

## Vaginal Blood Flow During Sleep

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Since the confirmation of Ohlmeyer's (1944) finding that periodic erections occur during sleep, investigations have been directed at finding an analogous phenomenon in females. An isothermal relative blood flow device has been developed which reliably registers changes in vaginal blood flow (VBF) concomitant with fantasy-produced subjective sexual arousal. Body movements and non-specific physiological stress have minimal effects on the measurement. The occurrence of VBF changes during sleep was studied in 2 Ss who each slept in the laboratory for 3 nights of uninterrupted sleep. Both Ss were in various phases of their menstrual cycle during the monitored nights. Each sleep run was preceded by at least 2 waking fantasy trials. A total of 20 REM periods were observed. In 19 of these periods, VBF activity was present either as a pattern similar to the fantasy arousal response or as a marked increase in irregularity. Seventeen VBF activity periods were also observed in NREM sleep. These VBF patterns could not be distinguished from those observed during REM. No consistent relationship between NREM VBF patterns and EEG could be detected. The observed changes in VBF in the sleeping female appear analogous to the pattern of penile erections observed in the sleeping male.

### The Clitoral Erection Cycle During Sleep

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It has been observed that in males

penile erections accompany REM sleep. Comparable observations of clitoral erections in females have not been made because of technical difficulties in producing a strain gauge for the normal clitoris. The study of females with congenital clitoral enlargement and the development of a mercury strain transducer have made such observations possible. Two females with genetically enlarged clitorises, due to virilizing congenital adrenal hyperplasia (CAH), were compared with two males with the same disorder and with two healthy males. EEG sleep patterns and nocturnal erections were monitored on 3 or more nights for each S. The number of nocturnal erections observed in both female and male CAH Ss was similar to the number observed in the healthy males. Moreover, in all Ss the majority of the erections accompanied REM.

### The Effect of Sexual Intercourse on Sleep Patterns and Nocturnal Penile Erections

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The role of frequency of sexual intercourse in the psychobiological processes has been a subject of controversy throughout medical history. Until recently, however, technological limitations have prevented the empirical testing of even the most rational of theories. The fact that penile erections frequently accompany REM sleep, during which dreams are most often reported, has led to the hypothesis that nocturnal erections are somatic manifestations of instinctual drive. A test of this hypothesis was attempted by restricting sexual activity and observing the amount and types of erec-