

# INPLASY

## Effect of technical training on functional asymmetries of the lower and upper limbs in young athletes

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### ADMINISTRATIVE INFORMATION

**Support** - Without any financial support.

**Review Stage at time of this submission** - Piloting of the study selection process.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2023100013

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 October 2023 and was last updated on 05 October 2023.

### INTRODUCTION

**Review question / Objective** What is the effect of training targeting the non-preferred limb on functional asymmetries in young athletes?

**Rationale** The identification of appropriate procedures for reducing functional asymmetries, that is, the performance of players with both limbs, can facilitate the decision-making process during the game, as it provides a greater technical/tactical background with several options available in their repertoire. decision-making.

At the same time, coaches and other professionals who work with young players are responsible for contributing to the reduction of lateral asymmetries, even at training levels, through the assessment and adequate planning of training sessions.

**Condition being studied** Studies with interventions based on specific skills training will be included in this systematic review. Their samples should focus on young athletes aged between 10 and 20 years, without injury or physical disability.

### METHODS

**Search strategy** This systematic review will be conducted in the databases of Google Scholar, Lilacs, Scielo and PubMed. The following search algorithm will be used: (“Young players”) AND (“technical training” OR “motor skills” OR “non-preferred limb”) AND (“functional asymmetries”).

**Participant or population** Young athletes between 10 and 20 years old, male, participating in team sports games.

**Intervention** Experimental group - training the non-dominant side in team sports games.

**Comparator** Control group with training without many restrictions.

**Study designs to be included** Experimental studies.

**Eligibility criteria** Use of empirical articles only, Studies carried out with players between 10 and 20 years old, Samples made up of male athletes, Designs carried out in team sports, Studies with intervention based on technical or tactical training with sports skills, Studies that adopted a design with pre -test and post-test, Studies that used specific skills and/or game to evaluate athlete's performance, Studies published with peer review and Studies carried out in English and Portuguese.

**Information sources** Electronic databases (Google Scholar, SciELO, LILACS and PubMed). If necessary, contact the authors' email address.

**Main outcome(s)** The main results will be expressed as the average score obtained in the assessment of motor skills. In the form of time for skills that require travel. And also, Index of asymmetry between members.

**Additional outcome(s)** Absolute and relative frequency of observed actions.

**Data management** The PRISMA guidelines will be followed, respecting the inclusion and exclusion criteria defined according to participants, intervention, comparators, results and study design (PICOS).

**Quality assessment / Risk of bias analysis** The PeDro protocol will be used to assess the relevance of selected articles. To assess the risk of bias, the Cochrane Risk-of-Bias tool will be used.

**Strategy of data synthesis** Evidence on performance asymmetries in the upper or lower limbs in different sports will be recorded, focusing on differences between the right and left side. All studies to be selected in this systematic review must provide data for the meta-analysis. They will be extracted from the pre and post-test.

**Subgroup analysis** subgroups will be created depending on the limb's preference (preferred and non-preferred), type of skill and age group.

**Sensitivity analysis** Sensitivity analyzes will be used to assess the robustness of the results, such

as the impact of assumed assumptions, imputed data, borderline decisions and studies with a high risk of bias. The eligibility of some doubtful studies for the meta-analysis because they do not meet all the requirements, a sensitivity analysis will be used, redoing the meta-analysis after excluding the doubtful studies and keeping only the definitively eligible studies.

**Language restriction** Studies carried out in English and Portuguese will be selected.

**Country(ies) involved** Mozambique and Brasil.

**Other relevant information** Gray bibliography will not be used.

**Keywords** Young athletes; Functional asymmetries; Non-preferred limb; Technical training; Motor skills.

**Dissemination plans** Systematic review registration at INPLASY (October, 2023). Publication of a peer-reviewed article (January, 2024) Integration of the review into a thesis in a Scandinavian model (July,2024).

#### **Contributions of each author**

Author 1 - Domingos Manuel Nhamussua - Definition of the systematic review protocol ; Search, selection and analysis of articles; Presentation and discussion of results; Preparation or writing in full of the systematic review.

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Author 2 - Sílvio Pedro Saranga - Assessment of the quality of articles; Identification of the risk of bias; Formal screening of search results according to eligibility criteria.

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Author 3 - Rodolfo Novellino Benda - Monitoring the activities of authors. linguistic correction; Operationalization of the PRISMA flowchart; Data management and execution of Meta-Analyses.

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