

# The Effectiveness of Virtual Reality in Patients with Spinal Pain: A Systematic Review and Meta-analysis

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## Background

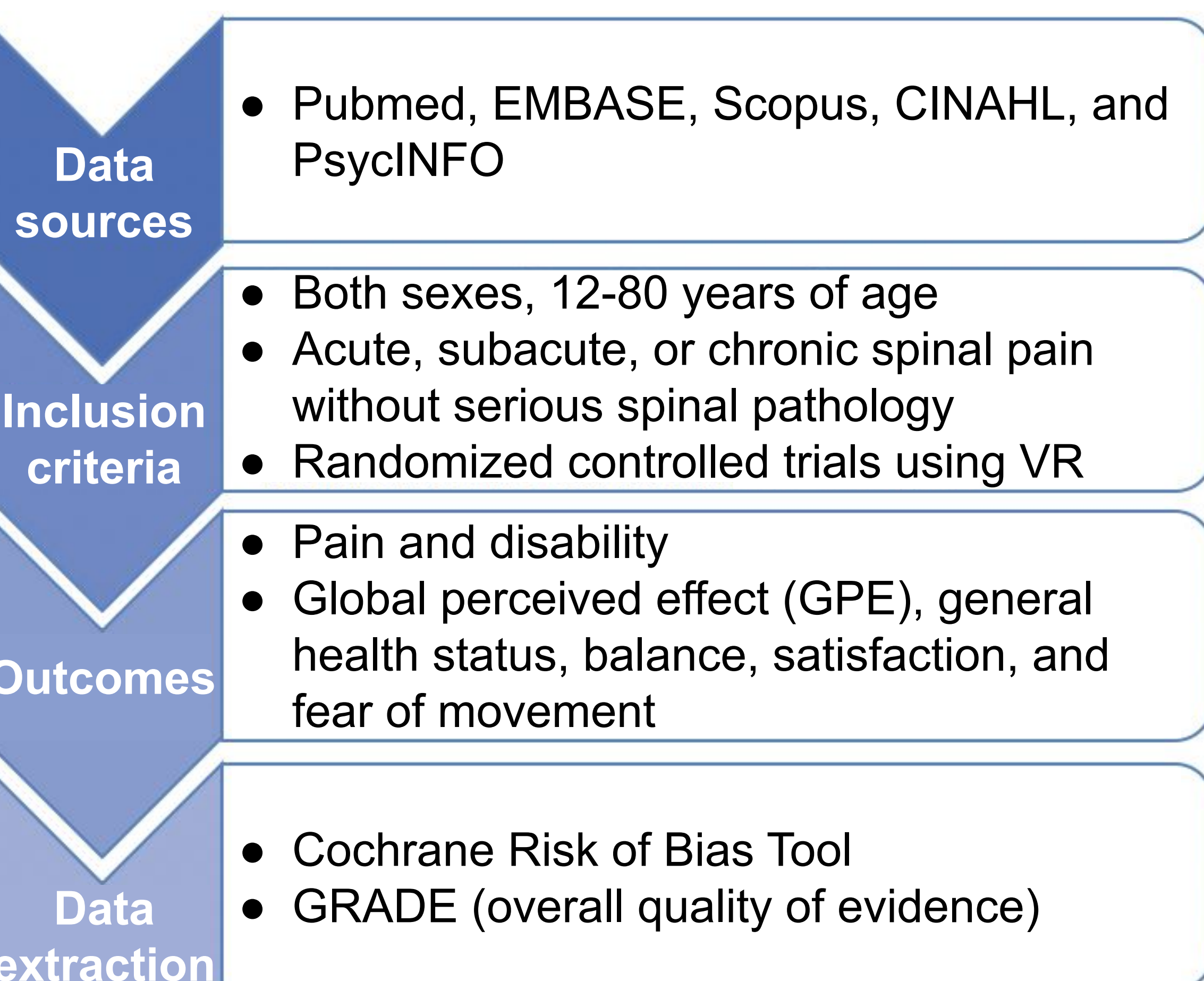
- Virtual reality (VR) is simulations that combine interaction devices and sensory display systems.
- No previous systematic review has focused on the effectiveness of VR for spinal pain.**



## Purpose

- To investigate the **effectiveness of VR technology** in the management of individuals with **acute, subacute, and chronic spinal pain.**

## Methods



## Results

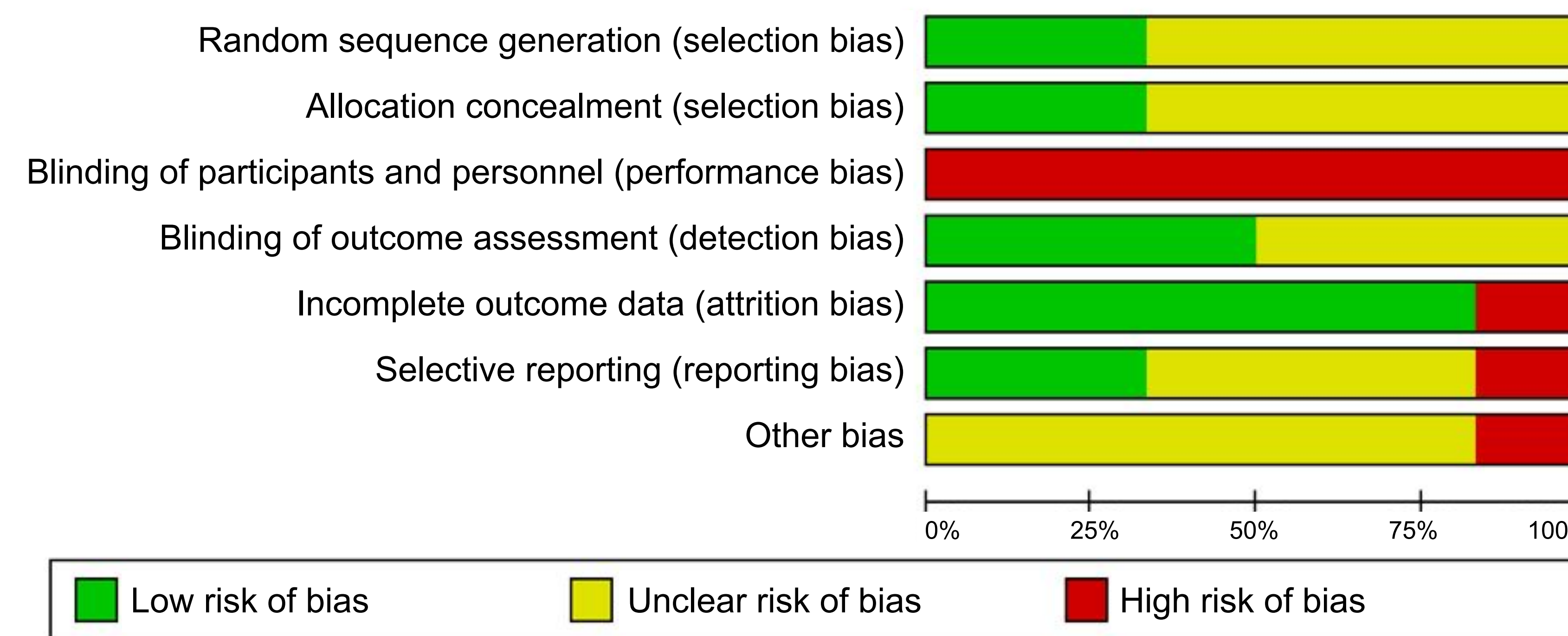
- 467 potential eligible studies
- 6 studies included (n=267) with **high risk of bias**

**Neck pain (NP): 2 studies (1 comparison)**

Low to very low overall quality of evidence

**Low back pain (LBP): 4 studies (4 comparisons)**

Very low overall quality of evidence



**Chronic NP: Short-term**

VR (Headset airplane flight) vs Kinematic Training  
 $p < 0.05$ : GPE, Satisfaction, General Health  
 No clinically important effect

**Chronic NP: Intermediate-term**

VR (Headset airplane flight) vs Kinematic Training  
 $p < 0.05$ : General Health, Balance  
 No clinically important effect

**Subacute/Chronic LBP: Short-term**

VR (Nintendo Wii yoga) vs Lumbar Stabilization Exercises  
**Clinically important effect** for Pain Intensity, Disability, Fear of Movement

**Chronic LBP: Short-term**

VR (Headset walking program) vs Conventional Physical Therapy  
 $p < 0.05$ : Fear of movement  
**Clinically important effect** for Pain Intensity



## Conclusions

### Neck Pain:

- VR provides **slightly better improvements** than kinematic training for GPE, satisfaction, general health, and balance; but not for pain, disability, and fear of movement.

### LBP:

- VR provides **better improvements** than stabilization exercises for pain intensity, disability, and fear of movement; and for pain intensity and fear of movement compared to conventional physical therapy.
- There is **no difference** between VR and physical agent modalities and no treatment for any outcome.

**Future methodologically rigorous studies are needed**

## Clinical Relevance

- There are **some clinically important effects** of VR for LBP, but not for neck pain, compared to other treatments.
- VR may be considered as a **treatment option for LBP based on cost, safety, and patient needs.**

## Acknowledgements / References

- The authors would like to acknowledge the assistance of Leila Ledbetter, biomedical librarian.
- References available upon request.
- <https://arpost.co/2018/08/16/virtual-reality-physical-therapy/>