine and it is important to take its threat seriously. It is because of rabies that most municipalities have dog licensing requirements in order to ensure that the community's dogs are vaccinated.



The most common wildlife species to spread rabies to domestic animals and humans in the Northern Hemisphere are the skunk, bat, raccoon, fox, and coyote. It should be noted in particular that wildlife, bats especially, are able to gain access to indoor areas and potentially infect pets and people.

**MANY PEOPLE DO NOT REALIZE HOW FAST DEATH OCCURS FROM RABIES.**

While it may take a long time for the virus to incubate, once even mild symptoms begin, death occurs within 10 days.

### Course of the Disease

Virus in the infected animal's saliva enters the victim's tissues during the bite. The virus attaches to the local muscle cells for a couple of days before penetrating to local nerves and beginning its slow ascent to the brain. Once in nervous tissue, the virus is not accessible to the immune system and may safely proceed, although the journey is slow taking up to one year (average time between bite and detectable virus in the brain is 20 to 30 days). Virus ultimately reaches the brain and in two to three days more is evident in all body secretions including saliva. At this point, the disease becomes transmissible and symptoms begin.

**IT CAN TAKE UP TO A YEAR FROM THE TIME OF THE INITIAL BITE BEFORE SYMPTOMS BEGIN TO SHOW. ONCE SYMPTOMS SHOW, TREATMENT IS NEARLY IMPOSSIBLE.**

*PRODROMAL STAGE* (the first 1.5 days after symptoms have started)

A change in personality is noted. Friendly animals become shy, etc. The larynx begins to spasm and a voice change may be noted (especially true in rabid cattle). Most infected animals will actively lick or scratch the site of the original bite.

*EXCITATIVE STAGE* (Next 2-3 days)

Classically, this would be the "mad dog" stage. The animal has no fear and suffers from hallucinations. If confined, the animal often attacks the bars of the cage.

*PARALYTIC OR DUMB STAGE* (Next 2 days)

Weakness/paralysis sets in. The larynx is paralyzed resulting in an inability to swallow, thus drooling and "foaming at the mouth" result. The animal dies when the intercostal muscles (which control breathing) are paralyzed. It is from animals in this stage where most human exposure occurs. There is no treatment for animals or humans once clinical signs appear.

Once the virus has been released to body secretions, it is again accessible to the immune system; however, the patient dies before an adequate immune response is mounted.

The classical symptoms of rabies described above may not be obviously recognizable, making diagnosis difficult if not impossible in a living animal. Long quarantines are often needed to determine if infection has occurred.

When human exposure to the animal in question is involved, what happens depends on an assortment of criteria. If the animal in question is dead, its brain can be tested for rabies. There is no test for rabies in a living animal but since we know that death follows quickly after the virus becomes contagious, a living animal can be confined for 10 days. If the animal is still alive 10 days after biting a person, then the bite could not have transmitted rabies.

In order to raise awareness of rabies, a World [Rabies Day](#) is scheduled annually to call attention to this problem. More information about rabies in both humans and animals can be from that website.

## **Prevention**

Happily, rabies prevention is accomplished with vaccination and limiting exposure to wildlife. The standard killed-virus vaccines are available for both dogs and cats and, after the initial dose, which is good for one year, subsequent doses are generally good for three years. Because of an association with tumor development in cats with killed virus vaccine, a recombinant product is now available that uses a portion of rabies viral DNA cloned into a harmless canarypox virus. This vaccine is just as effective as the traditional vaccines but must be administered annually. Rabies vaccination protocols are typically controlled by municipal regulations. Most communities legally require vaccination of all

dogs. The American Association of Feline Practitioners recommends rabies vaccination for all cats.

For pets not current on rabies vaccination that have been exposed to biting wildlife, the Texas Post-Exposure Rabies Prophylaxis Protocol has been particularly helpful. In this situation, the pet should be vaccinated for rabies as soon as possible after the wildlife bite with booster vaccines given 3 weeks post-bite and 8 weeks post-bite. The pet should be strictly isolated for 90 days (note that in California, the law requires a 180-day isolation period). This protocol has been extremely successful in preventing rabies symptoms and contagion when normal rabies vaccination had lapsed.

### **The Law Regarding Animal Bites (Against Humans)**



In my area (Los Angeles), if the biting animal has been legally vaccinated against rabies, only routine first aid may be necessary; bacterial infection of the wound may still be possible. If the animal has not been currently vaccinated, it must be confined for 10 days at the owner's expense for observation and then vaccinated at the end of that period.

The purpose of the ten-day period is to determine if rabies virus could have been in the animal's saliva at the time of the bite. An animal infected with rabies and shedding virus will certainly be dead within ten days.

If the biting animal is known to have been exposed to wildlife, the situation is different. A vaccinated animal must be re-vaccinated within 48 hours and confined for observation for 30 days. Unvaccinated animals must either be confined for 6 months or be euthanized and tested for rabies. All bites that break the skin are reportable to the health department. All dogs must be vaccinated against rabies. Wildlife/pet incidents leading to bites on the pet are of no concern to public health officials as long as no humans have been bitten.

**LAWS REGARDING BITING DOGS AND RABIES VACCINATION ARE HIGHLY REGIONAL. CHECK WITH YOUR LOCAL ANIMAL REGULATION DEPARTMENT OR VETERINARIAN TO FIND OUT WHAT YOU NEED TO KNOW.**

### **If you are Exposed**

A fresh bite wound should be washed out with water quickly as this may wash out viral particles. The time it takes for the virus to reach the brain depends on the amount of virus present in addition to the proximity of the wound to the head.

If the animal is dead, the head of the biting animal is submitted to the health department for fluorescent antibody testing for the rabies virus. This process takes a matter of hours so that any bite victims can know right away if they will require rabies treatment. If the biting animal is living, its vaccination status should be confirmed as soon as possible and it will need to be confined. The bite wound should be reported to the health department as soon as possible.

Hyperimmune (antibody rich) serum is flushed into the wound in hope of inactivating the virus before it may penetrate to the nerves. The patient receives a vaccination on a regular schedule for about a month. In this way, when the virus comes out in secretions, a strong immune response is waiting to put down the infection.

For complete details, the [CDC has information on post-exposure rabies](#).

**ANYONE PURSUING A CAREER WITH ANIMALS  
SHOULD CONSIDER VACCINATION AGAINST RABIES.**

Veterinarians, for example, have a rabies exposure risk more than 300 times that of the general population.

### **Quarantines when Traveling**

Great Britain, Hawaii, and several other island areas have successfully eradicated rabies from their territory. These places are EXTREMELY cautious about allowing potential carriers of rabies in. Because of the long incubation period of rabies, a long quarantine is needed; however, this must be balanced by the expense associated with quarantine and an owner's reluctance to be separated from his or her pet. Most places that have eradicated rabies have special protocols for avoiding or minimizing quarantine. Typically, a microchip is implanted in the pet for identification purposes, a rabies antibody titer (a measurement of vaccine-induced protection) must be performed at an approved laboratory, and rabies vaccine documentation is necessary.

For listings of what each state requires for entry, the [USDA](#) has prepared a Web site with the most recent regulations at:

For [travel to another country](#) it is best to check with that country's consulate but guidelines are also available at USDA.

### **Other Links**

The [CDC's rabies home page](#) has, in addition to basic information, a children's education area that is particularly helpful for families who go camping.

## Coccidia

### What on Earth are Coccidia?

Coccidia are single-celled organisms that infect the intestine. They are microscopic parasites detectable on routine fecal tests in the same way that worms are, but coccidia are not worms and are not susceptible to deworming medications. They are also not visible to the naked eye. Coccidia infection causes a watery diarrhea that is sometimes bloody; it can be a life-threatening problem, especially to a young or small pet.

### Where do Coccidia come from?

Oocysts (pronounced o'o-sists), like those shown above, are passed in stool. In the outside world, the oocysts begin to mature or sporulate. After they have adequately matured, they are infective to any host (dog or cat) that accidentally swallows them.

To be more precise, coccidia come from fecal-contaminated ground. They are swallowed when a pet grooms/licks the dirt off. In some cases, sporulated oocysts are swallowed by mice and then the host is infected after eating the mouse. Coccidia infection is especially common in young animals housed in groups, such as shelters, rescue areas, kennels, etc. This is a common parasite and is not necessarily a sign of poor husbandry.

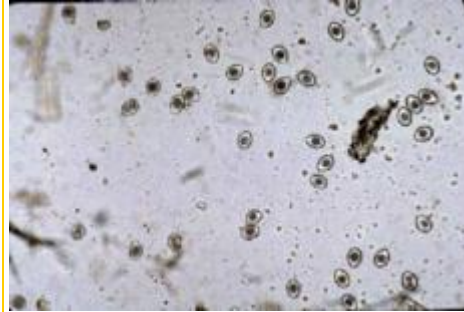
### What Happens Inside the Host?

The sporulated oocyst breaks open and releases eight sporozoites. Each of these sporozoites finds an intestinal cell and begins to reproduce inside it. Ultimately, the cell is so full of what are called merozoites at this stage that the cells bursts, releasing merozoites that seek out their own intestinal cells so the process begins again. It is important to note how thousands of intestinal cells can become infected and destroyed as a result of accidentally swallowing a single oocyst.

As the intestinal cells are destroyed in larger and larger numbers, intestinal function is disrupted and a bloody, watery diarrhea results. The fluid loss can be dangerously dehydrating to a young or small pet.

### How are Coccidia Detected?

A routine fecal test is a good idea for any new puppy or kitten whether there are signs of diarrhea or not as youngsters are commonly parasitized. This sort of test is also a good idea for any patient with diarrhea and is recommended at least once a year for healthy dogs and cats as a screening test. The above photograph shows coccidia oocysts seen under the microscope in a fecal sample. Coccidia are microscopic and a test such as this is necessary for diagnosis. Small numbers of coccidia can be hard to detect, so just because a fecal sample tests negative, this doesn't mean the pet isn't infected. Sometimes several fecal tests are performed, especially in a young pet with a refractory



There are many different species of coccidia but for dogs and cats, the most common infections are with coccidia of the genus *Isospora* (pictured here). The information presented here pertains to *Isospora* species.

diarrhea (one that won't go away); parasites may not be evident until later in the course of the condition.

### How is Coccidia Treated?

The most common medicines used against coccidia are called coccidiostats. They inhibit coccidial reproduction. Once the numbers stop expanding, it is easier for the patient's immune system to catch up and wipe the infection out. This also means, though, that the time it takes to clear the infection depends on how many coccidia organisms there are and how strong the patient's immune system is. A typical treatment course lasts about a week or two, but it is important to realize that the medication should be given until the diarrhea resolves, plus an extra couple of days. Medication should be given for at least 5 days total. Sometimes courses as long as a month are needed. In dogs and cats, sulfa-based antibiotics are the most commonly used coccidiostats.

The use of sulfa drugs in pregnancy can cause birth defects. Sulfa drug use can also lead to false positive test results for urine glucose.

There is another medication that is worth mentioning called [ponazuril](#), a large animal product. This medication is actually able to curtail a coccidial infection in five doses or less and has been used in thousands of shelter puppies and kittens with no adverse effects. This product would seem to be superior to the usual sulfa drugs, but the problem that keeps it from becoming a mainstream treatment is the fact that it is available only as a paste for horses and must be diluted down to create an appropriate small animal formula. The large volumes of product yielded are not cost effective if only occasional patients are treated for this parasite. Ponazuril is thus most commonly used in kennels, catteries, and animal shelters though one may be pleasantly surprised to find it in stock at a regular veterinary office.

### Can People or other Pets Become Infected?

While there are species of coccidia that can infect people ([Toxoplasma](#) and [Cryptosporidium](#), for example), the *Isospora* species of dogs and cats are not infective to people. Other pets may become infected from exposure to infected fecal matter but it is important to note that this is usually an infection of the young (i.e. the immature immune system tends to let the coccidia infection reach large numbers whereas the mature immune system probably will not.) In most cases, the infected new puppy or kitten does not infect the resident adult animal.

### Giardia

*Giardia* is the genus of a protozoan parasite that is infectious to both humans and pets all over the world. *Giardia* consists of flagellates, which mean they move by means of several whip-like structures called flagella. They live as a form called a trophozoite, or "troph" for



When stained, the *Giardia* organism appears to have a funny face.

short, in the intestine where they cause diarrhea. In fresh fecal samples, trophozoites can sometimes be captured. They swim around in a motion described as a falling leaf and appear as a funny face (see picture below – the two nuclei form the eyes and median bodies form the mouth).

After a short period of time outside the host's intestine, the trophozoites round up and form cysts that enable them to survive environmental conditions without a host to protect them. The cyst can live for many months with two incompletely formed trophozoites inside, ready to infect a new host. Contaminated water is the classical source of a *Giardia* infection.

After it has been swallowed, the cyst shell is digested away, freeing the two trophozoites that go forth and attach on the intestinal lining. The troph has a structure called a ventral disc, which is sort of like a suction cup and is used to attach the organism's body to the intestine. If the troph wants to move to another spot, it lifts itself up and swims to a new spot via its flagella (trophs tend to live in different intestinal areas in different host species depending the host's diet). The troph may round itself up and form a cyst while still inside the host's body. If the host has diarrhea, both trophs and cysts may be shed in the diarrhea; either form can be found in fresh stool.

After infection, it takes 5 to 12 days in dogs or 5 to 16 days in cats for *Giardia* to be found in the host's stool. Diarrhea can precede the shedding of *Giardia*. Infection is more common in kennel situations where animals are housed in groups.

### **How Does *Giardia* Cause Diarrhea?**

No one is completely sure but infection seems to cause problems with normal intestinal absorption of vitamins and other nutrients. Diarrhea is generally not bloody. Immune-suppressive medications such as corticosteroids can re-activate an old *Giardia* infection.

### **Diagnosis**

In the past, diagnosis was difficult. The stool sample being examined needed to be fresh, plus *Giardia* rarely show up on the usual fecal flotation testing methods used to detect other parasites. Traditionally, a fecal sample is mixed in a salt or sugar solution such that any parasite eggs present will float to the top within 10 to 15 minutes. Some tricks that have been used to facilitate finding *Giardia* include:

Being sure to examine a direct smear of the fecal sample in hope of finding swimming trophs.

- Floating the sample in zinc sulfate, a solution that has been found superior in getting *Giardia* cysts to float.
- Staining the sample with some sort of iodine under the microscope to make the *Giardia* show up easier.

What has made *Giardia* testing infinitely easier is the development of a commercial ELISA test kit, which is similar in format to home pregnancy test kits. A fecal sample is tested immunologically for *Giardia* proteins. This method has dramatically improved the

ability to detect *Giardia* infections and the test can be completed in just a few minutes while the owner waits.

*Giardia* shed organisms intermittently and may be difficult to detect. Sometimes pets must be retested in order to find an infection.

## **Treatment**

A broad spectrum dewormer called [fenbendazole](#) (Panacur®) seems to be the most reliable treatment at this time. [Metronidazole](#) (Flagyl®) in relatively high doses has been a classical treatment for *Giardia* but studies show it to only be effective in 67% of cases. The high doses required to treat *Giardia* also have been known to result in temporary neurologic side effects or upset stomach. For some resistant cases, both medications are used concurrently. Febantel is also commonly used for *Giardia* as it is converted to fenbendazole in the body. The ELISA test for *Giardia* should go negative within 2 weeks of treatment indicating success.

Because cysts can stick to the fur of the infected patient and be a source for re-infection, the positive animal should be bathed at least once in the course of treatment.

Not all patients with *Giardia* actually have diarrhea but because *Giardia* is the most common intestinal parasite affecting humans in North America, treatment is generally recommended for the pet who tests positive even if no symptoms are seen. The idea is to reduce human exposure.

## **Environmental Decontamination**

The most readily available effective disinfectant is probably bleach diluted 1:32 in water, which in one study required less than one minute of contact to kill *Giardia* cysts. Organic matter such as dirt or stool is protective to the cyst, so on a concrete surface basic cleaning should be done prior to disinfection. Animals should be thoroughly bathed before being reintroduced into a “clean” area. A properly chlorinated swimming pool should not be able to become contaminated. As for areas with lawn or plants, decontamination will not be possible without killing the plants and allowing the area to dry out in direct sunlight.

## **A Footnote on Vaccination**

A vaccine against *Giardia* was previously available not to prevent infection in the vaccinated animal but to reduce the shedding of cysts by the vaccinated patient. In other words, the vaccine was designed to reduce the contamination of a kennel where *Giardia* was expected to be a problem. This would be helpful during an outbreak, in a shelter or rescue situation but is not particularly helpful to the average dog whose owner wants to prevent infection. Because of limited usefulness of the vaccine, its manufacture was discontinued in 2009.



## Leptospirosis

### When a Dog Becomes Infected

Dogs become infected by leptospires when abraded skin comes into contact with infected urine or with water contaminated with infected urine. Bite wounds, reproductive secretions, and even consumption of infected tissues can transmit this infection. The organisms quickly spread through the bloodstream leading to fever, joint pain, and general malaise that can last up to a week. The organism settles in the kidneys and begins to reproduce, leading to further inflammation and then kidney failure. Depending on the type of leptospire involved, other organ failure (especially liver) can be expected as well. Make no mistake; leptospirosis is a life-threatening disease with worldwide significance. People can be infected, too.

**Typical symptoms and clinical picture:** *Fever, depression, loss of appetite, joint pain, nausea, excessive drinking, jaundice, excess bleeding brought on by low platelet count. Recovered animals can shed leptospires for months after recovery. Younger animals tend to be more severely affected than older animals. Most cases are diagnosed between July and December and involve large breed dogs in rural or suburban environments. There may be a genetic predisposition for infection in German shepherd dogs.*

Kidney failure is a relatively common malady in pets and can be either chronic or acute. Chronic kidney failure is a different situation from acute kidney failure, where the ability to produce urine is endangered and the condition comes on more quickly. It is acute kidney failure that affects 90% of dogs with leptospirosis, with 10-20% also suffering liver failure. In most infected dogs the main feature is excessive water consumption a week or two after an episode of unexplained fever (rather than sudden inability to make urine as is usually seen in an acute kidney failure situation.)

### The Infection in Humans

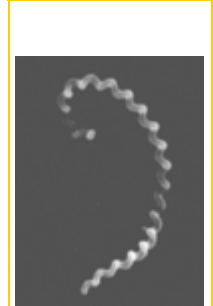
As the Centers for Disease Control and Prevention (CDC) monitor leptospirosis cases in people, it seems that one third come from contact with infected dogs and one third come from contact with rats, usually through field work. The same disease symptoms occur in humans as would be seen in a canine infection.

See the [CDC's page on human leptospirosis](#).

The species *Leptospira interrogans* has been classified into subtypes called **serovars**. Over 200 serovars have been named.

### Testing

Blood testing to detect antibodies against *Leptospira interrogans* (microscopic agglutination testing or MAT) can be performed. While a value of 1:800 or higher supports a positive diagnosis, confirmation is not made until a second antibody level **called a titer** is run between 2 and 4 weeks and shows a *four-fold increase*. Vaccination



Leptospira interrogans is shaped like a question mark and is a type of bacterium called a spirochete.

may interfere with testing since - obviously - the entire point of vaccination is to generate antibodies. **If the dog has been vaccinated in the last 3 months, testing will be difficult to interpret; however, a single titer of 1:800 or higher against a serovar for which there is no vaccine is considered a positive result.** The **PCR test**, which detects even small amounts of *Leptospira* DNA, would be an excellent test if vaccination has been recent but PCR testing is not available in most reference laboratories.

Urine may be submitted for what is called **dark field microscopy**. In this test, a dark background may offset the paler leptospire organisms, rendering them visible. This sounds like a good way to make the diagnosis but the problems are:

The urine sample must be fresh and most animal hospitals do not have the capability to do dark field microscopy.

1. Leptospires are only shed in urine intermittently.

The kidney may be biopsied and specific tissue stains may be used to detect leptospire organisms. Obviously, this is an invasive procedure.

## **Treatment**

Fortunately, *Leptospira interrogans* is sensitive to **penicillin**, a readily available antibiotic. After penicillin has been used to stop leptospire reproduction and limit bloodstream infection, **tetracycline derivatives (such as [doxycycline](#)) are used to clear leptospires from the kidneys.**

Intravenous fluids are crucial to support blood flow through the damaged kidneys so that recovery is possible. Any areas at home that have been contaminated with urine should be disinfected with an iodine-based product and gloves should be worn when cleaning any urine. Prognosis is guarded depending on the extent of organ damage.

## **Prevention**

### *Vaccination Options*

Vaccination against *Leptospira interrogans* is only available for the serovars called canicola, grippityphosa, pomona and icterohaemorrhagiae. (Some vaccines cover all four serovars while others cover only two out of four.) As a result of long-standing use of this vaccine, it is hard to assess how important it is to vaccinate against leptospirosis. As you might imagine, most recent outbreaks involve serovars for which vaccination does not exist.

Vaccination against at least two of the four serovars mentioned is commonly included in the basic distemper shot (DHLPP - the "L" stands for leptospirosis). The vaccine can be made up to omit the leptospirosis portion. Of all the sera in this basic vaccine, it seems to be the leptospirosis portion that has been associated with hives, facial swelling, and even life-threatening vaccination reactions much more than any of the other fractions. If there is any question of an animal having a vaccine reaction, leptospirosis vaccine is often left out of the mix. As technology has improved, however, vaccines made from leptospores grown in protein-free media have made vaccination reaction far less likely.

Vaccination will reduce the severity of disease but will not prevent infected dogs from becoming carriers.

Other important aspects of prevention include control of rodents in the pet's environment and removal of standing water.