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TALK

DOES ESTRADIOL POTENTIATE THE ANXIOLYTIC EFFECTS OF OXYTOCIN IN FEMALES AND MALES FOLLOWING INTRASEXUAL COMPETITION?

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ABSTRACT

Sex-differences in stress-responses may reflect an adaption that aids reproductive success, however, research into the regulatory mechanisms is limited. Here, we examine how oxytocin (OT) impacts the stress-response among human males and females during intrasexual competition, assessed whether estradiol potentiates OT's effects on stress. Using a randomized double-blind design, 76 healthy adults received intranasal OT or placebo before engaging in an aggressive encounter with a sex-matched confederate. Markers of physiological stress (heart rate, heart rate variability, blood pressure) and psychological stress (Positive and Negative Affect Schedule) were measured post-task. Hierarchical regression showed significant three-way interactions between OT condition, sex, and baseline estradiol concentrations for heart rate variability, positive and negative affect, but not heart rate or blood pressure. Simple slope analysis revealed significant effects for females with low and high estradiol concentrations, but not in males. High estradiol females experience significantly higher heart rate variability, positive affect, and reduced negative affect, supporting the potentiating role of estradiol. Conversely, low estradiol females demonstrated the opposite (lower heart rate variability, positive affect, and higher negative affect). Given estradiol concentrations often correlate with the likelihood of fertility, we speculate that our study captured varying female behavioral strategies during intrasexual competition related to the odds of reproductive success. These findings contribute to a growing body of research on sex differences to OT administration in humans.