

# INPLASY

## Effect of Dual-task on basketball performance: A Systematic Review

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### ADMINISTRATIVE INFORMATION

**Support** - None reported

**Review Stage at time of this submission** - Data extraction.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202410077

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 January 2024 and was last updated on 18 January 2024.

## INTRODUCTION

**Review question / Objective** The aim of this review is to compile and analyse the latest research findings on dual-tasking in basketball and to determine the effects of dual-tasking on the physical, technical, cognitive and decision-making skills of basketball players.

**Condition being studied** Studies have shown that dual-task interventions favour improvements in attentional allocation and decision-making, and that, when applied to both cognitive and physical rehabilitation, dual-task training appears to favour improvements in working memory capacity, thereby favouring perceptually related attentional allocation and improving athletes' motor and cognitive performance.

## METHODS

**Search strategy** Article searchEBSCOhostwed the Preferred Reporting Items for All Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The keywords used were "dual-task" OR "double task" OR "multi-task" OR "divided attention" OR "secondary task" OR "second task" and "divided attention" OR "secondary task" OR "second task" and "basketball". Screening articles from Scopus, Ebscohost, Pubmed, Google scholar and Web of Science databases.

**Participant or population** Basketball players.

**Intervention** Dual-task.

**Comparator** Without dual-task.

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**Study designs to be included** Dual-task combined with basketball skills or dual-task combined with movements.

**Eligibility criteria** The PICOS model was used to conduct the literature search. The acronym PICOS stands for the following concepts: 1) Population, 2) Intervention, 3) Comparison, 4) Outcome, and 5) Study Design. The study used each of the PICOS factors as inclusion criteria for the retrieved publications. To be eligible, a study had to meet each of the following inclusion requirements: (1) it needed to assess a basketball-specific test conducted with a dual-task intervention and without the use of dual-tasking in a control group; (2) the sample population was basketball players regardless of gender and age; (3) the measurements were conducted in a basketball-specific setting (i.e., jump shot, dribbling, and passing); (4) the results were related to any form of basketball performance (5) the article must be an experimental study, including a single-group experiment or a randomised controlled trial.

**Information sources** Consider searching reputable academic databases, including Ebscohost, Scopus, PubMed, Web of Science, and Google Scholar, by the end of 2023. For each individual database, conduct a strategic search query based on title and abstract. The main keywords used to collect relevant studies were: ("dual-task" OR "double task" OR "multi-task" OR "divided attention" OR "secondary task" OR "multiple task"). "divided attention" OR "secondary task" OR "second task" and "basketball").

**Main outcome(s)** This review provides evidence that cognitive-motor modelling of dual-task training improves athletes' dribbling, agility and reaction time, that distraction caused by dual-task testing affects basketball players' motor performance on free throws, and that distraction during running and jumping in basketball players poses an injury risk in terms of changes to movement patterns.

**Quality assessment / Risk of bias analysis** QualSyst" is used to assess methodological quality and contains 14 items. Scores are assigned according to the extent to which specific criteria are met (Yes = 2, Partial = 1, No = 0). Items were marked as "NA" when they were not applicable to the study design and were excluded from the total score calculation. A score of  $\geq 75\%$  indicates strong quality, a score of 55-75% indicates moderate quality, and a score of  $\leq 55\%$  indicates weak quality.

**Strategy of data synthesis** Qualitative Synthesis.

**Subgroup analysis** Outcome subgroup analyses for athlete level, dual-task type, physical, cognitive and technical performance.

**Sensitivity analysis** Study selection of "QualSyst" quality analyses for articles of medium or higher quality.

**Language restriction** Only English.

**Country(ies) involved** Malaysia.

**Keywords** "dual-task" OR "double task" OR "multi-task" OR "divided attention" OR "secondary task" OR "second task" and "divided attention" OR.

**Contributions of each author**

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