

# F.E. Dreifuss Comprehensive Epilepsy Program Department of Neurology

# **BONE HEALTH AND EPILEPSY**

#### What does bone health have to do with my epilepsy?

Epilepsy and its treatment are associated with lower bone density which can lead to weaker bones (osteopenia or osteoporosis). Fractures occur 2 to 6 times more commonly in people with epilepsy.

## How is bone mineral density measured?

"Dual energy x-ray absorptiometry", commonly referred as a DEXA scan, is the most common method.

# Should my bone mineral density be tested?

There are no specific recommendations for people with epilepsy but your physician may consider a DEXA scan if you have a low vitamin D level, have broken bones, or are taking liver enzyme inducing anti-epileptic drugs (AEDs).

# How does epilepsy and its treatment lower bone density?

Reduced mobility, genetic and environmental factors, and AEDs are likely important factors, but the mechanism of lowered bone mineral density is not completely understood.

# Which AEDs can lower bone density?

Vitamin D is critical for maintenance of bone health. AEDs like phenobarbital, primidone, phenytoin, and carbamazepine induce liver enzymes that break down vitamin D. This results in lower vitamin D levels. However, even AEDs that do not induce liver enzymes may still impair bone health, although likely to a lesser degree.

## Should my vitamin D level be checked?

Your physician is likely to consider checking your vitamin D level especially if you take an AED that induces vitamin D breakdown such as phenobarbital, primidone, phenytoin, or carbamazepine.

#### What should I do if my vitamin D level is low?

Your doctor is likely to prescribe large weekly doses of oral vitamin D until the vitamin D level is normal. An alternative approach involves monthly injections of vitamin D until the level is normal. This is followed by daily vitamin D supplementation to keep bones healthy.

## My vitamin D level is normal. Do I still need to take supplemental calcium and vitamin D?

Discuss this with your doctor, but people taking liver enzyme inducing AEDs (phenobarbital, phenytoin, primidone, and carbamazepine) should probably take calcium and vitamin D, even if the level is normal.

# How much vitamin D is recommended for an adult with epilepsy?

The optimal dose of vitamin D for an adult with epilepsy is unknown. A reasonable dose is 2000-4000 IU of vitamin D per day. Adults should also consume 1000-1500 mg of calcium daily. Most preparations that combine calcium and vitamin D do not provide enough vitamin D.

## How much vitamin D is recommended for a child or adolescent with epilepsy?

The optimal dose for children and adolescents with epilepsy is unknown. Milk is an excellent source of calcium and vitamin D. Exposure to sunlight for 20 - 30 minutes per day increases vitamin D levels. A reasonable dose for adolescents is 800 - 2000 IU per day. There is even less data regarding the optimal dose of vitamin D for children less than 10 years old, but a reasonable dose is 400 - 800 IU per day.