

BSAVA Factsheet for Owners:

Tortoises

This factsheet has been prepared to help you understand the care requirements of tortoises. The information here is a general guideline for ensuring the optimum welfare and wellbeing of *Testudo* species of tortoise. It is advisable that you read this information before taking on the responsibility of owning a tortoise so that you are aware of their requirements, such as for housing, nutrition, handling, routine and veterinary care. Whilst this factsheet details a broad range of information, please speak to your vet if you have any further questions. Always research tortoise ownership thoroughly, specifically the *Testudo* species you intend to own, to make sure you can provide them with the best care throughout their lives.

The most common species of tortoise kept in the UK is the Hermann's tortoise. However, there are several species available to potential reptile owners, such as Marginated, Horsfield, Spur-thighed and Western Dwarf Hermann's tortoises (all *Testudo* species). Taking on a tortoise is a lifelong commitment, with most tortoises in ideal conditions living between 50 and 100 years old.

Housing

Size

Tortoises can thrive when they have access to both indoor and outdoor spaces. An indoor enclosure can either be a wooden vivarium or a tortoise table. It may be easier to control the humidity and temperature gradients in an open topped tortoise table than inside a vivarium. If using a vivarium, ensure there is adequate ventilation. For either type of enclosure, a recommended minimum size is five times the length of your pet in both length and width.



There should be adequate floor space for the tortoise to navigate furnishings, move around comfortably and prevent overturning; the larger the space you can provide for your tortoise the better.

Take advantage of suitable weather conditions whenever possible to allow your tortoise time in an outdoor enclosure. Outdoor accommodation should be escape-proof and allow the tortoise to take advantage of natural light, so a sunny area is ideal. Access to edible, non-toxic weeds and flowers is ideal in order to allow them to graze. A soil or sand area can be included for digging. To make sure that the outdoor enclosure is safe from predators, such as foxes and large birds, it should have a mesh lid for protection.

Heating and lighting

Tortoises require UVA and UVB lighting to aid the absorption of calcium in their diet and to synthesize vitamin D3. A UVA and UVB mercury vapour or metal halide basking lamp should be used to provide light and heat and should be left on for 10 to 12 hours per day. Place the light source at one end above the tortoise table or within the vivarium, so that your pet can choose where they are most comfortable within the heat gradient: ideally around 20°C at the cool end and 32°C at the hot end. To mimic their natural desert environment, a night temperature of around 18°C is appropriate. Digital thermometers should be placed at each end of the enclosure to monitor the heat gradient and the intensity of the heat source should be controlled by a thermostat. Ensure that the basking lamp is suspended far enough from the enclosure floor to prevent burns and avoid placing furnishings under the lamp, to prevent your tortoise from overturning underneath the heat source. The bulb should be checked and replaced regularly as UV output will decrease over time. A Solarmeter® can be useful to measure the UV intensity within the enclosure; *Testudo* species of tortoises require a UVI (ultraviolet index) gradient →

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between 0 (full shade) and 9.5 across the enclosure. The maximum UVI depends on whether your species of tortoise is a partial sun basker or a mid-day sun basker. Hermann's (*Testudo hermanni*), Egyptian (*Testudo kleinmanni*) and Greek spur-thighed (*Testudo graeca*) tortoises, for example, are partial sun baskers. Their maximum UVI in a basking spot is 7.4. Marginated (*Testudo marginata*) tortoises are mid-day sun baskers and their maximum UVI is 9.5. Time spent outside in the summer will provide tortoises with the heat and light they require. It is very important to research the UV requirements of your particular species of tortoise.

Humidity

Air humidity of around 50 to 60% is ideal (with younger animals requiring slightly higher humidity) and this can be monitored by placing a hygrometer inside the enclosure. Practices such as spraying the enclosure with water, having an area of damp sphagnum moss and including a shallow water bowl will increase the humidity if required.

Substrate

Substrate is the material used to cover the floor of your pet's vivarium. Indoor enclosures can use tortoise soil mixtures or coconut fibre 'coir', which promote natural digging behaviours. These substances are safe if ingested, although feeding in a shallow bowl or on a piece of slate is recommended to prevent the excess ingestion of substrate. Substrate should be checked daily and spot cleaned when required. Deeper cleans, where the substrate is completely changed, should be performed every 2 to 3 weeks to prevent the substrate becoming too wet or heavily soiled. Tortoise bark, an alternative wood-chip substrate, is also available. Again, attention should be paid to reducing substrate ingestion when providing food.

Furnishings

Tortoises should have an area of their enclosure where they can hide and feel secure. Hides should take into account the size of the tortoise and their ability to move about and turn around inside. Tortoise tables usually come with a hide area built in, but hiding spaces can be provided using plant pots, tunnels and wooden houses. Hides should be provided in both indoor and outdoor enclosures. The use of different tortoise-safe substrates will provide variety and encourage natural behaviours. A shallow water bowl to drink from should always be available, and a larger, shallow water bath can also be provided.

Feeding

Tortoises are herbivores and need to be fed a balanced diet that has appropriate amounts of plant-based protein, is high in slowly digestible carbohydrates and low in fermented sugars. The exact composition will vary depending on the species of tortoise you keep, so it is essential that you research the correct diet for your tortoise. Commercial tortoise feeds are available in the form of pellets and should be fed as part of a balanced diet. A particularly important dietary factor to consider is whether they are getting enough calcium. Both young and mature tortoises should be fed daily and, ideally, in the morning so that they digest their food whilst basking during the day. Any uneaten food should be removed at the end of the day to prevent spoilage.



Plant material

A variety of weeds and flowers should form the main part of the diet, including dandelions, sow thistle, clover, pea leaves, watercress, plantain, chickweed, pansies, honeysuckle and alfalfa. Shop bought salad items, such as lettuce and cucumber, have a lower nutritional value and higher water content and should be fed sparingly. Fruit should be a very small part of a *Testudo* tortoise's diet, as these are high in sugars. It is important to research the plant material that is harmful to tortoises to avoid feeding anything that is detrimental and to avoid including toxic species in outdoor enclosures.

Supplements

A calcium supplement (which does not contain phosphorus) should be added to a tortoise's food every day. Calcium powder that has been specifically formulated for reptiles is available. Plenty of access to UVB light is required to allow natural vitamin D3 production to absorb calcium efficiently (see above). Tortoises may enjoy chewing on a cuttlefish bone to increase their calcium intake.

Water

Clean, fresh water should be supplied daily. The dish should be deep enough for your pet to submerge their nose and mouth in order to create suction to drink. Water should be replaced at least daily and as soon as it is soiled. Tortoises should be bathed regularly to maintain health and hygiene and also to improve hydration. If space does not allow for a large, shallow water bath, then this can be done with tepid water in a bath or sink.

Life stage feeding

Young, growing tortoises will have a higher calcium requirement than mature animals. This requirement can be met by ensuring a slightly higher dusting of calcium supplement is included in the diet. Ensure that any vegetable pieces are small enough for consumption.

Handling

Tortoises should be handled with care and respect. Hold them firmly with two hands, positioned either side of the shell. Tortoises can be surprisingly strong and may wriggle, so be sure to hold them securely (this is especially important if they are wet after bathing). When placing them in a new area for exercise, ensure that the space is free ➡

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from obstacles that may restrict their movement or overturn them (such as abrupt level changes).

Children should always be supervised when handling tortoises, and handling should occur away from any other pets. Always ensure that your hands are clean before picking up your pet, and that hands are washed well after any handling. If your tortoise needs to be transported, such as to the vet, ensure that this is done safely. Tortoises can be carried in a ventilated plastic or secure cardboard container lined with paper. Keep the time your pet is in transit to a minimum to reduce stress or excess changes in temperature.

Brumation

Tortoises do not technically hibernate; mammals hibernate, whereas reptiles brumate. Brumation is similar to hibernation in that it is a natural part of the life cycle of *Testudo* species of tortoise, where growth and movement is slowed down during cooler periods. There is evidence that actively brumating a *Testudo* species of tortoise during cooler months in the UK may have health benefits for captive tortoises. Careful research into how to care for brumating *Testudo* tortoises should be undertaken so as to reduce any health risks; consider speaking to a vet who specializes in reptiles before undertaking brumation.

Older pets

Tortoises are known to live for a long time, with many species living around 100 years. It is important to pay attention to the changing needs of elderly tortoises, to ensure that their later years are happy and healthy.

Feeding

The feeding of older tortoises should not be much different from other life stages. However, as animals age they may eat less, so monitoring your pet's weight and condition is important. Older tortoises may require vegetables to be grated and larger leaves to be torn up if they find chewing more difficult. An older tortoise's calcium requirements will not be as high as at other life stages, so avoid overprovision of calcium supplements.

Environment

A stress-free environment is even more important for senior reptiles. Older animals are more susceptible to stress, so ensure there are no factors that could cause any pain or discomfort. Make everything in their vivarium easily navigable to prevent overturning, especially under heat sources. Water bowls should be easy to access. Basking temperatures should be kept high to ensure an optimal core temperature. The more time your pet can be in natural light (i.e. outdoors in warm weather), the better. Handling times should be kept to a minimum for older tortoises, and handling by inexperienced or young people should be avoided, as senior bodies will be more fragile.

Veterinary checks

As tortoises age, they may become more prone to health problems that require medical attention. It is important to have a check up with a vet, particularly a vet who specializes

in reptiles. If you notice any concerning changes in your pet's behaviour, appearance or eating habits, it is advisable to have your pet seen by a vet who can identify whether any changes to their care needs or medical treatment is required.

How to medicate

Medication will likely be administered directly by your vet. Your vet will advise on how to administer any medication at home. It is important to monitor your pet's response to the medication and inform your vet if you have any concerns. Follow any storage and disposal instructions that come with any medication.

Parasite control

You can reduce the risk of your pet getting internal or external parasites in several ways:

- Submit a faecal sample to your vet for a parasite check when first taking on responsibility for your pet
- Ensure no organic material is introduced to the vivarium without being thoroughly disinfected first
- Remove any uneaten food at the end of each day
- Keep water sources free from food debris and faeces and provide fresh water daily
- Remove faeces from the enclosure promptly and keep substrate clean
- Regularly disinfect the enclosure and contents with a pet-safe disinfectant
- Ensure your hands, and those of others, are clean before handling your pet
- Monitor the external appearance of your pet regularly for external parasites
- Ensuring that your tortoise is bathed regularly.

If you do notice anything that is of concern, speak to your vet and ensure that your pet has a check-up.

Calcium deficiencies

Captive reptiles can suffer from a common disease called metabolic bone disease (MBD), which describes a range of nutritional illnesses, often due to a lack of UVB lighting. This results in a vitamin D3 deficiency, which prevents reptiles from absorbing calcium in food. Clinical signs include lethargy, muscle weakness, swollen or bowing of the legs, a flat or soft shell, abnormal beak growth or softening of the jaw. It is therefore essential that your pet →



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receives the correct lighting, nutrition and supplementation to avoid MBD, and careful research should be done to ensure the health and wellbeing of your pet. Speak to your vet for further advice or if you have any concerns.

What is an emergency?

There are several signs that may indicate that your tortoise requires medical attention from a vet. It is very important that you are familiar with your animal's normal behaviour, to have the best indication of when this changes and when they may not be well. Be aware that the act of brumation (see above), where a tortoise naturally slows down their metabolism, eats less and are less active, occurs in response to colder weather. This may occur in captivity and your pet's body condition, weight and behaviour should be monitored.

If you notice any of the following signs, seek veterinary advice:

- Loss of appetite and weight loss: if your tortoise suddenly stops eating and shows a significant decrease in weight and/or body condition, or vomits, this may indicate a health problem

- Respiratory distress: signs of respiratory distress include open mouth breathing, wheezing or gurgling noises. This could be indicative of a respiratory infection or a respiratory condition
- Abnormal faeces: any significant changes in the appearance or frequency of droppings could be a sign of internal parasites or other underlying health condition
- Neurological clinical signs: tremors, weakness, drooping of the head or limbs, or loss of coordination can be signs of neurological conditions.

Further information

This leaflet is purely a guide for the basic care and welfare of tortoises. It is essential to research any animal species thoroughly before committing to their ownership and care. Always speak to a veterinary professional if you have any questions or concerns.