

Review

Musculoskeletal Rehabilitation in Osteoporosis: A Review¹

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ABSTRACT: Measures of musculoskeletal rehabilitation play an integral part in the management of patients with increased fracture risk because of osteoporosis or osteoporosis risk factors. This article delineates current scientific evidence concerning nonpharmacologic approaches that are used in conjunction with pharmacotherapy for prevention and management of osteoporosis.

Fractures caused by osteoporosis frequently may be prevented with multidisciplinary intervention programs, including education, environmental modifications, aids, and implementation of individually tailored exercise programs, which are proved to reduce falls and fall-related injuries. In addition, strengthening of the paraspinal muscles may not only maintain BMD but also reduce the risk of vertebral fractures. Given the strong interaction between osteoporosis and falls, selection of patients for prevention of fractures should be based on bone-related factors and on risk factors for falls. Rehabilitation after vertebral fracture includes progressive dynamic posture training, which decreases symptoms persisting through immobilization of back extension and thus reduces pain, improves mobility, and leads to a better quality of life. A newly developed orthosis increases back extensor strength and decreases body sway as a risk factor for falls and fall-related fractures. Hip fractures may be prevented by hip protectors, and exercise programs can improve strength and mobility in patients with hip fractures. To be there is no conclusive evidence that postulated multidisciplinary inpatient rehabilitation is more effective than conventional hospital care with no rehabilitation professionals involved for older patients with hip fractures. Further studies are needed to evaluate the effect of combined home and fall-related strategies in patients with osteoporosis and an increased propensity to falls. *J Bone Miner Res* 2004;19:1208–1214. Published online on May 16, 2004, doi: 10.1097/00000000-200405000-00007

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INTRODUCTION

More comprehensive measures have focused on increasing the musculoskeletal competence of bone by reducing bone turnover. The efficacy of these interventions to reduce the risk of fracture has been extensively demonstrated in well-defined patients with confirmed osteoporosis (BMD as primary outcome factor). Fractures in the elderly—particularly fractures of the vertebral column—result from two processes: a loss of skeletal integrity and an increased risk of falls. However, little atten-

tion has been given to the targeting of osteoporosis factors to prevent fractures in selected individuals. In the management of patients with increased risk of fractures because of osteoporosis or osteoporosis risk factors, measures of musculoskeletal rehabilitation should be considered as a priority or, at least in conjunction with pharmacotherapy to optimize musculoskeletal health, improve quality of life, and reduce the risk of fractures and fracture occurrence. Given the importance of muscle function to bone quality and to the risk of falls and fall-related injuries, this article emphasizes the role of changes of muscle function, such as strength and coordination, in the prevention of fractures and fractures rehabilitation in patients with osteoporosis. Therefore, representative data related to musculoskeletal rehabilitation of osteoporosis were gathered based on a comprehensive Med-Line search and review of the Cochrane Library.

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