

## EXPLAINING OSTEOPOROSIS

This is an analogy on bone health that helps explain all the factors involved.

Everyone has seen a construction site.....skeletons of buildings in progress, piles of building materials, special tools and industrious workers. People also know that vandals frequently damage construction sites at night. Each day the building goes up a bit, gets vandalized a bit and gets repaired the next day.

Your bones are like the buildings and calcium and protein are the building materials. If you don't take in enough calcium, you have nothing to build your bones with. But minerals do not actually build bone, they are what bone is made of. Vitamins are the tools, especially Vitamin D. On a real construction site you do not see 500 trowels lying around, there are just enough to give one trowel per stonemason. So take a daily vitamin, but megavitamins don't make better bones.

Then there is the problem of workers versus vandals. The bone construction workers (osteoblasts – bone builders) are unionized. If you don't pay them, they go on strike. These workers are paid with estrogen. At menopause, your estrogen supply goes way down and some workers walk off the job. You can have all the tools and building material you need, but without pay you have few workers and new bone construction decreases. That might be OK if it weren't for vandalism. Job site vandals (osteoclasts – bone stealers) are glad to keep vandalizing without pay. As long as you were paying the construction workers, your bones were thinned out a bit every day by osteoclasts but were strengthened the next day by the union workers.

At menopause the vandals start winning and your bones start thinning. Estrogen and weight-bearing exercise are the best ways to keep the construction workers working. With proper calcium (building materials), normal amounts of vitamin D (tools) and sometimes medications (bisphosphonates such as Fosamax/Actonel/Boniva/ Reclast) to fight away the vandals your bones can stay healthy.