

Emergency Treatment for MBD

Get calcium into the squirrel IMMEDIATELY, not later, not tomorrow, NOW. Delaying treatment can cause death or permanent paralysis.

You will need:

- Tums, rolaid, or calcium supplement (any kind)
- a syringe or spoon

Crush one pill and add a little water or fruit juice to make a toothpaste consistency. Use a syringe or spoon to force-feed the mixture.

After you give the initial dose of calcium, give 100 mg every 4 hours (50 mg for smaller squirrels such as red squirrels, flyers, or juveniles less than 12 weeks old). The first day, getting calcium dosed quickly is more important than the type of calcium or amount. See the "Long-Term Treatment for MBD" for dosage instructions going forward.

Dosage Methods

The easiest way to dose calcium longer term is to mix it with a small amount of peanut butter, crushed nuts, yogurt, baby food, or any food the squirrel likes. This way you don't have to continue to force-feed the calcium, which stresses the squirrel.

Example: If you mix 500 mg of calcium powder with 1/2 teaspoon of peanut butter and roll it into 5 little balls, each ball will contain 100 mg calcium. You can also mix the calcium with formula or fruit juice which can be licked from a syringe or spoon. You might need to experiment to find what works best for your squirrel.

What to Watch For

Your squirrel's symptoms should improve within a few hours. Within 1-3 days your squirrel should be alert, active, and eating, with no seizures or paralysis. (Squirrels older than 5 years may take longer to respond.) If your squirrel has no response within a day or so, he may have a spinal injury due to his weak bones, which may cause permanent paralysis. It is common for squirrels with MBD to have broken bones, especially in the legs and spine.

Important!

Any kind of calcium pill is okay for the first dose, and you can use Tums for a few days, but long-term it's best to use plain calcium carbonate (without Vit D).

The acute symptoms (weakness, loss of appetite, lethargy, seizures, paralysis) will usually improve within a few hours or days, but this does not mean the squirrel is cured. It will take months to rebuild the calcium in the bones. (See the "Long-Term Treatment for MBD" below)

More Tips

MBD causes brittle bones that break easily. You should pad the bottom of your squirrel's cage and keep him away from high places, where he might jump and break a bone.

Heat is soothing for a squirrel with MBD. Use a heating pad on "low" (make sure he can't chew the pad or cord) or a rice buddy (a sock filled with dry rice/beans, microwaved for about 20 seconds).

Long-Term Treatment for MBD

The next step to curing MBD is to fix the diet.

1. Remove ALL seeds, nuts, corn, and treats, including stashes.
2. Follow the Healthy Diet For Pet Squirrels, which can be found here: <http://www.henryspets.com/healthy-diet-for-pet-squirrels/>. Your squirrel MUST eat blocks every day (either 2 Henry's Healthy Blocks per day, or a small handful of rodent block per day).

Calcium Dosage

Starting on the second day, most squirrels will need 500 mg calcium per day (250 mg for flyers, etc.). Keep notes on how much calcium you give so you can adjust the dosage if needed.

The goal is to give enough calcium to eliminate all symptoms, but not so much that your squirrel is excreting extra calcium in his urine or feces.

- If your squirrel is still having symptoms or is having “ups and downs” during the day, you may need to increase the dosage. Or you can try giving smaller doses more often.
- White feces or a white film on dried urine may mean the dosage can be reduced. Giving smaller doses more often can also help with this, as smaller more frequent doses are better absorbed.

Every case is different, so it's best to work with someone knowledgeable about MBD when adjusting the dosage.

Note: Once your squirrel begins eating Henry's blocks, you should cut his calcium dosage in half because Henry's blocks also contain calcium.

How to Gradually Reduce the Dosage Over Time

Once you have figured out the best dosage schedule for your squirrel, he is eating Henry's blocks every day, and he remains stable for 2 weeks, you can reduce the total daily amount of calcium by 50 mg. Continue reducing the dosage every 2 weeks until the squirrel is only getting 100 mg of extra calcium per day.

If at any time symptoms return, give an emergency 100 mg dose, then go back to a higher dosage for 2 weeks. Be careful with dosage reductions; watch for any return of symptoms. Relapses are very serious and often fatal.

Note: The MBD treatment is a "standardized" treatment that will get most cases on the road to recovery. However, the treatment for each squirrel may be slightly different, depending on the age of the squirrel, severity of disease, and other factors, and you should work with a rehabber or other experienced person to tailor the treatment to your squirrel's needs. There is a limit to how much calcium the body can absorb at one time, so lower doses of calcium given more often is the key with severe cases.

What is MBD?

Calcium is a very important nutrient. It strengthens the bones, but also plays a vital role in all body functions. Every cell in the body contains water plus small amounts of dissolved minerals such as calcium, sodium, magnesium, and potassium. The minerals allow cells to transmit small electrical signals. Without this cell-to-cell communication, the organs can't function: your heart can't beat, your nerves can't transmit impulses, and eventually you die.

When there isn't enough calcium in the diet, the body will take calcium from the bones and use that instead. This eventually causes the bones to become depleted of calcium. Eventually there isn't enough calcium left in the bones to maintain sufficient calcium in the cellular fluids, and the organs can't function properly. This is what causes the symptoms of MBD: loss of appetite, lethargy, muscle pain, paralysis, seizures, and eventually death. Humans don't get this type of acute MBD, partly because our daily calcium requirement is much lower relative to our body size, and also because our bones are much bigger, allowing us to store more calcium. However, over time our bones can also become depleted of calcium, leading to chronic conditions such as osteoporosis.

By giving calcium orally, you are artificially maintaining your squirrel's blood calcium levels because his bones no longer contain enough calcium to maintain his calcium levels normally.

Once the emergency calcium is given, your squirrel's blood calcium levels should normalize fairly quickly. He should "bounce back" and act normal or almost normal. If you are still seeing symptoms such as seizures, loss of appetite, lethargy, or paralysis, the calcium levels may still be too low. This means the body will try to pull the remaining calcium from the bones, which means the MBD is actually getting worse. This is why it's important to get the dosage just right. However, if your squirrel is feeling better but still paralyzed, he may have a spinal injury due to his weak bones. Also, note that older squirrels may respond more slowly.

The next step to actually curing the MBD is rebuilding bone. This requires a balanced diet including all the important nutrients, working together with the extra calcium to rebuild bone. It has been shown in x-rays that squirrels do begin to rebuild bone quickly.

The most common age of onset of MBD is around 1-2 years old. However, MBD can appear at any age, from 8 weeks to 10 years of age.

Risk Factors for MBD

1. Non-recommended formulas such as scalded milk, human baby formula, kitten formula, etc. Babies raised on Fox Valley Formula from 5 weeks to weaning never seem to get MBD.
2. Weaned too early.
3. Weaned onto a diet that does not contain blocks.