

## Supplemental Material

**Supplemental Table 1: Sample characteristics.**

<b>Timing of the progesterone add-back phase</b>	<b>Immediately following the gonadal suppression phase (N=27)</b>	<b>Together with estradiol (N=3)</b>	<b>After 5 weeks of estradiol, 0.1 mg per day, followed by 2 week washout (N=10)</b>
<b>Progesterone after gonadal suppression (ng/mL), median (range)</b>	0.4 (0.1-1)	0.4 (0.2-0.6)	0.4 (0.1-1.4)
<b>Progesterone after progesterone add-back (ng/mL), median (range)</b>	11.75 (0.4-47.7)	10.7 (7.3-20.8)	11 (2-30)
<b>Scores at the rating scale for premenstrual tension syndrome after gonadal suppression</b>	2 (0-11)	3(0-3)	2(0-16)
<b>Scores at the rating scale for premenstrual tension syndrome after progesterone add-back</b>	3.5 (0-26)	13 (12-19)	4.5 (0-30)

**Supplemental Table 2. Summary of the literature on effects of sex steroids on amino acid metabolism.** Abbreviations and symbols: OC: oral contraceptives; ↔ no significant changes; ↑increased concentration; ↓decreased concentration; reference category underscored; \* q<0.1.

GROUPS	<u>FOLLICULAR V LUTEAL</u>			<u>OC-FREE v OC</u>
	<u>GONADAL SUPPRESSION v PROGESTERONE</u> (current study)	OC-FREE	OC	
Alanine	↓ (controls)	↓(Moller, Moller, Olesen, & Fjalland, 1996; Nagata et al., 2014; Soupart, 1960)	↓(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
Isoleucine	↔	↔(Moller et al., 1996; Nagata et al., 2014)	↔(Moller et al., 1996)	↔(Moller et al., 1996), ↑(Ruoppolo et al., 2014)
Leucine	↔	↔(Moller et al., 1996), ↓pre-ovulation(Nagata et al., 2014)	↔(Moller et al., 1996)	↔ <sup>19</sup>
Valine	↔	↔(Moller et al., 1996; Nagata et al., 2014)	↔(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
<b>Amino Acids with Hydrophobic Side Chain – Aromatic</b>				
Phenylalanine	↔	↔(Nagata et al., 2014), ↓(Moller et al., 1996)	↓(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
Tryptophane	↔	↔(Moller et al., 1996; Nagata et al., 2014)	↔(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
Tyrosine	↓(controls)*	↓(Moller et al., 1996; Nagata et al., 2014)	↓(Moller et al., 1996)	↓(Moller et al., 1996; Ruoppolo et al., 2014)
<b>Amino Acids with Polar Neutral Side Chains</b>				
Asparagine		↓(Moller et al., 1996; Nagata et al., 2014)	↓(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
Cysteine				↔(Ruoppolo et al., 2014)
Glutamine	↓	↓(Nagata et al., 2014)		↔(Ruoppolo et al., 2014)
Methionine	↓ (controls)*	↓(Moller et al., 1996; Nagata et al., 2014)	↓(Moller et al., 1996)	↔(Moller et al., 1996; Ruoppolo et al., 2014)
Serine	↔	↓(Craft & Wise, 1969; Moller et al., 1996; Nagata et al., 2014; Soupart, 1960)	↓(Moller et al., 1996)	↔ <sup>19</sup>
Threonine	↓*	↓(Moller et al., 1996; Nagata et al., 2014; Soupart, 1960)	↔(Moller et al., 1996)	↑(Moller et al., 1996)
<b>Amino Acids with Electrically Charged Side Chains – Acidic</b>				
Aspartic acid	↓			↔(Ruoppolo et al., 2014)
Glutamic acid	↔	↓(Zlotnik et al., 2011)		↔(Ruoppolo et al., 2014)
<b>Amino Acids with Electrically Charged Side Chains – Basic</b>				
Arginine	↓*	↓(Moller et al., 1996)		↔(Ruoppolo et al., 2014)
Histidine	↓ (controls)			↑(Ruoppolo et al., 2014)
Lysine	↓*	↓(Moller et al., 1996)		↓(Ruoppolo et al., 2014)
Glycine		↓(Moller et al., 1996; Nagata et al., 2014)	↓ Mid(Moller et al., 1996)	↓(Moller et al., 1996; Ruoppolo et al., 2014)
Proline	↓	↓(Moller et al., 1996)		↓(Ruoppolo et al., 2014)

## Supplemental bibliography

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