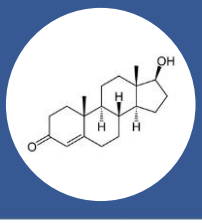
SALIVARY TESTOSTERONE QUICK START GUIDE



BIOLOGICAL CONSIDERATIONS

Testosterone is an anabolic steroid hormone. Prior to puberty, the majority of circulating testosterone results from the conversion of DHEA-S, DHEA, and androstenedione. During the male transition to puberty, the Leydig cells of the testes are the primary source, and levels of testosterone in males increase substantially compared to females. This sexual dimorphism continues throughout life, but during mid-life testosterone levels in males plateau and then slowly decline with age. In blood, only 1 to 15% of testosterone is in its unbound or biologically active form. The remaining testosterone is bound to sex steroid binding globulin (SHBG). Unbound testosterone enters saliva from the circulation via passive diffusion. Levels of testosterone in saliva are considerably lower than levels in serum. In general, levels of testosterone are detectable in saliva during the first year of life, then undetectable until late adrenarche. Around age 8-9 for girls and 9-10 for boys, testosterone levels begin to rise, especially in males. The serum-saliva correlation for testosterone is very high for males and more modest for females.

Biological Representation	Systemic
Serum-Saliva Correlation	0.96 in males, less robust in females

SAMPLE TIMING AND DESIGN

Testosterone exhibits a modest diurnal rhythm, with the highest levels in the morning and a nadir around midnight. Individual differences in testosterone are associated with a wide range of sociodemographic, social behaviors, cognitive functions, and health outcomes in males. Testosterone levels are responsive to perceived and actual competition and especially responsive to challenges to individuals' status or dominance.

FREQUENTLY STUDIED WITH

Cortisol, Estradiol, Progesterone, DHEA, Androstenedione

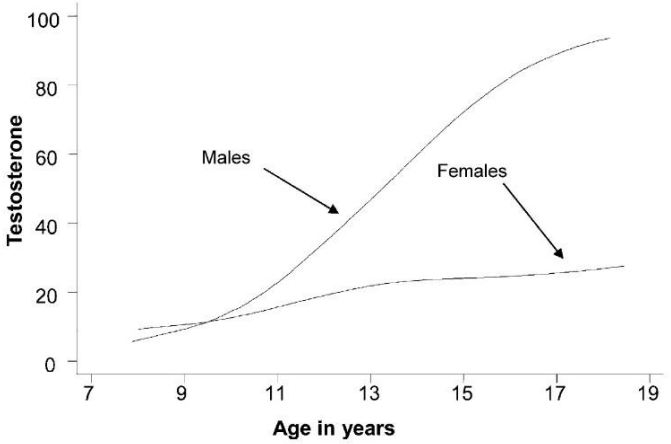
TECHNICAL SUMMARY

Sample Collection Methods & Volumes	
Passive Drool	✓
SalivaBio Swabs	✓
Optimum Collection Volume	75 µL*

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

EXAMPLE DATA

Testosterone levels (pg/ml) and age: Lowess curves by gender.



*Granger, DA, et al. (2004).

KEY RESOURCES

1. 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
2. Booth, A, et al. (1999). Testosterone and men's depression: the role of social behavior. J Health Soc Behav. 40(2):130-40.
3. *Granger, DA, et al. (2004). The "trouble" with salivary testosterone. Psychoneuroendocrinology. 29(10):1229-40.
4. Shirtcliff, EA, et al. (2002). Gender Differences in the Validity of Testosterone Measured in Saliva by Immunoassay. Horm Behav. 42(1):62-9.
5. Booth, A, et al. (1999). Testosterone and men's depression: the role of social behavior. J Health Soc Behav. 40(2):130-40.
6. Wang, C., Plymate, S., Nieschlag, E., Paulsen, C.A. (1981). Salivary testosterone in men: Further evidence of a direct correlation with free serum testosterone. J Clin Endocrinol Metab, 53(5), 1021-24.
7. Granger, DA, et al. (2003). Salivary testosterone diurnal variation and psychopathology in adolescent males and females: Individual differences and developmental effects. Dev Psychopathol. 15(2):431-49.
8. Hayes, HD, et al. (2016) Salivary Testosterone and Cortisol Measurement in Sports Medicine: a Narrative Review and User's Guide for Researchers and Practitioners. Int J Sports Med. 37(13):1007-1018.

SALIMETRICS