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## Testosterone, sexuality and antisocial personality in rapists and child molesters: a pilot study

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### Abstract

Morning and afternoon levels of saliva testosterone levels in Finnish imprisoned rapists ( $n = 10$ ) and child molesters ( $n = 10$ ) were compared to those in randomly selected control subjects ( $n = 31$ ). The associations of saliva testosterone with sexual behavior and antisocial personality traits were explored in all groups. The sexual offenders and control subjects did not differ in the between-subjects main effect estimated for the averaged morning and afternoon testosterone levels. Seven rapists and three child molesters met the criteria for antisocial personality disorder (ASP). In the sexual offenders, a summed ASP index was positively correlated with mean saliva testosterone. Sexual activity as estimated from self-reports of sexual intercourse and masturbation was significantly related to testosterone in both rapists and child molesters but not in the control males. The implications of these results are discussed. © 2002 Elsevier Science Ireland Ltd. All rights reserved.

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### 1. Introduction

Many facets of human sexuality seem to be linked to testosterone, such as sexual arousal, sexual intercourse (Cooper and Swamy, 1994), and sexual fantasies (Bancroft and Wu, 1983). Sexual interest and ejaculation also seem to be androgen-related (Salmimies et al., 1982) as are spontaneous erections (Kwan et al., 1983; Carani et al., 1996). Their dependence on testosterone has

been affirmed by studies of hypogonadal males whose diminished sexual desire or behavior can be restored with testosterone treatment. Whether these aspects of sexuality are related to testosterone in males whose hormones fall within the normal range of variability has not been clearly established. The literature on testosterone and self-reported sexual activity shows inconsistent results in normal men, with correlations ranging from none to weak (e.g. Brown et al., 1978; Raboch and Stárka, 1972, 1973; Persky et al., 1978; Rubin et al., 1979; Schiavi et al., 1997). Even negative correlations have been reported (Kraemer et al., 1976; Schiavi et al., 1991).

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Testosterone has also been linked to male aggression. Several studies have found positive correlations between testosterone and history of violent behavior (e.g. Kreuz and Rose, 1972; Ehrenkranz et al., 1974; Virkkunen et al., 1994). Although effect sizes have not been impressive, correlations have generally exceeded chance levels (Archer 1991, 1994). Higher testosterone levels have also been linked to antisocial personality disorder (ASP) (Dabbs and Morris, 1990; Aromäki et al., 1999).

The correlations found, on the one hand, between testosterone and aggressive behaviors, and then again between testosterone and sexual desire, make it particularly relevant to investigate testosterone levels in sexual offenders. The available hormone data on sexual offenders are inconclusive with regard to differences in mean basal levels. Although Rada et al. (1976) found that plasma testosterone levels did not significantly differ between rapists, child molesters and controls, a violent group of rapists had the highest levels of testosterone compared to the other groups. In another study (Rada et al., 1983), the same results were obtained with the exception that this time the highest mean levels of testosterone were observed in a group of violent child molesters, although the outcome was not statistically significant. One comparative study of pedophiles and nonviolent non-sexual offenders indicated lower testosterone levels in child molesters (Bain et al., 1988). In a recent study (Dabbs et al., 1995b) high testosterone was found to be associated with crimes of sex and violence, so that the highest risk-ratios for high-testosterone men were observed for rape, child molestation, and homicide, in that order. Since few studies of testosterone have included both rapists and child molesters, we wanted to examine: (1) the mean levels of salivary testosterone in samples of Finnish rapists and child molesters (expecting the testosterone levels to be higher for rapists than for other groups); (2) the relationship of testosterone levels to antisocial behaviors (expecting a positive correlation); and (3) the relationship of antisocial personality to the likelihood to commit sexual offenses (expecting more antisocial behaviors among sexual offenders). Exploratory analyses

were aimed at clarifying the relationship between testosterone levels and self-reported sexual activity.

## 2. Method

### 2.1. Participants

Three groups of men were studied. A group of incarcerated sexual offenders consisting of two subgroups: a group of rapists ( $n=10$ ) and a group of child molesters ( $n=10$ ) were compared to a group of control males ( $n=31$ ) who were recruited from the streets, shopping malls, cafes, or places of work. Among 42 men who were approached, 31 agreed to participate. For the present study, all incarcerated sexual offenders in Finland (1998) were identified from prison documents. Offenders who had raped an adult woman or molested a child were invited to take part in the study. When the study was started in 1998, there were 65 incarcerated sex offenders in the country. Of these, 20 prisoners volunteered as participants. The most common reasons for refusal were claimed innocence (31%), fear of condemnation or retaliation from other prisoners (23%), and previous experiences of DNA or psychological examinations which made them reluctant to undergo more biological testing (11%). The remaining refusals were for diverse unclassified reasons. The prisoners were Finnish, except for one rapist subject who was of foreign ethnic origin.

#### 2.1.1. Mental health and medication

A comprehensive survey showed that 56% of all Finnish prisoners reported some psychiatric symptoms, mostly insomnia, anxiety and depression (Joukamaa, 1991). In the age group represented by our subjects (30–39 years), anxiety (56%) and depression (51%) were the most frequent symptoms. Medication among the present sexual criminals was consistent with national symptom prevalence in that use of antidepressants or neuroleptics was reported by 10 of our 20 prisoners (Table 1).

#### 2.1.2. Ethical considerations

The study was planned to provide minimal interference in the participants' daily life. Formal

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