Prevention and treatment of osteoporosis as view of Physical medicine in Iran

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Summary:
Osteoporosis is one of the most common metabolic disorders and the most common metabolic bone disease. Weight bearing exercises, good nutrition and adequate amounts of vitamin D are important in attaining and maintaining bone mass. The incidence of osteoporosis is increasing worldwide, especially in Asia, but osteoporotic patients can benefit from individually programmed exercises that help minimize fractures.

INTRODUCTION
Osteoporosis is one of the most common metabolic disorders and the most common metabolic bone disease. Weight bearing exercises, good nutrition and adequate amounts of vitamin D are important in attaining and maintaining bone mass. The incidence of osteoporosis is increasing worldwide, especially in Asia, but osteoporotic patients can benefit from individually programmed exercises that help minimize fractures. The proposed dietary deficiencies of calcium and vitamin D and the special apparel of Moslem Iranian women, warrants a thorough study and focus on preventive approaches.

METHODS
More than 30 related studies performed in Iran in the recent 5 years were reviewed.

RESULTS
About 50% of men and 70% of women aged 50 or older suffer from osteoporosis or osteopenia in Iran. In postmenopausal women, the prevalence of osteoporosis, osteopenia, and normal bone density is 41.8%, 50%, and 8.2% respectively. After menopause, bone loss will become more accelerated. While the frequency of osteoporosis increases, the frequency of osteopenia decreases with age. The mean age and the mean postmenopausal duration of patients with osteoporosis are significantly higher than patients without osteoporosis. Menopausal duration of over 10 years is associated with 5.6 fold increased risk of osteoporosis. Osteoporosis is more frequent (61.5%) in the postmenopausal women with symptoms including lower back pain. The prevalence of osteoporosis and osteopenia in men aged 50 years and older was shown to be 3.9% and 50% respectively. The prevalence of osteoporosis at L2-L4 region was 16.7% in men and 56.3% in women. The prevalence of osteopenia at L2-L4 region was 38.9% in men and 25% in women. Peak bone mass at L2-L4 region was reached at 29.3 years in women. Means of BMD in subjects aged 20-45 years (Peak Bone Mass), at lumbar spine and the hip were: for females 1.200013 and 0.9940.13 and for males 1.180.14 and 1.050.16gr/cm2 respectively. Peak bone mass in Iranian population seems to be 3.9% higher than that of the Japanese population and 5.6% lower than the American population. Vitamin D and calcium intake, tea consumption, serum Zn, consumption of soy proteins, physical activity, BMI, and education level have a positive relation to bone mineral density. Smoking, renal stone history, hyperhomocysteinemia as a result of folate deficiency, diabetes mellitus, hyperthyroidism, thalassemia, hemodialysis, PTH levels, and glucocorticoid use have a negative relation to bone mineral density. Disabled veterans show a marked reduction of bone mass in the neck of femur. Prevalence of vitamin D deficiency is significant in Iran, and one study showed that 80% of the population has at least mild vitamin deficiency. Hip fracture is the most serious consequence of osteoporosis. The estimated incidence of osteoporotic fractures in the year 2001 among Iranian women was 417 spinal fractures, 4337 fractures of the femur and 1806 fractures of the forearm.

CONCLUSION
Osteoporosis is a major health problem in Iran and preventive measures in terms of education, appropriate nutrition, sun exposure, and weight bearing physical exercises should be encouraged from childhood throughout life to minimize this condition. 9-13 year boys and girls with higher physical activity levels also have greater bone mineral content compared to their less active counterparts. Among 81 healthy white females studied, it was shown that exercise was more important than dietary calcium in reaching peak bone mineral density. Physical activity particularly weight bearing exercises, improves bone mass and might reduce the risk of osteoporosis later in life. Bone loading is important in the mineralisation of the bone. Weight bearing exercises (such as running, soccer, gymnastics) should be encouraged. Also, prevention and early treatment of female athletes is of utmost importance and every team physician and coach should be aware of the risk factors and possibility of the condition. In addition, in osteoporotic patients, individualised programmes can minimize fractures and improve physical fitness.

NOTES
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