

Can positional therapy be simple, effective, inexpensive and well-tolerated all together?

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Submitted for publication in *Sleep and Breathing*

Definition of positional OSA (POSA)

At least **double the AHI** in supine position compared to lateral positions

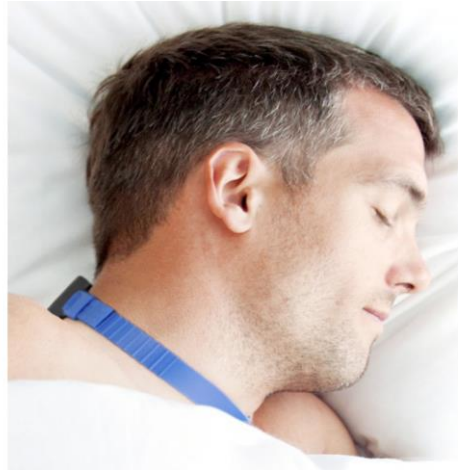
(Cartwright et al. 1984)

Phenotype of positional patients

- Younger
- Less obese
- Less severe OSA
- More likely to snore
- Less daytime sleepiness
- Less likely to adhere to CPAP treatment

(Joosten et al., 2014)

PT: no standardisation



Aims of PT

- Success at maintaining non-supine position
- Improvement of OSA severity and sleep quality
- Improvement of clinical outcomes

(Barnes et al., 2016)

Tennis ball technique (TBT)

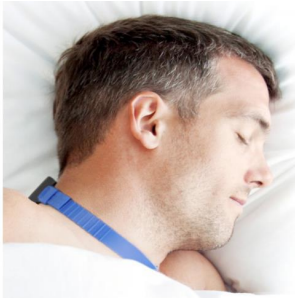
- **Bulky mass** placed in the back
- **Effective treatment** but poor long term compliance due to **experienced discomfort**



(Skinner et al., 2008; Bignold et al., 2009; Jackson et al., 2015)

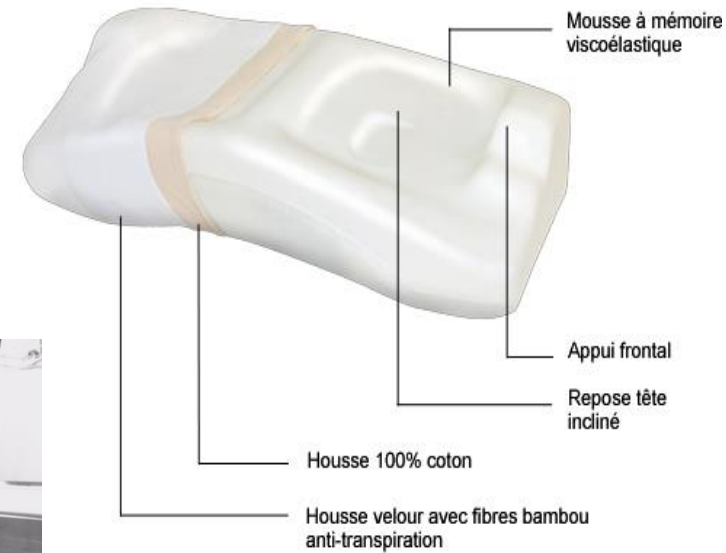
Vibrating devices

- **Neck-worn** (Night Shift™) or **chest-strapped** (Night Balance®)
- Vibrating when in **supine position**
- **Effective** and **well tolerated**
- **Evidence-based**
- **Downside:** pricing and relative ease of use



(Bignold et al., 2011; van Maanen et al., 2012; Levendowski et al., 2014; van Maanen and De Vries, 2014; Dieltjens et al., 2014; Eijsvogel et al., 2015; Scarlata et al., 2016)

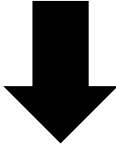
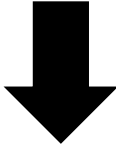
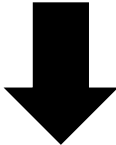
Sleep positioning pillow: Posiform®



Prospective study design

- **28 patients free from**
 - sleep interfering drug treatment
 - substance abuse
 - major physical or mental comorbidities
- **23 patients** agreed to participate to **full protocol**
- Definition of **POSA** based on criteria defined both by **Cartwright** and **APOC**
- **Inclusion** based on first **full in-hospital PSG** recording and **clinical examination**
- Total of **three full in-hospital PSG** recordings

Timeline

- **T0:** baseline (*diagnostic PSG*)
- 
- **T1:** intervention (*consecutive PSG with pillow*)
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- **T2:** one month follow-up (*final PSG with pillow*)
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- **T3:** six months follow-up (*questionnaire*)

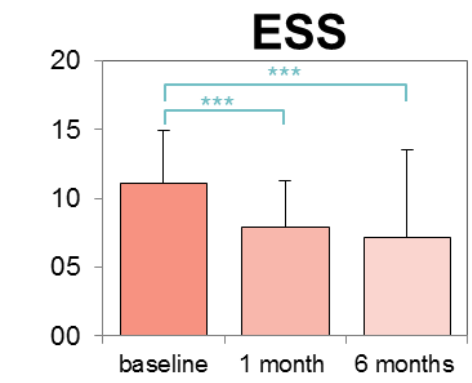
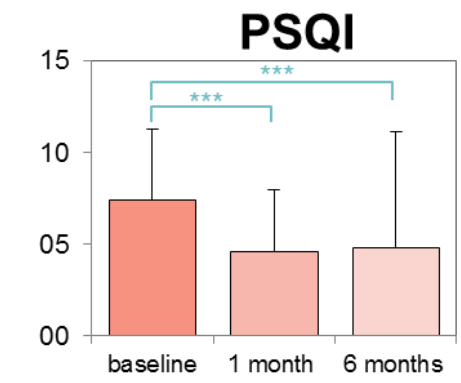
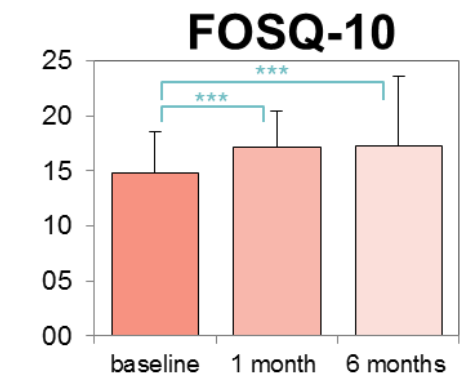
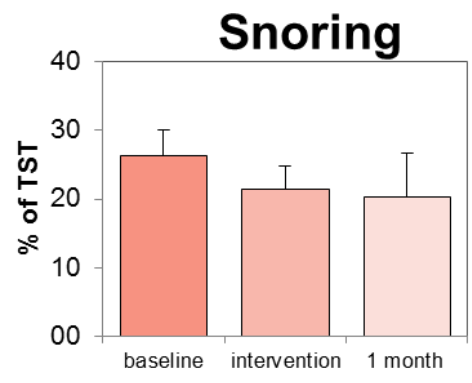
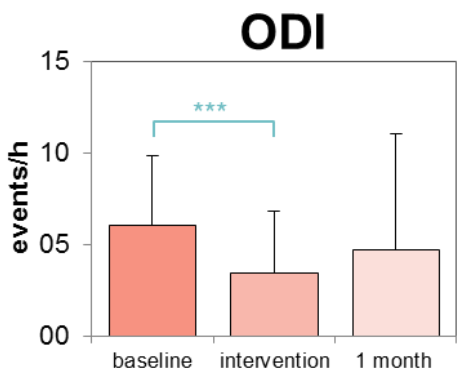
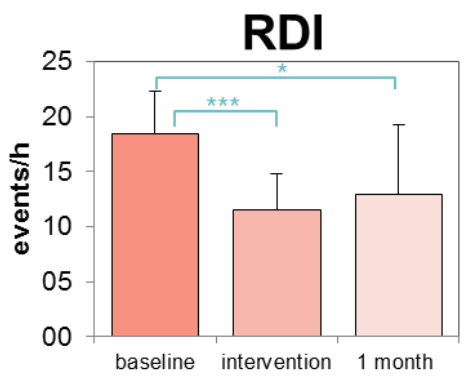
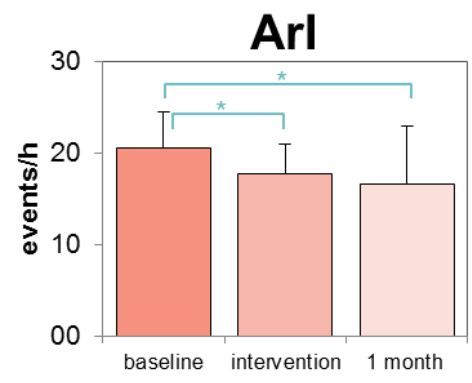
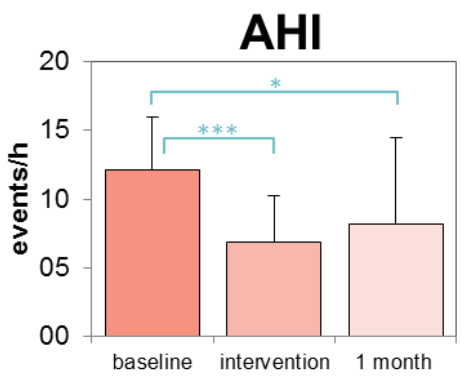
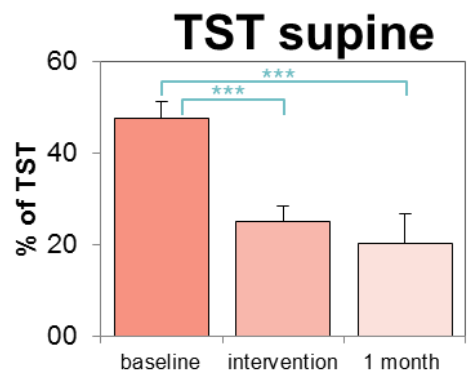
Inclusion criteria

- Patients between **18** and **70 years**
- Mild-to-severe UARS: **RDI \geq 5**
and/or
- Mild-to-moderate OSA: **5 \leq AHI $<$ 20**
(CPAP trial once AHI \geq 20)

Sample descriptives

- **Age** (years): 51.7 ± 10.8
- **Gender**: 61% male
- **BMI** (kg/m^2): 28.9 ± 4.6
- **Neck circumference** (cm): 39.6 ± 3
- **APOC I**: 27 patients; **APOC II**: 1 patient
- **RDI** (events/hour): 18.4 ± 5.6
- **AHI** (events/hour): 12.1 ± 3.8
- **ODI** (events/hour): 6.1 ± 3.1
- **Snoring** (% TST): 26.3 ± 18.6
- **TST supine** (% TST): 47.5 ± 21.2
- **PSQI**: 7.4 ± 3.2
- **ESS**: 11.1 ± 5.1

Significant immediate and sustained treatment effects



Pairwise comparisons: Seq. Bonferroni * $p < .05$ ** $p < .005$ *** $p < .0005$

Reported compliance and overall satisfaction

- **Subjective compliance** (> 4 hours/night and > 5 nights/week)
 - 1 month: 78% (3 drop outs)
 - 6 months: 74% (1 drop out)
- **Satisfaction:**
 - 1 month: patient 7.8/10 (± 1.5)
partner 7.7/10 (± 3.3)
 - 6 months: patient 7.7/10 (± 2.5)
partner 7.8/10 (± 2.7)
- **Missing data:** 2 patients at 6 months
- **Non-responders at 1 month** (reduction of AHI < 50%): 25%

Limitations

- Relatively **small** patient sample
- Lack of a **control group**
- No **head-to-head comparison** with other PT devices such as TBT or vibrating devices

Conclusion

A **sleep positioning pillow** might be a **simple, effective, inexpensive, and well-tolerated** treatment alternative

that could thus be considered as a **first-line treatment in positional SRBD.**

Thank you for your attention

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