



Bone Health & Osteoporosis

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Many people don't realize bone is a very dynamic living tissue continually being formed and resorbed. Factors such as general health, exercise, and diet affect the formation of bone in our younger years. We must have a balanced diet rich in minerals including calcium and Vitamin D as well as enough exercise to build up our bone "bank." By age 20 bones have stopped growing longer in most people, thus we don't get much taller after that. Bone density however can continue to increase until our mid-30's when it's usually at its maximum peak bone mass. Age and gender can affect certain boney areas. For example, in women the peak bone mass in the hips may be reached in the teen years, and in men the peak bone mass of the spine may be reached in the late twenties.

Once we've reached peak bone mass, the bone building and resorption rate begins to shift and we begin to lose bone at a faster rate than it is formed. This starts to occur around our 40's. Age related bone loss occurs about ½ -1% a year. This rate increases significantly in peri-menopausal and post-menopausal women where for the first 5-6 years after menopause a woman can lose 2-5% of her bone density each year. This can be as much as much as 20% of bone loss in this period! By ages 65-70 bone loss in women slows down and the rate of bone loss becomes similar to men again (approximately 1%/year). Statistics note 1 in 2 women and 1 in 4 men will have an osteoporotic fracture in their lifetime.

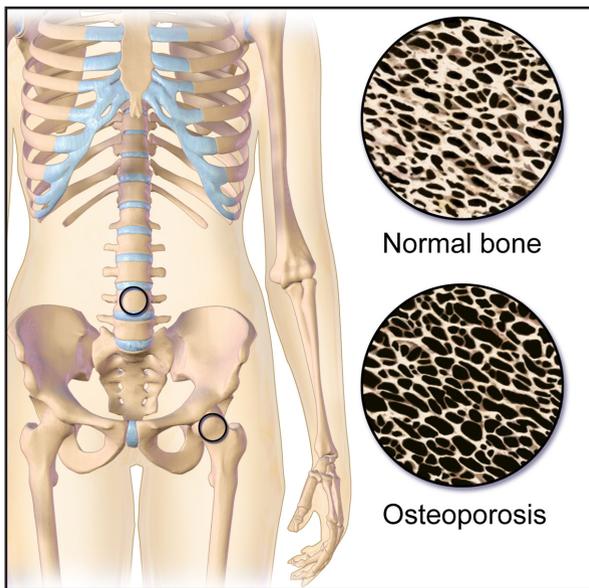
Certain foods, diseases, and medications can affect the body's ability to utilize or absorb calcium from our diet. Not eating a well-balanced diet of course is a factor, but



older people who may not eat enough nutrition-rich foods or young people who are constantly dieting may have problems. High stress, smoking, excessive alcohol, food allergies, and digestive problems that cause malabsorption such as celiac or Crohn's Disease all have an influence. Glands may also over/under produce hormones that impact and regulate blood levels of calcium. When low levels of calcium are present in the blood, the body will rob the bones to replenish the supply, as calcium is also important in nerve conduction and muscle contraction to keep our heart beating among other processes. Thyroxine, insulin, growth hormone, cortisol, estrogen and progesterone, and testosterone can all have an influence on bone formation and resorption. If you have a problem in any of these systems you should discuss your bone health with your physician or the MD may refer you to an endocrinologist.

Medications that impact the digestive system can also affect absorption of nutrients. Vitamin D is necessary for the

absorption of calcium. Recommended daily intake for adults over 50 ranges from 800IU to 2,000IU of Vitamin D. Always discuss supplementing vitamins and minerals with your physician or nutritionist prior to adding to your diet. Vitamins A, K, and phosphorus are all important for bone metabolism but should be provided in a healthy, well-balanced diet.



Drug induced bone loss can come from long periods of low doses of commonly prescribed medications such as Corticosteroids like Prednisone, which are used to treat diseases associated with excessive inflammation. If you have been diagnosed with a chronic illness and are taking a medication such as Prednisone for a prolonged period (more than 3 months) you should also discuss your bone health with your physician. Bone loss on this medication is usually most rapid in the first 6 months of use, so preventative measures should begin immediately if your therapy is expected to go beyond 3 months. Antacids with aluminum can also affect calcium absorption and should be discussed with your physician.

Now that's the bad news, so what can we do about it?? Besides optimizing nutrition and improving awareness of influences of health issues mentioned above, bones respond to weight bearing exercises by getting stronger. The focus for exercise should be to build stronger bones and improve strength and balance to prevent falls. Walking is one of the easiest and best ways to accomplish this. If you have balance issues, weakness in your hips and legs, spinal changes such as a flexed or C-curved upper back, then it may be

appropriate to consult with a physical therapist or qualified fitness professional who can safely get you on track. Exercises that increase torque or spinal flexion pressure are not advised.

The World Health Organization has a Fracture Risk Index (FRAX) where you can assess your fracture risk as well as americanbonehealth.org has the FORE fracture risk calculator on their website as well. This is most appropriate and accurate for those over 45 years old.