

# CAN PREMENSTRUAL SYMPTOMS, TRAIT ANXIETY, OR QUALITY OF LIFE REPORTS EXPLAIN LUTEAL PHASE INCREASES IN STRESS REACTIVITY IN WOMEN?

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## Introduction

Healthy, freely cycling women demonstrate greater hemodynamic and neuroendocrine reactivity to laboratory stressors during the luteal menstrual cycle phase compared to the follicular phase (Lustyk et al., 2010). Potential explanation for increased luteal phase responding lies with premenstrual symptomatology. The purpose of these analyses was to assess relationships among stress reactivity variables and self-reported premenstrual symptoms, trait anxiety, and quality of life.

## Method

Participants were 78 healthy freely-cycling women 18-45 years of age. Stressors included the Paced Auditory Serial Addition Task (PASAT) and Cold Pressor Task (CPT), which were counterbalanced by cycle phase. Luteal testing occurred 7-10 days following confirmed ovulation detected with a luteinizing hormone urine test.

## Hemodynamic and Neuroendocrine Variables

- **Heart Rate (HR):** Measured continuously via electrocardiography.
- **Diastolic (DBP) and Systolic (SBP) Blood Pressure:** Assessed at varying time interval with auto-inflating sphygmomanometer.
- **Salivary Cortisol:** Saliva samples were collected at baseline, post stressors, and at recovery

## Psychological Measures

- **Shortened Premenstrual Assessment Form (PMSR, Allen, McBride, & Pirie, 1999):** Self-reported premenstrual changes in symptom intensity overall and in three symptom clusters (pain, water retention, and affect).
- **Spielberger Trait Anxiety Inventory (Trait, Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983):** Self-reported trait anxiety
- **Quality of Life Inventory (QOLI, Frisch, 1992):** Self-reported importance and satisfaction with 16 domains of quality of life.

## Results

- A three-way interaction was observed between cycle phase, stressor type and state anxiety (fig.1) and cycle phase, stressor type and cortisol (fig.2).
- Multiple regressions were performed to investigate the relationships between the luteal phase stress response and premenstrual symptoms, trait anxiety, and quality of life (fig.3).
- Results revealed premenstrual symptomatology, trait anxiety and quality of life were not significant predictors of luteal phase reactivity.

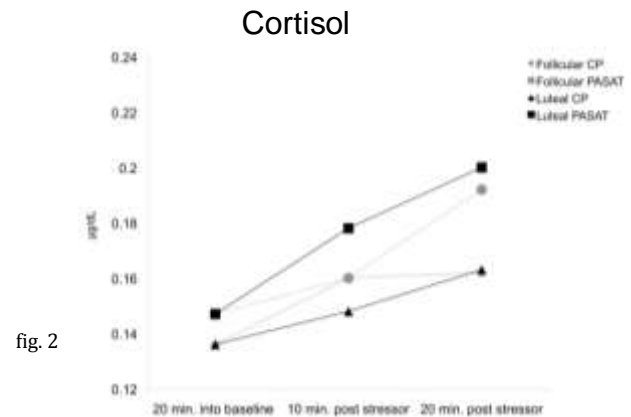
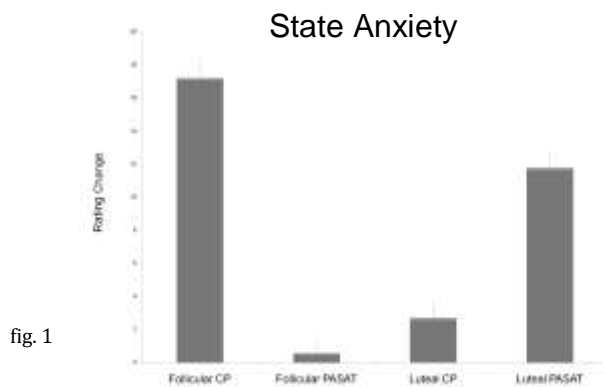
## Discussion

These findings underscore the complexity of factors affecting psychophysiological and neuroendocrine responses to stress in women. Possible explanations for luteal phase

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reactivity may reside with somatic awareness. For instance, it may be that during the luteal phase (i.e., premenstrual period) women are less aware of their somatic self and hemodynamic reactivity to a laboratory stressor is amplified. However, we did not measure body awareness in this study. High levels of Body Awareness have been shown to blunt the hemodynamic reactivity for women during the follicular phase of the menstrual cycle (Lustyk, Douglas, Bentley, & Gerrish, *in progress*). Further investigation should identify the relationship between body awareness and the luteal phases stress response in women.

## Figures



	n	PMSR		TRAIT		QOL	
		R	R <sup>2</sup>	R	R <sup>2</sup>	R	R <sup>2</sup>
HR	78	.001	.0	.023	.001	.08	-.034
SBP	78	.193	.037	.193	.037	.205	.042
PASAT-CORT	39	.052	.003	.088	.008	.138	.019
CP- STATE	39	.073	.005	.197	.039	.21	.044
PASAT-STATE	39	.299	.089	.307	.094	.315	.099

fig. 3

Note: \* = significant at the  $p < .05$  level; HR = heart rate log 10; SBP = systolic blood pressure log 10; PASAT-CORT = paced auditory serial addition task salivary reactivity; CP- STATE = cold pressor state anxiety reactivity; PASAT- STATE = paced auditory serial addition task state anxiety reactivity; PMSR = premenstrual symptom reports; TA = trait anxiety, QOL = Quality of Life

## References

Lustyk, M. B. K., Olson, K. C., Gerrish, W. G., Holder, A., Widman, L. (2010). Psychophysiological and neuroendocrine responses to laboratory stressors in women: Implications of menstrual cycle phases and stressor type. *Biological Psychology*, 83, 84-92.

