PERGAMON

Psychoneuroendocrinology 27 (2002) 933–943

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www.elsevier.com/locate/psyneuen

# Age at first intercourse is inversely related to female cortisol stress reactivity

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Received 9 August 2001; received in revised form 15 January 2002; accepted 15 January 2002

**Abstract**

The relationship between age at first sexual intercourse and salivary cortisol stress reactivity (to the Trier Social Stress Test; TSST; consisting of public speaking and mental arithmetic) was examined in healthy subjects (43 females and 36 males; ages 19–38). Women reporting earlier first intercourse had less intense cortisol increases in response to the stressor (a non-significant trend was observed for males), and faster recovery from the stressor. Results were not confounded by age, oral contraceptive use, depression scores, smoking status, or body mass index. It is concluded that earlier first intercourse is associated with less reactivity to and faster recovery from stress as indexed by this endocrine measure. Results are discussed in terms of genetic and psychological influences on first intercourse and implications for coping with interpersonal stress.


*Keywords:* Coitus; Sexual behavior; Cortisol; Stress reactivity; Stress recovery

## 1. Introduction

Age at first sexual (penile–vaginal) intercourse (AFI) has a significant genetic loading (Martin et al., 1977; Dunne et al., 1997), and part of this mechanism appears

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0306-4530/02/$ - see front matter 
PII: S0306-4530(02)00007-0

to involve genes for dopamine D1 and D2 receptors (Miller et al., 1999). Women's earlier AFI was predicted by better motor skills at age 5, a domineering and mature personality at age 9 (Udry et al., 1995), earlier menarche (Udry and Cliquet, 1982), adolescent perception of earlier autonomy and physical maturity, and lack of restraint (Rosenthal et al., 1999). AFI is associated with lifelong sexual benefits as well: women's earlier AFI is associated with greater coital orgasmic capacity (Raboch and Bartak, 1983), and in one sample (of unknown representativeness) of 64-year-old men, the sexually functional were differentiated from the nonfunctional by earlier AFI (Vallery-Masson et al., 1981). In several studies, AFI was associated inversely with adult intercourse frequency (reviewed in Brody (1997).

Both AFI (in some studies of women; Paul et al., 2000) and cortisol response to stress (Seeman, 1995) have been found to be related inversely to self-esteem. The domineering and autonomous features noted above to be associated with earlier AFI have a parallel in the finding that social dominance and internal locus of control were associated with lower cortisol reactions (Pruessner et al., 1997) to the Trier Social Stress Test (TSST).

In addition to genetic influences and behavioral manifestations of dopaminergic tone influencing cortisol response to social stress, cortisol responses may influence dopamine function. In laboratory animals, treatment with cortisol (at levels simulating a prolonged stress response) impaired dopamine-dependent prefrontal cortical functions (Lyons et al., 2000). Similarly, chronic psychosocial stress reduced the density of dopamine transporters in the caudate nucleus and putamen, and also reduced serum testosterone and testicular weight (Isovich et al., 2000). One may conjecture that chronic cortisol elevations associated with greater stress response could also interfere (or have interfered) with the dopamine-related initiation of sexual behavior.

There are several pathways by which younger AFI might reduce stress response: earlier AFI could be a marker of a genetic predisposition against stress response, earlier AFI could have interpersonal and intrapsychic consequences leading to less stress response, and/or earlier AFI could be a precursor of more frequent intercourse, which results in less stress response. For the current study, the relationship between AFI and cortisol response to psychological stress was examined in a sample of healthy adults. To investigate one possible mechanism for differences in cortisol response (modification of adrenal sensitivity), the cortisol response to ACTH stimulation was also examined.

## 2. Method

### *2.1. Participants*

The study was embedded in a randomized placebo-controlled clinical trial of high-dose ascorbic acid on stress response (Brody et al., 2002). Approximately half of the subjects in the current report consumed ascorbic acid supplements for the clinical trial, but trial group had no effect on either ACTH stimulation or overall cortisol