

ENDOCRINOLOGY

Male Testosterone Does Not Adapt to the Partner's Menstrual Cycle



Jakob O. Ström, MD, PhD,^{1,2} Edvin Ingberg, MD, PhD,⁴ Julia K. Slezak, MD,² Annette Theodorsson, MD,³ and Elvar Theodorsson, MD²

ABSTRACT

Background: It has not yet been established whether men in heterosexual relationships adapt their hormone levels to their female partner's menstrual cycle to allocate reproductive resources to the period when the female is actually fertile.

Aim: This prospective observational study tested the hypothesis that some males have peaks in testosterone or acne (a possible biomarker for androgen activity) near their partners' ovulation, whereas other males display the opposite pattern.

Methods: 48 couples supplied menstrual cycle data, male salivary samples, and a protocol of daily activities for 120 days. Daily saliva samples were analyzed for testosterone concentrations by enzyme-linked immunosorbent assay. The main hypothesis was tested by analyzing whether each individual male's testosterone/acne response to ovulation (either an increase or a decrease in comparison to the individual's average levels) was stable over time. To do this, we analyzed the Spearman correlation between individually normalized periovulatory testosterone and acne during the first half of the study versus the second half of the study.

Outcomes: Correlation between each male individual's periovulatory testosterone and acne patterns during the first half of the study versus the second half of the study.

Results: No predictability in the male individuals' testosterone (Spearman's $\rho = -0.018$, $P = .905$) or acne (Spearman's $\rho = -0.036$, $P = .862$) levels during ovulation was found.

Clinical translation: The study being "negative," there is no obvious translational potential in the results.

Strengths and limitations: The main strength of this study lies in the excellent compliance of the study participants and the large number of sampling timepoints over several menstrual cycles, thereby allowing each male individual to be his own control subject. A limitation is that samples were only obtained in the morning; however, including later timepoints would have introduced a number of confounders and would also have hampered the study's feasibility.

Conclusions: The current results strongly indicate that male morning testosterone levels neither increase nor decrease in response to the partner's ovulation. This discordance to previous laboratory studies could indicate either that (i) the phenomenon of hormonal adaptation of men to women does not exist and earlier experimental studies should be questioned, (ii) that the phenomenon is short-lived/acute and wanes if the exposure is sustained, or (iii) that the male testosterone response may be directed toward other women than the partner.

Ström JO, Ingberg E, Slezak JK, et al. Male Testosterone Does Not Adapt to the Partner's Menstrual Cycle. J Sex Med 2018;15:1103–1110.

Copyright © 2018, The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Key Words: Acne; Menstrual cycle; Ovulation; Reproduction; Saliva; Testosterone

Received February 21, 2018. Accepted June 3, 2018.

¹Örebro University, School of Medical Sciences, Department of Neurology, Örebro, Sweden;

²Linköping University, Department of Clinical Chemistry and Department of Clinical and Experimental Medicine, Linköping, Sweden;

³Linköping University, Department of Neurosurgery and Department of Clinical and Experimental Medicine, Linköping, Sweden;

⁴Örebro University, School of Medical Sciences, Department of Infectious Diseases, Örebro, Sweden

Copyright © 2018, The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
<https://doi.org/10.1016/j.jsxm.2018.06.003>

INTRODUCTION

In animals, it has repeatedly been demonstrated that male testosterone levels adapt to the female's reproductive status.^{1–4} Such an adaptation is thought to mobilize the male's resources in the form of courtship, aggressiveness toward other males, and an increased sexual drive to the period when the female is fertile. However, it has not been established whether men in heterosexual relationships adapt their hormone levels to their female partner and join in the rhythmicity of the menstrual cycle. Even if it has been shown in laboratory settings that female fertility cues acutely affect male testosterone levels,^{5,6} real-life observational studies in couples have failed to provide evidence for an induced hormone cycle in males.^{7,8}

One of the studies searching for hormonal synchronization in heterosexual couples came from our laboratory.⁷ Even if testosterone surges near ovulation were seen in some of the 29 males, the summarized results from all individuals indicated that no ovulatory testosterone peak existed. Because the study only included 1 month per couple, it could not be assessed whether the subgroup with testosterone increases near ovulation continued to display this pattern in coming months, which could indicate that at least some couples were hormonally synchronized. The results could be explained by one of the following: (i) either all male testosterone variations were random in regard of the female cycle, or (ii) there were subgroups of males with diametrically different testosterone responses to ovulation that in summary ruled each other out. The second explanation would not merely suggest that some men had testosterone peaks near ovulation, whereas the other men's testosterone levels varied randomly, but that there were males who actually reacted on ovulation with a decrease in testosterone. Otherwise it could not be explained that a tendency of an ovulation peak was not seen in the summarized results.⁷ It could be speculated that such an ovulation-related decrease in testosterone, if it existed, could serve as a form of endogenous birth control for males in relationships.

This study was therefore initiated to test the hypothesis that some males have peaks in testosterone or acne, the latter a possible biomarker for androgen activity, near their partners' ovulation, whereas other males have an opposite pattern. If the 2 testosterone patterns could be found, then our secondary aim was to explain the dichotomy by comparing these groups in terms of relationship quality, perceived stress, demographics, intent to reproduce with the current partner, and other variables. Information on possible confounders affecting the hypothesized hormonal synchronization was also collected, such as sexual intercourse and masturbation on a day-to-day basis, which are factors known to acutely affect testosterone concentrations.

METHODS

Participants

Before participant recruitment, the study protocol was approved by the Regional Ethical Review Board of Uppsala (2014/360). The study was performed in accordance with relevant guidelines and regulations. Informed consent was obtained from all participants.

Heterosexual couples were recruited by posters and flyers on the university campuses in Linköping, (Sweden) and Örebro (Sweden) and by an advertisement in the local newspaper in Örebro. The posters, flyers and advertisement specified that the participants must live together in a heterosexual relationship, be 18 to 50 years of age and must not use hormonal contraceptives. After the participants contacted the research team, they were provided with more detailed information about the study and asked to answer an inclusion/exclusion questionnaire. It was described that the study aimed to investigate the effect of social conditions on testosterone concentrations, but the exact hypothesis was not disclosed to the participants during the entire study. The final selection of participants was made on the basis of the inclusion/exclusion questionnaires, aiming to recruit a healthy and fertile group in which the hypothesized phenomenon was thought to be most likely to occur.

Inclusion criteria:

- Couple living together in a heterosexual relationship
- Both persons at least 18 years old

Exclusion criteria:

- Previous gonadectomy
- Transsexuality
- Postmenopausal female
- Oligomenorrhea
- Disease that could affect the sex hormone system, social interaction, or olfaction (the only 3 diseases that were reported from potential participants were anxiety, celiac disease, and well-regulated hypothyreosis, and none of these were considered to be a reason for exclusion)
- Consumption of prescription drugs that could alter the sex hormone system
- Current or recent use of hormone-containing contraceptives
- Pregnancy or planned pregnancy during the time of the study
- Long period of absence from the partner planned during the study
- Consumption of narcotics
- Consumption of anabolic steroids
- Tobacco-smoking

From the 163 couples initially signing up as volunteers, 50 couples were finally included, and 48 completed the study (Figure 1). Before commencing the study, at least 1 person from

Download English Version:

<https://daneshyari.com/en/article/8828018>

Download Persian Version:

<https://daneshyari.com/article/8828018>

[Daneshyari.com](https://daneshyari.com)