

STUDY PROTOCOL AND STATISTICAL ANALYSIS PLAN

Title:

Comparative Effects of High-Intensity Interval Training Modalities on Physical Performance and Physiological Responses in Competitive Table Tennis Players

Brief Title:

HIIT Effects on Table Tennis Players

Unique Protocol ID:

E-77192459-050.99-376986

ClinicalTrials.gov Identifier:

NCT Number: Not yet assigned

Document Type:

Study Protocol and Statistical Analysis Plan

Sponsor:

Karabük University

Principal Investigator:

Dr. Alirıza Han Civan

Ethics Approval:

Karabük University Non-Interventional Clinical Research Ethics Committee

Decision No: 2024/1956

Approval Number: E-77192459-050.99-376986

Approval Date: 27 September 2024

Document Date:

03 January 2026

Study Objectives

To examine the comparative effects of calisthenic/plyometric HIIT and kettlebell-based Tabata HIIT on physical performance and physiological responses in competitive table tennis players.

Study Design

Randomized, parallel-group experimental study conducted over 8 weeks.

Participants

- Sample size: 24 male competitive table tennis players
- Age range: 18–24 years
- Inclusion criteria: actively training competitive athletes
- Exclusion criteria: musculoskeletal injury, cardiovascular or metabolic disease

Interventions

Group 1 – Calisthenic/Plyometric HIIT

- Tabata-based HIIT protocol
- 3 sessions/week for 8 weeks
- Performed in addition to regular table tennis training

Group 2 – Kettlebell HIIT

- Tabata-based HIIT protocol
- 3 sessions/week for 8 weeks
- Performed in addition to regular table tennis training

Outcome Measures

Primary Outcomes:

- Agility
- Flexibility
- Vertical jump
- VO₂max

Secondary Outcomes:

- Sprint performance
- Peak power
- Average power

Data Collection

Outcome measures assessed at baseline (pre-intervention) and post-intervention (8 weeks).

Statistical Analysis Plan

- Software: SPSS and/or R
- Analysis population: Intention-to-treat
- Descriptive statistics: Mean \pm standard deviation
- Inferential analysis

2 \times 2 mixed-design ANOVA

Within-subject factor: time (pre vs post)

Between-subject factor: group

Post-hoc paired-sample t-tests with Bonferroni correction

Statistical significance: $p < 0.05$

Confidentiality

All participant data are anonymized. No identifying information is included in this document.

INFORMED CONSENT FORM

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- Purpose of the study explained
- Procedures and exercises described
- Risks and potential benefits outlined
- Voluntary participation and right to withdraw stated
- Confidentiality and anonymization assured
- Contact information provided
- Signature lines for participant and investigator included