

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	Page 1, Lines 1-2
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Pages 1, Lines 23-42
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pages 2, Lines 47-89
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 2, 85-89
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 3, Lines 110-115, Table 1
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 2-3, Lines 97-107
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplementary Table S1.
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 2-3, Lines 97-107
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pages 3-4, 119-127
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Not applied
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Not applied
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 6, Lines 143-151
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Not applied
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 4, Lines 129-136
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Not applied
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Not applied
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Not applied
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applied
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applied
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not applied
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not applied
<b>RESULTS</b>			

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Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Pages 4, Lines 147-151, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Not applied
Study characteristics	17	Cite each included study and present its characteristics.	Page 5, Lines 183-194, Table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Pages 7, Lines 180-187, Figures 2 y 3
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Not applied
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Pages 6,7, lines 199-211, figures 2 y 3.
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pages 7-11, Lines 213-290, Tables 3 y 4
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applied
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applied
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applied
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applied
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 11-13, Lines 291-393
	23b	Discuss any limitations of the evidence included in the review.	Pages 13, Lines 395-407
	23c	Discuss any limitations of the review processes used.	Pages 13, Lines 395-407
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 13, Lines 409-419
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	PROSPERO, record: CRD42022313096
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Not applied
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applied
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Pages 14 Line 438
Competing interests	26	Declare any competing interests of review authors.	Pages 14, line 444
Availability of data, code and	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Not applied

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other materials			

**Table S1:** Prisma checklist.

*From:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71  
For more information, visit: <http://www.prisma-statement.org/>

## Supplementary material

**Table S2:** Complete search strategy

Type 1. Search strings for PubMed
1 "Arthroplasty"[Mesh] OR "Arthroplasty, Replacement"[Mesh] OR "Hemiarthroplasty"[Mesh])
2 "motor imagery" OR "action observation" OR "grade motor imagery" OR "mirror therapy" OR "movement representation techniques"
4 #1 AND #2
5 Methodology: journal articles
6 Filter: Population Group: Humans
7 Filter: Article Type: Randomized Controlled Trial, Clinical Trial

Type 2. Search strings for Web of Science
1 "motor imagery" OR TI=(grade motor imagery )) OR TI=(movement representation techniques )) OR TI=(action observation therapy
2 "Arthroplasty"[Mesh] OR "Arthroplasty, Replacement"[Mesh] OR "Hemiarthroplasty"[Mesh])
3 #1 AND #2
4 Methodology: journal articles
5 Filter: Population Group: Humans

Type 3. Search strings for EBSCO
1 Movement representation techniques OR motor imagery OR grade motor imagery OR action observation therapy OR mirror therapy
2 arthroplasty OR hemiarthroplasty
3 #1 AND #2

Type 4. Search strings for ScienceDirect
1 ("motor imagery" OR "action observation" OR "mirror therapy" OR "movement representation techniques" OR "grade motor imagery")
2 ("arthroplasty" OR "replacement")
3 #1 AND #2
4 Methodology: journal articles

Type 5. Search strings for Pubmed Central
1 arthroplasty[MeSH Terms]) OR replacement[MeSH Terms]) OR hemiarthroplasty 2 motor imagery[Text Word]) OR grade motor imagery[Text Word]) OR action observation[Text Word]) OR mirror therapy[Text Word]) 3 #1 AND #2 5 Methodology: journal articles 6 Filter: Population Group: Humans 7 Filter: Article Type: Randomized Controlled Trial, Clinical Trial