

Official Title

Effects of Mulligan Mobilization with movement  
versus Kinesiotaping and Placebo on knee function  
and injury -related Outcomes in Basketball  
Players: A parallel-group Randomized Controlled  
Trial

NCT Number:

Date 10 December 2024

## **5. Statistical Analysis Plan (SAP) Separate**

### **Title of Study**

Effects of Mulligan Mobilization with movement versus Kinesiotaping and Placebo on knee function and injury-related outcomes in Basketball Players: A parallel-group randomized controlled trial.

### **Introduction / Objectives**

This Statistical Analysis Plan (SAP) outlines the predefined statistical methods that will be applied to analyze the data collected in this RTC comparing Mulligan with mobilization MWM, Kinesiotaping, and Placebo interventions in U16–U20 basketball players. The SAP ensures transparency, reproducibility, and consistency in the evaluation of study outcomes.

### **Objectives**

The primary objective of this SAP is to define the statistical approach for assessing differences between groups and over time, functional outcomes ADLS and SAS, and overuse injury scores (OSTRC) across the three study groups and time points.

### **Study Design**

The present study will be designed as a parallel group randomized controlled clinical trial with three intervention arms: Mulligan mobilization MWM, kinesiotaping, and placebo, with repeated measurements at baseline, 1 hour, and 2 weeks of follow-up. The study will be conducted over a two- week intervention period as a part of a doctoral research project. The study will be carried out with CONSORT reporting guidelines (Schulz, K.F. et al., 2010)

### **Sample Size**

The sample size was calculated using G \*power- 3.1 software (Faul, F. et al., 2007) while we used the actual sample size (N=60) and conducted post-hoc power analysis for the primary outcome, ADLS, and mixed ANOVA. Interaction was  $\eta^2p = 0.816$  (Cohen's  $f = 2.11$ ), and the statistical power indicated a very high (1.0).

### **Outcome Measures**

Activities of Daily Living Scale (ADLS) score (continuous variable), assessed at baseline, 1 hour post-treatment, and 2 weeks of follow-up.

Sport Activity Scale (SAS) score (continuous variable), assessed at baseline, 1 hour post-treatment, and 2 weeks of follow-up.

Oslo Sports Trauma Research Centre (OSTRC) questionnaire score (ordinal variable), assessed at baseline and 2 weeks of follow-up.

### **Statistical Methods**

Statistical analysis will be performed using JASP (version 0.95.4.0). A repeated mixed-design ANOVA will be performed with group (Mulligan, Kinesiotaping, Placebo) as the between-

subject factor and time (Baseline, 1 hour, 2 weeks) as the within-subject factor. Interaction effects (group  $\times$  time) will be examined. Post-hoc comparisons will be conducted using a Bonferroni adjustment. Effect sizes will be reported using Cohen's

### **Handling Missing Data**

No missing data are expected. All collected data will be included in the final analysis. No imputation methods will be applied.

### **References**

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