



Effect of Wearing an External Nasal Dilator Strip During Sleep on Immediate Waking Blood Pressure and Heart Rate

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INTRODUCTION

- Elevated resting blood pressure (BP) is a well-established indicator of increased cardiovascular disease risk.¹
- We previously found that nasal breathing lowered resting diastolic BP in young adults.²
- External nasal dilator strips (ENDS) promote nasal breathing by reducing nasal inspiratory flow resistance.³
- External nasal dilator strips have been used to improve sleep quality in adults with sleep apnea, but it is unclear how wearing an ENDS during sleep affects blood pressure and heart rate.⁴
- Determining whether ENDS can influence resting BP and heart rate (HR) may provide valuable insights into novel strategies for cardiovascular disease prevention.

PURPOSE

- Therefore, the purpose of this study was to test the hypothesis that wearing an external nasal dilator (ENDS) during sleep would decrease post-waking BP and HR.

EXPERIMENTAL DESIGN

- Participant intake** Six adults (**Table 1**) completed a three-week study protocol consisting of a control week (wearing only an Actigraph) and two experimental weeks in which participants were randomly assigned to wear an external nasal dilator (ENDS) during either the second or third week.
- ENDS and Control:** During the experimental weeks, participants measured their seated resting BP and HR immediately upon waking using and automated BP cuff (Omron).
- Statistical Analysis:** We compared BP and HR values between conditions using Prism 9.3 (GraphPad).

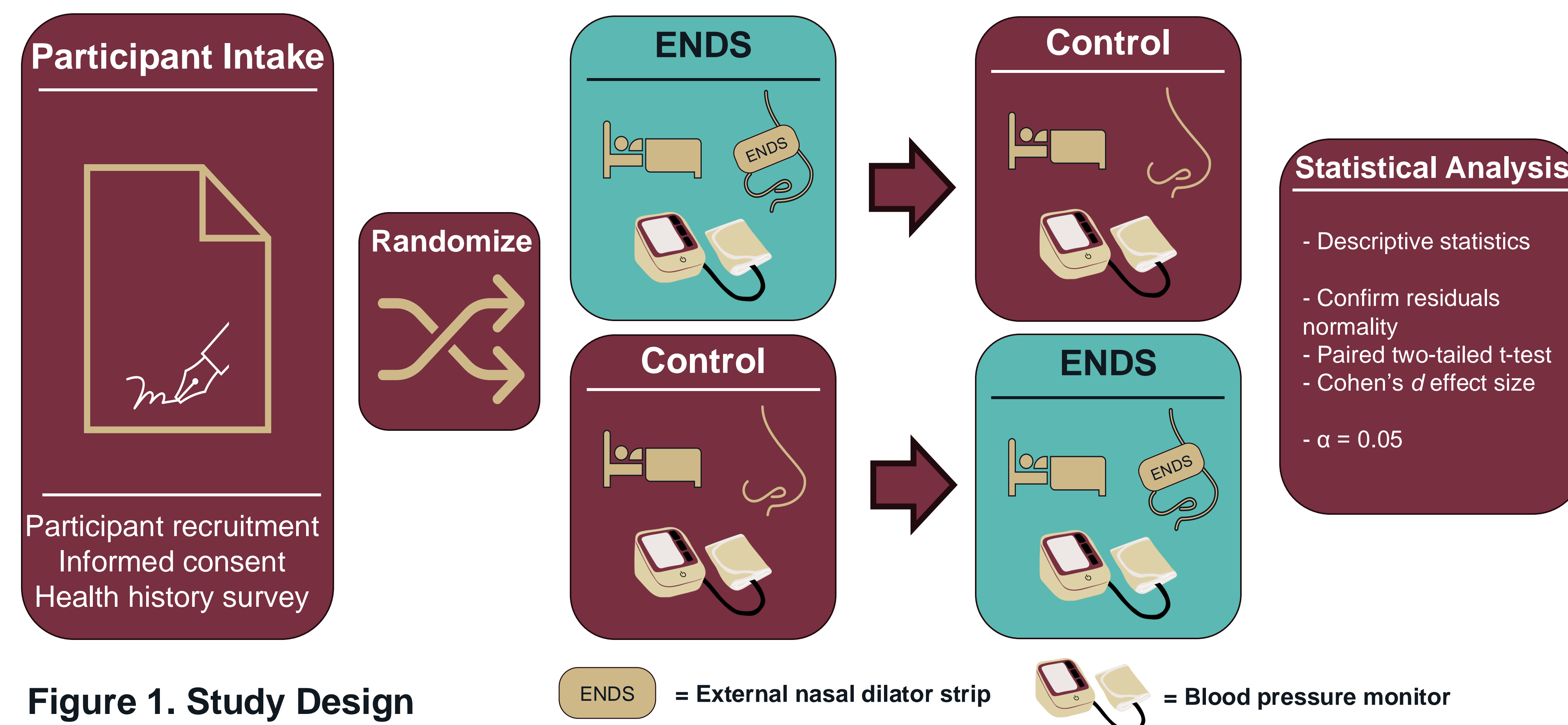


Figure 1. Study Design

RESULTS

Table 1. Participant Characteristics

	Mean \pm SD
Sex	3 Female, 3 Male
Age [years]	22 \pm 2
Body Mass Index [kg/m ²]	22.6 \pm 2.2
Race	1 Asian, 2 Black, 3 White
Ethnicity	6 Non-Hispanic/Non-Latinx
Sleep Duration [hours:minutes]	07:01 \pm 00:46

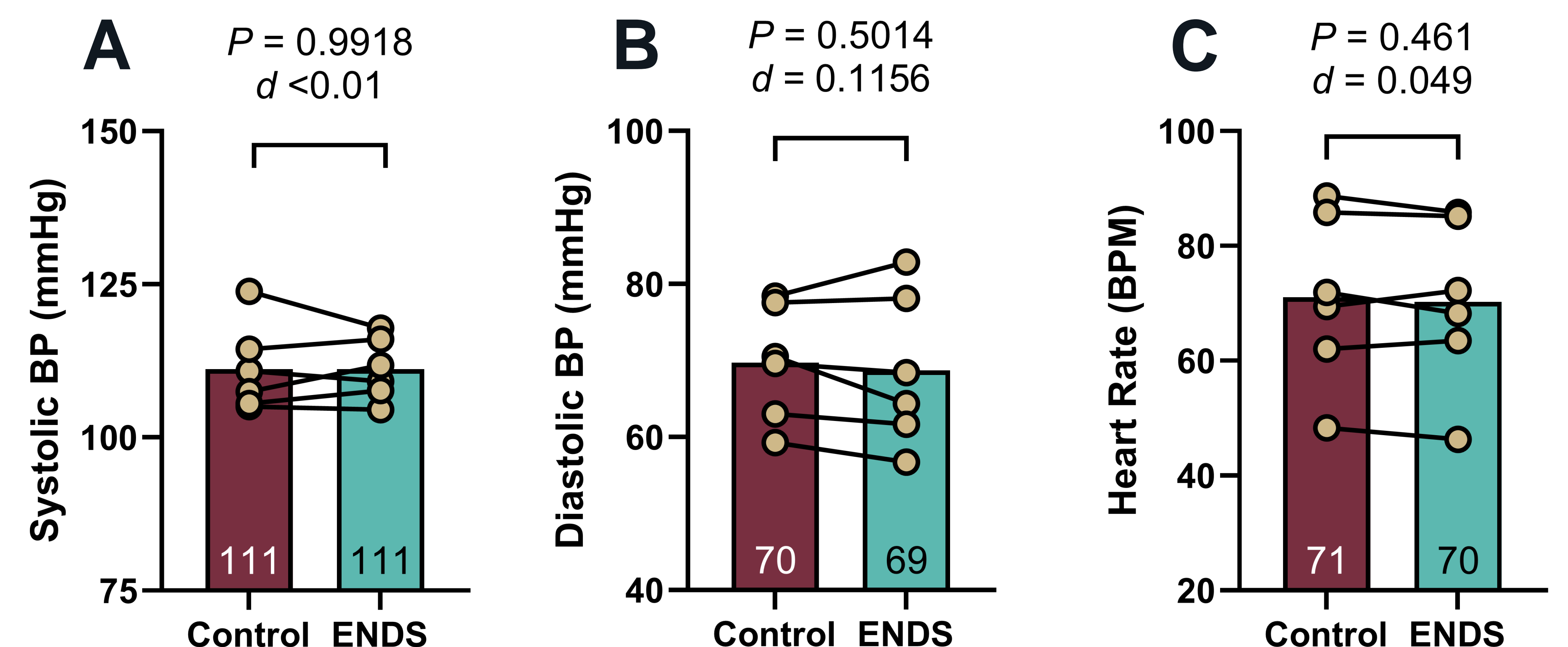


Figure 2. Immediate post-waking Systolic (A) and Diastolic (B) BP, and HR (C). Systolic and diastolic BP, and HR were not different between the Control and ENDS week.

CONCLUSIONS

Contrary to our hypothesis, these preliminary data suggest that wearing an ENDS during sleep does not affect HR or resting BP in young adults. Further research with a larger sample size and extended study duration is necessary to fully assess the potential effects of ENDS on HR and BP.

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