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Exercise for anxiety in multiple sclerosis: a systematic review and meta-analysis

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Introduction

- Symptoms of anxiety are common in people with multiple sclerosis (MS), affecting up to 55% of the MS population¹.
- Exercise may help to alleviate anxiety in people with MS.

Aims

- To understand the **effect of exercise on anxiety** compared to no exercise, in people with MS.
- To review **reporting of consumer, expert and evidence engagement in the design of exercise interventions.**

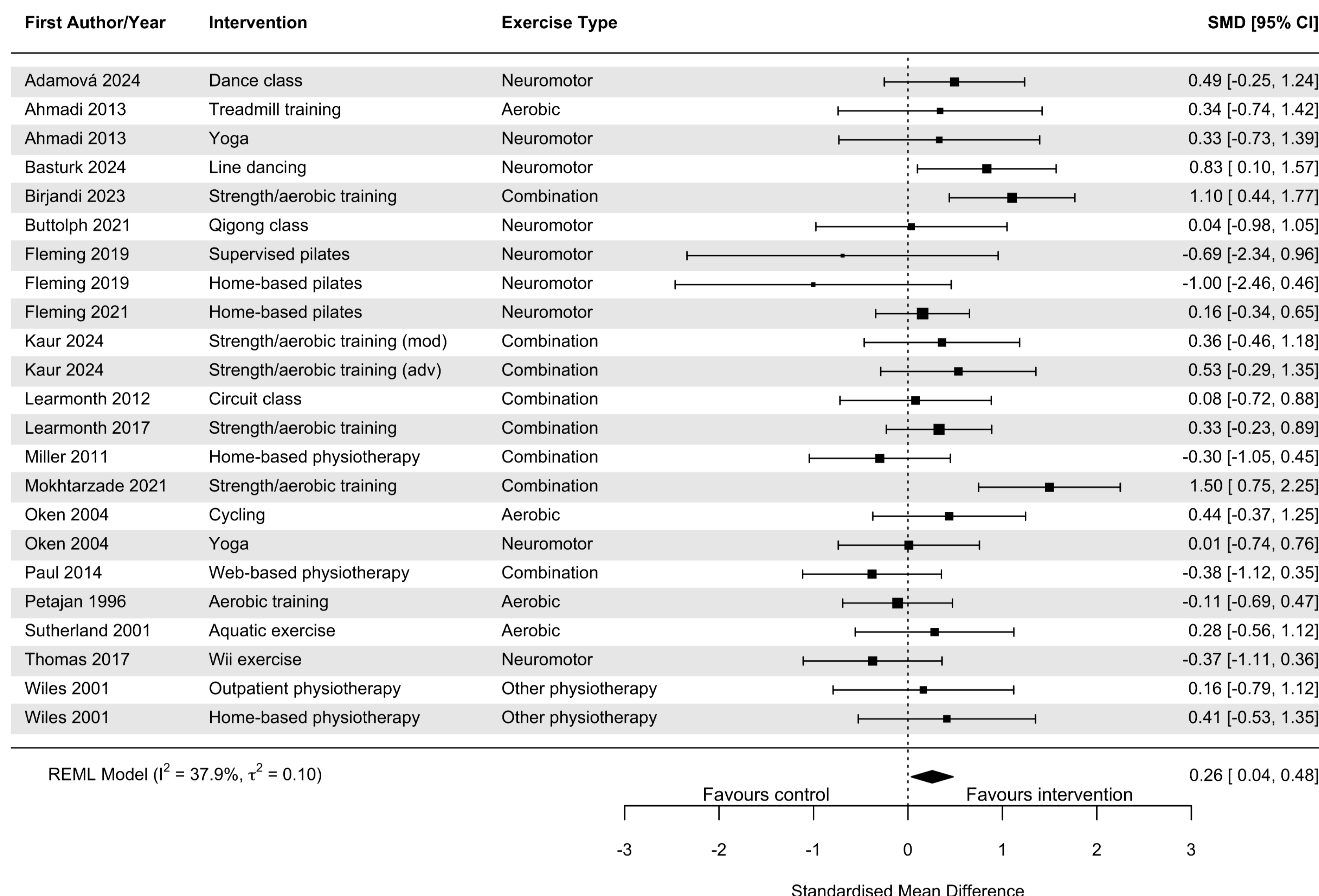
Methods

- Database searches: MEDLINE, Embase, PsycINFO, CINAHL, CENTRAL, Scopus, Web of Science and PEDro up to November 2024.
- Trial eligibility: Trials including people with MS, an exercise arm², an inactive control arm, and an anxiety outcome measure.
- Analysis: random-effects model to compare the standardised mean difference in anxiety between the intervention and control groups.
- We used Cochrane Risk of Bias 2 to assess risk of bias (ROB).

Results

- We included 18 trials, showing a **small positive effect of exercise on symptoms of anxiety** in people with MS with low-to-moderate heterogeneity (SMD: 0.26, 95% CI: 0.04, 0.48; I²: 38%) (Fig 1).
- Trials reported that interventions were informed by consumer co-design in four trials (22%), clinician/expert co-design in three trials (17%) and evidence review in seven trials (39%) (Fig 2).
- All trials were assessed as high ROB due to self-reported outcomes in unblinded participants (Fig 3).

Results



Abbreviations: CI, confidence interval; REML, restricted maximum likelihood; SMD, standardised mean difference.

Figure 1. Forest plot of the effect of exercise on anxiety compared to no exercise

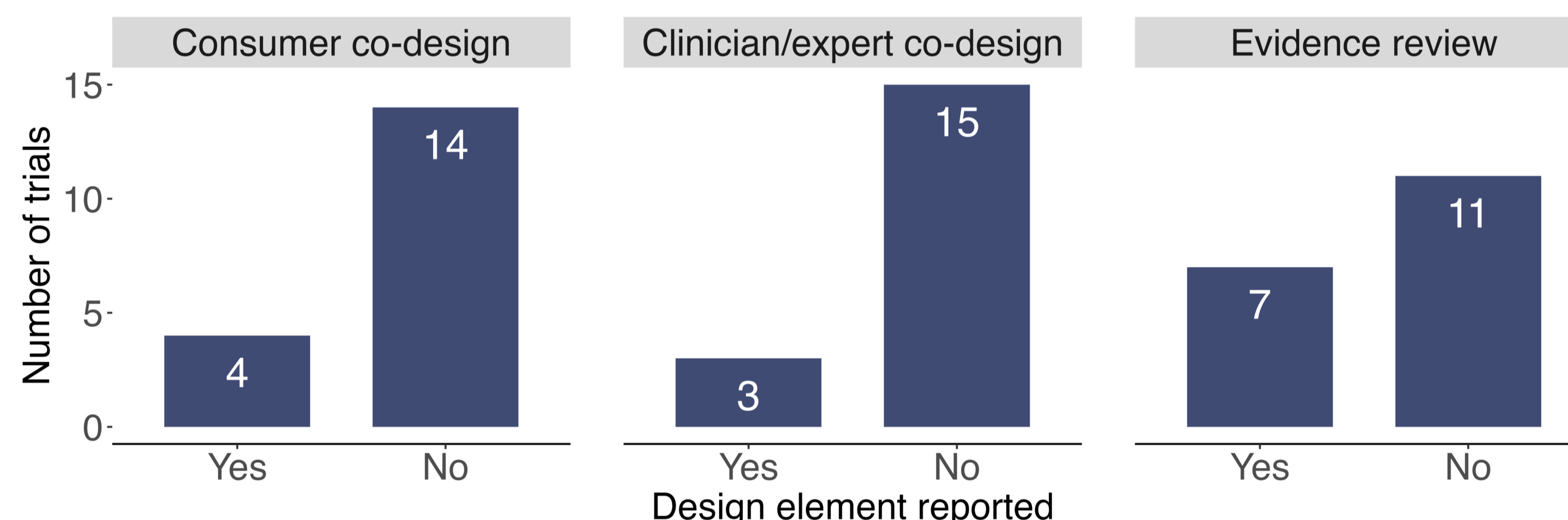


Figure 2. Reporting of intervention development

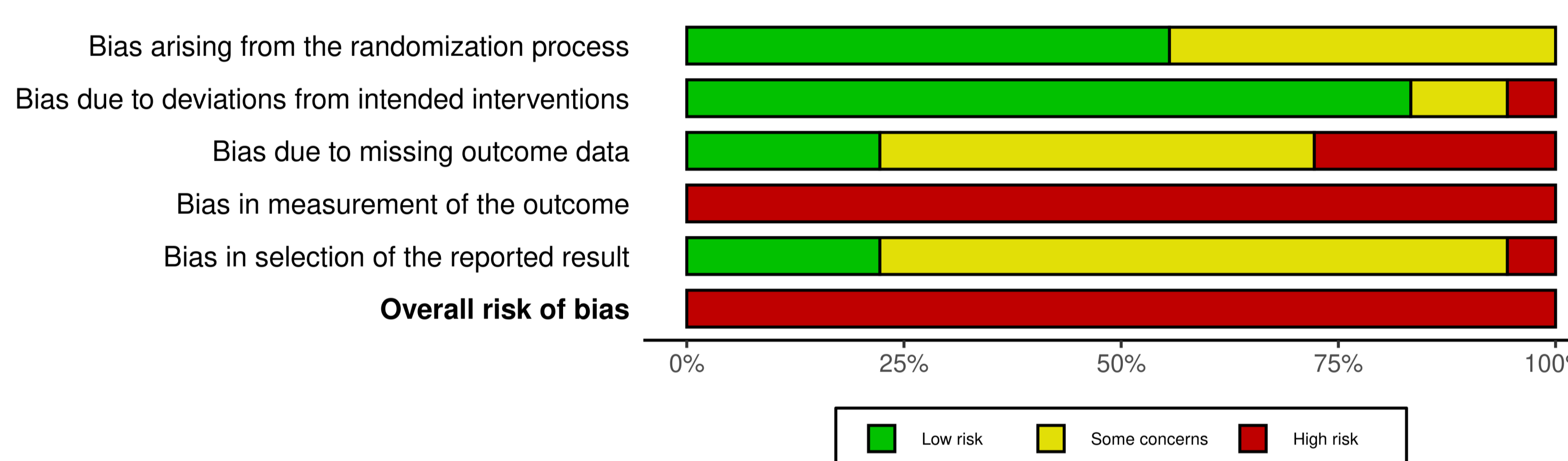


Figure 3. Cochrane Risk of Bias 2 summary

Conclusion

- Exercise is a **safe, accessible treatment that can reduce anxiety** in people with MS.
- Development of **evidence-based, consumer- and community-informed interventions are needed.**
- Methods to reduce bias for anxiety outcomes should be considered.

References

¹Jones, KH. et al., 2012, *PLoS ONE*

²Caspersen et al., 1985, *Public Health Rep*

