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INTRODUCTION

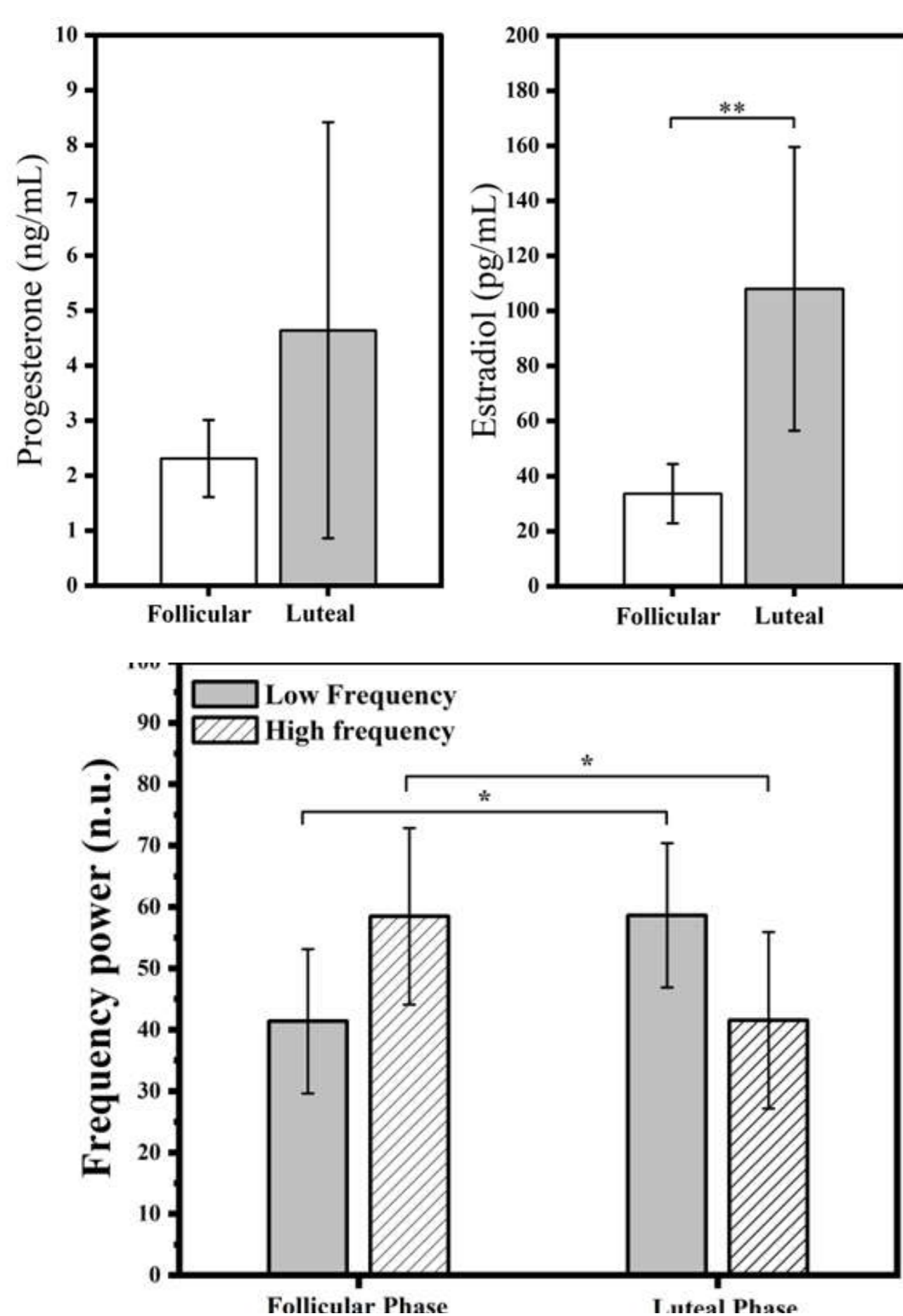
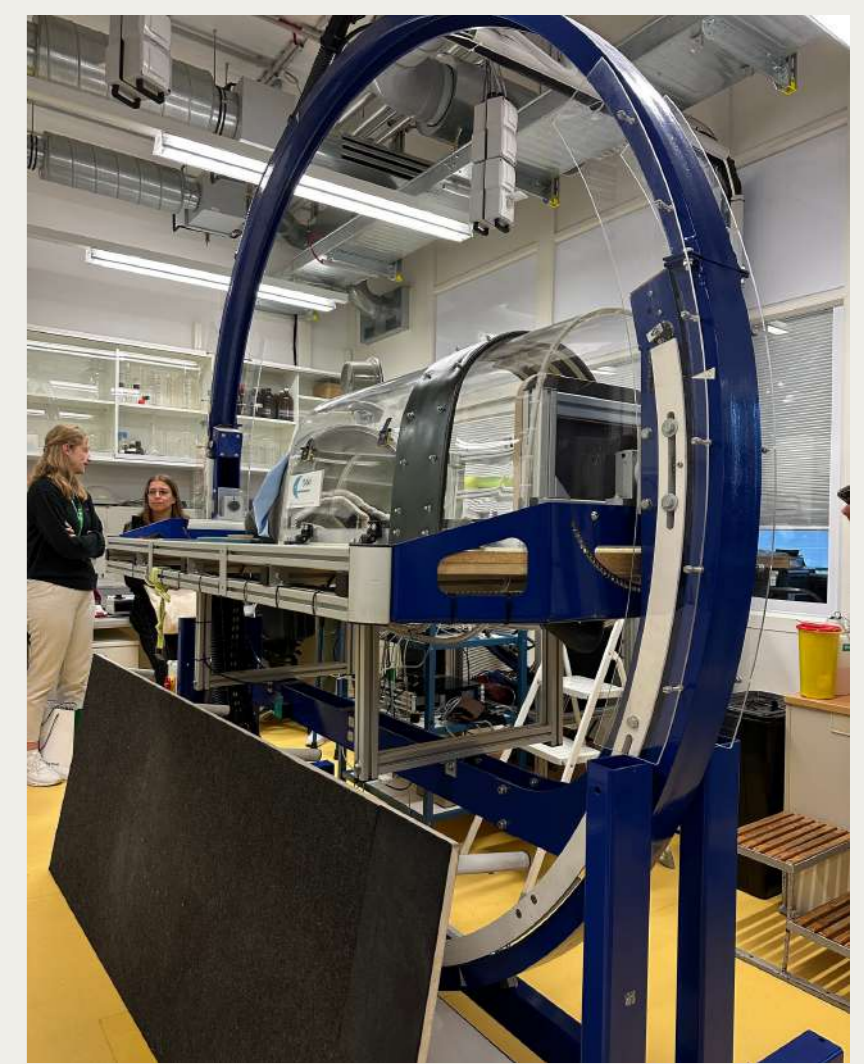
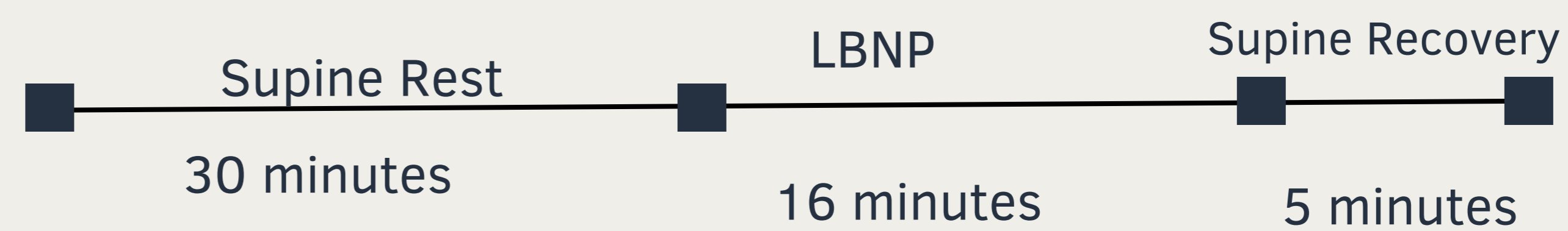
Estrogen and progesterone levels undergo changes throughout the menstrual cycle. Existing literature regarding the effect of menstrual phases on cardiovascular and autonomic regulation are contradictory.

OBJECTIVE

This study aims to explore the impact of menstrual phases on cardiovascular and autonomic responses at rest and during central hypovolemia. Central hypovolemia was induced by the application of lower body negative pressure (LBNP).

METHODOLOGY

Healthy young females participated in this study. Each participant was classified into either follicular or luteal. Hemodynamic and autonomic responses were assessed before, during, and after LBNP application using Task Force Monitor® (CNSystems, Graz, Austria). The experiment was split into these three phases:

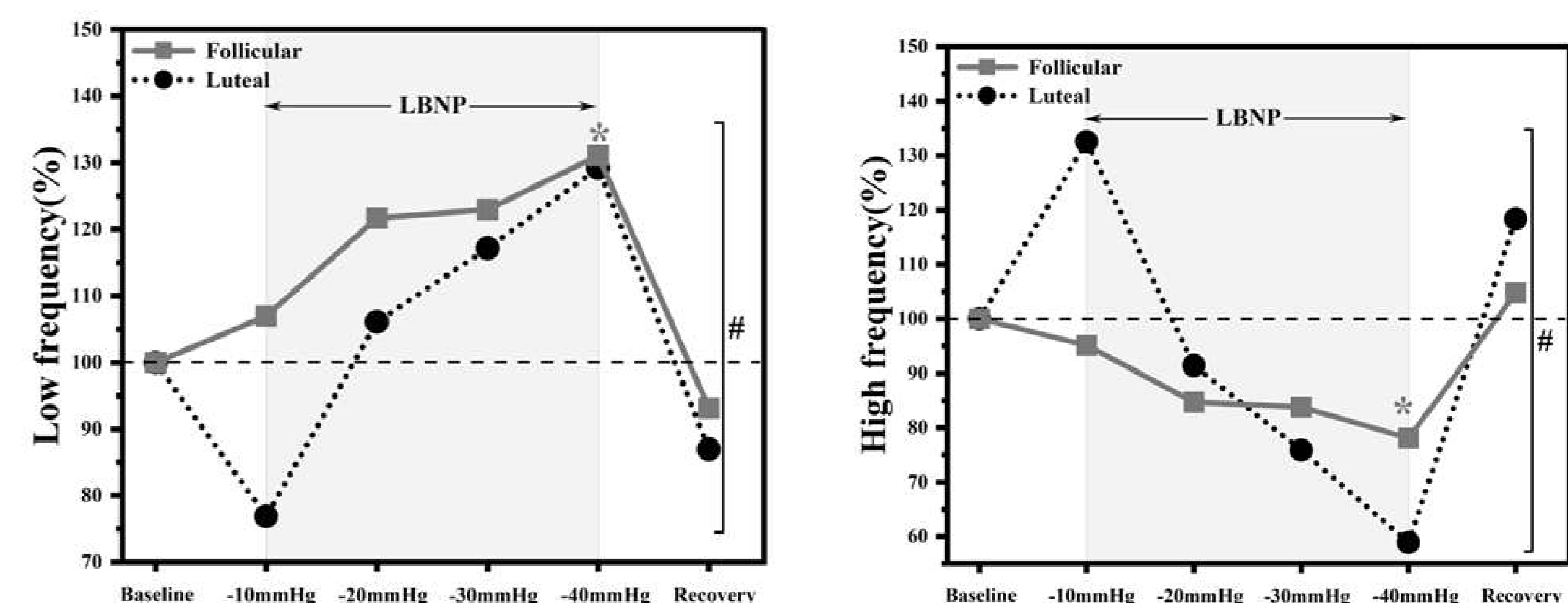


Comparisons of progesterone and estrogen (estradiol) hormones in the menstrual phases. ** $p < 0.005$ significant differences between follicular and luteal phases.

Resting autonomic variables (low and high frequency power) in follicular ($n=8$) and luteal phases ($n=6$). * $p < 0.05$ significant differences between follicular and luteal phases.

RESULTS

Effect of menstrual phases on autonomic responses to central hypovolemia



The influence of menstrual phases on LF and HF responses during LBNP was found to be significant $p=0.01$ and $p=0.01$, respectively (Fig. 4).

DISCUSSION

- During the luteal phase, characterized by elevated estrogen levels, an increased sympathetic activity, as evidenced by higher heart rate, blood pressure, total peripheral resistance, and LF band power values were observed.
- Conversely, the follicular phase, characterized by lower estrogen levels, demonstrated greater parasympathetic activity, as indicated by higher HF band power.
- These observations align with the concept that estrogen promotes sympathetic dominance, leading to intense cardiovascular responses.

CONCLUSION

Resting autonomic variables were influenced by the menstrual phase. The hemodynamic and autonomic responses to central hypovolemia varied between menstrual phases. These findings provide insights into the complex relationship between menstrual phases and cardiovascular regulation.



