

Efektivitas Penambahan Latihan Penguatan Ekstremitas Bawah terhadap Fungsi Keseimbangan pada Lansia *Pre-Frail* yang Mendapatkan *Square Stepping Exercise*

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ABSTRAK

Latar belakang. Lansia *pre-frail* mengalami risiko jatuh yang lebih tinggi daripada lansia *robust*. Penurunan kekuatan ekstremitas bawah dan gangguan keseimbangan merupakan faktor risiko utama kejadian jatuh pada lansia. Pada lansia *pre-frail* dibutuhkan latihan multikomponen latihan keseimbangan, penguatan, aerobik, dan fleksibilitas. *Square Stepping Exercise* dinilai efektif dalam meningkatkan keseimbangan dan mengurangi risiko jatuh pada lansia. Pencegahan risiko jatuh pada lansia *pre-frail* di komunitas perlu dilakukan secara dini dengan intervensi latihan yang tepat.

Tujuan. Untuk mengetahui efektivitas penambahan latihan penguatan ekstremitas bawah terhadap fungsi keseimbangan lansia *pre-frail* yang mendapatkan *square stepping exercise*.

Metode. Penelitian ini merupakan *randomized control trial* pada 38 lansia *pre-frail*, yang dibagi menjadi 2 kelompok terdiri dari kelompok perlakuan (n=19) dan kelompok kontrol (n=19). Kelompok perlakuan melakukan *square stepping exercise* dan latihan penguatan ekstremitas bawah, sedangkan kelompok kontrol melakukan *square stepping exercise*. Latihan dilakukan selama 6 minggu dan dilakukan pengukuran fungsi keseimbangan dengan *berg balance scale* sebelum dan sesudah intervensi 6 minggu pada kedua kelompok.

Hasil. Terdapat perbedaan yang bermakna secara statistik rerata skor *berg balance scale* pra dan paska intervensi pada kelompok perlakuan ($54,76 \pm 0,97$; $p=0,000$) dan kelompok kontrol ($52,94 \pm 2,15$; $p=0,000$). Peningkatan perubahan rerata selisih/delta skor *berg balance scale* antar kelompok lebih tinggi pada kelompok perlakuan dibandingkan kelompok kontrol ($5,47 \pm 1,01$ vs $3,06 \pm 0,99$; $p = 0,000$).

Kesimpulan. Penambahan latihan penguatan ekstremitas bawah pada *square stepping exercise* dapat meningkatkan fungsi keseimbangan lebih tinggi pada lansia *pre-frail* dibandingkan dengan *square stepping exercise* saja.

Kata kunci: lansia *pre-frail*, fungsi keseimbangan, *square stepping exercise*, latihan penguatan ekstremitas bawah

Effectiveness of Additional Lower Extremity Strengthening Exercise on Balance Function of Pre-frail Elderly Who Receive Square Stepping Exercise

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ABSTRACT

Background. Pre-frail elderly experience a higher risk of falling than robust elderly. Decreased lower extremity strength and impaired balance are the main risk factors for falls in the elderly. Pre-frail elderly people need multicomponent balance, strengthening, aerobic and flexibility exercise. Square Stepping Exercise is considered effective in improving balance and reducing the risk of falls in the elderly. Preventing the risk of falls in pre-frail elderly in the community needs to be done early with appropriate exercise interventions.

Objective. To determine the effectiveness of adding lower extremity strengthening exercises on balance function of pre-frail elderly who receive square stepping exercise.

Method. This study was a randomized control trial in 38 pre-frail elderly, which were divided into 2 groups consisting of the treatment group (n=19) and the control group (n=19). The treatment group was given square stepping exercise and lower extremity strengthening exercise and the control group performed square stepping exercise. The exercise was carried out for 6 weeks and balance function measurements were taken with berg balance scale before and after the 6-week intervention in both groups.

Results. There was a statistically significant difference in the mean pre- and post-intervention berg balance scale at the treatment group ($54,76 \pm 0,97$; $p=0,000$) and the control group ($52,94 \pm 2,15$; $p=0,000$). The increase of the mean difference/delta berg balance scale between groups was higher at the treatment group than the control group ($5,47 \pm 1,01$ vs $3,06 \pm 0,99$; $p = 0,000$).

Conclusion. The addition of lower extremity strengthening exercises to square stepping exercise can increase balance function higher in pre-frail elderly compared to square stepping exercise alone.

Key word: *pre-frail elderly, balance function, square stepping exercise, lower extremity strengthening exercise*