Adequate levels of vitamin D have been known for decades to be crucial for bone health. Its mode of action is indirect in that it doesn’t directly affect bone, but rather is necessary for the absorption of calcium from the gastrointestinal tract, and then the calcium can be used to build or strengthen bone.

Because of its importance, experts have recommended that vitamin D supplements might be useful for improving bone density and perhaps preventing osteoporosis. But recent research, as we have noted, has not documented a bone benefit from vitamin D supplementation.

Now a new study in The Lancet strengthens this conclusion at least in people with normal calcium intakes. Dr. Ian R. Reid and colleagues from the University of Auckland in New Zealand performed a meta-analysis of 23 studies of vitamin D supplementation and bone health. Those studies included nearly 4100 participants, 92 percent of whom were women with an average age of 59 years. Vitamin D supplementation lasted approximately two years, although there was quite a lot of variability, given the nature of the review of numerous different studies.

Bone mineral density was determined in up to five different sites (or as few as one) in those studies: These included the lumbar spine, femoral neck, total hip, trochanter, total body, or forearm. The meta-analysis found a small benefit of vitamin D supplementation on bone density at the femoral neck only, and that was only 0.8 percent.

In an accompanying editorial, Dr. Clifford J. Rosen of the Maine Medical Research Institute, noted that these results are consistent with those of two earlier meta-analyses of vitamin D supplementation alone. In the present study, he observed, only half of the trials used both calcium and vitamin D and those studies showed a significant reduction in hip fractures and a modest increase in bone mineral density. He stated During states of adequate calcium intake and normal skeletal homeostasis, vitamin D supplementation might have little or no role in strengthening bone mass. However, with severe Vitamin D deficiency or low calcium intake or both, skeletal micro-architecture is disrupted leading to skeletal fragility. Thus, he continued, vitamin D
supplementation is not necessary for healthy adults, although it might be important for the elderly, in combination with sufficient calcium intake.

ACSH's Dr. Ruth Kava agreed. Use of vitamin or mineral supplements should be based on scientifically demonstrated needs, not just on assumption of benefits. Although it may seem logical to use vitamin D for skeletal health, based on this and other studies, it is likely to be a wasted effort in healthy adults.