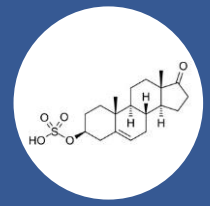


# SALIVARY DEHYDROEPIANDROSTERONE SULFATE QUICK START GUIDE



## BIOLOGICAL CONSIDERATIONS

DHEA-S, the sulfated version of DHEA, is the most abundant steroid hormone in humans, is produced primarily in the adrenal cortex, and is secreted in response to ACTH. Circulating DHEA-S concentrations are approximately 250 and 500 times higher than DHEA, in women and men, respectively. DHEA-S is not bound by sex hormone binding globulin (SHBG) in the blood stream. DHEA-S appears to serve largely as a precursor molecule that is circulated to various target tissues in the body. In those locations, the sulfate is removed to yield DHEA, and is then further metabolized into various estrogenic and androgenic compounds. DHEA-S is also synthesized directly in the central nervous system, where it is thought to help protect nervous tissues against harmful agents. DHEA-S has been investigated for relationships, mental and physical stress, and psychological and behavioral disorders. DHEA-S is not lipid soluble, and it cannot enter saliva by passive diffusion through cell membranes like most of the other steroid hormones. Instead, it enters saliva only by going through the tight junctions between cells in the saliva glands, and it is too large to do this readily. It is therefore present in relatively small amounts. Binding proteins or enzymes in saliva that would affect the measurement of free DHEA-S appear largely to be absent.

Biological Representation

Systemic

## SAMPLE TIMING AND DESIGN

DHEA-S has been reported to have a diurnal rhythm, but the findings have varied, and some studies found no variation. Due to the restrictive mode of entry for DHEA-S into saliva, its levels in saliva decrease as salivary flow rates increase. DHEA-S measurements in saliva must therefore be corrected for flow rate. Because of the much higher levels of DHEA-S in blood, it is important to minimize the risk of blood contamination in the saliva samples. Salivary and plasma levels of DHEA-S show a significant positive correlation.

## FREQUENTLY STUDIED WITH

Cortisol, DHEA, Alpha-Amylase

## TECHNICAL SUMMARY

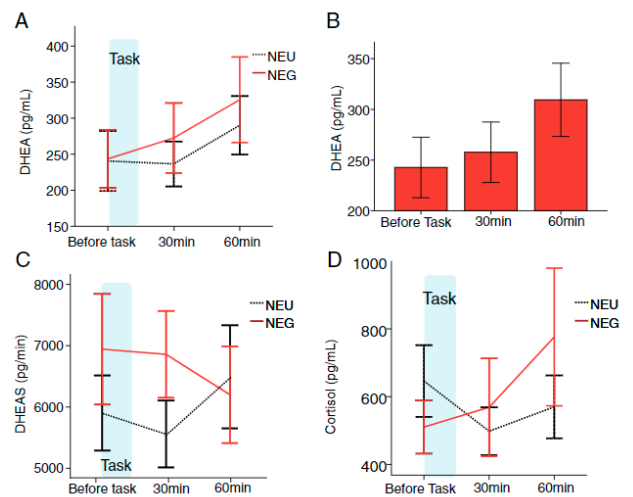
### Sample Collection Methods & Volumes

Passive Drool	✓
SalivaBio Swabs	-
Optimum Collection Volume	225 µL*

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

## EXAMPLE DATA

Salivary DHEA, DHEAS, and cortisol were measured in response to a task: processing negative and neutral emotional context. High DHEAS/DHEA ratio levels may contribute to reduced processing of negative emotional stimuli and less interference. (do Vale 2015)



Source: do Vale (2015)

## KEY RESOURCES

- do Vale, S. et al., (2015). Dehydroepiandrosterone (DHEA) and dehydroepiandrosterone-sulfate (DHEAS) and emotional processing - A behavioral and electrophysiological approach. *Hormones and behavior*, 73, 94–103.
- Krobath, P.D., Salek, F.S., Pittenger, A.L. et al. (1999). DHEA and DHEA-S: A review. *J Clin Pharmacol* 39(4), 327-48.
- Summarized in Whetzel, C.A., Klein, L.C. Measuring DHEA-S in saliva: Time of day differences and positive correlations between two different types of collection methods. *BMC Res Notes*, 3: 204.
- 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>

