


Early Interventions to Improve Functional Movements and Increase Muscular Fitness in Older Adults with Osteoporosis

Gerontology & Geriatric Medicine
Volume 7: 1–2
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/23337214211006024
journals.sagepub.com/home/ggm


Vu H. Nguyen, PhD^{1,2} 

Manuscript received: February 28, 2021; **final revision received:** March 5, 2021; **accepted:** March 5, 2021.

To the Editor,

The article by Van Dussen et al. (2021) sheds light on how assessing a habitual functional movement test, such as the Safe Functional Motion (SFM) test, significantly predicts fractures and inpatient hospitalizations in older adults with osteoporosis, and its clinical significance aids in preventing hospitalizations. In addition, its significance is that it can also provide opportunities for early interventions to prevent falls that lead to fractures in this at-risk population. The SFM test measures physical function based on habitual movements, and if we can help participants better perform these habitual, functional movements, then their SFM test scores would improve, which consequently reduces their risk. This will then lead to a reduction in fractures and hospitalizations. Therefore, implementing interventions that help older adults with osteoporosis better perform the functional movements of the SFM test, such as putting on footwear, reaching for something on the floor, standing up after sitting on the floor with legs out, carrying objects upstairs, and getting up at night to retrieve an object, as well as performing other habitual, functional movements, all should decrease the prevalence of falls, fractures, and hospitalizations.

Moreover, it is important to consider that the Safe Functional Motion test room replicates a home setting; however, major injuries from falls can occur outside of the home in older adults (Gratza et al., 2019). Thus, additional interventions can focus on improving muscular fitness with weight-bearing exercise to improve strength and balance to help reduce the risk of falling whether inside or outside of the home. Furthermore, if a fall would occur, weight-bearing exercise can increase bone mineral density (BMD) that strengthens bones to help prevent, or reduce the severity, of a bone fracture. For example, the Lifting Intervention for Training Muscle and Osteoporosis Rehabilitation (LIFTMOR) trials have shown how high-intensity resistance and impact training can significantly improve muscle strength, muscle function, and BMD in older women

with osteopenia or osteoporosis (Watson et al., 2018), as well as older men with osteopenia or osteoporosis (Harding et al., 2020). These weight-bearing exercise interventions that utilize strength training exercises such as the back squat, deadlift, overhead press, as well as jumping exercises, have been shown to be safe for individuals with lower bone mass (Watson et al., 2015), while improving kyphosis (Watson et al., 2019) that would improve functional movement and reduce the risk of fracture.

In summary, early interventions can focus on both improving functional movement and increasing muscular fitness to decrease the risk of falls and fractures and reduce hospitalizations. This will not only lessen the burden on our health care system, but will also advance public health by focusing on primary preventive measures, as we can first focus on preventing falls and fractures to subsequently prevent hospitalizations.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Vu H. Nguyen  <https://orcid.org/0000-0003-3974-7040>

¹University of Missouri, Columbia, USA

²Columbia College, MO, USA

Corresponding Author:

Vu H. Nguyen, Department of Public Health, School of Health Professions and College of Veterinary Medicine, University of Missouri, 802 Lewis Hall, Columbia, MO 65211, USA.
Email: vhn.health@outlook.com



References

- Gratza, S. K., Chocano-Bedoya, P. O., Orav, E. J., Fischbacher, M., Freystatter, G., Theiler, R., Egli, A., Kressig, R. W., Kanis, J. A., & Bischoff-Ferrari, H. A. (2019). Influence of fall environment and fall direction on risk of injury among pre-frail and frail adults. *Osteoporosis International, 30*(11), 2205–2215.
- Harding, A. T., Weeks, B. K., Lambert, C., Watson, S. L., Weis, L. J., & Beck, B. R. (2020). A comparison of bone-targeted exercise strategies to reduce fracture risk in middle-aged and older men with osteopenia and osteoporosis: LIFTMOR-M semi-randomized control trial. *Journal of Bone and Mineral Research, 35*(8), 1404–1414.
- Van Dussen, D. J., Recknor, C. P., & Recknor, J. C. (2021). Hospitalization in high fracture risk older adults with osteoporosis using the Safe Functional Motion test: A longitudinal analysis. *Gerontology & Geriatric Medicine, 7*, 1–8. <https://doi.org/10.1177/2333721421998473>
- Watson, S. L., Weeks, B. K., Weis, L. J., Harding, A. T., Horan, S. A., & Beck, B. R. (2018). High-intensity resistance and impact training improves bone mineral density and physical function in postmenopausal women with osteoporosis and osteopenia: The LIFTMOR randomized control trial. *Journal of Bone and Mineral Research, 33*(2), 211–220.
- Watson, S. L., Weeks, B. K., Weis, L. J., Harding, A. T., Horan, S. A., & Beck, B. R. (2019). High-intensity exercise did not cause vertebral fractures and improves thoracic kyphosis in postmenopausal women with low to very low bone mass: The LIFTMOR trial. *Osteoporosis International, 30*(5), 957–964.
- Watson, S. L., Weeks, B. K., Weis, L. J., Horan, S. A., & Beck, B. R. (2015). Heavy resistance training is safe and improves bone, function, and stature in postmenopausal women with low to very low bone mass: Novel early findings from the LIFTMOR trial. *Osteoporosis International, 26*(12), 2889–2894.