



WEST MICHIGAN
CPAP Alternatives
Customized Sleep Apnea Solutions
— Dr. Vandervelden —

Custom Oral Appliance Therapy vs CPAP: A Summary of the literature

Most literature looking at efficacy of CPAP vs Custom Oral Appliance Therapy do not take compliance into consideration, which does not represent real world application. Below is a diagram that explains the concept of mean disease alleviation. Mean disease alleviation takes into consideration compliance. When this is done clinicians have observed cases where oral appliance therapy was equivalent to CPAP, and in many cases found oral appliance therapy to be superior to CPAP, especially in mild to moderate obstructive sleep apnea.

Emerging Concept: Mean Disease Alleviation* (adjusted objective compliance × therapeutic efficacy)/100

AHI = 50 events/hr

- 4/8 hour use = 50% compliance
- AHI reduced to 5 (therapeutic efficacy =90%)
- MDA with CPAP = $50 \times 90/100 = 45\%$

CPAP

AHI = 50 events/hr

- 6/8 hour use = 75% compliance
- AHI reduced to 10 (therapeutic efficacy=80%)
- MDA with OA = $75 \times 80/100 = 60\%$

OAT

Vanderveken OM, Dieltjens M, Wouters K, et al. Thorax 2013, 68, 91–96.
Some of this data is from Nancy Collop, MD

MDA: Mean Disease Alleviation

Below are pertinent results from the following meta-analysis looking at effectiveness of custom oral appliance therapy.

Kannan Ramar, MBBS, MD, Leslie C. Dort, DDS, Sheri G. Katz, DDS, Christopher J. Lettieri, MD, Christopher G. Harrod, MS, Sherene M. Thomas, PhD, Ronald D. Chervin, MD. Clinical Practice Guideline for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015. An American Academy of Sleep Medicine and American Academy of Dental Sleep Medicine Clinical Practice Guideline

Full article can be referenced at the following link: <https://jcsmd.asm.org/doi/10.5664/jcsmd.4858>

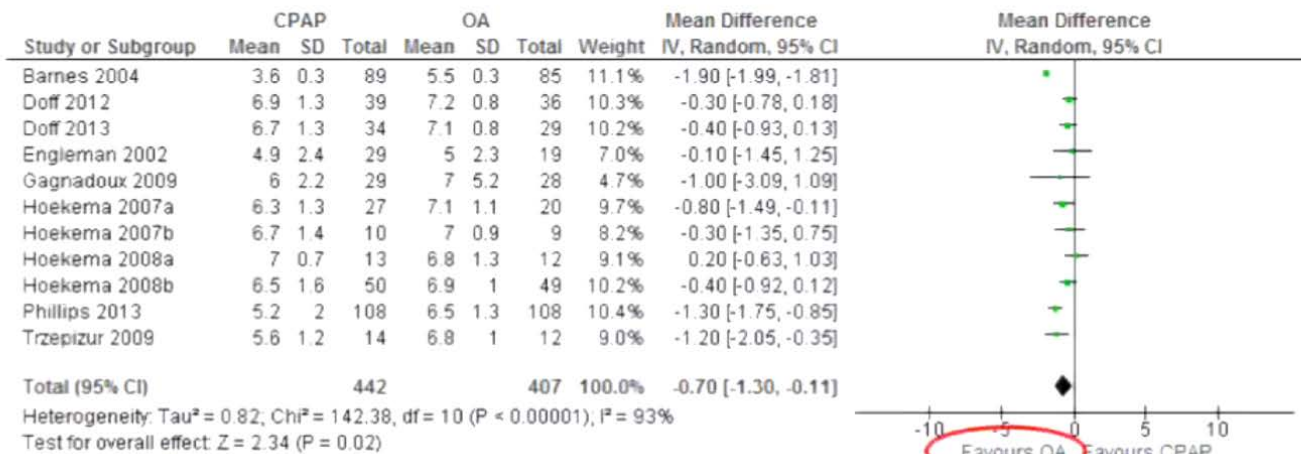
OA: Oral Appliance

AHI: Apnea Hypopnea Index

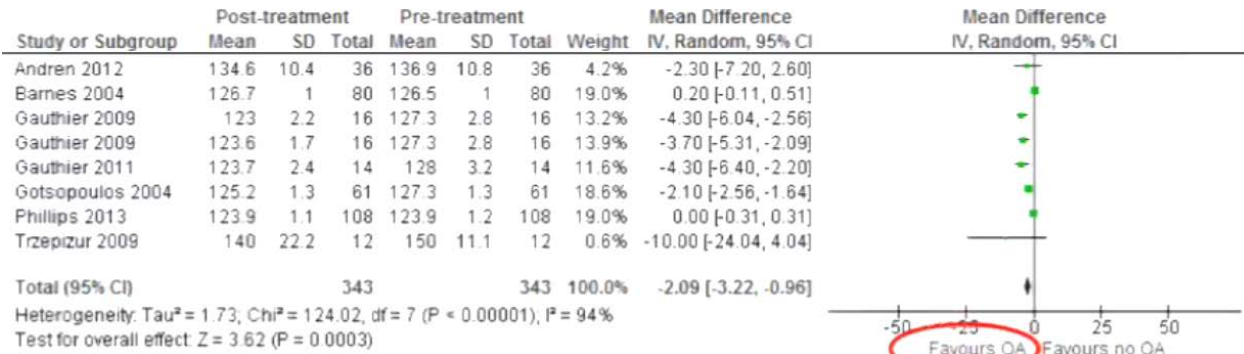
RDI: Respiratory Disturbance Index

OSA: Obstructive Sleep Apnea

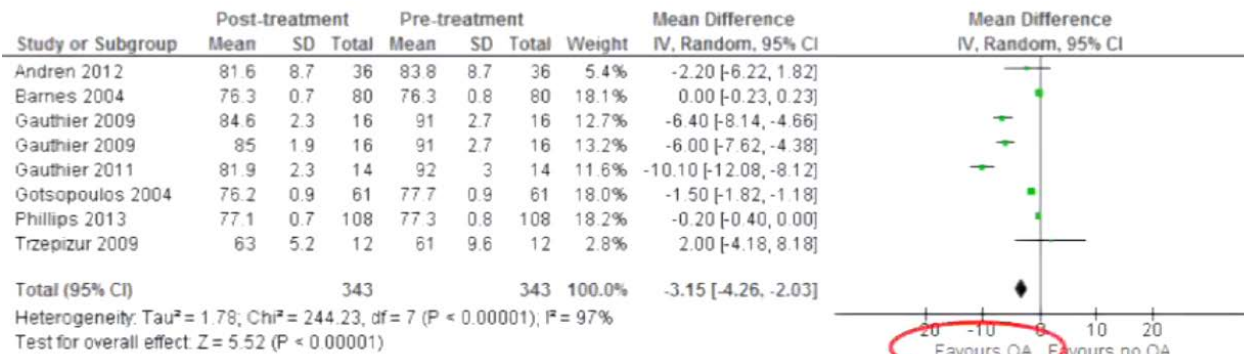
OAs vs. CPAP for Adult OSA (Adherence)



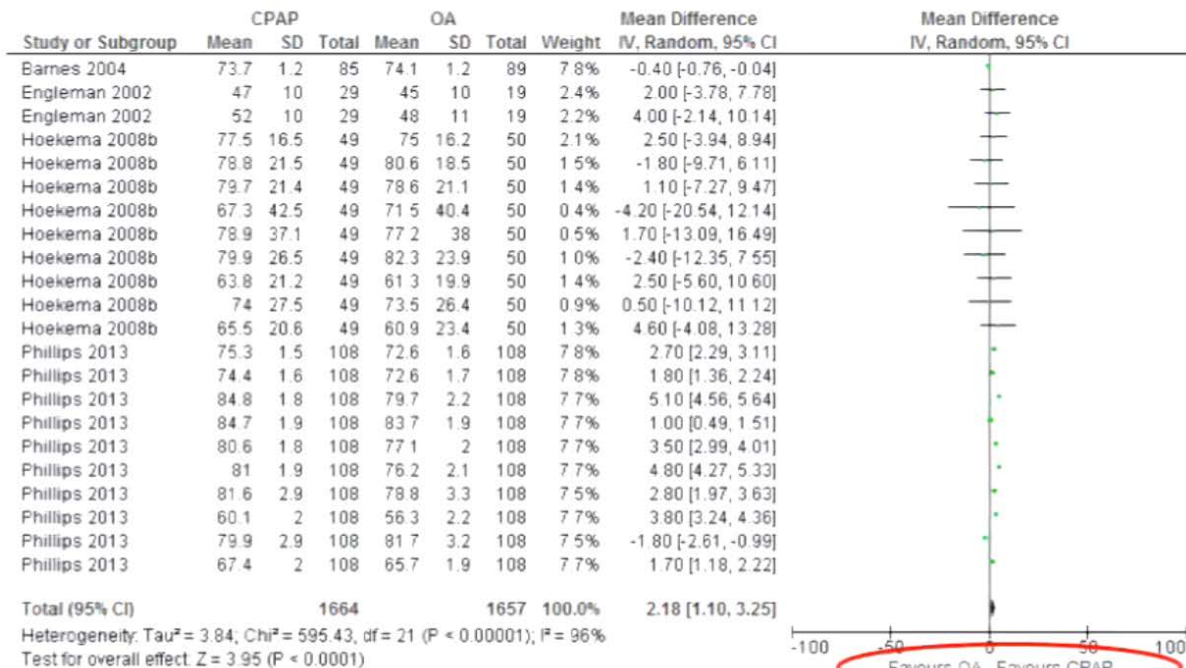
OAs for Adult OSA (Systolic BP)



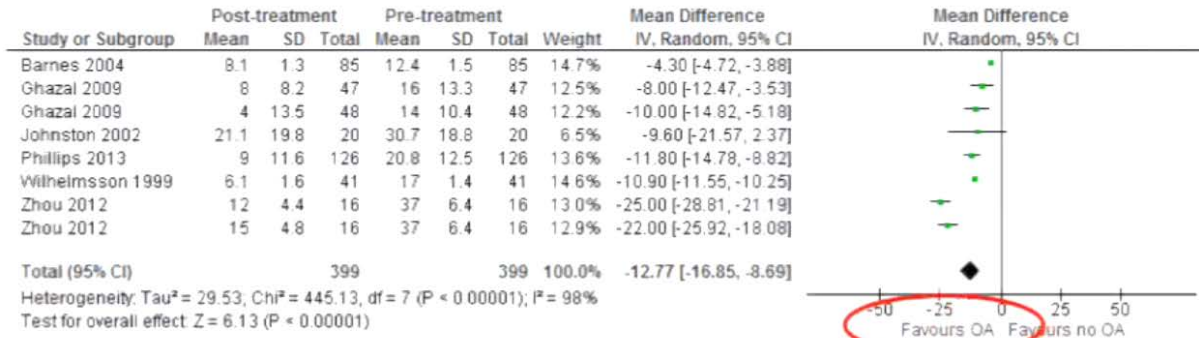
OAs for Adult OSA (Diastolic BP)



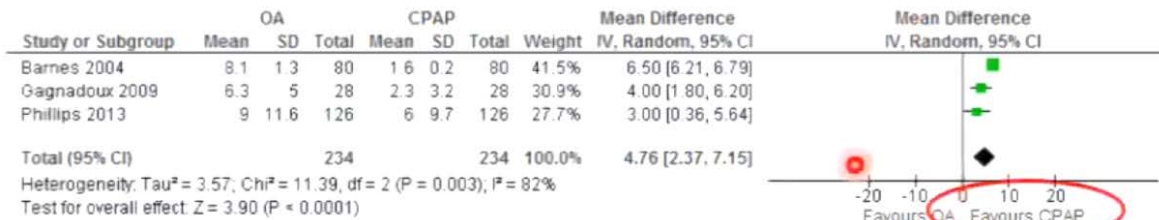
OAs vs. CPAP for Adult OSA (Quality of Life, SF-36)



OAs for Adult OSA (Oxygen Desaturation Index)

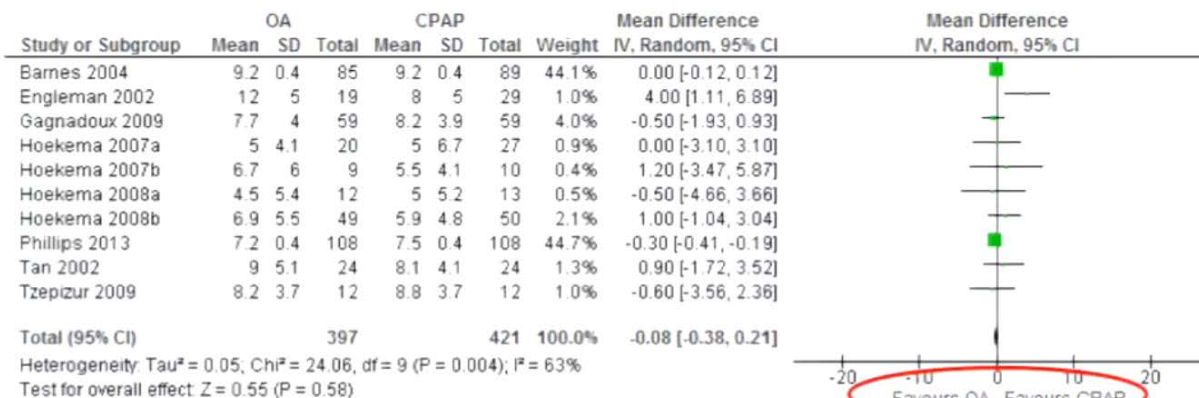


OAs vs. CPAP for Adult OSA (Oxygen Desaturation Index)



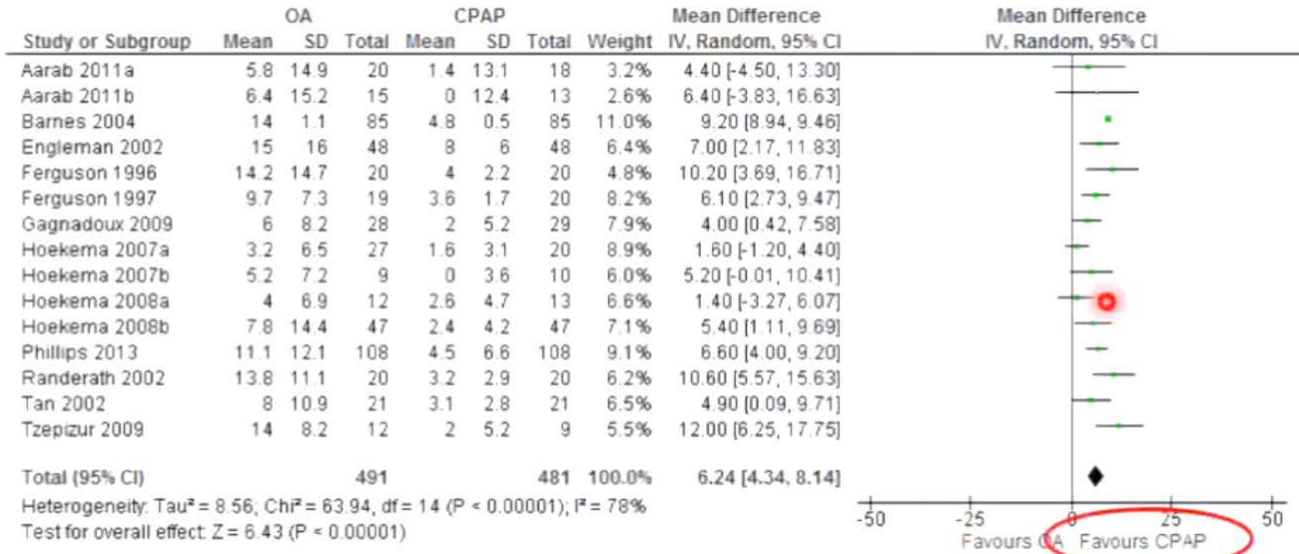
Clinical Practice Guidelines for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015

OAs vs. CPAP (Daytime Sleepiness, ESS)



Clinical Practice Guidelines for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015

Reducing AHI and Improving Oxygen Saturation



Clinical Practice Guidelines for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy: An Update for 2015



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