Bone tissue and hyperhomocysteinemia.

Bone tissue quality is determined not only by multiple architectural variables, but also by the mechanical properties of collagen type 1. Homocysteinuria is a genetic disease whose manifestations include severe hyperhomocysteinemia and decreased bone strength. The effects of smaller homocysteine elevations on bone tissue are difficult to demonstrate in clinical studies. Studies in animals and in humans suggest that homocysteine may weaken collagen crosslinks and, if present in large amounts, interfere with bone remodeling. Whether routine homocysteine assays should be performed to detect bone frailty remains unclear. In clinical practice, the focus should be on identifying patients with potential causes of homocysteine elevation (e.g., medications), who should then be given vitamin D and folic acid supplementation if needed. This approach may improve not only bone health, but also vascular and general health.
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