Teaching Musculoskeletal Clinical Skills: A Best Evidence in Medical Education (BEME) Systematic Review of Techniques and Their Efficacy

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Background Information

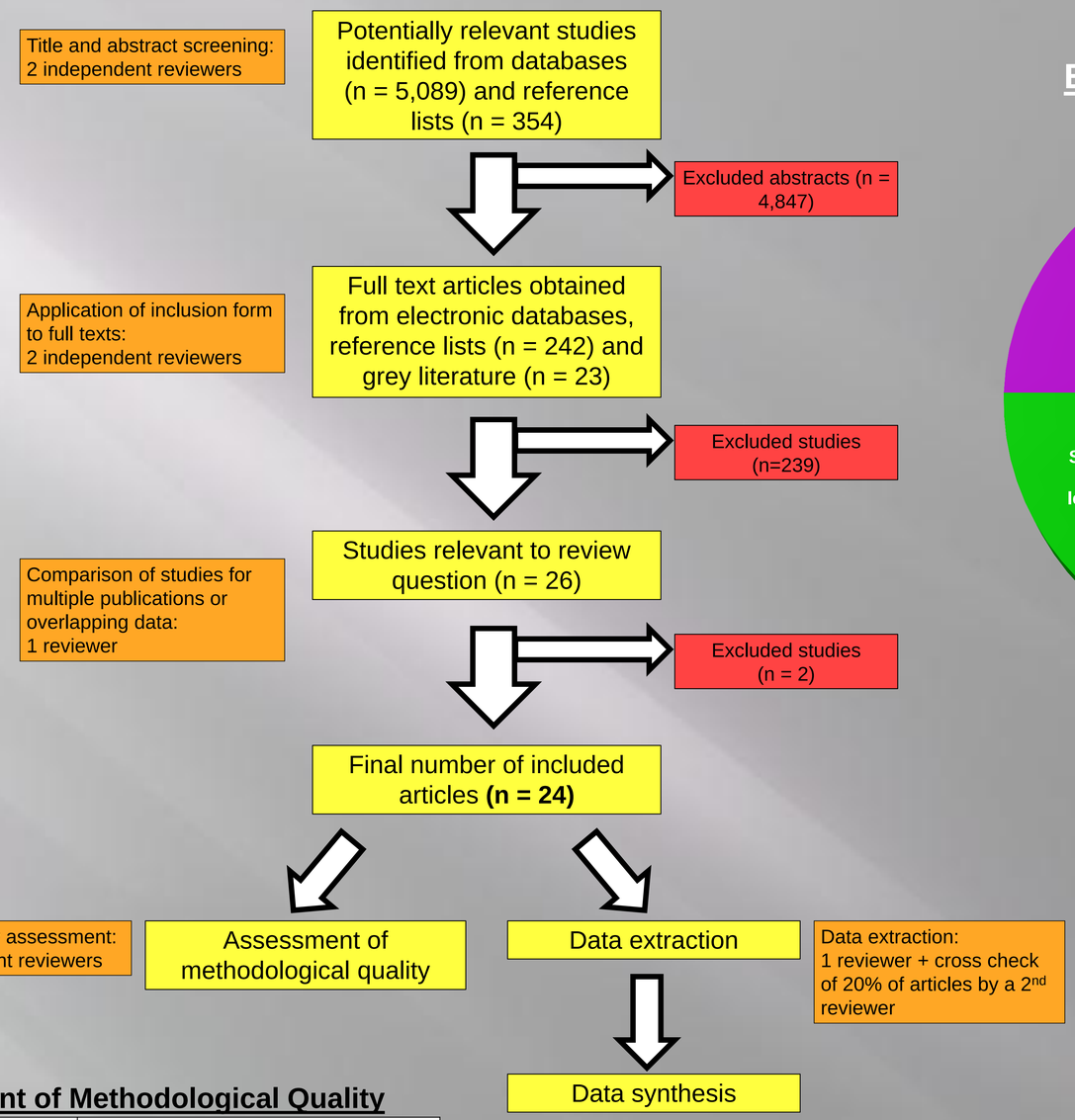
•1991-2031: Projected prevalence of arthritis is expected to increase from 2.9 million to 6.5 million Canadians, a rise of 124% (Badley 1998).

•Disability caused by arthritis is significantly associated with increased risk of being out of the Canadian labour force (Badley 2001).

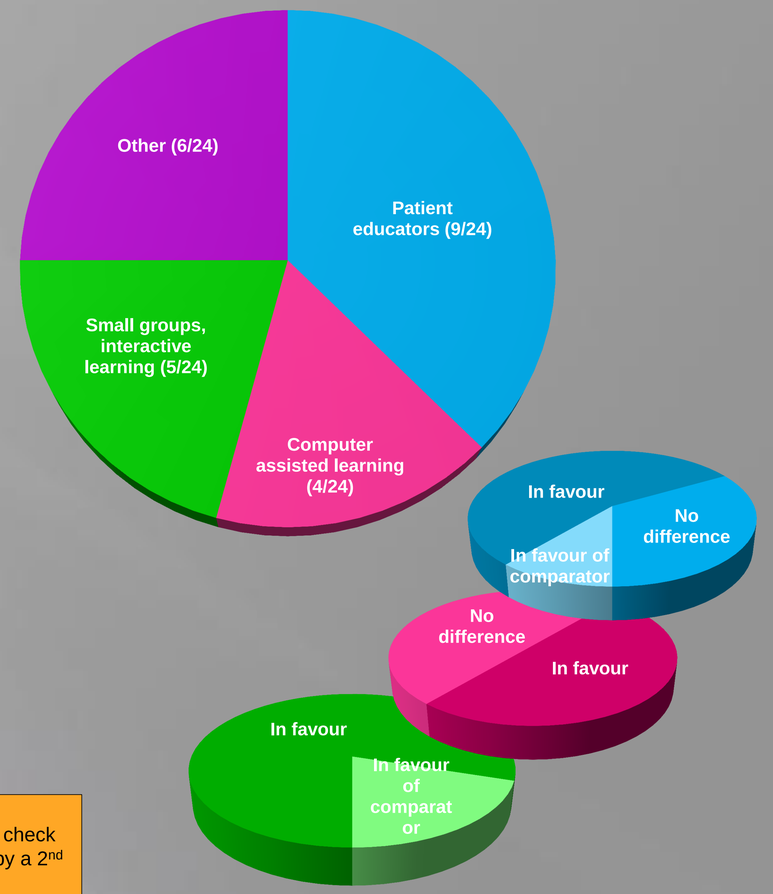
•1996 per capita medical care expenditures for persons with MSK conditions averaged $3,578 for a national total of $193 billion in the United States. This was the equivalent of 2.5% of the Gross Domestic Product in that year (Yelin 2001).

• The American Association of Medical Colleges (2005) and the Collège des Médecins du Québec (1999) have identified MSK clinical skills as areas of weakness in medical school curricula and among practicing physicians.

Flow of studies through the search and analysis process



Efficacy of Teaching Interventions



Review Characteristics

•Total number of participants involved in the trials reviewed was over 2500

•18/24 studied undergraduate medical students – remainder studied residents, practicing physicians or a combination of training levels

•15/24 studies utilized MSK OSCEs as their primary outcome – remainder measured knowledge via written test scores or student confidence.

Assessment of Methodological Quality

Type of study	Number	Common sources of bias
Randomized controlled trials	12	10/12: inadequate blinding
		6/12: incomplete/unclear data presentation
Cohorts	12	9/12: unclear/absent description of blinding
		8/12: incomplete/absent control of participant characteristics

Any of these flaws may result in an overestimation of an intervention's effects. Only 3/24 studies provided power calculations. Thus, for most studies it is not possible to determine if observations of no difference between the interventions being compared represents actual equivalence or simply points to insufficient statistical power (i.e. Type II errors).

Conclusion

This review provides supportive evidence for the use of several instructional methods to teach MSK skills with most studies supporting patient educator, interactive small group teaching and computer assisted learning. As class sizes grow, interest in the use of alternate instructional methods is increasing, and many may be more efficient and cost-effective than traditional teaching methods.

References

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