

Case Report

Absence of orgasm-induced prolactin secretion in a healthy multi-orgasmic male subject

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In several studies we have recently demonstrated that orgasm induces prolactin secretion in healthy males and females. This suggests that prolactin may form a feedback regulator of the refractory period following orgasm. To examine this position we investigated the prolactin response of a healthy multi-orgasmic male subject. Blood was drawn continuously during masturbation-induced orgasm. The prolactin response of the case-subject was compared with that of nine healthy adult men with a normal refractory period. The case-subject showed no prolactin response to three orgasms. Data from this multi-orgasmic subject support the hypothesized role of plasma prolactin in contributing to sexual-satiation mechanisms.

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Introduction

Sexual dysfunction is a commonly reported side effect of psychiatric medication, underscoring the importance of neuroendocrine mechanisms in regulating sexual competence.^{1,2} Thus, we recently designed a continuous blood sampling technique and sexual arousal paradigm to investigate endocrine mechanisms regulating sexual arousal. This series of studies demonstrated substantial increases in plasma prolactin following orgasm in both men and women,^{3–5} but unaltered prolactin levels following sexual arousal without orgasm.⁶ Further, plasma prolactin concentrations were elevated for at least 60 min following orgasm. Due to the known impact of prolactin on sexual drive and function, these data suggest that prolactin may contribute to a feedback control of the refractory period following orgasm. To investigate this position, we examined the prolactin response to orgasm of a healthy man who reported a short refractory period, thereby

fulfilling the criteria for multi-orgasmic and multi-ejaculatory males.⁷

Methods

The case subject (aged 25 y) reported an average refractory period of 3 min, whereby erection remains following orgasm in approximately 50% of all episodes. Sexual appetite remains high following initial orgasm, with a second orgasm usually possible in the absence of strong sexual stimulation. Every orgasm is followed by an ejaculation. The ability to reach at least two orgasms shortly after each other was noticed by the subject in adolescence. The case subject was both psychologically and physically healthy, as confirmed by psychiatric and medical examination. TRH-test confirmed normal thyrotropic and lactotropic function.

Nine healthy male volunteers, aged 26 ± 1 y were used as a reference group. Participants reported a refractory period of at least 10 min, and as a group disclosed an average refractory period of 19 ± 2 min. Erection is lost after orgasm in each participant. All subjects participated following written informed consent.

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The experimental session was conducted as described previously.^{3–6} Briefly, whilst viewing a documentary film blood was drawn continuously from participants and divided into 10 min intervals. The film switched to erotic scenes after 20 min and again after 60 min, with subjects required to masturbate until orgasm at these times.

Results

All control participants experienced orgasm following masturbation after 30 and 60 min. Consequently, increases of plasma prolactin concentrations were observed in each control subject. Collectively, an increase in plasma prolactin concentrations were observed following the first orgasm, with further increases following the second orgasm (Figure 1). In contrast, the case subject experienced two orgasms at 30 min, separated by 2 min, and a further orgasm at 60 min. Additionally, unaltered sexual appetite following orgasm was accompanied by unchanged concentrations of plasma prolactin in the case subject.

Discussion

These data demonstrate a clear absence of the orgasm-induced prolactin surge in a healthy male exhibiting multiple orgasms and short refractory period. This contrasted with control participants, who each displayed a regular refractory period and

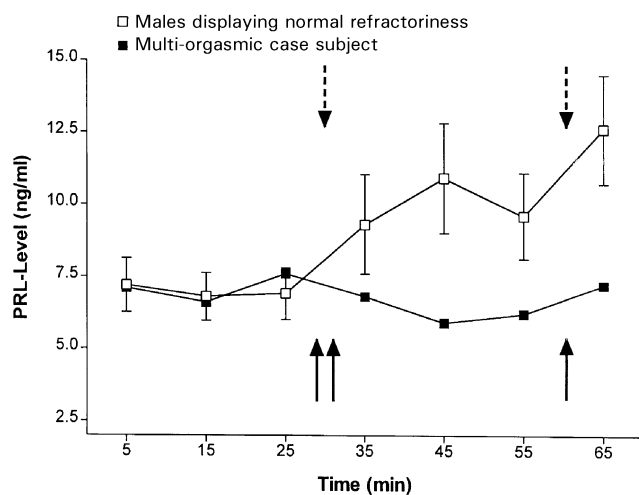


Figure 1 Effect of masturbation-induced orgasm on plasma prolactin levels in males displaying normal refractoriness and the multi-orgasmic case subject. Orgasm was induced by masturbation after 30 and 60 min (orgasm of control subjects indicated by broken arrows). The case subject experienced two orgasms after the initial masturbation sequence (indicated by full arrows).

associated prolactin surge following orgasm. These data support the hypothesis that orgasm-induced prolactin secretion may be one mechanism regulating peripheral and central effectors of the refractory period.^{4–6,8} Indeed, the short refractory period of the case subject may result from a combination of both peripheral and central processes, as the absent prolactin surge is accompanied by both maintenance of erection and ejaculation capacity, as well as preservation of sexual desire.

Hyperprolactinemia is associated with marked depression of libido and sexual function.^{1,2,9} Clearly, the changes in prolactin observed following orgasm are of lower magnitude and duration than those observed in hyperprolactinemia. Nevertheless, animal data suggest that acute low-level increases of peripheral prolactin are also capable of inhibiting sexual drive.¹⁰ Thus, the prolactin response to orgasm is one candidate as a peripheral regulator of the refractory period.

In summary, a male subject displaying low refractoriness following orgasm demonstrated a clear absence of the typical prolactin surge following orgasm. These data suggest that the prolactinergic response may be one potential focus for therapeutic approaches to dysfunctional sexual drive and function.

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References

- Hummer M *et al.* Sexual disturbance during clozapine and haloperidol treatment for schizophrenia. *Am J Psychiat* 1999; **156**: 631–633.
- Rosen RC, Lane RM, Menza M. Effects of SSRIs on sexual function: a critical review. *J Clin Psychopharm* 1999; **19**: 67–85.
- Krueger T *et al.* Neuroendocrine and cardiovascular response to sexual arousal and orgasm in men. *Psychoneuroendocrinology* 1998; **23**: 401–411.
- Exton MS *et al.* Cardiovascular and endocrine alterations after masturbation-induced orgasm in women. *Psychosom Med* 1999; **61**: 280–289.
- Exton MS *et al.* Coitus stimulates prolactin secretion in healthy subjects. *Psychoneuroendocrinology* 2001; **26**: 287–294.
- Exton NG *et al.* Neuroendocrine response to film-induced sexual arousal in men and women. *Psychoneuroendocrinology* 2000; **25**: 187–199.
- Dunn ME, Trost JE. Male multiple orgasm: a descriptive study. *Arch Sex Behav* 1989; **18**: 377–387.
- Krüger THC, Haake P, Hartmann U, Schedlowski M, Exton MS. Prolactin release following orgasm: a feedback control of sexual arousal? *Neurosci Biobehav Review* 2002; **26**: 31–44.

9 Koppelman MCS *et al.* Effect of Bromocriptine on affect and libido in hyperprolactinemia. *Am J Psychiat* 1987; **144**: 1037–1041.

10 Drago F, Lissandrello CO. The 'low dose' concept and the paradoxical effects of prolactin on grooming and sexual behavior. *Eur J Pharmacol* 2000; **405**: 131–137.