



LET'S TALK ABOUT

METABOLIC BONE DISEASE

A TENREC CARE GUIDE

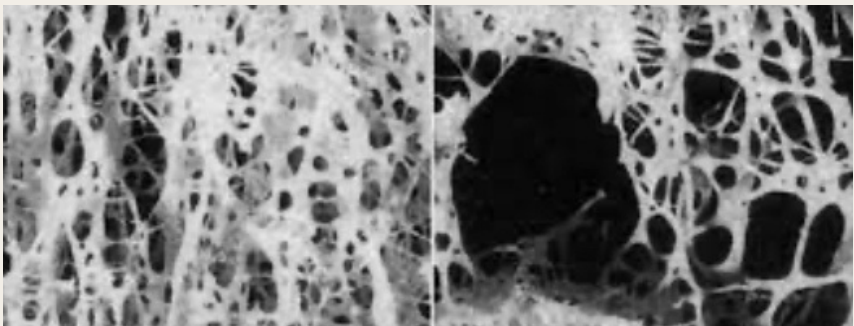
By Happy Quills

WWW.HAPPYQUILLSRESCUEANDREHOMING.CO.UK

METABOLIC BONE DISEASE (MBD) IN THE LESSER HEDGEHOG TENREC

Metabolic Bone Disease (MBD) can refer to several bone disorders, such as osteoporosis, osteomalacia (rickets) and hyperparathyroidism. These conditions can cause weakened bone, loss of bone, frequent fractures or bone growth. Most of these are caused by abnormalities of minerals such as calcium, phosphorus and vitamin D although there can be other causes (such as liver or kidney diseases) and it is not as simple as only a calcium deficiency. Many animals can get MBD but lesser hedgehog tenrecs (*E. telfairi*) seem particularly susceptible. If left untreated, MBD can cripple an animal and even lead to death.

In lesser hedgehog tenrecs MBD seems to be mainly caused by a lack of calcium and/or vitamin D or excess phosphorus. In other words, an unbalanced calcium and phosphorus ratio (Ca:P). Ideally, this ratio should be around 2:1 (two parts calcium and one part phosphorus). The body needs phosphorus because it helps absorb calcium - but excess phosphorus binds calcium and impairs its absorption by the intestines. If calcium levels are too low the body can react by taking calcium that's already present in the body, for example from the bones and teeth thus weakening them. Calcium also impacts several other functions such as muscle contraction and blood clotting. This process can lead to diseases like MBD and tooth decay, also commonly seen in this species. Vitamin D is vital to calcium metabolism. This means just providing the correct amounts of calcium and phosphorus to the diet is not enough! In order to absorb calcium, the body needs vitamin D. There are five forms of vitamin D but D3 is the most beneficial. The body absorbs UVB from the sun and turns it into usable vitamin D. Some animals like certain reptile species almost solely rely on the sun for their vitamin D intake. While lesser hedgehog tenrecs are thought to be primarily nocturnal, captive animals seem to enjoy basking under UVB light and there are reports of wild lesser hedgehog tenrecs basking in the afternoon sun. Tenrecs need a UVB light during the day to prevent MBD. A UVB shade dweller Arcadia mini is recommended for up to four hours each day.



Example of MBD in bones

Very little is known about the lesser hedgehog tenrec, including their nutritional requirements. We do not know the amounts of calcium and UVB they need or how their bodies process it. In captivity their diet often consists of live insects and a minor amount of kibble, meat and fruit/vegetables. Many tenrecs lean towards (live) insects and it can be difficult to persuade them into eating a more varied and nutritionally balanced diet. On top of that, most feeder insects have a very imbalanced Ca:P ratio. This means lesser hedgehog tenrecs are at a higher risk of developing MBD and related diseases if we do not supplement them with the much needed calcium and vitamin D.

How to prevent MBD

So to ensure your lesser hedgehog tenrec will stay strong and healthy you will have to:

- Feed a diet which is as varied as possible (live insects, meat, eggs, cat kibble, fruit and vegetables)
- Add a calcium supplement to the food (or water) ~ 2 times a week*
- Add a calcium + vitamin D3 supplement ~ once a week**
- Add an UVB basking light to the enclosure

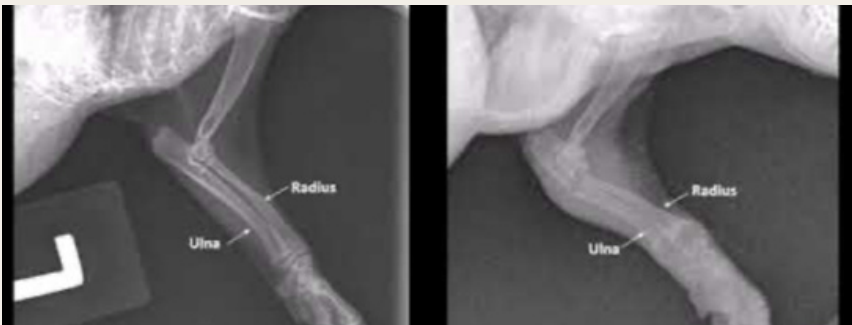
Calcium supplements are especially important for pregnant and nursing females! Powder can be used to dust the feeder insects, liquid calcium drops can be used in drinking water.

* Because nutritional requirements are unknown, the amount of calcium we have to add to the diet is based on trial and error. So far, two times a week seems to work well for most owners. Calcium can be overdosed so don't supplement too much.

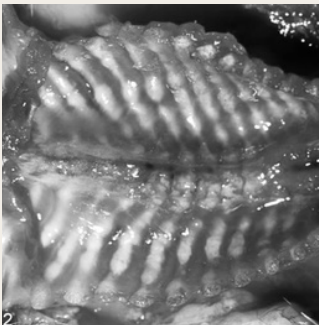
Calcium deficiencies are way more common than an overdose but it is still a risk.

** Vitamin D can be overdosed as well so don't overuse it (especially when combining supplements with an UVB basking light)

Other ways to increase calcium levels are to add Zolcal liquid calcium to their water and add a cuttlefish into their enclosure to nibble on.



THE ABOVE SHOWS HEALTHY LEG BONES COMPARED TO THOSE WITH MBD



THE IMAGE TO THE LEFT SHOWS MULTIFOCAL THICKENING OF THE RIB BONES CAUSED BY MBD