

Review

Musculoskeletal Rehabilitation in Osteoporosis: A Review*

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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 extraskelatal 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 osteoporotic fragility 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 fracture should be based on bone-related factors and on risk factors for falls. Rehabilitation after vertebral fracture includes proprioceptive dynamic posture training, which decreases kyphotic posturing through recruitment of back extensors 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 fracture. So far, there is no conclusive evidence that coordinated multidisciplinary inpatient rehabilitation is more effective than conventional hospital care with no rehabilitation professionals involved for older patients with hip fracture. Further studies are needed to evaluate the effect of combined bone- and fall-directed strategies in patients with osteoporosis and an increased propensity to falls.

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INTRODUCTION

MOST ANTIFRACTURE STRATEGIES have focused on increasing the biomechanical competence of bone by reducing bone turnover. The efficacy of these interventions to reduce the risk of fracture has been consistently documented in well-defined patients with confirmed osteoporosis (low BMD or prevalent vertebral fracture). Fractures in the elderly—particularly fractures of the appendicular skeleton—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 extraskelatal factors to prevent fractures in selected individuals. In the management of patients with increased risk of fracture because of osteoporosis or extraskelatal risk factors, measures of musculoskeletal rehabilitation should be considered as a prelude to, or even in conjunction with, pharmacotherapy to optimize musculoskeletal health, improve quality of life, and reduce the risk of fracture and fracture recurrence. 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 elements of muscle function, such as strength and coordination, in the prevention of fracture and postfracture rehabilitation in patients with osteoporosis. Therefore, representative data related to musculoskeletal rehabilitation of osteoporosis were gathered based on a comprehensive MedLine search and review of the Cochrane Library.

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