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Nutritional and Lifestyle Interventions in the Management of Osteoporosis

1stFaima Atta Khan, 2ndGhulam Yasin, 3rdIffat Nayila, 4thMuhammad Umer & 5thSharafat Ali
 1stDepartment of Diet and Nutritional Sciences, The University of Lahore, Sargodha Campus, Pakistan
 2ndProfessor of Sociology / Pro-Rector, The University of Lahore, Sargodha Campus, Pakistan
 3rdDepartment of Pharmacy, The University of Lahore, Sargodha Campus, Sargodha, Pakistan

KEYWORDS	ABSTRACT
Osteoporosis, Nutrition, Lifestyle, Bone Health, Exercise, Micronutrients, Phytoestrogens	<p>Osteoporosis remains a major public health concern characterized by reduced bone mass and micro architectural deterioration, leading to increased fracture risk at the common sites (hip, wrist, spine, ribs). Nutritional and lifestyle interventions play a pivotal role in both prevention and management. Adequate intake of calcium, vitamin D, vitamin K, protein, magnesium, and other essential micronutrients is fundamental for optimal bone mineralization and skeletal strength. Regular physical activity, particularly resistance and weight-bearing exercises, stimulates bone remodeling, improves muscle strength, and minimizes fall-related fractures. Conversely, modifiable risk factors such as a sedentary lifestyle, coffee and salt intake, low estrogen, smoking, and excessive alcohol consumption exacerbate bone loss. Recent evidence highlights the beneficial effects of phytoestrogens, dairy products, probiotics, and anti-inflammatory dietary patterns on bone metabolism and oxidative stress. This review emphasizes the need for an integrated, evidence-based approach combining nutritional optimization, structured exercise, and behavioral modification to enhance bone health and mitigate the global impact of osteoporosis.</p>
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Corresponding Email	faima.atta@dncs.uol.edu.pk
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