

Study Protocol

Title: The Effect of Functional Training on Speed, Balance, and Functional Capacity in Adolescent Table Tennis Players: A Randomized Controlled Trial

Unique Protocol ID: E-77192459-050.99-381871

NCT Number: Not yet assigned

Document Type: Study Protocol

Date: [14.10.2024]

Sponsor: Karabük University

Principal Investigator: Dr. Alirıza Han Civan

Note: This document contains information related to the above-mentioned clinical study. No participant names or identifying information are included.

Study Title: The Effect of Functional Training on Speed, Balance, and Functional Capacity in Adolescent Table Tennis Players

Objectives: Examine the effects of an eight-week functional training program compared with conventional and routine training on physical performance parameters (speed, balance, agility, flexibility, vertical jump, functional movement quality) in adolescent table tennis players.

Participants: 30 adolescent table tennis athletes, aged 12–16, training ≥ 3 sessions per week for ≥ 3 years.

Interventions:

Functional Training Group (Experimental): Eight-week functional training program 3x/week + routine table tennis training, including exercises targeting flexibility, agility, speed, balance, and movement quality.

Conventional Training Group (Active Comparator): Standard table tennis training 3x/week for eight weeks.

Control Group (No Intervention): Routine table tennis training without additional exercises.

Outcome Measures: Flexibility, agility, speed, vertical jump, functional movement scan (FMS), static-dynamic balance

Analysis: Repeated measures ANOVA; Bonferroni corrected post-hoc tests; significance set at $p < 0.05$; effect sizes reported using Cohen's d and η^2 .

Ethics: Approved by Karabük University Non-Interventional Clinical Research Ethics Committee (Decision No: 2024/1955, Approval Number: E-77192459-050.99-381871, 14.10.2024)

Confidentiality: All participant data are anonymized

Statistical Analysis Plan

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Software: SPSS / R

Primary Outcomes: Agility, balance, speed, vertical jump, FMS scores

Secondary Outcomes: Functional movement quality, static-dynamic balance

Analysis: Repeated measures ANOVA; Bonferroni corrected post-hoc tests for group \times time interactions

Significance Level: $p < 0.05$

Analysis Approach: Intention-to-treat

Effect Sizes: Cohen's d and η^2 reported for significant differences