

**CASP Checklist:** 10 questions to help you make sense of a **Systematic Review**

**How to use this appraisal tool:** Three broad issues need to be considered when appraising a systematic review study:

- ▶ Are the results of the study valid? (Section A)
- ▶ What are the results? (Section B)
- ▶ Will the results help locally? (Section C)

The 10 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions. There is some degree of overlap between the questions, you are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

**About:** These checklists were designed to be used as educational pedagogic tools, as part of a workshop setting, therefore we do not suggest a scoring system. The core CASP checklists (randomised controlled trial & systematic review) were based on JAMA 'Users' guides to the medical literature 1994 (adapted from Guyatt GH, Sackett DL, and Cook DJ), and piloted with health care practitioners.

For each new checklist, a group of experts were assembled to develop and pilot the checklist and the workshop format with which it would be used. Over the years overall adjustments have been made to the format, but a recent survey of checklist users reiterated that the basic format continues to be useful and appropriate.

**Referencing:** we recommend using the Harvard style citation, i.e.: *Critical Appraisal Skills Programme (2018). CASP (insert name of checklist i.e. Systematic Review) Checklist. [online] Available at: URL. Accessed: Date Accessed.*

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Paper for appraisal and reference: .....

Section A: Are the results of the review valid?

1. Did the review address a clearly focused question?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: An issue can be 'focused' In terms of

- the population studied
- the intervention given
- the outcome considered

Comments: Population Studied: any age, any sex, dx with concussion within 3 months of injury  
Intervention given: physical exercise (exertion, activity TM, cycling, stretching)  
Outcome assessed: PCSS, number of patients with symptoms, duration of symptoms, ImPact, PESS, neuropsychological test, recovery time, full function, days off work, duration of rest, mental activity

2. Did the authors look for the right type of papers?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: 'The best sort of studies' would

- address the review's question
- have an appropriate study design (usually RCTs for papers evaluating interventions)

Comments: RCTs, Cohort studies, case control studies, before and after studies.

Is it worth continuing?

3. Do you think all the important, relevant studies were included?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Look for

- which bibliographic databases were used
- follow up from reference lists
- personal contact with experts
- unpublished as well as published studies
- non-English language studies

Comments: Cochrane Collaboration tool was used.  
Methodological quality of cohort studies assessed using SIGN  
methodological quality of before and after studies assessed using the NIH quality assessment tool

4. Did the review's authors do enough to assess quality of the included studies?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: The authors need to consider the rigour of the studies they have identified. Lack of rigour may affect the studies' results ("All that glisters is not gold" Merchant of Venice – Act II Scene 7)

Comments: Evidence was assessed using GRADE process

5. If the results of the review have been combined, was it reasonable to do so?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider whether

- results were similar from study to study
- results of all the included studies are clearly displayed
- results of different studies are similar
- reasons for any variations in results are discussed

Comments: Results were combined, but also separated into categories comparing differences among groups for those who exercised and those who had not; symptoms, balance, neuropsychological tests, recovery time, days off work or duration of rest.

Section B: What are the results?

6. What are the overall results of the review?

HINT: Consider

- If you are clear about the review's 'bottom line' results
- what these are (numerically if appropriate)
- how were the results expressed (NNT, odds ratio etc.)

Comments: Demonstrated clear benefits of physical exercise decreasing the PCSS score, percentage of the patients with symptoms of concussion and duration of symptoms; without affecting balance and neuropsychological functions.

7. How precise are the results?

HINT: Look at the confidence intervals, if given

Comments: Unclear

Section C: Will the results help locally?

8. Can the results be applied to the local population?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider whether

- the patients covered by the review could be sufficiently different to your population to cause concern
- your local setting is likely to differ much from that of the review

Comments:

9. Were all important outcomes considered?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider whether

- there is other information you would like to have seen

Comments: Would have been interested to see how physical exertion impacted vestibular scores (VOMS). As dynamic exertion may exacerbate symptoms.

10. Are the benefits worth the harms and costs?

Yes	<input checked="" type="checkbox"/>
Can't Tell	<input type="checkbox"/>
No	<input type="checkbox"/>

HINT: Consider

- even if this is not addressed by the review, what do **you** think?

Comments: This is a low cost intervention with benefit.