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Review Article

**OSTEOPOROSIS AND EXERCISE IN WOMEN
-REVIEW ARTICLE****Fateme Parooei¹, Zohreh Mahmoodi², Raziye Behzadmehr³, Mahmood Anbari⁴,
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Abstract:

Introduction: The most common metabolic bone disease in the world is osteoporosis, the most prominent feature of which is the reduction of minerals and bone marrow matrix. This disease is one of the major health problems in the world.

Methodology: In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify the studies investigating Osteoporosis and exercise in women resuscitation. In this review, the papers published until early January 2017 that were conducted to study the Osteoporosis and exercise in women were selected.

Findings: A combination of weight bearing and strengthening activities can increase bone density; however, these exercises must be both intense and permanent and, then, they will be extremely useful in preventing osteoporosis in both young people and the elderly. It must be noted that these exercises are impractical for most women at menopausal age who have degrees of osteoporosis. These patients are more likely to tolerate a gradual, progressive exercise program, including aerobic exercises and light exercises.

Conclusion and discussion: Pressure on the bone can change its curvature, increase the tone of the bone surface, and ultimately stimulate the activity of the osteoblasts. Maintain a normal amount of physical activity is enough for preserving bone density prior to menopausal period; however, the threshold of the minimum effect on the bone increases after menopause and, under such conditions, even if a person has the same physical activity as before, a false message is sent to the bones about physical inactivity. Thus, increasing the intensity of exercise is an important factor in order to achieve the goal of maintaining bone mass density in postmenopausal women.

Key words: Osteoporosis, exercise, women

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INTRODUCTION

Nowadays, osteoporosis is defined as a disease characterized by reduced bone density and loss of bone structure which, itself, leads to increased risk of bone fractures[1]. The World Health Organization has defined osteoporosis as a bone density reduction of 2.5 times the standard deviation below the mean maximum bone density in young people[2]. The most common metabolic bone disease in the world is osteoporosis, the most prominent feature of which is the reduction of minerals and bone marrow matrix[3]. This disease is one of the major health problems in the world[4]. The high incidence of this disease and associated fractures will account for one of the causes of the high cost of treatment and associated death in the coming decades[5]. The damage and disability caused by osteoporosis costs millions of dollars for hospitalization and long-term medical care[6]. Since women are 8 times more likely to have osteoporosis in comparison to men, more than half of above 50 years of age women are afflicted with this disease[7]. At the onset of menopause, the rate of reduction in bone density in women is multiplying, so that in the first 5-10 years of menopause, lose 20 to 25% of their trabecular bone and 10 to 15% of their cortical bones[8]. Prevention and treatment of osteoporosis includes medication and non-pharmacological interventions. Although the use of medicine, such as bisphosphonates, increases bone density and decreases the risk of fracture in postmenopausal women, therapeutic costs and side effects must also be taken into consideration[8]. However, non-pharmacological interventions, such as physical activity, impose lower costs and have no side effects[9]. Various studies have found that exercising, along with the intake of enough calcium and vitamin D, has a great effect on reducing the rate of loss of bone density. In fact, one effective, safe, and inexpensive way to prevent or delay osteoporosis is a doing regular exercise in a special way[10].

METHODOLOGY:

In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify the studies investigating Osteoporosis and exercise in women resuscitation. In this review, the papers published until early January 2017 that were conducted to study the Osteoporosis and exercise in women were selected. In searching for the articles, those English papers were selected that had investigated Osteoporosis and exercise in women resuscitation.

FINDINGS:

Exercise is one of the most important components of bone mass and life-long fracture prevention[11]. Cross-sectional studies show that bone mass density of people who have more physical activity during their lifetime turns out to be considerably higher than inactive peers[12]. The researchers concluded that performing high intensity tensile exercises is an effective factor in preventing bone loss[13]. A combination of weight bearing and strengthening activities can increase bone density; however, these exercises must be both intense and permanent and, then, they will be extremely useful in preventing osteoporosis in both young people and the elderly. It must be noted that these exercises are impractical for most women at menopausal age who have degrees of osteoporosis. These patients are more likely to tolerate a gradual, progressive exercise program, including aerobic exercises and light exercises[14].

DISCUSSION AND CONCLUSION:

Negative impacts of lack of physical activity on bone density are quite recognized[15]. People with osteoporosis should exercise at least three times a week, 30 minutes per day[16]. This exercise can include simple walking[17]. Exercise causes increased bone density and decreased risk of fracture in older women[18]. Conducting therapeutic and preventive sports programs has a positive effect on bone mass density[19]. Following a scientifically accepted sports program decreases the risk of injury and increases personal satisfaction of the individual[20]. Regarding the type of exercise, studies have shown that exercises that do not have the compressive nature of the ratio B Weight-bearing exercises, such as running and jumping, have less or no effect[21]. Physical exercises prevent and treat osteoporosis through the process of bone formation and regeneration, influenced by systemic hormones and pressures on different areas of the body[22]. Pressure on the bone can change its curvature, increase the tone of the bone surface, and ultimately stimulate the activity of the osteoblasts[23]. Maintain a normal amount of physical activity is enough for preserving bone density prior to menopausal period; however, the threshold of the minimum effect on the bone increases after menopause and, under such conditions, even if a person has the same physical activity as before, a false message is sent to the bones about physical inactivity[24]. Thus, increasing the intensity of exercise is an important factor in order to achieve the goal of maintaining bone mass density in postmenopausal women.

REFERENCES:

1. Todd J, Robinson R. Osteoporosis and exercise. *Postgraduate Medical Journal*. 2003;79[932]:320-3.
2. Mosekilde L. Osteoporosis and exercise. *Bone*. 1995;17[3]:193-5.
3. O'Brien M. Osteoporosis and exercise. *British journal of sports medicine*. 1996;30[3]:191
4. Fowler A. Osteoporosis and Exercise. *British medical journal*. 1971;2[5754]:165.
5. Christogiannis IF, Ioannoy L, Mitsiokapa E, Mavrogenis AF, Papagelopoulos PJ. Osteoporosis and exercise. *Acta Orthopaedica et Traumatologica Hellenica*. 2013;64[2]:8.5-92
6. Kai MC, Anderson M, Lau E. Exercise interventions: defusing the world's osteoporosis time bomb. *Bulletin of the World Health Organization*. 2003;81[11]:827-30.
7. Lee L, Lai E. Osteoporosis in older Chinese men: knowledge and health beliefs. *Journal of clinical nursing*. 2006;15[3]:353-5.
8. Howe TE, Shea B, Dawson LJ, Downie F, Murray A, Ross C, et al. Exercise for preventing and treating osteoporosis in postmenopausal women. *The Cochrane Library*. 2011.
9. Nikander R, Sievänen H, Heinonen A, Daly RM, Uusi-Rasi K, Kannus P. Targeted exercise against osteoporosis: a systematic review and meta-analysis for optimising bone strength throughout life. *BMC medicine*. 2010;8[1]:47.
10. Nemati M, Hajalioghli P, Jahed S, Behzadmehr R, Rafeey M, Fouladi DF. Normal Values of Spleen Length and Volume: An Ultrasonographic Study in Children. *Ultrasound in medicine & biology*. 2016;42[8]:1771-8.
11. Sinaki M, Pfeifer M, Preisinger E, Itoi E, Rizzoli R, Boonen S, et al. The role of exercise in the treatment of osteoporosis. *Current osteoporosis reports*. 2010;8[3]:138-44.
12. Hongo M, Itoi E, Sinaki M, Miyakoshi N, Shimada Y, Maekawa S, et al. Effect of low-intensity back exercise on quality of life and back extensor strength in patients with osteoporosis: a randomized controlled trial. *Osteoporosis International*. 2007;18[10]:1389-95.
13. Shirazi KK, Wallace LM, Niknami S, Hidarnia A, Torkaman G, Gilchrist M, et al. A home-based, transtheoretical change model designed strength training intervention to increase exercise to prevent osteoporosis in Iranian women aged 40–65 years: a randomized controlled trial. *Health education research*. 2006;22[3]:305-17.
14. Rittweger J. Can exercise prevent osteoporosis? *Journal of Musculoskeletal and Neuronal Interactions*. 2006;6[2]:1.62
15. Poureisa M, Behzadmehr R, Daghighi MH, Akhoondzadeh L, Fouladi DF. Orientation of the facet joints in degenerative rotatory lumbar scoliosis: an MR study on 52 patients. *Acta neurochirurgica*. 2016;158[3]:473-9.
16. Daghighi MH, Poureisa M, Safarpour M, Behzadmehr R, Fouladi DF, Meshkini A, et al. Diffusion-weighted magnetic resonance imaging in differentiating acute infectious spondylitis from degenerative Modic type 1 change; the role of b-value, apparent diffusion coefficient, claw sign and amorphous increased signal. *The British journal of radiology*. 2016;89[1066]:20150152.
17. Behzadmehr R, Seyedinejad M, Behzadmehr M. The Study of the Relationship between Depression and Emotional Intelligence among the Students of Zabol University of Medical Sciences in 2014. *Asian Social Science*. 2016;12[7]:143.
18. Malekzadegan A, Havasian MR, Aali H, Salarzaei M, Ganjali M. *PHARMACEUTICAL SCIENCES*.
19. Abadi AJ, Saravani S, Aali H, Movaghar E, Far RE, Salarzaei M, et al. Investigating the Epidemiology of Patients with Intracranial Hemorrhage Caused by Head Trauma at the Khatamolanbia Hospital in Zahedan. *International Journal Of Advanced Biotechnology And Research*. 2016;7[4]:1803-11.
20. Mahmoodi Z, Havasian MR, Afshari J, Salarzaei M. Comparison of the Time Interval between the Onset of Clinical Symptoms and Receiving Streptokinase in Patients with Acute Myocardial Infarction [AMI] at Amir Hospital in Zabol, Iran, 2013. *Int J Adv Res Biol Sci*. 2017;4[5]:95-100.
21. Behnampoor M, Havasian MR, Sargolzaei N, Mahmoodi Z, Salarzaei M, Mohamadi J. *Pharmaceutical Sciences*.
22. Mahmoodi Z, Behzadmehr M, Salarzaei M, Havasian MR. Examining High-Risk Behaviors and Behavioral Disorders in Adolescents with Addicted and Non-Addicted Fathers in Public School of Zabol in the Academic Year 2016–2017. *Indian Journal of Forensic Medicine & Toxicology*. 2017;11[2]:251-6.
23. Mahmoodi Z, Havasian MR, Esmail-Zahikurin B, Salarzaei M. *Pharmaceutical Sciences*.
24. Yamazaki S, Ichimura S, Iwamoto J, Takeda T, Toyama Y. Effect of walking exercise on bone metabolism in postmenopausal women with osteopenia/osteoporosis. *Journal of bone and mineral metabolism*. 2004;22[5]:500-8.