

SILICON AND BONE HEALTH

J Nutr Health Aging. 2007 Mar-Apr; 11(2): 99–110.

R. JUGDAOHSINGH

Authors information:

Rayne Institute, Gastrointestinal Laboratory, St Thomas' Hospital, London

PMCID: PMC2658806

EMSID: UKMS4021

Cited by 204

Abstract

Low bone mass (osteoporosis) is a silent epidemic of the 21st century, which presently in the UK results in over 200,000 fractures annually at a cost of over one billion pounds. Figures are set to increase worldwide. Understanding the factors which affect bone metabolism is thus of primary importance in order to establish preventative measures or treatments for this condition. Nutrition is an important determinant of bone health, but the effects of the individual nutrients and minerals, other than calcium, is little understood. Accumulating evidence over the last 30 years strongly suggest that dietary silicon is beneficial to bone and connective tissue health and we recently reported strong positive associations between dietary Si intake and bone mineral density in US and UK cohorts. The exact biological role(s) of silicon in bone health is still not clear, although a number of possible mechanisms have been suggested, including the synthesis of collagen and/or its stabilization, and matrix mineralization. This review gives an overview of this naturally occurring dietary element, its metabolism and the evidence of its potential role in bone health.