DO IN-LINE DANCE, PROGRESSIVELY LOADED SQUATS AND FOOT STOMPING AFFECT THE PARAMETERS OF FRACTURE RISK IN POSTMENOPAUSAL WOMEN?

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Statement of Originality:
This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Abstract

Introduction: The incidence of hip fracture is increasing and the associated costs to individuals and the community needs to be vigorously addressed. This study was a randomized controlled intervention designed to examine the effects of a simple-to-do, easy-to-implement exercise programme on the elements of hip fracture risk which are known to be amenable to exercise therapy.

Methods: Forty-five volunteers were randomly assigned to one of three groups. All groups attended one line dance class per week. Two groups additionally performed progressively loaded squats five times a week. One group also performed four foot stomps twice daily five times per week. Hip fracture risk (HFR), broadband ultrasound attenuation (BUA), proximal femoral (PF) and lumbar spine (LS) bone mineral density (BMD), squats number, and balance variables were measured.

Results: There were no changes in HFR, BUA, PF or LS BMD, however, a strong positive stomps compliance effect was noted for BUA ($r = 0.73$, $p = 0.003$) and for PF BMD ($r = 0.79$, $p = 0.002$). Squats number increased in all participants, especially in those performing all three activities ($p = 0.001$). Single Leg Stance (SLS) times increased ($p < 0.01$), and Timed Up and Go (TUG) times decreased ($p < 0.01$) in all participants who complied with the protocol of squatting and stomping. Forward and lateral step velocities did not change.

Conclusions: Our novel intervention conferred positive benefits on the skeletons of independent living, postmenopausal women. Other indices of fall and fracture risk, including muscle strength and balance, improved in all participants suggesting a beneficial effect of line dancing on these factors.