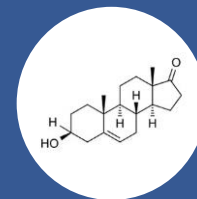


# SALIVARY DEHYDROSTERONE QUICK START GUIDE



## BIOLOGICAL CONSIDERATIONS

Dehydroepiandrosterone (DHEA) is a steroid hormone produced principally in the adrenal cortex. DHEA synthesis in the adrenal gland is affected by HPA axis activity and the release of ACTH, and DHEA levels increase in response to stress. DHEA and its sulfated analog DHEA-S serve primarily as precursors that circulate to peripheral tissues, where they are converted to androgens and estrogens. For both females and males, DHEA is the main source of testosterone prior to puberty. DHEA's production increases in middle childhood during adrenarche. Unbound DHEA enters saliva from blood via intracellular mechanisms, and the serum-saliva correlation is high. DHEA has been investigated in particular for its ability to counteract the effects of hyper-cortisolism, and it has been shown to have significant antidepressant effects.

<b>Biological Representation</b>	Systemic
<b>Serum-Saliva Correlation</b>	0.86

## SAMPLE TIMING AND DESIGN

DHEA shows a diurnal pattern of production, with highest levels in the morning after awakening, followed by a decline throughout the afternoon and evening. Salivary DHEA levels are unaffected by salivary flow rate. Circulating levels of DHEA peak around the age of 20 to 30, then decline to only 20-30% of peak level by the age of 70 to 80. DHEA has anti-glucocorticoid effects and numerous studies report the ratio of cortisol to DHEA as a useful metric. Differences in the secretion of the two hormones can exist, and changes in the ratio of cortisol to DHEA have been observed in connection with various disorders, including depression, psychiatric conditions, and HIV infection.

## FREQUENTLY STUDIED WITH

Cortisol, Alpha - Amylase, Androstenedione, Testosterone, Estradiol, DHEA-S

## TECHNICAL SUMMARY

### Sample Collection Methods & Volumes

Passive Drool	✓
Optimum Collection Volume	125 µL*

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

## EXAMPLE DATA

Taylor et al. (2016) measured salivary DHEA across two days in elite military men. The graph depicts the diurnal rhythm of the DHEA hormone, levels of DHEA highest upon awakening and lowest in the evening.

## KEY RESOURCES

1. Taylor, M. K., Kviatkovsky, et al., (2016). Anabolic hormone profiles in elite military men. *Steroids*, 110, 41–48.
2. Izawa, S., et al., (2008). Salivary dehydroepiandrosterone secretion in response to acute psychosocial stress and its correlations with biological and psychological changes. *Biological psychology*, 79(3), 294–298.
3. Granger, D. A., et al. (1999). Assessing dehydroepiandrosterone in saliva: a simple radioimmunoassay for use in studies of children, adolescents and adults. *Psychoneuroendocrinology*, 24(5), 567–579.
4. Chen, F. R., Raine, A., & Granger, D. A. (2015). Tactics for modeling multiple salivary analyte data in relation to behavior problems: Additive, ratio, and interaction effects. *Psychoneuroendocrinology*, 51, 188–200. <https://doi.org/10.1016/j.psyneuen.2014.09.027>
5. Brown, G. L., et al., (2008). Salivary cortisol, dehydroepiandrosterone, and testosterone interrelationships in healthy young males: a pilot study with implications for studies of aggressive behavior. *Psychiatry research*, 159(1-2), 67–76.
6. Wolkowitz, O. M., et al., (2010). Depression gets old fast: do stress and depression accelerate cell aging? *Depression and anxiety*, 27(4), 327–338.
7. <https://springer.com/book/10.1007/978-3-030-35784-9>

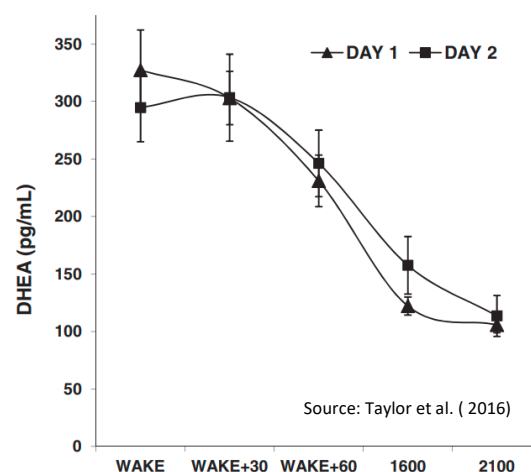


Fig. 1. Daily DHEA profile of total sample, day 1 versus day 2.