

# INPLASY

## Golf-specific skill tests for talent identification, performance evaluation, and intervention validation: A systematic review and testing framework

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### ADMINISTRATIVE INFORMATION

**Support** - No funding was received.

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

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202520055

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 February 2025 and was last updated on 10 February 2025.

### INTRODUCTION

**Review question / Objective** This review systematically integrates existing golf-specific skill testing methods based on evidence from randomized controlled trials (as well as non-randomized controlled trials). It aims to identify the key characteristics of different testing methods (such as testing environments and evaluation metrics), reveal current research limitations, and ultimately propose a unified and scientifically sound testing guideline.

**Rationale** Providing reliable skill testing methods for high-level golf educators and coaches to support talent selection, performance evaluation, and intervention validation is a crucial task in advancing golf teaching practices.

**Condition being studied** However, no review has systematically compiled golf-specific skill tests applicable to talent identification, performance assessment, and intervention validation. Existing studies have not comprehensively summarized

different types of golf skill tests and their outcome variables. As a result, there is a lack of clear understanding regarding the applicability, effectiveness, and impact of various testing methods on competitive performance, which limits the selection and optimization of tests in both training and research. Furthermore, current studies employ diverse testing methods with significant variations in testing environments, evaluation metrics, and standardization levels. The absence of standardized testing protocols hinders the comparability of research findings and reduces their practical value.

### METHODS

**Search strategy** This review systematically searched the Web of Science, PubMed, SPORTDiscus, and Scopus databases, and additionally searched for gray literature in Google Scholar. A standardized search procedure was applied across all databases without the use of automation tools. The search keywords were: (golf OR golfer\*) AND ("performance test\*" OR "skill\*

test<sup>\*\*</sup>). The search began on January 14, 2025, and was finalized on February 7, 2025.

**Participant or population** Competitive-level golfers, such as professional or collegiate athletes participating in high-level golf competitions.

**Intervention** Any intervention.

**Comparator** Any control condition.

**Study designs to be included** Randomized controlled trials (RCTs) or non-randomized controlled trials (nRCTs) that utilized golf-specific skill tests in controlled environments to assess athletic performance.

**Eligibility criteria** This review included peer-reviewed English-language literature.

**Information sources** Web of Science, PubMed, SPORTDiscus, and Scopus databases, and additionally searched for gray literature in Google Scholar.

**Main outcome(s)** This study analyzed 13 articles, revealing that golf-specific skill tests are widely used in pre-competition preparation and warm-ups, physical training interventions, and cognitive and psychological training interventions related to golf performance. Existing studies primarily employ Driving Tests, Iron Tests, and Putting Tasks. However, research on Iron Tests is limited, and no specific tests for Chipping and Bunker Shots were identified, indicating gaps in these areas. Regarding test variables, distance and accuracy are the most commonly used evaluation metrics due to their ease of implementation and broad applicability. Based on these findings, this review proposes a standardized testing framework that follows the principle of “striking the ball into the target area.” This framework consists of four core elements: Ball-striking Zone, Target Zone, Distance Between Zones, and Club Selection. It incorporates standardized testing field setups and a unified evaluation system based on accuracy rates. This standardized framework can be widely applied across different contexts and populations, providing a valuable reference for future talent selection, performance assessment, intervention validation, and the development of golf-specific skill tests.

**Data management** The literature selection process was conducted using EndNote reference management software and followed the PRISMA guidelines. Specifically, search results from each database were recorded and imported into

EndNote for reference management, where duplicates were removed. Studies were then screened according to the inclusion criteria, followed by a full-text review of the selected articles. Two researchers independently conducted the screening process, and their results were cross-checked. In cases of disagreement, a third researcher was consulted to reach a consensus.

**Quality assessment / Risk of bias analysis** This study employed the "QualSyst" method to assess the methodological quality of the included studies (Kmet, 2004). This method has been validated as suitable for evaluating the quality of RCTs and nRCTs in the field of sports science (Sun et al., 2021; Cao et al., 2022; Pan et al., 2024).

The QualSyst assessment consists of 14 evaluation criteria:

- I. Clearly stated research question;
- II. Appropriate study design;
- III. Suitable participant selection;
- IV. Clear description of participant characteristics;
- V. Randomization of group assignment;
- VI. Blinding of researchers;
- VII. Blinding of participants;
- VIII. Clearly defined outcome measures with effective bias prevention;
- IX. Adequate sample size;
- X. Clearly described data analysis methods;
- XI. Reported variance estimates;
- XII. Control of confounding factors;
- XIII. Detailed reporting of results;
- XIV. Conclusions supported by study findings.

Scoring was based on the extent to which each criterion was met (Yes = 2, Partially = 1, No = 0). If a criterion was not applicable to a study design, it was marked as “N/A” and excluded from the total score calculation. Studies with a score of  $\geq 75\%$  were considered high quality, those scoring 55%–75% were classified as moderate quality, and those scoring  $\leq 55\%$  were considered low quality. Studies classified as low quality were excluded from the review.

**Strategy of data synthesis** During the full-text review, two researchers independently performed quality assessments and data extraction, and their results were cross-checked. Any discrepancies were resolved through consultation with a third researcher.

**Subgroup analysis** Similarly, during the full-text review, two researchers independently performed quality assessments and data extraction, and their results were cross-checked. Any discrepancies

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were resolved through consultation with a third researcher.

**Sensitivity analysis** Similarly, during the full-text review, two researchers independently performed quality assessments and data extraction, and their results were cross-checked. Any discrepancies were resolved through consultation with a third researcher.

**Language restriction** Exclude non-English articles.

**Country(ies) involved** Malaysia and China.

**Keywords** golf performance; test; guideline; framework.

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