

Study Supporting Document

Official Study Title: The Effect of a Foot and Ankle Proprioceptive Exercise Program on Physical performance, Foot Posture, Sensation, and Falls in Older Adults

NCT Number: Not yet assigned

Document Date: April 2026

Methods

Study Design and Participants

This randomized controlled trial was conducted to evaluate the efficacy of a targeted foot–ankle proprioceptive exercise program on foot posture, physical performance, and fall risk in older adults between January 2023 and June 2024. The study protocol was approved by the Ankara Yıldırım Beyazıt University Health Sciences Ethics Committee (Approval Date: December 8, 2022; Decision No: 2022-1238; Research Code: 2022-1238).

Formal institutional permissions were obtained from the Republic of Türkiye Ministry of Family and Social Services. All procedures were conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants. Participants were recruited from Demetevler Fatma Üçer Nursing Home and Elderly Care Rehabilitation Center. All participants received detailed information regarding the study and voluntarily agreed to participate.

Sample Size and Randomization

Sample size was calculated using G*Power software (version 3.1.9.6). Based on previous research, an effect size of 0.80 was assumed. With $\alpha = 0.05$ and power = 0.80, the required sample size was 17 participants for the intervention group and 18 for the control group. Considering potential dropout, 20 participants were recruited per group. Participants were randomized using a computer-generated randomization method.

Inclusion Criteria

- Age ≥ 65 years
- MMSE score ≥ 24
- Turkish literacy
- Voluntary participation
- Independent ambulation

Exclusion Criteria

- Visual or hearing impairments

- Recent orthopedic surgery
- Severe deformities
- Lower limb amputation
- Cardiovascular contraindications
- Inability to comply with protocol

Study Procedure

Participants were randomly assigned to:

- Supervised Exercise Group (SEG)
- Home-Based Control Group (HCG)

Assessments were conducted at:

- Baseline (T0)
- Post-intervention (T1)
- Follow-up at 3 months (T2)

Outcome Measures

Physical Performance

Physical performance was assessed using the Short Physical Performance Battery (SPPB).

Foot Posture

Foot posture was assessed using the Navicular Drop Test, metatarsal width, and foot length.

Fear of Falling

Fear of falling was assessed using the International Falls Efficacy Scale (FES-I).

Plantar Sensory Function

Sensory testing was conducted using Semmes-Weinstein monofilaments.

Ankle Proprioception

Joint position sense was evaluated using angle reproduction tests.

Intervention

Supervised Exercise Group

Participants completed an 8-week supervised foot and ankle proprioceptive exercise program, three times per week.

Each session lasted 40 minutes:

- 10 min warm-up
- 20 min proprioceptive exercises
- 10 min cool-down

Exercises were performed barefoot using sensory equipment.

Home-Based Control Group

Participants continued daily activities and received exercise brochures.

Safety and Compliance

All sessions were monitored for adverse events. Compliance was recorded and assessments were conducted by a blinded assessor.