

# Efficacy of Dronabinol on Obstructive Sleep Apnea: A Systematic Review and Meta-Analysis

Sofia Khan, DO<sup>1</sup>, Patrick Keefe, BFA<sup>2</sup>, Srivatsa Surya Vasudevan, MD, MS<sup>3</sup>, Douglas P. Nanu, MD<sup>4</sup>, Michele M. Carr, DDS, MD, PhD<sup>1</sup>

1. Department of Otolaryngology, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, Buffalo, NY, USA  
2. Chicago College of Osteopathic Medicine, Downers Grove, IL, USA  
3. Department of Otolaryngology, Louisiana State University Health Sciences Center Shreveport, Shreveport, LA, USA  
4. Department of Head and Neck Surgery and Communication Sciences, Duke University Hospitals, Durham, NC, USA



## Introduction

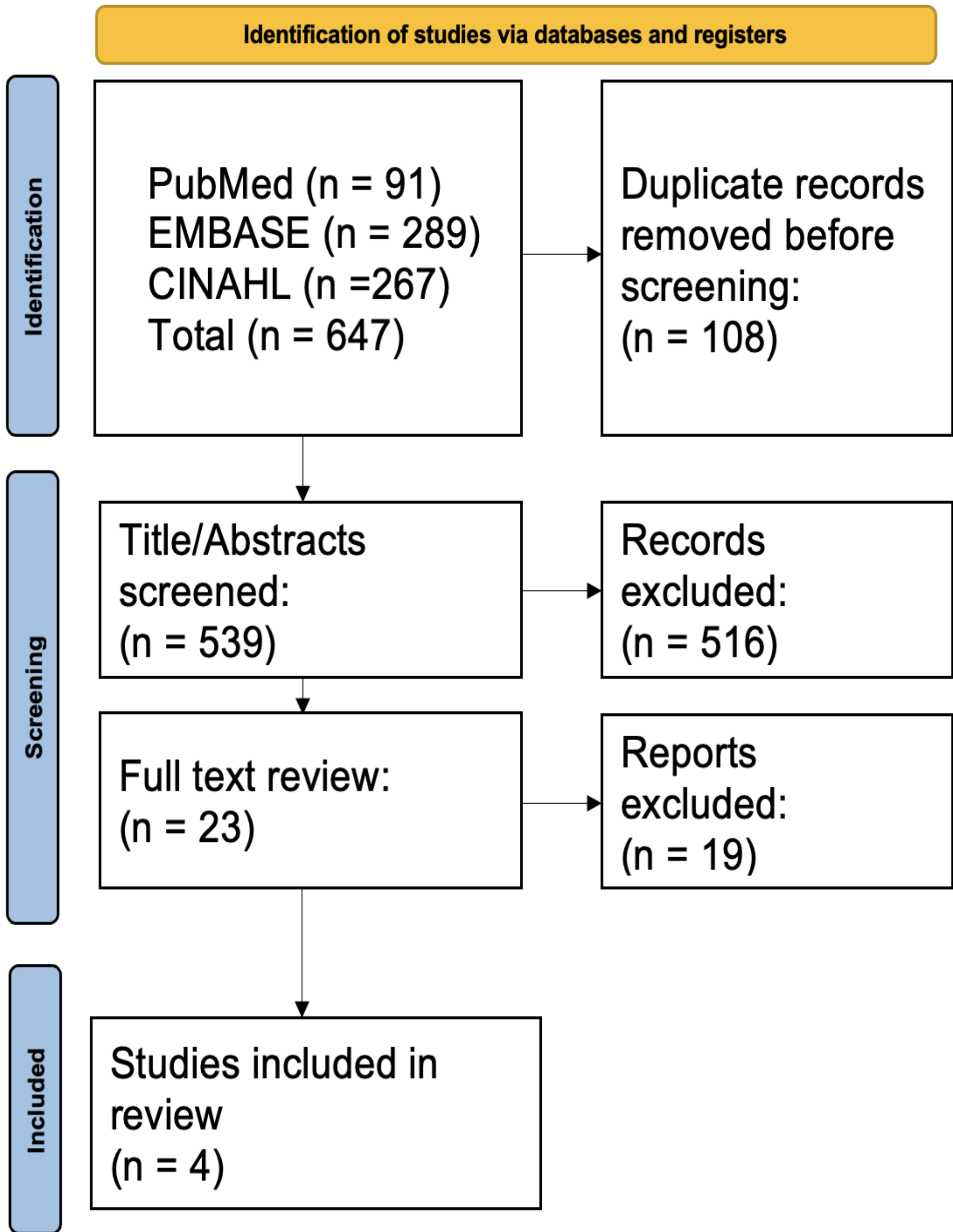
- Obstructive Sleep Apnea (OSA) is driven by anatomic and non-anatomic mechanisms
- Continuous Positive Airway Pressure (CPAP) is effective, but long-term adherence remains suboptimal
- Dronabinol may modulate central respiratory control and upper-airway neuromuscular tone.
- Objective:** Evaluate the effect of dronabinol-containing therapy on sleep parameter outcomes in adults with OSA.



Pharmacy Times. Camber Pharmaceuticals Launches Generic Marinol®. Published February 12, 2020.

## Methods

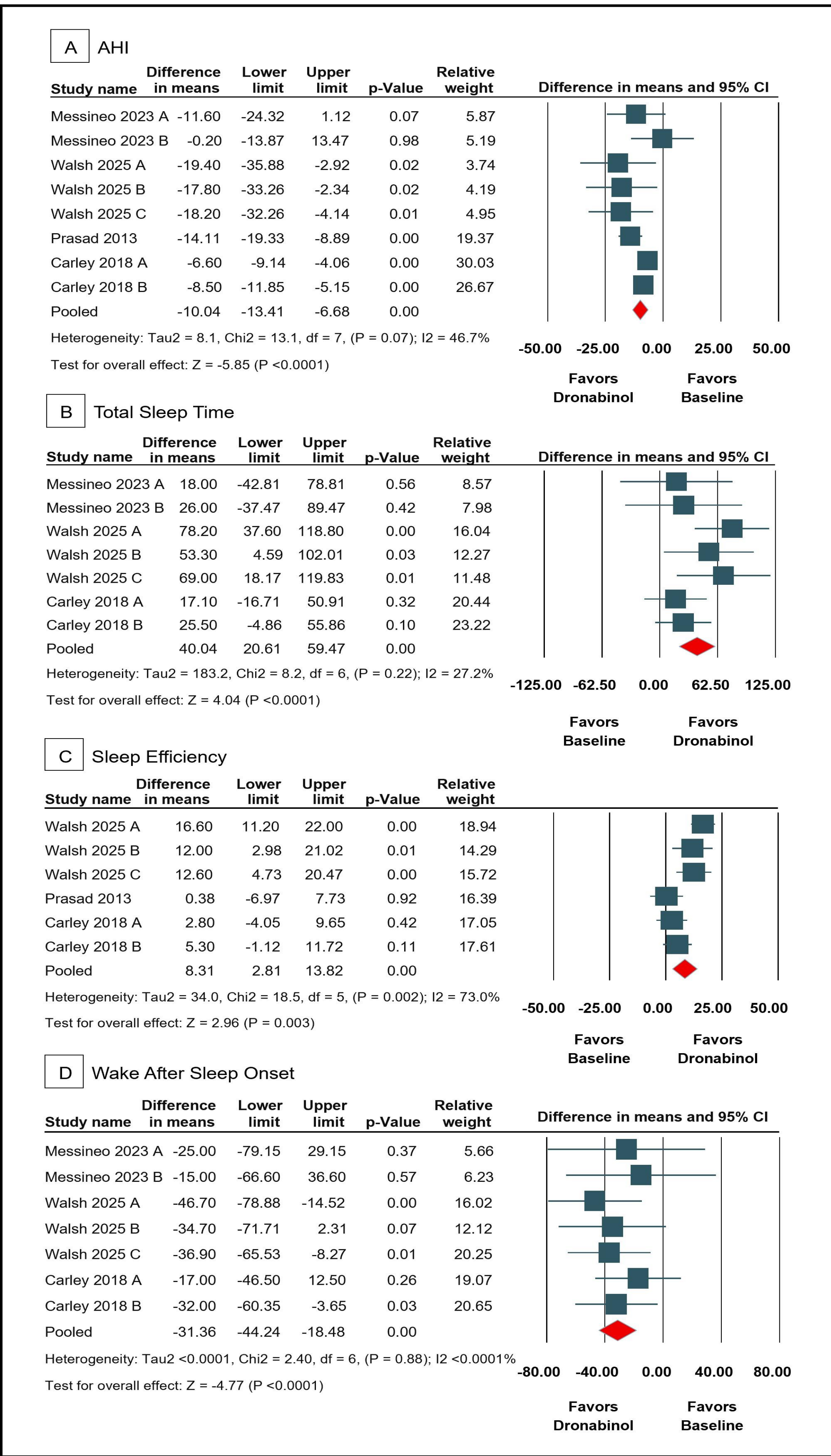
- PRISMA-guided systematic review and meta-analysis
- Databases: PubMed, Scopus/EMBASE, CINAHL
- Search through October 20, 2025
- Included studies reporting change in AHI after dronabinol treatment
- Risk of bias: ROBINS-I and RoB 2
- Evidence level: OCEBM
- Random-effects meta-analysis using mean differences (MDs) with 95% CIs
- Heterogeneity assessed with I<sup>2</sup>
- Leave-one-out sensitivity, subgroup, and meta-regression analyses



PRISMA flow diagram of the literature review. PRISMA, preferred reporting items for systematic reviews and meta-analyses

## Study Characteristics

- 4 studies ; 89 patients
- Studies published 2013–2025
- Dronabinol dose: 2.5–10 mg
- OCEBM evidence: Level 2 or 4
- 2 monotherapy studies
- 2 combination-therapy studies



Forest plot illustration of sleep outcomes before and after Dronabinol administration



University at Buffalo. Center for Cannabis and Cannabinoid Research. School of Public Health and Health Professions. Accessed August 15, 2026.

## Results

- AHI**  
↓ 10.04 events/h  
95% CI: -13.41 to -6.68  
p < 0.0001
- Total Sleep Time**  
↑ 40.04 min  
95% CI: 20.61 to 59.47  
p = 0.0001
- Sleep Efficacy**  
↑ 8.31 %  
95% CI: 2.81 to 13.82  
p = 0.003
- Wake After Sleep Onset**  
↓ 31.36 min  
95% CI: -44.24 to -18.48  
p < 0.0001
- Arousal Index**  
No significant change  
MD: -1.28
- NREM Sleep**  
↓ 2.63 %  
p = 0.02
- REM Sleep**  
No significant change  
MD: -0.92

## Conclusion

- Dronabinol-containing therapy associated with improved OSA severity and sleep continuity
- Findings support continued investigation of pharmacotherapy targeting non-anatomic mechanisms of OSA

## References

