

# How to Take Care of Garter Snakes

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## Feeding

### What to Feed

Unless you have a garter snake that eats mice, you must feed your garter snake a varied diet to ensure complete nutrition. Mice represent complete nutrition, but other foods are deficient in some manner or other and must be fed in combination to ensure a complete diet.

A young garter snake that is not eating pinky mice or pinky parts may be fed a combination of earthworms (cut into appropriately sized pieces if you're using large nightcrawlers), feeder guppies or platies and, if the snake will accept it, pieces of fish fillet. Supplement the fish and worms occasionally. This diet does put the snake at risk of a parasitic infection; ideally, it should be converted to a mouse-based diet as soon as possible. Begin with pinky parts if the snake is too small for pinky mice; scent the mice to encourage the snake to feed if necessary. Once converted to mice, a garter snake should eat them most of the time; worms and fish can be optional treats, if you wish.

### How Much & How Often

How often you feed your snake depends on what you feed it, and how much depends on the size of the snake. Worm eaters need to be fed more often than fish eaters, which in turn need to be fed more often than mouse eaters. Worm eaters should be fed twice weekly, fish eaters can be fed every five to six days or so, and mouse eaters every week. Very young garter snakes can eat a bit more frequently than that; for example, they could probably eat every second day on an earthworm diet.

A rigid schedule is not strictly necessary, though it's easier for the keeper to remember. Snakes that eat a varied diet can be kept on a constant schedule, despite the different recommended intervals I just mentioned. Don't agonize too much about the schedule unless you have very young snakes; it's very hard to starve a snake.

You should feed your snake enough to leave a visible bulge, but not so much that the snake is going to burst. A baby snake should get two or three small earthworms collected from the garden, or one-quarter to one-third of a large bait store nightcrawler, or a few feeder guppies, or one large feeder platy, for example. Smaller, more frequent meals are more easily digested than mammoth, infrequent meals. In general, baby snakes should be fed frequently.

It's hard to make fatal mistakes, and through trial and error you will figure out how much and how often based on how big the snake looks after a meal, and how fast that meal is digested. Sometimes the snake itself will tell you: if an ordinarily tame snake nips at your fingers when you reach into its cage, it may simply be very hungry.

It is possible to **overfeed** your snake. Since overfeeding causes obesity and reduces the snake's lifespan, it should be avoided. Do not feed your snake every day or it will become obese. It's harder to overfeed on a pure earthworm diet, but easier on a pure mouse diet,

because mice are more nutritious than worms. Again, it's quite difficult to overfeed a baby garter snake.

Note that a snake's metabolism goes up and down with the temperature: a snake kept in a house without air conditioning during a warm summer will get hungrier faster than a snake kept at cooler temperatures.

### **Frogs and Toads**

**Pros:** Preferred food in the wild; nutritious.

**Cons:** Very heavy parasite loads. Collecting has legal and environmental implications.

### **Earthworms**

**Pros:** Preferred food in the wild for baby snakes. Most garters will eat them. Inexpensive.

**Cons:** Not very nutritious; the snake needs to eat lots of them. Calcium deficient. Watery feces. Parasite loads. Risk of toxins depending on where they were collected. Ribbon snakes won't eat them.

In the wild, most adult garter snakes feed preferentially on anurans (**frogs and toads**), and in an ideal situation this would make up the bulk of their diets. But collecting frogs as food for your garter snake is difficult to justify given declining amphibian populations worldwide, and wild-caught frogs and tadpoles are quite likely to transmit a host of parasites to your snake. All things considered, frogs shouldn't be used as garter snake food unless the snake refuses to eat anything else.

There are some concerns about parasite transmission with earthworms as well, and road-collected worms may harbour all sorts of toxins. Some species of snake will want these more than anything else, and most baby snakes will prefer earthworms as well. Ribbon snakes and some western aquatic species won't eat them, though. Worms collected from your garden (**dew worms**) will be eaten with particular enthusiasm, and **nightcrawlers** (*Lumbricus terrestris*) purchased at a bait store will also suffice. Be careful with nightcrawlers, which are big and muscular: be sure to cut them into small pieces when feeding them to small snakes; they're strong enough to crawl back out if you're not careful! Cutting a large nightcrawler into quarters will be enough. Cut them into too-small pieces and the snake may ignore them: they expect their worm prey to twitch a little.

Never use **red wigglers** (*Eisenia foetida*), which are the worms used in vermicomposting and are sometimes sold as trout bait: they are reportedly toxic, or at least foul-tasting.

Worms are also deficient in calcium, though there is some debate about whether this is a cause for concern; as a precaution, if your garter's diet is mostly worm-based, supplement it periodically with calcium.

### **Fish**

**Pros:** Some garters will eat live fish and ignore other food. Most garters will eat fish. Fish fillet is inexpensive.

**Cons:** Live fish often have parasites. Some fish carry an enzyme that leads to a vitamin deficiency. Goldfish are bad for garters. Live fish can be expensive in quantity. Not every garter will accept fish fillet. Fish fillet is nutritionally deficient without supplementation. Results in watery, smelly feces.

Many keepers rely on **fish** because it's very easy to find, and because it's easier to control parasites with freezing. But there are some problems with using fish as a food source that lead me to recommend that you not use it unless you absolutely have to.

**Live fish** is advantageous because some garter snakes will refuse to eat anything else. But a regular diet of live feeder fish can expose your snake to several medical problems. Live fish are usually laden with **internal parasites** that can leave your snake with a persistent infection of roundworms, tapeworms or pinworms, months after its last meal of fish, that can be extremely resistant to treatment. Certain kinds of live fish can pose additional risks. **Goldfish** should be avoided at all costs; it's essentially a junk fish with poor nutritive value. And other species of fish contain an enzyme called **thiaminase**, which destroys vitamin B<sub>1</sub> (thiamin) and gives your snake a potentially fatal vitamin deficiency (see below). As a result, I do not recommend using live fish unless the snake will not eat anything else, and I recommend against purchasing garter snakes that will only eat live fish.

**Frozen whole fish**, if frozen for longer than 30 days, do not present the same problems with parasites, but if it is a species of fish that contains thiaminase, that problem remains. Frozen bait minnows, for example, have contained thiaminase. **Fish fillet** is very convenient, because it can be bought frozen at the supermarket, but it's not complete nutrition. A garter that lives on strips of fish fillet misses out on the nutrients found in whole fish, so periodic calcium and vitamin supplementation will be necessary. Fish fillet is safe to use (ocean perch, for example, is known not to contain thiaminase) but it should not be the only item in

### Mice

**Pros:** *Mice are nutritionally complete; a garter snake can eat nothing but mice and be perfectly healthy. Less frequent, less stinky defecation.*

**Cons:** *Young garters are too small to eat mice. Garters need to be trained to accept mice. Not all garters will accept mice. Not all keepers want to feed mice to their snakes.*

the snake's diet. It's fine in combination with worms or mice.

The least problematic food for a garter snake is mice. Although not considered a "natural" diet in the wild, garters will eat rodents in the wild from time to time, and in captivity garters have been fed mice with no apparent ill effects for years. The main advantage of using mice is that they are more nutritious than fish or worms: they do not require supplementation and there is no risk of a thiamin deficiency. Garter snakes feeding on mice don't need to be fed as often and they grow faster, too. Another significant advantage is that garter snake feces is a lot less watery and smelly!

Training garters to eat mice is usually not difficult. Rub a pinky or fuzzy mouse (see below) with fish or earthworm to transfer the scent to the mouse. This can be quite effective, especially if the garter is already used to eating non-moving food like fish fillet. Some garters need no scenting at all and will take mice immediately; and some baby garters will take unscented pinky parts (chopped up pinky mice, cut up when frozen) before they're big enough to take a whole pinky!

Don't use live mice; you can buy mice frozen at many pet stores or directly from mouse breeders. They come in different sizes: pinkies are newborn mice, followed by fuzzies, hoppers, jumpers and adult mice. A baby garter snake is too small to eat a pinky mouse, but can pinky parts, or a small pinky after a few months. Adult males and young females may eat hoppers and large adult females may eat adult mice.

### Other Food

Garter snakes have been known to eat **slugs** and **leeches** in the wild. Slugs are high in calcium and are recommended. Some will eat **newts** and **salamanders**, but others can't stomach them. Avoid them to be on the safe side; besides, many are protected. A few species will eat small **lizards** and **snakes**, which should be avoided for their parasites alone, to say nothing of the discomfort many of us have with the idea of feeding reptiles to reptiles.

### What They Won't Eat

Certain species will prefer some food items and avoid others. Ribbon snakes and some of the western aquatic species will not eat earthworms, for example; some individuals may persistently refuse mice, or anything except live fish or amphibians. In general, though, garter snakes are *extremely* unlikely eat to crickets, mealworms or other insect larvae, no matter what the nice person at the pet store told you—they are simply *not* insectivores. All snakes are carnivores; they will not deliberately eat any vegetable matter of any kind.

### Supplements

Earthworms are deficient in calcium, and fish fillet is not complete nutrition. If you are frequently feeding either of these items to your snake, you may want to add vitamin and mineral supplementation from time to time—once or twice per month at most. I use a combination of powdered calcium (available at pet stores), vitamin B<sub>1</sub> (as insurance against vitamin B<sub>1</sub> deficiency) and vitamin D<sub>3</sub> (to help metabolize the calcium). Don't overdo it; while vitamin B<sub>1</sub> is water-soluble and impossible to overdose on, it is possible to get too much calcium and vitamin D<sub>3</sub>. Most calcium powders include vitamin D<sub>3</sub>; check the label.

### Commercial Diets

A couple of commercial snake diets are on the market, one in the form of sausages and one that is specifically marketed as garter snake food. While there may not be anything conspicuously wrong with them, they are not cheap and offer no special advantages over more natural food. Though they may be helpful for people who are squeamish with worms or mice, and who have trouble acquiring other food sources.

## Housing

### Size of Cage

The cage should be neither too large nor too small. Too small, and the snake can't get enough exercise and its health will suffer. Too large, and the snake will feel exposed and inse-

cure. A good guideline is to make sure that the length plus width of the cage is somewhat larger than the total length of the snake. (For example, a snake up to 90 cm long could live in a tank that is 60 cm long and 30 cm wide.)

A baby garter snake's cage should be no larger than five gallons, and in general, a garter snake less than a year old can live comfortably in a five-gallon tank. An adult male about 60 cm (two feet) long will do well in a 15-gallon tank, and a full-grown female or a breeding pair should be all right in a 25-gallon tank. More room is certainly better within reason, and you'll need more room if you're using a planted terrarium instead of basic caging, but it's very unlikely that a garter snake will need anything more than a 35-gallon tank.

### **Preventing Escapes**

Snakes are very good at escaping their cages; they can crawl through openings that seem too small for them. For that reason the cage must be absolutely escape-proof. Glass aquariums are preferred over plastic "Critter Keeper" cages for that reason. Screen lids for the aquarium should fit under the plastic rim on the inside; these are preferred over snap-on grilles. Miracles makes an excellent aquarium-and-lid combination.

### **Hide Box**

To feel secure, garter snakes need a place to hide. This should be reasonably solid and relatively small: the snake should be able to curl up tightly within it, and if it can touch the sides of its hiding place when it's curled up, so much the better. Formed plastic boxes that fulfill this requirement are available in pet stores, as are hollow half-logs. You can make your own boxes out of cardboard, but bear in mind that they will get soiled quickly.

### **Water**

Despite the fact that garter snakes are often found near water in the wild, they should *not* be kept in semi-aquatic conditions. A water dish large enough for the snake to curl up in, if it chooses to, is enough. In general a garter snake's cage should be kept dry. **Blister disease** (see below) can result from too-damp conditions. On the other hand, baby snakes can be prone to **desiccation** (drying out). A humidity box may be provided: this is simply a hide-box containing some dampened sphagnum moss. It may help keep the rest of the cage drier if this box has a bottom to it.

### **Heat and Light**

Snakes need to be a little warmer than room temperature. This is especially true in an air-conditioned home. But they don't like it uniformly warm, either, and it's actually more dangerous to the snake if it's too hot than if it's too cold.

The ideal temperature for most snakes is in the 25-30°C range (about 75-85°F), but it's important that the snake have the option of warming up and cooling off when it chooses. Create a temperature gradient by only heating one side of the cage.

You can use a heating pad underneath one side of the cage, or an incandescent or reflector bulb above it. You can use a commercial reptile heating pad or an ordinary electric blanket, which is less expensive, turned to the lowest setting. Fluorescent bulbs generate little to no heat. Buy a stick-on thermometer to monitor temperatures. As long as it's above 22°C on the cold end and below 30°C on the warm end, you're fine. Temperatures above 33-34°C are potentially dangerous.

Never, ever use "hot rocks"—these plastic rock heaters that are placed inside a cage. They may be dangerous to the snake and are of limited utility: the air needs to be warm, and a cold snake wrapping around a warm rock heater may burn itself.

Garter snakes do not appear to need full-spectrum lighting; save your money and avoid the "Vita-Lite" bulbs you see in pet stores: those are for lizards.

### **Substrate and Cleaning**

Substrate is what you put on the bottom of the cage. Many different kinds of substrate are possible: everything from a planted terrarium to paper towels or butcher's paper. Other

popular substrates include wood shavings (aspen is best, pine is *probably* all right, but *never* use cedar), cypress mulch, bark nuggets, or indoor/outdoor carpet.

Planted, naturalistic terrariums may be pretty, but a simpler cage is easier to clean. Garter snakes defecate frequently, and unless you change or clean a garter snake's cage frequently, the cage will smell quite ripe in short order. It therefore makes sense to make the cage easy to clean! I recommend keeping them on paper towels, which can be replaced cheaply and quickly when soiled.

You shouldn't have to change the cage more than once a week. More snakes in a cage will make it messier faster, of course, and a fish- and worm-based diet is messier and smellier than a mouse diet—either of these circumstances will necessitate more frequent changes.

If you use paper towels, it's enough to replace them when soiled and rinse off the glass where the snakes have soiled it. If you use shavings, mulch or bark, pick out the urea and feces when you can, then change the cage completely every two to three months or so. Clean the cage thoroughly, using detergent or bleach, or both, every once in a while.

## Housing Together

In general, garter snakes may be housed together. The garter snake breeder Phil Blais has noticed that baby garter snakes in particular seem calmer when housed collectively, and my own experience bears out his observations: a young garter housed singly seems more nervous than it was when it had cagemates. So at least in that case it is not only all right to house garters together, but even beneficial. But there *are* a few things to watch out for. For example, a slightly larger cage may be needed if more animals are kept together.

With some garter snake species, there is a risk of **cannibalism**, and they should be housed individually. This is especially true of the western terrestrial garter snake (*Thamnophis elegans*), the most commonly kept subspecies of which are the wandering garter snake (*T. e. vagrans*) and the coast garter snake (*T. e. terrestris*). There have been many reports of wandering garter snakes that ate their cagemates. While some have kept this species collectively with no trouble at all, play it safe and keep no more than one per cage. Cannibalism has also been reported in checkered garter snakes (*Thamnophis marcianus*) and occasionally with common garter snakes (*Thamnophis sirtalis*). The risk with common garters is quite small, and I keep mine collectively, but it has been known to happen, so consider yourself warned.

**Food fights** are a serious concern when feeding garter snakes, and it's likely that most reports of cannibalism are as a result of accidents happening during feeding. Garter snakes are very enthusiastic feeders and are attracted to motion. If you're feeding them together in the same cage, one snake may be attracted to the other snake's food, and may grab the other end and start swallowing. One may keep going and swallow the other if you don't intercede. So, unless you're prepared to deal with food fights, it's best to feed them separately. Have a small holding cage to feed them in, and feed them one at a time, away from the other one(s).

## Handling

Most garter snakes, particularly if they are captive bred, are gentle and do not mind being handled. Simply give the snake lots of support—don't allow it to fall—and avoid restraining it too much. Let it glide through your fingers, and remember that garters are not constrictors and do not grip your hands as securely as a corn snake or kingsnake might.

But some garter snakes may **bite** or **musk** when frightened. A garter's musk glands are in its vent; when it musks it may also defecate. It's smelly and unpleasant, but not serious. Simply wash it off. Garters are more likely to musk than to bite. Biting is usually not serious and the snake is unlikely to hang on, but if it does, push the snake's head forward to disengage its

backward-pointing teeth. Some people have had reactions to garter snake saliva, but again, it shouldn't be serious.

## Health

In this section, I will only touch briefly on some of the more common health problems, along with some problems that are specific to garter snakes. This is only a basic outline; consult a general reference on snake care for a more thorough discussion of snake health care issues. A good one, if you can find it, is *What's Wrong with My Snake?* by John and Roxanne Rossi. Save yourself a lot of worry and buy this book: you'll learn how to avoid potential problems and you'll know when and when not to take your snake to a qualified reptile veterinarian.

### Shedding Problems

Snakes sometimes have shedding problems, but garter snakes appear to suffer from this much less often; it seems that their skins are somewhat thicker. Even so, shedding problems can occur, and the snake may have pieces of old skin stuck to it. Most problematic is when the eyecaps or tail tip is left unshed: this can lead to blindness in the case of eyecaps and a stubbed tail in the case of the tail tip if left untreated, especially over multiple sheds.

Most of the time this happens because the humidity is too low. One way to deal with it is to add a dampened cloth to the cage and let the snake curl up in it. This should help soften the skin. The snake should be able to shed normally shortly afterwards. If you're gentle you can assist the snake yourself: merely restrain the old skin and let the snake crawl out of it. Tweezers should not be used to remove eyecaps with snakes this small; better to pull it off gently with your fingers, if you're nimble enough.

If the problem persists, add a humidity box (see above) to the cage, or increase the room's humidity with a humidifier or a vaporizer, and the problem should go away next time.

### Internal Parasites

Because of their diet, garter snakes are more prone to internal parasites than are other snakes; earthworms, fish and amphibians are all potential carriers. Roundworms, tapeworms and pinworms are the most likely culprits; they're particularly devastating when they've burrowed into your snake's lung. Wild-caught amphibians appear to be the worst offenders, which is why you shouldn't feed them to your snake. Live fish are frequently the culprit of persistent parasitic infections, so they should be avoided, too.

To find evidence of a worm infestation, you should look for small lumps along the snake's body that appear to be just under the skin. A veterinarian who knows his or her reptiles should be able to take care of it. Freezing the food for at least 30 days destroys the parasites, which is one reason why frozen/thawed mice make such good snake food. Beware: an infection can turn up months after you stop feeding the food that caused it!

### Vitamin B<sub>1</sub> Deficiency

Garter snakes fed an exclusive diet of the wrong kind of fish can develop a vitamin B<sub>1</sub> deficiency. This is due to the presence of an enzyme called thiaminase that is present in some fish, such as some bait minnows, alewives, and other oily fish. Symptoms include a loss of coordination and motor control as well as violent convulsions. It's fatal if nothing is done about it, but if it happens, a vitamin B<sub>1</sub> injection from your vet can put a stop to it. It is absolutely preventable, though, if you simply avoid feeding your snake a diet exclusively of the wrong kind of fish. In my experience frozen bait-store minnows are a very bad idea. Most commercially available whitefish and members of the salmonid family (salmon, trout) are fine as fish fillet, as are most live feeder fish.

### Blister Disease

Snakes kept in too-moist conditions can develop blister disease, which will look like white puffy sores on the snake's body. Keep the snake in drier conditions and apply an antibiotic ointment, such as Neosporin or Polysporin, to the blisters.

## More Information

### Books

Books specifically focused on garter snake care are few and far between, and some that are available aren't necessarily very good. General books on snake care often cover garter snakes, but not always in enough detail; they're worth having as a general reference anyway, though. Here are a few books that may be worth your while.

Bartlett, R. D. and Patricia Bartlett. *Garter and Ribbon Snakes*. Hauppauge, NY: Barron's, 2001. (A basic guide.)

Hallmen, Martin and Jürgen Chlebowy. *Strumpfbandnattern*. Münster: Natur und Tier Verlag, 2001. (If you can read German.)

Perlowin, David. *The General Care and Maintenance of Garter Snakes and Water Snakes*. Lakeside, Ca.: Advanced Vivarium Systems, 1992. (Hard to find; some pet stores and online bookstores may carry it.)

Rossi, John and Roxanne Rossi. *Snakes of the United States and Canada: Keeping Them Healthy in Captivity*. 2 vols. Malabar, Fla: Krieger, 1992-1995. (Obviously not focused solely on garter snakes, but the sections on garters are very, very good. An indispensable book if you're interested in less-common North American snakes. Hard to find and very expensive, but worth it.)

Rossi, John and Roxanne Rossi. *What's Wrong with My Snake?* Santee, Ca.: Advanced Vivarium Systems, 1996. (The standard short reference on snake care. Anyone who owns a snake should have this book.)

Rossmann, Douglas A., Neil B. Ford and Richard A. Seigel. *The Garter Snakes: Evolution and Ecology*. Norman and London: University of Oklahoma Press, 1996. (A scientific monograph. Very thorough and the definitive reference, but not for beginners. Expensive. Available at online bookstores.)

Sweeney, Roger. *The Garter Snakes: Natural History and Care in Captivity*. London: Blandford, 1992. (Dated, hard to find, and frankly not all that informative. Zoo Book Sales may be the only source.)

### Online Care Information

This care guide is also available on my web site. The online version will incorporate the latest changes or corrections: <http://www.mcwetboy.com/gartercare/>

Here are a few other web pages that cover garter care:

Alan's Garter Snake Page—Maintenance of Garter Snakes  
<http://www.gartersnake.co.uk/maintenance.htm>

Melissa Kaplan's Herp Care Information Collection: Garter Snakes  
<http://www.anapsid.org/gartcare.html>

The Garter Snake Guys' Simple Guide to Garter Snake Care  
<http://www.gartersnake.net/gartercare.html>

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