

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]

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Paper for appraisal and reference:

Murray DA, Meldrum D, Lennon O. Can vestibular rehabilitation exercises help patients with concussion? A systematic review of efficacy, prescription and progression patterns. *British Journal of Sports Medicine* 2017;**51**:442-451.

| | eview valid? | |
|---|--|--|
| 1. Did the review address a clearly focused question? | Yes X Can't Tell No | HINT: An issue can be 'focused' In terms of |
| Comments: 1) Does VR post-concussion improstabilization deficits, (c) balance in 2) Does VR facilitate early return t | npairment, (d) gait imp | ts of dizziness and vertigo, (b) gaze airment? |
| 2. Did the authors look for the right type of papers? | Yes x Can't Tell No | HINT: 'The best sort of studies' would address the review's question have an appropriate study design (usually RCTs for papers evaluating interventions) |
| vestibular symptoms, intervention -Systematic search and review wa | ns detailing VRT, measu s performed using the tudy of methodology. T | ulation of patients with concussion/mTBI with rement of outcomes pre-VRT and post-VRT. PRISMA guidelines. hey were hoping for a more comprehensive |
| | | |
| Is it worth continuing? | | |



-Databases (May 2015): PubMed (1949-2015), CINAHL (1982-2015), EMBASE (1947-2015), SPORTdiscuss (1985-2015), Web of Science (1945-2015) and PEDRO (1999-2015)

- -Reference lists retrieved from articles and guideline documents were screened for additional relevant articles, publications, posters, abstracts and conference proceedings
- 4. Did the review's authors do enough to assess quality of the included studies?

| Yes | |
|------------|---|
| | X |
| Can't Tell | |
| | |
| | |

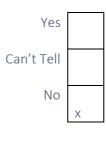
No

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:

- -The risk of bias was evaluated by two reviewers
- -RCTs: Cochrane Risk of Bias tool for randomised controlled trails
- -Observational studies (co-hort, case-control, cross-sectional) and Case studies: Effective Public Health Practice Project Quality Assessment Tool
- -Alternative study methodologies: Sackett's initial rules of evidence
- 5. If the results of the review have been combined, was it reasonable to do so?



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:

- -Meta-analysis was not performed
- -Authors reported not done due to the variation in study methodology and outcome measures

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:

- -7 of the 10 articles had a high risk of bias
- -Level of evidence supporting VRT in concussion/mTBI would low using Sackett's criteria
- -Highest level of evidence with low bias -2 treatments included VRT and cervical spine physiotherapy
- -This literature is low in abundance, but the existing studies suggest a use for VRT in patients with mTBI/concussion experiencing vertigo and/or balance impairments
- -Optimal time to begin treatment following injury still unclear
- -Lack of standardization across studies when it came to prescription and progression of exercises
- -Best article in utilizing FITT criteria was Alsalaheen et al.
- -There is a high need for high-quality RCTs to definitively evaluate effects of VRT on patients with concussion/mTBI with persistent vestibular and/or balance dysfunctions

| 7. How precise are the results? | | HINT: Look at the confidence intervals, if given |
|--|---------------------|---|
| Comments: -Not given | | |
| Section C: Will the results help locally? | | |
| 8. Can the results be applied to the local population? | Yes Can't Tell No | 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: -Adults and children were in the study -Males and females were participants -Military personal -Sports related concussions | | |
| 9. Were all important outcomes considered? | Yes x Can't Tell No | HINT: Consider whether • there is other information you would like to have seen |
| Comments: -ABC scale -DHI score | | |



| -FGA score | | |
|-------------------------------------|-----------------------|--|
| -TUG | | |
| -SOT | | |
| -FTST | | |
| -Dizziness severity score | | |
| -Likert scale | | |
| -ImPACT screening tool | | |
| -DVA | | |
| -VOR testing | | |
| -BESS | | |
| -Return to work | | |
| -HiMAT | | |
| *Most studies were to trying to ass | ess functional outcom | nes along with self-reports for symptom |
| severity | | |
| | | _ |
| 10. Are the benefits worth the | Yes x | HINT: Consider |
| harms and costs? | | even if this is not addressed by the |
| | Can't Tell | review, what do you think? |
| | | |
| | No | |

Comments:

-The limited studies available do suggest benefit and no adverse effects have thus far been associated with VRT treatment within this population.