



# Introduction to Tortoise Care

Melissa Magnuson DVM

Cold New England winters limit the tortoise species we can keep in captivity.

Many larger species of tortoise are unsuitable pets for this area. Choose a species that stays small, such as the spur-thigh tortoise (sometimes sold as a "greek" tortoise), or Hermann's tortoise. It's best to purchase a captive-bred tortoise, as they tend to be healthier, more interactive, and make better pets than wild tortoises.

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## Habitat

The ideal habitat for your tortoise depends on her particular species and the conditions she would normally be living in if she were in the wild. Spend a little time learning about your tortoise's natural habitat and do what you can to mimic it in captivity. The more closely you can simulate her ideal living conditions, the healthier your tortoise will be.

Provide the largest possible enclosure for your tortoise. At a minimum, provide an area that is 6 times as long and wide as your pet. For example, a 6-inch tortoise should have an enclosure that is at least 3 ft by 3 ft. A large plastic storage tub is a good place to start for smaller tortoises. They are inexpensive, easy to clean, and safe. Other options include glass aquariums, children's wading pools, or custom-built wooden enclosures.

Newspaper is perhaps the best choice for lining the floor of your tortoise's enclosure. It is inexpensive, safe, and easy to replace daily for hygiene. Some substrates are dangerous. Never place sand, cat litter, corn cob, or walnut shells in your tortoise's enclosure. Some tortoises ingest these substrates and end up with impactions of their gastrointestinal systems. Impactions can be difficult to treat and may be fatal.



Other substrates include alfalfa (rabbit) pellets, bark mulch, potting soil, and sphagnum moss. With the exception of alfalfa pellets, be sure that your tortoise does not actively eat these substrates. Materials of this type tend to hold water and can become moldy. The overly damp, soggy, or wet substrate can be a source of shell and/or skin problems as well as respiratory disease. Keep your tortoise's enclosure clean by removing soiled substrate daily and replacing all of the substrates at least once weekly. Another option is to line your tortoise's enclosure with artificial grass or "Astroturf". Astroturf is inexpensive, safe and easy to clean.

## Heat & Lighting

Tortoises are reptiles, and reptiles cannot maintain their internal body temperature. The only recourse they have for cooling or warming themselves is to move to a different location. Therefore, a heat lamp is essential. To create an air temperature similar to your tortoise's habitat, place a heating pad under three-quarters of the length of the enclosure. The remaining ¼ should be left free of heat to provide a cooler spot. Place a heat lamp at the same end of the enclosure as the heating pad underneath it. Measure the temperature at "tortoise height" under the lamp. The warmest spot should be 95 degrees F. The opposite end of the enclosure should have no heat source. This provides your tortoise with locations at different temperatures in the habitat, so she can regulate her temperature.

Monitor the temperature in your tortoise's habitat with several thermometers and check them at least twice daily. You will want a thermometer on the heated portion of the floor, one at "tortoise height" by the heated basking spot, and one at the opposite end of the enclosure without heat. It's important that the floor of the enclosure is no warmer than 85 degrees F. Be sure that the heating pad under the enclosure does not overheat. To be safe, purchase a temperature sensor with an alarm that warns you when the enclosure is too hot.

Research the typical low and high temperatures in your tortoise's natural environment. Use these temperatures as targets for the low and high temperatures in your habitat. Turn the heat lamp off at sunset to help simulate the normal daily temperature change in the wild.

Aim to provide lighting that mimics the light cycle in your tortoise's natural environment. Most often, 10-14 hours of light per day is optimal. Never leave a white light on for 24 hours a day.

All tortoises need ultraviolet light (UVA and UVB) in order to synthesize the vitamin D they need. Be sure your bulb produces UVB in addition to UVA. Many bulbs only produce UVA which is not adequate. Without enough UVB light, a tortoise will lose bone density, predisposing him to fractures. Most UV bulbs stop producing ultraviolet light long before they burn out. UV light is invisible! Date and replace your ultraviolet bulbs at least every 6 months.

## Diet

All tortoises are vegetarians. Their diet should consist of approximately 80% fresh greens, 10% fresh vegetables, 5% fresh fruits, and no more than 5% high protein foods (see below). Do not feed any greens, fruits, or veggies to your tortoise that you would not eat yourself! All food should be thoroughly washed. The most important consideration in feeding a tortoise is to always offer variety for a diet that is well balanced in nutrients, minerals, and vitamins.

Add calcium carbonate (approximately 1% by weight of the daily food intake) to your tortoise's food 2 or 3 times weekly. Also, lightly dust your tortoise's food every 1-2 weeks with a powdered vitamin/mineral supplement that contains vitamin D3. Do not over-supplement, however, as too much vitamin D3 can be harmful. Ask your veterinarian for exact amounts.

Dark, leafy greens such as romaine lettuce, kale, collards, mustard greens, and dandelion greens should make up the bulk of the diet. Other greens may include bok choy, red or green leaf lettuce, butter lettuce, watercress, escarole, parsley, and turnip greens.

Offer your tortoise a variety of vegetables (up to 10% of the daily rations). Try cabbage, carrots, brussels sprout, sweet potatoes, cauliflower, broccoli, green beans, yellow wax beans, radish, and red/green/yellow bell peppers. Also try cucumber, peas, corn, lima beans, bean sprouts, winter or summer squashes. Experiment and try to discover your tortoise's favorites.

Your tortoise may enjoy eating flowers. There are several edible flowers that you can grow on your own or buy in the produce section (not the flower section) of the grocery store or plant nursery. Be sure that they have not been treated with pesticides of any kind. Edible plants include hibiscus (flowers and leaves), nasturtium (flowers and leaves), rose petals, violets (flowers and leaves), and geraniums.

Fruits are treats! Offer small amounts of raisins, grapes, apples, oranges, pears, peaches, plums, nectarines, melons, strawberries, raspberries, bananas, mangos, kiwi fruit, or papaya.

No more than 5% of the diet should consist of high protein foods such as low-fat dog food, monkey chow, cooked egg (including shells), or baby mice ("pinkies").

Remember, a mixture of vegetables and fruits is important. When fed in excess, vegetables such as broccoli, Brussels sprout, kale, cabbage, cauliflower, and bok choy can cause hypothyroidism (a thyroid deficiency). Spinach, rhubarb, beets, and chards are high in oxalic acid and may cause gout over a period of time. Additionally, these foods bind calcium, preventing the body from utilizing dietary calcium.

## **Salmonella**

Any reptile may be carrying salmonella, even when they are perfectly healthy. Many reptiles are persistently infected. This means that they harbor the bacteria in their body at all times, and shed the bacteria into the environment when stressed. The most common sources of stress are inappropriate habitats and poor diet.

It is safest to assume that your reptile is always shedding salmonella. Always wash your hands after handling. It is especially important to supervise small children. Children and immunocompromised individuals are at most risk for serious illness from Salmonella infection.

## **Health Concerns**

Observe your tortoise's appearance and behavior closely to learn what is normal for her. Unusual behavior or changes in normal habits can be a sign of disease. Watch for non-specific signs of disease such as reluctance to eat, listlessness, weight loss, or abnormal/runny stool. If you notice any of the above, please call us.

**Metabolic bone disease (MBD)** - This is a condition that has more than one cause. Tortoises that do not get enough UVB light or have little calcium in their diet are predisposed. When MBD is advanced, the turtle's bones break easily and the result can be many painful fractures.

**Shell rot** - A tortoise's shell is primarily composed of bone. Shell rot occurs when the bone becomes infected and can be a very serious problem. Enclosures that are constantly damp or wet predispose a tortoise to shell rot. If you ever notice a portion of your turtle's shell becoming soft, call us right away for an appointment.

**Hypovitaminosis A** - Your tortoise will not have this problem if you supplement her diet with a multivitamin and mineral powder. Sprinkle your tortoise's food once or twice a week. Feed plenty of romaine lettuce which is high in vitamin A. If your tortoise's eyes appear swollen, he may need a vitamin A injection. Please call us if you notice swollen or shut eyes in your tortoise.

**Respiratory infections** - Unfortunately, respiratory infections, including pneumonia, are common in tortoises. Watch for these signs: bubbly nose, open-mouth breathing, or bubbly mucus at mouth edges. Call us right away if you notice any of the above. The sooner we can diagnose and treat a respiratory infection, the better our chances of success.

## **Preventive Care**

We recommend a yearly checkup for your adult tortoise and twice-yearly exams for juveniles. Signs of disease can be subtle and if we catch a problem sooner rather than later, we will have a better chance of successful treatment. At your pet's annual exam, we will check her eyes, ears, nose, beak, mouth, shell, limbs, cloaca, and general body condition including weight and shell appearance. We will also discuss with you any new information we have regarding tortoise care. Each year there are advancements in the preventive health of these "exotic" animals!