

Update on the possible nutritional importance of silicon.

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Abstract

Convincing evidence that silicon is a bioactive beneficial trace element continues to accumulate. The evidence, which has come from human, animal, and in vitro studies performed by several laboratories, indicate that silicon in nutritional and supra nutritional amounts promotes bone and connective tissue health, may have a modulating effect on the immune or inflammatory response, and has been associated with mental health. A plausible mechanism of action for the beneficial effects of silicon is the binding of hydroxyl groups of polyols such that it influences the formation and/or utilization of glycosaminoglycans, mucopolysaccharides, and collagen in connective tissue and bone. In addition, silicon may affect the absorption, retention or action of other mineral elements (e.g., aluminum, copper, magnesium). Based on findings from both animal and human experiments, an intake of silicon of near 25mg/d would be a reasonable suggestion for an adequate intake that would assure its nutritional benefits. Increased intakes of silicon through consuming unrefined grains, certain vegetables, and beverages and cereals made from grains should be recognized as a reasonable dietary recommendation.