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 hypercortisolism, and it has been shown to have significant antidepressant effects.

<table>
<thead>
<tr>
<th>Biological Representation</th>
<th>Systemic</th>
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<tbody>
<tr>
<td>Serum-Saliva Correlation</td>
<td>0.86</td>
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</tbody>
</table>

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 ant gluocorticoid 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

<table>
<thead>
<tr>
<th>Passive Drool</th>
<th>✓</th>
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<tbody>
<tr>
<td>Optimum Collection Volume</td>
<td>125 µL*</td>
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</tbody>
</table>

*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