

# The Adrenal Stress Index™

*Saliva Testing for Bio-Identical Hormone Treatment*



DIAGNOS-TECHS, INC.  
[diagnostechs.com](http://diagnostechs.com)



# The Adrenal Stress Index™

The Adrenal Stress Index™ (ASI™) panel was introduced in 1989 to evaluate stress, a leading cause of morbidity and mortality. Recently, new tests were added to evaluate glycemic control using multiple salivary insulin measurements, and evaluate adrenal capacity to produce cortisol using 17-Hydroxyprogesterone. Tests in the panel are shown below.

## Saliva Tests Included:

## Clinical Purpose:

4 Cortisol Tests (Free Fraction)	Allows rhythm integrity assessment Reveals normalcy or fatigue of adrenals
DHEA(S) (Free Fraction)	Evaluates the anabolic anti-stress potential Is a marker of adrenal adaptation or deterioration (see Diagram 2)
17-Hydroxyprogesterone	Is the major precursor of cortisol Helps determine cause of low cortisol output in weak adrenal glands (see Diagram 1)
2 Insulin Tests (Fasting and after meal)	Evaluates glycemic control Helps rule out insulin resistance
Total Salivary SIgA Gliadin Antibodies (For grain intolerance)	Evaluates impact of stress on the immune system Indicator of subclinical gluten intolerance, a contributor to gut inflammation and stress

## Test Explanation

### Cortisol Rhythm

**Description:** The panel utilizes four saliva samples (1, 2). Saliva cortisol reflects the Free (bioactive) Fraction of serum cortisol. The test report shows the twenty-four hour diurnal cortisol rhythm generated in response to real life stress.

**Therapeutic value:** The test results facilitate the diagnosis of stress maladaptation and adrenal fatigue. With this data, you can narrow your choices to the most appropriate modalities of treatment.

### DHEA(S)

**Description:** The panel measures the average DHEA(S)\* level for the day using multiple samples.

**Therapeutic value:** The cortisol to DHEA relationship, presented in Diagram 2, highlights the many facets of stress maladaptation. The cortisol to DHEA ratio helps determine the projected time for recovery, and the substances (hormones, supplements, botanicals) that promote this recovery. The cortisol to DHEA ratio regulates a multitude of functions, as expressed in *Diagram 2*.

\* Salivary DHEA(S) is found at about 0.1% of its plasma concentration. Serum fluctuations in DHEA(S) concentrations are accurately and rapidly reflected in salivary levels (3). DHEA(S) indicates Free Fractions of both DHEA & DHEA-Sulfate.

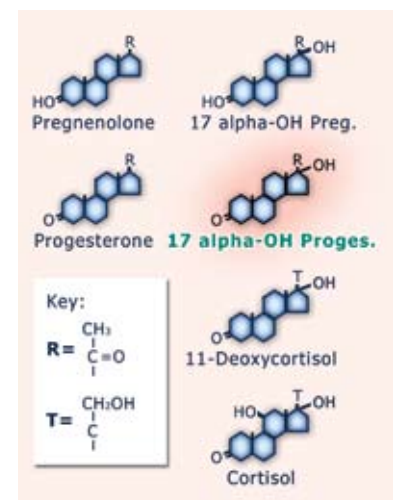
### 17-Hydroxyprogesterone (17-OHP1)

**Description:** The panel measures 17-OHP1 level in order to evaluate efficiency of conversion of adrenal precursors into cortisol. Certain adrenal fatigue patients who are genetically predisposed to low production of cortisol will not benefit from exogenous supplementation of pregnenolone or progesterone.

**Therapeutic value:** By identifying the subpopulation of maladapted and adrenal fatigued individuals who show impaired 17-OHP1 conversion to cortisol, two things are avoided:

1. Treating these patients with precursors (*when instead they need cortisol supplements to restore their adrenal health*).
2. Pursuing further pituitary related tests and treatments (*when they are not needed in this subpopulation*).

**Diagram 1.**  
**Cortisol Synthesis Pathway**



## Insulin

**Description:** The panel includes fasting and postprandial insulin measurements. The insulin values are used to diagnose insulin resistance, functional insulin deficit (Pre-Diabetes) and also correlate elevated cortisol with insulin to help explain glycemic dysregulation problems (See Glycemic Dysregulation section).

**Therapeutic value:** The combined results of insulin and cortisol can help in designing an effective glycemic control treatment plan that may include lifestyle modifications, nutritional support and botanical supplementation.

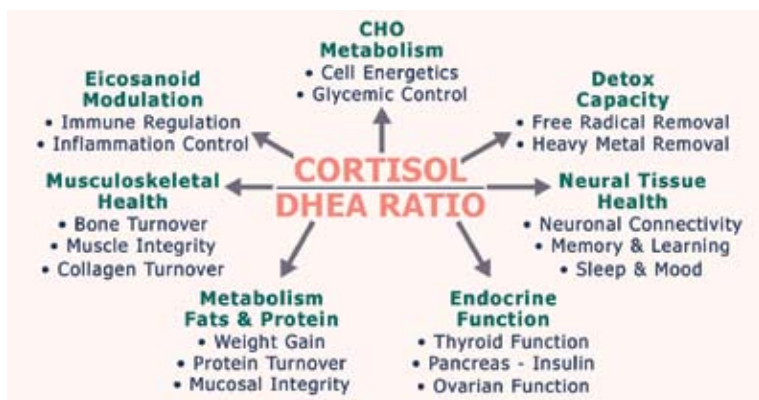
## Secretory IgA (SIgA)

**Description:** The panel evaluates mucosal immunity by using SIgA as a stress impact biomarker. SIgA values are sensitive to increased cortisol//DHEA ratio and sympathetic tone (Diagram 2).

**Therapeutic value:** By detecting the depressed mucosal immune function in certain patients, a number of therapeutic modalities may be invoked, ranging from botanical supplementation to the controlling of the heart rhythm variability.

## Diagram 2.

### Regulatory Aspects of Cortisol to DHEA Balance



## Gliadin Antibodies

**Description:** The panel includes a gliadin antibody measurement that allows detection of subclinical grain intolerance in affected individuals, even in the absence of overt celiac disease.

**Therapeutic value:** This test allows objective identification of grain intolerant patients, who should restrict their gluten intake to reduce inflammation and adrenal stress.

## Clinical Presentation of Adrenal Disturbances

Below is a summary of common clinical findings in adrenal gland dysfunctions:

### Inadequate Adrenal Symptoms

Weight loss/Anorexia  
Progressive Fatigue/Lethargy  
Hypoglycemia  
Diffuse Muscle & Joint Pains  
Hypercalcemia  
Low Serum Sodium/Salt Cravings  
Skin Hyperpigmentation

### Hyperactive Adrenals Symptoms

Weight gain/Truncal obesity  
Emotional Lability/Depression  
Glucose Intolerance  
Insulin Resistance  
Osteopenia/Fractures  
Hypertension/Sodium Retention  
Thin hyperpigmented skin/Striae

## Clinical Applications of the ASI™



### Chronic Pain/Fibromyalgia:

An adequate adrenal response can maintain a higher pain threshold (4). The ASI™ is used to evaluate the stress impact of chronic pain and inflammation on adrenal adaptation. A proper diagnosis of low cortisol or DHEA with circadian rhythm disruption is imperative. Subsequent hormone replacement and rhythm correction will improve the individual's pain tolerance (7, 8).



### Chronic Fatigue syndrome (CFS):

A common HPA axis defect in CFS is impaired corticotrophin release (5). As a result low cortisol and eventual adrenal atrophy may be observed. Depleted adrenals with flat rhythms are often seen on the ASI™ panel (6). Simultaneous use of several therapies can help improve the debilitating CFS.



### Glycemic Dysregulation:

Chronic hypoglycemia can impair normal adrenal function by repetitive overstimulation of cortisol production. Recurring exposure to high cortisol will impair insulin activity, and invariably lead to insulin resistance and beta-cell exhaustion (Diabetes). The ASI™ panel investigates the Insulin-Cortisol relationship under real life conditions to allow targeted and meaningful interventions. This panel is useful in the following clinical situations: rapid weight gain and obesity, deranged blood lipids, sugar blues, early diabetes and associated emotional disturbances.



### Allergies/Autoimmune Disorders:

More than fifty years ago, Dr. W. Jefferies (Author of "Safe Uses of Cortisol") discovered that patients with environmentally triggered allergies and autoimmune diseases dramatically benefited when given cortisol for other purposes (9). More recently, German researchers reported that disruption of the adrenal axis and cytokine relationships lead to predisposition and aggravation of autoimmune diseases (10). The findings of the ASI™ help identify patients with autoimmune diseases and adrenal problems who can benefit from cortisol supplements.



### Depression/ADD:

Several recent publications (11, 12) report a hyperactive HPA axis in depressed patients. Elevated midnight salivary cortisol is now considered one of the best tests in diagnosing endogenous depression. Other anomalies in cortisol rhythm usually accompany the midnight elevation. On the other hand cortisol elevations and rhythm disruptions throughout the day are typical of attention deficit disorders (ADD). The anomalous cortisol findings in depression and ADD can be successfully diagnosed with the ASI™. Subsequent interventions to rectify the time specific cortisol elevations (during day or night) are usually effective when applied under proper supervision (13, 14).

Other available test panels:

### Perimenopause Panel™

No of Samples: 2 saliva collected on separate days

#### Hormones

Tested Twice: Estrone, Estradiol, Estriol DHEA, Testosterone and Progesterone

#### Indications:

- Perimenopause
- Irregular Cycles
- Pre + Post therapy testing



### PostM Panel™ (Postmenopausal)

No of Samples: 1 saliva

#### Hormones Tested:

Estrone, Estradiol, Estriol, Progesterone, Testosterone and DHEA

#### Indications:

- Menopause
- Hot flashes and mood swings
- Insomnia

### Male Hormone Panel™

No of Samples: 1 saliva

#### Hormones Tested:

DHEA, Androstenedione, Testosterone, DHT, Progesterone and Estrone

#### Indications:

- Andropause
- Low vitality and libido
- Hair thinning



# Brief Biography

## Background:

Diagnos-Techs, Inc. USA was founded in 1987. In 1989 we introduced salivary hormone testing into clinical practice. The routine use of salivary assessments became a powerful tool in the clinical evaluation of stress and hormone related diseases in both genders and all age groups.

## Quality Control:

Our quality control procedures include daily parameter standardization in accordance with WHO\* and other agencies' reference material. This insures continuity of follow up test results over time, and permits precise diagnosis, based on truly standardized and reproducible test values.

## Licensure and Accreditation:

Diagnos-Techs laboratory is licensed by the State of Washington (License No. MTS-0327). Our Federal CLIA Number is 50D0630141. Diagnos-Techs laboratory has been awarded accreditation by COLA\*\* for applying rigid standards of quality in day-to-day operation.

\*WHO is the World Health Organization that sets international standards for various parameters in medical practice.

\*\*COLA is the Commission on Office Laboratory Accreditation based in Washington DC. COLA is sponsored by the American Medical Association, Academy of Family Physicians, American Society of Internal Medicine, American Osteopathic Association and the College of American Pathologists.

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