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## Introduction

Both patient-reported outcome measures (PROMs) and computerized movement analysis-based methods (CMABMs) allow the evaluation of shoulder function.

The debates on the validity of shoulder PROMs and the improved accessibility of CMABMs provoke an imperative to investigate whether CMABMs could represent an alternative to questionnaire-based approaches.

## Purpose

This review aims to compare the measurement properties of currently used PROMs and CMABMs for shoulder function evaluation.

## Methods

The properties of the **six most frequent valid PROMs** (Constant, DASH and QuickDASH, SST, ASES, WOSI) and **all the CMABMs** for shoulder function were investigated.

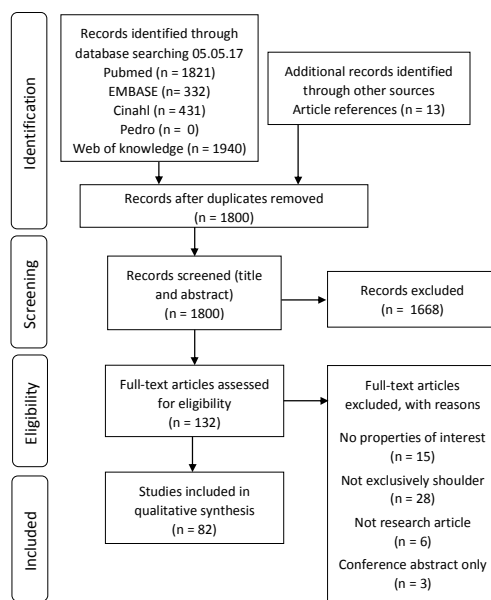
A search was run on Medline, Embase, CINAHL, WoS and Pedro to retrieve the articles in English or French before May 2017.

Measurement properties were extracted and then interpreted based on **recognized standards of adequacy** and benchmarking of PROMs and CMABMs, with double-checking occurring at each step.

No literature rating or meta-analysis was conducted due to the lack of adequate methods for these purposes.

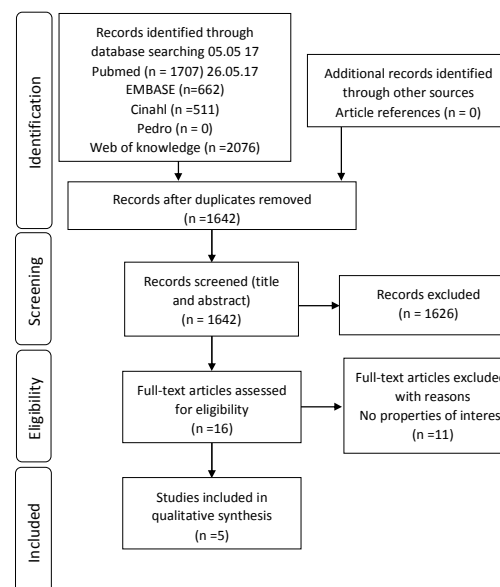
## Results

Fig. 1: Prisma Flow Diagram PROMs



## Results

Fig. 2: Prisma Flow Diagram kinematic scores



## Discussion & Conclusions

No PROM or CMABM was superior to any other except for the **WOSI for shoulder instability**.

Outcome measures merely displayed condition-specific clinimetric advantages.

The information is too limited to conclude on the potential of CMABMs for shoulder function evaluation in the future.

Nevertheless, **CMABMs constitute a suitable alternative or complement to PROMs for shoulder function evaluation**.

## Recommendations

**The choice of a shoulder function outcome measure should be oriented by its specific measurement properties for the target population.**

More research investigating the measurement properties of existing CMABM outcome measures is needed.

## References

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- PICHONNAZ, C., LECUREUX, E., BASSIN, J. P., DUC, C., FARRON, A., AMINIAN, K., JOLLES, B. M. & GLEESON, N. 2015c. Enhancing clinically-relevant shoulder function assessment using only essential movements. *Physiol Meas*, 36, 547-60.



**Heterogeneity** of methodological approaches and **scarcity** of direct comparison limited comparisons amongst **outcome measures**.

No PROMs showed superior properties to the others, except for the **WOSI** for shoulder instability evaluation.

Reliability and responsiveness of CMABMs matched and sometimes exceeded PROMs' capabilities in direct comparisons for all pathologies except shoulder instability.



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