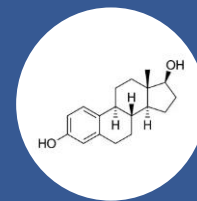


SALIVARY ESTRADIOL QUICK START GUIDE



BIOLOGICAL CONSIDERATIONS

Estradiol is one of the three main estrogenic steroid hormones present in humans and is the most active naturally secreted estrogen. In menstruating women, estradiol is produced primarily by the ovarian follicles from testosterone, with additional amounts produced by extraglandular conversion of testosterone in peripheral tissues. Concentrations peak mid-cycle, marking ovulation, followed by a rapid decline with a smaller secondary increase during the luteal phase. In post-menstrual women, small amounts of estradiol continue to be made from estrone and testosterone in the peripheral tissues, but estrone, also produced peripherally, replaces it as the predominant form of estrogen. In men and pre-pubertal children, estradiol originates principally from extraglandular conversion of androgens; men also have small amounts produced in the testes. In the blood, only 1 to 15% of estradiol is in its unbound or biologically active form. The remaining estradiol is bound to serum proteins. Unbound serum estradiol enters saliva via intracellular mechanisms, and in saliva the majority of estradiol remains unbound to protein.

Biological Representation	Systemic
Serum-Saliva Correlation	0.80

SAMPLE TIMING AND DESIGN

In women of reproductive age, estradiol exhibits a diurnal rhythm where the peaks tend to occur in the early morning; the timing of the peaks is shifted later during the menstrual phase. There are also ultradian harmonics superimposed upon the basic diurnal rhythm. In men, there is no diurnal rhythm to estradiol production. Document use of estrogen containing contraceptives, consider recording the menstrual cycle day count or equivalent, and estimate flow rate.

FREQUENTLY STUDIED WITH

Cortisol, Testosterone, Progesterone, Estriol, Estrone, Melatonin, Androstenedione

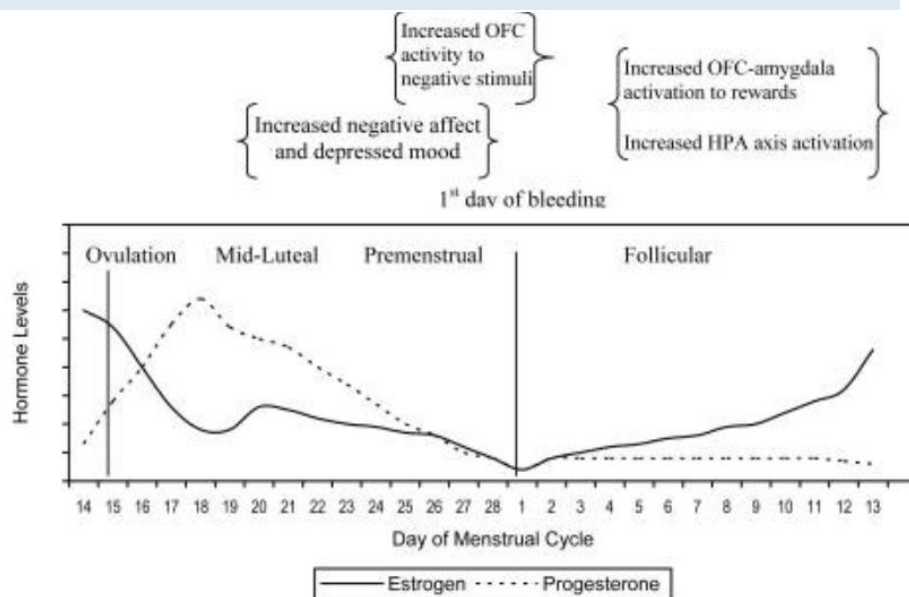
TECHNICAL SUMMARY

Sample Collection Methods & Volumes	
Passive Drool	✓
SalivaBio Swabs	-
Optimum Collection Volume	225 µL*

*Add 300 µL to the total collection volume for all analytes of interest.

EXAMPLE DATA

Martel et al 2013, illustrates estradiol levels throughout a women's menstrual cycle. Depressed mood, apathy, and other mood symptoms are often seen in the mid-luteal phase.



Martel et al. 2013

KEY RESOURCES

- Chung, Y. S., et al., (2019). A preliminary study of association between adolescent estradiol level and dorsolateral prefrontal cortex activity during emotion regulation. *Psychoneuroendocrinology*, 109, 104398.
- Martel, M. M. et al., (2009). Potential hormonal mechanisms of attention-deficit/hyperactivity disorder and major depressive disorder: a new perspective. *Hormones and behavior*, 55(4), 465–479.
- Granger, DA, Taylor, MK. (2020). *Salivary Bioscience: Foundations of Interdisciplinary Saliva Research and Applications*. Springer. <https://springer.com/book/10.1007/978-3-030-35784-9>.

