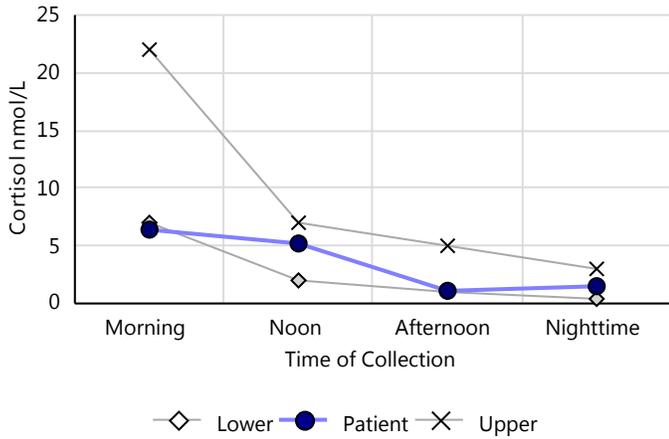


| | | | | |
|----------------------------------|-----------------------|------------|------------|------------|
| Authorizing Clinician | Patient | Collected | Received | Reported |
| BioHealth Laboratory | Patient Sample | 01/02/2017 | 01/03/2017 | 01/04/2017 |
| 23900 Hawthorne Blvd, Suite #150 | Gender: Female | | | |
| Torrance, CA 90505 | DOB: 11/26/1968 | | | |

HPA Stress Profile with SIgA (#201A-S)

Cortisol Diurnal Rhythm



Cortisol and DHEA-S Results

| Parameter | Result | Reference Range | Units |
|-----------------------|------------|-----------------|-------------|
| Cortisol - Morning | 6.4 | 7.0 - 22.0 | nmol/L |
| Cortisol - Noon | 5.2 | 2.0 - 7.0 | nmol/L |
| Cortisol - Afternoon | 1.1 | 1.0 - 5.0 | nmol/L |
| Cortisol - Nighttime | 1.5 | 0.4 - 3.0 | nmol/L |
| Cortisol - Sum | 14.2 | 10.4 - 37.0 | nmol/L |
| DHEA-S Morning | 2.4 | 1.0 - 10.0 | nmol/L |
| Cortisol:DHEA-S Ratio | 2.7 : 1 | 1.0 - 4.0 ** | Molar Ratio |

NOTE: Reportable cortisol reference ranges updated September 1, 2017. To obtain more information, including suggested Target Ranges, [click this link](#) or contact Client Services.

Cortisol has one of the most distinct circadian rhythms in human physiology. This is regulated by the central clock located in the suprachiasmatic nucleus of the hypothalamus. Cortisol acts as a secondary messenger between central and peripheral clocks, hence its importance in the synchronization of body circadian rhythms. Optimal regulation of the hypothalamic-pituitary-adrenal (HPA) axis is critical for a successful response to any stressor as well as in non-stressful situations. Dysregulation of the HPA axis in basal conditions or in response to acute or chronic (including psychosocial) stress is closely related to the onset and/or progression of many diseases. The anabolic steroid, dehydroepiandrosterone sulfate (DHEA-S), is secreted from the adrenal cortex. It plays a significant role in the body as a precursor to sex steroids as well as a role in HPA axis response to stress.

The Cortisol to DHEA-S ratio provides a snapshot of the waking values of these hormones and is reported specific to the age and gender of the patient. In general, an elevated cortisol:DHEA-S ratio is indicative of progressive HPA axis dysfunction in which acute and/or chronic stressors have taken their toll on homeostasis. The cortisol:DHEA-S ratio is generally considered to be a measure of catabolic vs. anabolic activities, but it may be better described as the overall burden of glucocorticoid signaling on tissues, since DHEA acts not only as an anabolic hormone, but appears to function to down-regulate the cellular effects of cortisol. Therefore, the signaling burden of cortisol is not just a function of available free cortisol, but of the DHEA-S available as an opposing signal.

For complimentary clinical and interpretive support, contact the lab at the numbers provided above to communicate with actively practicing clinicians with extensive experience in lab assessments and therapeutic options. Visit www.biohealthlab.com for more information.

** The cortisol:DHEA-S ratio is a general guideline based on statistical analysis of data obtained from healthy patients. This ratio may be helpful in evaluating an individual's anabolic/catabolic status.

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|----------------------------------|-----------------------|------------|------------|------------|
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| 23900 Hawthorne Blvd, Suite #150 | Gender: Female | | | |
| Torrance, CA 90505 | DOB: 11/26/1968 | | | |

HPA Stress Profile with SIgA (#201A-S)

| Parameter | Result | | | Reference Range | Units | |
|------------------------|--------------|-----|-----------|-----------------|---------|-------|
| Secretory IgA (Saliva) | 67.1* | LOW | EQUIVOCAL | ELEVATED | 0 - 330 | ug/mL |

Elevated levels of SIgA may be an indication of acute stress, acute oral infection, acute GI infection, heavy smoking, alcoholism, periodontitis, dental plaque accumulation, and/or intestinal barrier dysfunction. High SIgA results may be indicative of active GI infections.

Low levels of SIgA may be an indication of autonomic nervous system imbalance, chronic stress, damage to the intestinal barrier, chronic GI infections, food intolerance, gliadin intolerance, inflammatory bowel disease, and/or use of anti-inflammatory drugs.

Equivocal levels of SIgA need to be considered in the context of the patient's overall presentation and available diagnostic data.

The current established reference ranges for SIgA: Low: <75.0 ug/mL Equivocal: 75.0-145.0 ug/mL Elevated: 145.0-330.0 ug/mL