

AFRICAN PYGMY HEDGEHOGS – CARE AND TREATMENT ADVICE

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AFRICAN pygmy hedgehogs (*Atelerix albiventris*) are members of the order Insectivora and are unusual, but becoming increasingly popular pets in Europe, North America and some Asian countries ([Figure 1](#)).

This is probably because of their small size, tractable nature and relative ease of care. They can make entertaining, interactive pets if handled from a young age, and can live between three to six years if looked after correctly.

African pygmy hedgehogs are native to western and central Africa, where they are found in rock crevices and burrows, coming out at night to forage. They are able to climb, dig and swim (Johnson, 2010).

They are solitary, nocturnal animals that do not hibernate as opposed to other hedgehog species, but will instead enter a state of torpor under extreme weather conditions (for example, temperatures below 18°C), only re-emerging when the conditions are ideal (Johnson, 2010). However, it is not recommended to recreate this stressor in captivity to avoid reducing their metabolism and increasing the susceptibility to infections (Dierenfeld, 2009).

All hedgehog species perform “self-anointing”, whereby they hypersalivate to groom and maintain the condition of their spines, often leaving large clumps of frothy saliva on their bodies and bedding ([Figure 2](#)).

Captive housing requirements

Hedgehogs have poor eyesight, but a good sense of smell and hearing. They rely on olfactory and auditory cues for food location, predator detection, orientation, sexual and maternal behaviour, and communication (Johnson, 2011).

Hedgehogs should be housed individually as fighting is common – especially between males. They do not tolerate loud noises or bright light, therefore their environment should be dim and as quiet as possible.

Hedgehogs should be housed in a large glass or plastic tank with good ventilation and a deep layer of soft, absorbent bedding (for example, shredded paper or untreated wood shavings, not sawdust). The cage should be placed out of direct sunlight to avoid extremes of temperature as this may cause heat stroke or induce torpor. Temperatures should, therefore, be preferentially maintained between 24°C to 30°C with a 12 hours light/dark cycle.

Enclosures should have as large a floor space as possible, with nest boxes, branches and a solid walled exercise wheel.

Supervised exercise within a confined area in the house is also encouraged, but it is important to prevent access to anything that could be chewed, eaten or destroyed. Hedgehogs may be litter trained, but are generally very messy animals and the enclosure will need frequent cleaning to help prevent disease.

Diet

Hedgehogs are monogastric insectivores and opportunistic omnivores, and would naturally eat a variety of insects in the wild, as well as arachnids, worms, slugs, snails, small vertebrates, eggs and fruit, depending on food availability (Dierenfeld, 2009).

Although their nutritional requirements are not known, it is recommended in captivity to feed a balanced commercial hedgehog pelleted diet or low fat dog or cat food ([Figure 3](#)), as well as a dry or semimoist insectivore diet supplemented with a mix of insects (earthworms, mealworms, crickets) and a small amount of fruits and vegetables.

Treats may include hardboiled or scrambled eggs, pinky mice or human baby food (vegetable or meat), while dairy products should be avoided. Additional vitamin and mineral supplementation should be applied to any insects given.

It is important to remember hedgehogs have a simple digestive tract, with no clear distinction between the small and large intestine and no caecum; therefore, they are thought to have limited capacity to ferment plant cell wall constituent (Stevens, 1990).

Obesity is a common problem in captive hedgehogs, so it is important to limit food amounts, feeding only at night and removing any uneaten food in the early morning. Soft dietary ingredients can also predispose to teeth and gum problems.

Handling

A complete, thorough physical examination ([Table 1](#)) of these small spiny creatures is often a challenge because they are shy and curl up into a ball when threatened ([Figure 4](#)). Light leather or gardening gloves may be used to handle hedgehogs, although their spines will only cause minor discomfort to the handler.

Tame hedgehogs may occasionally tolerate being held by the “scruff” (ensure skin and spines are grasped) or cupped in the hands. A towel or gloves may be useful and minimal handling is required in tame animals.

If hedgehogs are unaccustomed to handling or nervous, an initial “hands-off” observation may be useful to detect abnormalities. In some cases, a clear container may be used to inspect the animal from below ([Figure 5](#)). Alternatively, the hedgehog can be placed on a wire mesh, which can also allow trimming of the nails. Lightly stroking along the spine may encourage it to unroll ([Figure 6](#)), allowing the handler to gently grasp and extend the hindlimbs in a “wheelbarrow” fashion ([Figure 7](#)).

In the majority of cases, anaesthesia is required for more extensive examination, diagnostic tests and sample collection ([Figure 8](#)). A thorough examination should include assessment of the oral cavity and mucous membranes ([Figure 9](#)), auscultation of the chest, abdominal palpation, inspection of the skin and spines, reproductive organs and, finally, limbs and feet.

Veterinary care

Despite increasingly more published literature of hedgehog diseases, there is still uncertainty in their processes (Graesser et al, 2006; Ivey and Carpenter, 2012). This species is susceptible to various health issues, many of which are similar to those encountered in other domestic animals, such as fatty liver disease, gastritis and neoplasia. However, new diseases are becoming apparent, warranting further studies to tailor specific treatments.

Neoplastic disease, hepatic lipidosis and renal disease are common necropsy findings in hedgehogs (Raymond and White, 1999). Pneumonia was reported in 14 per cent of examined hedgehogs in the same retrospective study. Cardiomyopathy has also been well documented and is considered the most common cardiac disease in this species, with a reported incidence of 40 per cent – especially in geriatric males (Raymond and Garner, 2000).

Diet, toxins, stress, obesity and genetic factors have all been considered possible causes of cardiovascular disease in the hedgehog (Heatley, 2009). Black et al (2011) established cardiac parameter reference including electrocardiography, echocardiography and radiographic measurements for adult healthy African hedgehogs.

The first case of valvular endocardiosis leading to congestive heart failure has been reported (Hedley et al, 2013). Hindlimb weakness, ataxia or progressive paresis are commonly reported clinical signs, which are frequently caused by trauma, infectious diseases, demyelinating disease

(“wobbly hedgehog syndrome”) or CNS involvement due, for example, to metastatic disease (Graesser et al, 2006; Evans and Souza, 2010; Ivey and Carpenter, 2012).

Neoplasia is an exceedingly common finding in African pygmy hedgehogs. In a study of spontaneous neoplasms in captive African pygmy hedgehogs, 53 per cent of animals had tumours and 80 per cent of these were classified as malignant. Affected individuals were generally 3.5 years old (median age at diagnosis) and unmated (Raymond and Garner, 2001). After epithelial and round cell tumours, mesenchymal tumours were the third most common type documented.

Studies also suggested usually less than 10 per cent of hedgehogs diagnosed with neoplasia have more than one tumour type (Raymond and White, 1999; Heatley et al, 2005). It was found integumentary, digestive and endocrine systems were more commonly affected (Raymond and Garner, 2001).

In a similar study, the prevalence of neoplastic processes at necropsy was found to be between 23 per cent and 53 per cent, with up to 85 per cent of the reported tumours being malignant (Raymond and White, 1999).

Common techniques

Drug administration

Injectable medications may be given subcutaneously or intramuscularly, even when the hedgehog is rolled up. Oral treatments can be challenging to administer to hedgehogs, but thick gardening gloves may be required to prevent some patients rolling up completely. Some noxious-tasting substances may lead to hypersalivating reactions.

Venipuncture

The lateral and medial saphenous vein, cephalic, jugular and femoral vein are all possible sites for venipuncture. The cranial vena cava is the preferred site as larger volumes of blood can be collected. A short, small gauge (25G or 27G) needle, inserted on a 1ml or 2.5ml syringe, is inserted at the notch between the sternum and the first rib, and directed caudally towards the opposite hip with a 30° angle ([Figure 8](#)).

Fluid therapy

Up to 100ml/kg of fluids can be administered beneath the mantle (lateral margin where the spines end and the muscle is to roll up), split in several sites. Hyaluronidase can be added to subcutaneous fluids to enhance the permeation through the tissues for more rapid availability to the patient.

Intravenous catheters may be placed into the lateral saphenous or jugular vein, but pose a challenge due to their small size – especially in dehydrated or collapsed patients. In these cases an intraosseous catheter may be placed instead in the proximal tibia or femur.

Nutritional therapy

Oxbow Animal Health Carnivore Care or Lafeber's Emerald Nutritional care systems Omnivore diets, available in the UK, can be used in hedgehogs requiring assisted feeding.

Anaesthesia

An induction chamber can be used for rapid and safe induction of anaesthesia, with volatile agents such as isoflurane or sevoflurane ([Figure 5](#)). A face mask can then be used for maintenance, but endotracheal (ET) intubation with a 1mm to 1.5mm uncuffed ET tube is possible and allows a safer and more controlled anaesthesia.

Anaesthesia is invariably required for procedures such as radiography (the spines may hinder imaging interpretation, especially on the dorsoventral view) and venipuncture.

Zoonotic risk

Zoonotic pathogens reportedly transmitted from African pygmy hedgehogs to humans include pathogenic dermatophytes (*Trichophyton mentagrophytes* var *erinacei*, *Microsporum* species) and *Salmonella* species (Rosen, 2000; Souza, 2009).

Fatal intestinal cryptosporidiosis of unknown source was reported in a neonatal captive African hedgehog, and for the first time in a hedgehog species (Graczyk et al, 1998).

- Please note some drugs mentioned within this article are not licensed for use in hedgehogs and are used under the cascade.

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Figure 1. African pygmy hedgehogs (*Atelerix albiventris*) are members of the order Insectivora and are unusual, but becoming increasingly popular pets.





Figure 2. A European hedgehog self-anointing. Animals are seen hypersalivating to groom and maintain the condition of their spines, often leaving large clumps of frothy saliva on their bodies and bedding.



Figure 3. The recommended diet in captivity includes a balanced commercial hedgehog pelleted

diet, or low fat dog or cat food.



Figure 4. African hedgehogs are shy animals and curl up into a ball when threatened.



Figure 5. In some cases, a clear container may be used to inspect the animal from below for an

initial “hands-off” observation.



Figure 6. Lightly stroking along the spine may encourage the hedgehog to unroll.



Figure 7. Gently grasping and extending the hindlimbs in a “wheelbarrow” fashion allows the handler to perform a more complete examination.



Figure 8. In the large majority of cases, anaesthesia is required for more extensive assessment, diagnostic tests and/or sample collection. A blood sample is being taken from the cranial vena cava in an anaesthetised patient.



Figure 9. A thorough examination should also include assessment of the oral cavity and mucous membranes.

Respiratory rate	25bpm to 50bpm
Respiratory rate (if allowed to hibernate)	1bpm to 8bpm
Heart rate	180bpm to 280bpm
Heart rate (if allowed to hibernate)	3bpm to 20bpm
Body temperature	36°C to 37.4°C
Life span	Four to six average
Bodyweight	400gr to 600gr (male) 300gr to 400gr (female)
Gestation	34 days to 37 days
Modified from Ivey and Carpenter, 2012.	

Table 1. Physiologic data for African pygmy hedgehogs