

## Osteoporotic Vertebral Fractures

### Osteoporotik Vertebra Kırıkları

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Dear Editor,

In this article, I would like to contribute to the article 'Retrospective Analysis of Osteoporotic Vertebral Fractures' from the perspective of a physiatrist. First of all, I would like to express my gratitude to Akar for this valuable article.<sup>1</sup> In this study, Akar emphasized that osteoporosis and osteoporotic vertebral fractures are becoming a larger public health problem as life expectancy increases, and that early diagnosis and treatment of osteoporosis is important for prevention.<sup>1</sup>

As it is known, osteoporosis is an important public health problem. Osteoporotic vertebral fractures are the most common type of fracture in patients with osteoporosis, with approximately 750.000 new cases occurring each year.<sup>2</sup> Only one-third of patients with osteoporotic vertebral fractures experience acute pain. Therefore, it may not be easy to recognize in the early period. In addition, osteoporotic vertebral fractures may be a sign of new fractures, both vertebral and non-vertebral.<sup>3</sup> From this perspective, osteoporotic vertebral fractures are of great importance for patient and public health.

With aging, changes are observed in the musculoskeletal system and weight distribution of individuals. Muscle mass tends to decrease with age, accompanied by a decline in muscle function.<sup>4,5</sup> More importantly, with aging, loss of muscle strength occurs two to five times faster than loss

of muscle size. Although trunk muscles have not been studied as extensively as lower extremity muscles, similar age-related decreases are observed in trunk muscles.<sup>6</sup> There is significant uncertainty about the causes of osteoporotic vertebral fractures. In this respect, it is thought that the physiological function of the trunk muscles in bearing weight may play an effective role in the formation of fractures. A disproportionate increase in vertebral load versus vertebral force can also cause fractures.<sup>4,7</sup> Therefore, we can say that individuals' trunk muscle strength and the correct distribution of force may affect the occurrence of osteoporotic vertebral fractures. Current algorithms to predict osteoporotic fracture risk do not include direct measurements of trunk muscle. Considering that trunk muscles affect vertebral loading and strength independent of age, we can say that this parameter may be useful in algorithms to predict fracture risk.<sup>8</sup> A study found that lean trunk muscle mass and body weight were lower in elderly with common vertebral fractures compared to individuals without vertebral fractures.<sup>9</sup> Based on this study, we can say that trunk muscle mass is associated with osteoporotic or non-osteoporotic vertebral fractures, and that increasing muscle mass in the trunk or changing the fat composition may reduce the risk of fracture. Physical therapy practices and exercise also become important at this stage in preventing osteoporotic vertebral fractures.

Considering the available data, we can say that exercise or targeted trunk muscle training can reduce the risk of osteoporotic vertebral fractures. Potential interventions targeting trunk muscle may increase vertebral muscle strength through weight-bearing exercises, which may prevent muscle wasting and thus reduce fracture occurrence. Apart from this, exercises can also contribute to the prevention of vertebral fractures by reducing the risk of falling. In a study by Sinaki et al., postmenopausal women who underwent progressive resistance back strengthening exercises for 2 years and no exercise intervention were followed for 10 years. As a result of the study, it was determined that the rate of osteoporotic vertebral fractures was lower in the exercise group.<sup>10</sup> This study clearly shows us the protective effect of exercise against the risk of osteoporotic vertebral fractures.

As a result, it is clear that an effective trunk exercise program, progressive resistance exercise program and exercise programs requiring weight lifting reduce the risk of osteoporotic vertebral fracture formation. Based on these results, it is important that every patient with a risk of osteoporotic fracture be evaluated by a physiatrist and prescribed an appropriate exercise program. As Akar stated in his study<sup>1</sup>, the precautions to be taken before osteoporotic vertebral fracture occurs are very valuable for individual and public health. I think it will be important to include exercise practices in future studies on osteoporotic vertebral fractures.

#### **Conflict of Interest**

The authors declare that there is not any conflict of interest regarding the publication of this manuscript.

#### **Authors' Contributions**

Concept/Design: UE. Data Collection and/or Processing: UE. Data analysis and interpretation: UE. Literature Search: UE. Drafting manuscript: UE. Critical revision of manuscript: UE.

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