

ABSTRAK

Perbandingan Latihan Jalan Nordik Dan Senam Lansia Terhadap Kadar *Osteocalcin* Pada Wanita Pascamenopause

Latar Belakang : Penurunan massa tulang pada wanita pascamenopause merupakan faktor risiko utama terjadinya osteoporosis, yang berdampak pada kualitas hidup. *Osteocalcin* merupakan biomarker pembentukan tulang yang mencerminkan aktivitas osteoblas. Intervensi non-farmakologis seperti latihan fisik berbasis *weight bearing*, di antaranya Jalan Nordik dan Senam Lansia, efektif dalam meningkatkan kadar *osteocalcin* dan massa tulang. Penelitian ini bertujuan membandingkan pengaruh latihan Jalan Nordik dan Senam Lansia terhadap perubahan kadar *osteocalcin* pada wanita pascamenopause.

Metode : Penelitian ini menggunakan desain quasi experimental dengan *pre-post test controlled group design* yang melibatkan 26 wanita pascamenopause berusia 60-70 tahun, dengan 13 subyek masing-masing pada kelompok Jalan Nordik dan Senam Lansia. Intervensi dilakukan selama 12 minggu dengan frekuensi tiga kali per minggu dan durasi 60 menit per sesi. Kadar *osteocalcin* diukur sebelum dan sesudah intervensi menggunakan metode ECLIA.

Hasil : Terdapat peningkatan kadar *osteocalcin* yang signifikan pada kedua kelompok ($p < 0,05$). Namun, peningkatan kadar *osteocalcin* pada kelompok Jalan Nordik ($3,23 \pm 1,01$ ng/mL) lebih tinggi secara signifikan dibandingkan kelompok Senam Lansia ($1,31 \pm 0,63$ ng/mL) ($p < 0,001$). Karakteristik subjek pada kedua kelompok homogen dan tidak terdapat *drop out* dan efek samping selama penelitian.

Simpulan : Latihan Jalan Nordik dan Senam Lansia efektif meningkatkan kadar *osteocalcin* pada wanita pascamenopause, dengan Jalan Nordik menunjukkan efek yang lebih besar. Latihan ini dapat dijadikan alternatif terapi non-farmakologis untuk meningkatkan kesehatan tulang pada populasi lansia wanita pascamenopause.

Kata kunci: Jalan Nordik, Senam Lansia, *Osteocalcin*, Wanita Pascamenopause, Osteoporosis.

ABSTRACT

Comparison of Nordic Walking and “Senam Lansia” on Osteocalcin Levels in Postmenopausal Women

Background : Decrease in bone mass in postmenopausal women is a major risk factor for osteoporosis and fractures, which impact quality of life. Osteocalcin is a biomarker of bone formation that reflects osteoblast activity. Non-pharmacological interventions such as weight-bearing physical exercises, including Nordic Walking and “Senam Lansia”, are believed to increase osteocalcin levels and bone mass. This study aimed to compare the effects of Nordic Walking and “Senam Lansia” on changes in osteocalcin levels in postmenopausal women.

Method: This study uses a quasi-experimental design with a pre-post test controlled group design involving 26 postmenopausal women between 60-70 years old, with 13 subjects in each group: Nordic Walking and “Senam Lansia”. The intervention was conducted over 12 weeks with a frequency of three times per week and a session duration of 60 minutes. Osteocalcin levels were measured before and after the intervention using the ECLIA method.

Result : The results show a significant increase in osteocalcin levels in both groups ($p < 0.05$). However, the increase in osteocalcin levels in the Nordic Walking group (3.23 ± 1.01 ng/mL) was significantly higher than in the “Senam Lansia” group (1.31 ± 0.63 ng/mL) ($p < 0.001$). The characteristics of subjects in both groups were homogeneous, with no dropouts or side effects during the study.

Conclusion : Both Nordic Walking and “Senam Lansia” effectively increased osteocalcin levels in postmenopausal women, with Nordic Walking showing a greater effect. These exercises can be considered as non-pharmacological therapy alternatives to improve bone health in postmenopausal women.

Keywords: Nordic Walking, Elderly Gymnastics, Osteocalcin, Postmenopausal Women, Osteoporosis.