Statistical Analysis Plan (SAP)

Version 1.0 | Date: 10 July 2025

Comparing the Effects of Small-Sided Basketball Games and Running-Based High-Intensity Interval Training on Physical Fitness and Body Composition in Untrained Young Adults: A Randomized Controlled Trial

1. Analysis populations

Primary: intention-to-treat (all randomized participants analyzed as allocated). Sensitivity: per-protocol (adherence >= 85% and complete data).

2. Outcomes

Continuous outcomes include body mass, BMI, handgrip strength, jump performance, sprint times, 5-0-5 test time, and multistage fitness test distance.

3. Primary comparative model

For each outcome: mixed-design ANOVA with Group (SSG, HIIT, Control) as between-subject factor and Time (pre, post) as within-subject factor. Primary test: Group x Time interaction.

4. Assumption checks

Normality (Shapiro-Wilk and visual inspection) and homogeneity (Levene). If violated, consider transformations or nonparametric sensitivity analyses.

5. Post hoc and multiplicity

If interaction is significant, pairwise comparisons with Bonferroni adjustment will be performed. Interpretation will consider the overall pattern across outcomes.

6. Effect sizes

Report partial eta-squared for ANOVA and Cohen's d for key within- and between-group contrasts (with 95% CIs where feasible).

7. Missing data

If missing data occur, consider multiple imputation; otherwise report complete-case analysis with justification.

8. Software and alpha

Two-sided alpha = 0.05. Analyses performed using SPSS v29 or equivalent.