



# The Effect of Wearing an External Nasal Dilator Strip During Sleep on Subjective and Objective Sleep Quality

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## INTRODUCTION

- Approximately one in three adults in the United States does not obtain sufficient quality sleep every night<sup>1</sup>.
- Nasal breathing may promote healthy sleep and prevent other health concerns over mouth breathing<sup>2</sup>. External nasal dilator strips (ENDS) may promote nasal breathing during sleep by reducing nasal air flow resistance<sup>3</sup>.
- Some studies using ENDS indicate improvements in subjective sleep satisfaction<sup>3</sup>; objective measures such as actigraphy-based sleep efficiency and total sleep duration have shown minimal changes. One study found positive effects on nasal obstructed populations due to chronic congestion<sup>4</sup>, but there have been limited findings on the impact of those with normal nasal airflow.

## PURPOSE & HYPOTHESIS

- The purpose of this study was to test the hypothesis that wearing an ENDS would improve objective (sleep efficiency and latency) and subjective (self-rated sleep quality and perceived tiredness) sleep quality among young adults.

## EXPERIMENTAL DESIGN

- Participant Intake:** Five adults (Table 1) participated in this ongoing clinical trial.
- ENDS and Control:** Participants complete two seven-night arms in a randomized order: one with ENDS and one without. Each morning and night, participants complete a sleep diary to assess subjective sleep quality. Wrist-based actigraphy continuously tracks objective sleep measures, including sleep efficiency and total sleep time.
- Statistical Analysis:** We compared conditions using Prism 9.3 (GraphPad) (Figure 2).

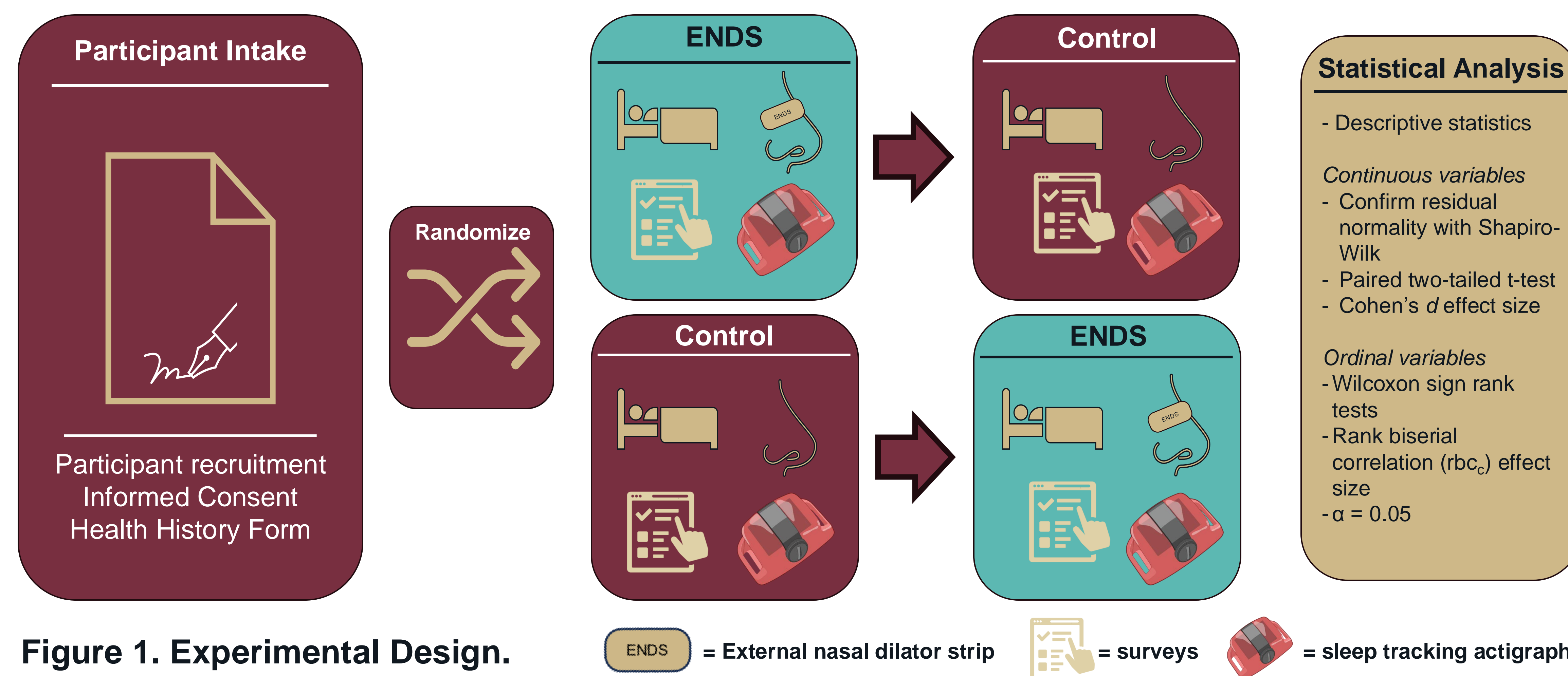


Figure 1. Experimental Design.

## RESULTS

Table 1. Participant Characteristics

	Mean $\pm$ SD
Sex	2 Female, 3 Male
Race	2 Black, 3 White
Ethnicity	5 Non-Hispanic/Non-Latinx
Age [years]	23 $\pm$ 2
Body Mass Index [kg/m <sup>2</sup> ]	22.6 $\pm$ 2.4
Sleep Duration [hours:minutes]	07:01 $\pm$ 00:46

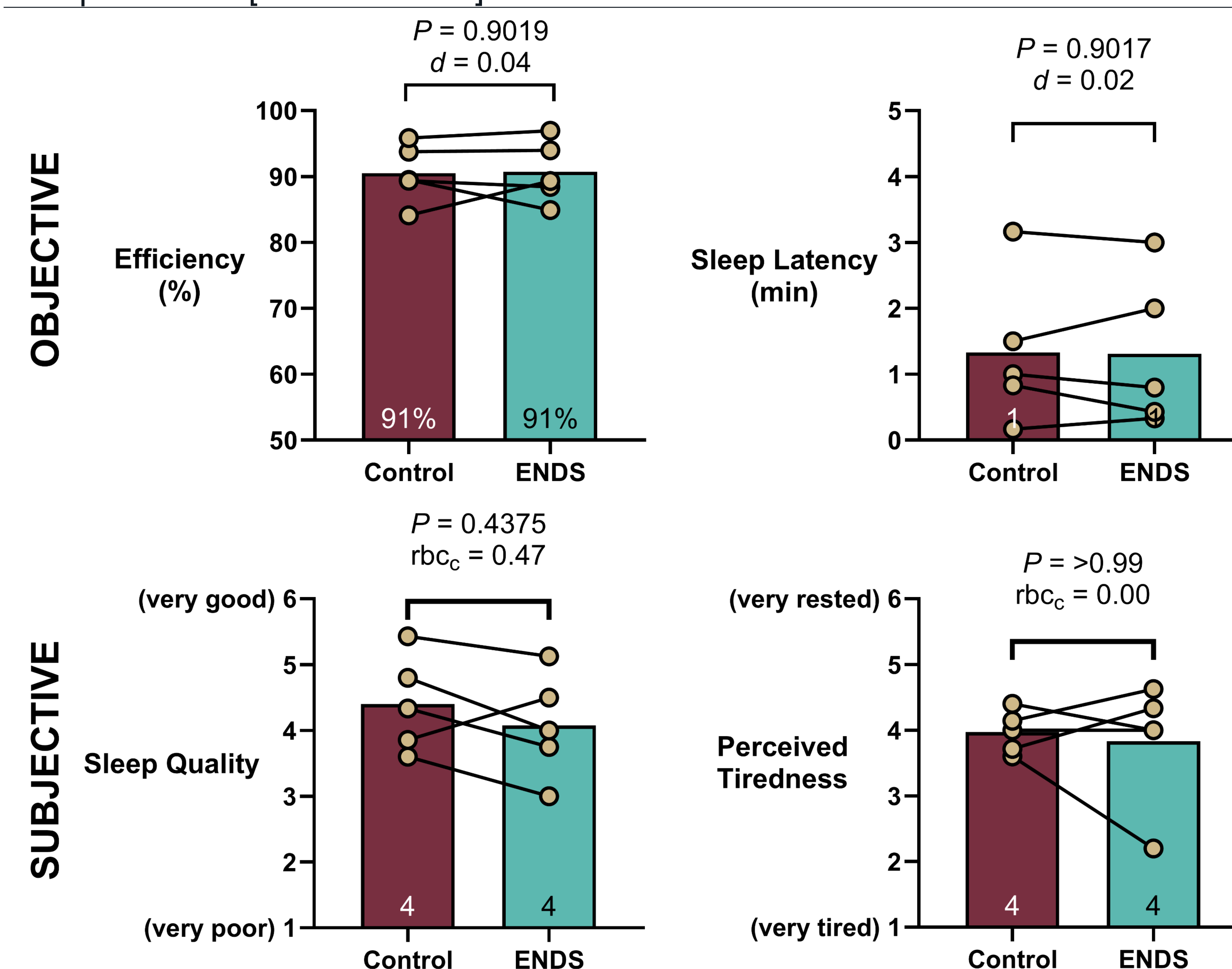


Figure 2. Subjective and Objective Sleep Quality.

## CONCLUSIONS

These preliminary data suggest that 1) wearing an ENDS during sleep does not significantly improve objective sleep efficiency or reduce sleep latency, and 2) ENDS use does not lead to meaningful changes in subjective sleep quality or perceived tiredness upon waking.

## REFERENCES

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