The Adrenal Stress Index™
The Science of Laboratory Medicine

WHO is the World Health Organization that sets international standards for various parameters in medical practice. World Health Organization (WHO) has designated The Joint Commission and Joint Commission International (JCI) as the world’s first WHO Collaborating Center dedicated solely to patient safety.

With over 55 years of experience, The Joint Commission has become recognized as the worldwide leader in driving performance improvement in healthcare organizations. The Joint Commission conducts an independent and objective evaluation of healthcare organizations and clinical services; they provide measurable and high-quality care. The Joint Commission is recognized by the Centers for Medicare and Medicaid Services.

Other Available Test Panels

Perimenopause Panel™
Number of Samples: 2 saliva collected on separate days; panel may be expanded by adding FSH and LH assays
Hormones Tested Twice: Estrone, estriol, estradiol, DHEA/DHEA-S, progesterone, testosterone and DHEA/DHEA-S
Indications
- Menopause
- Hot flashes and mood swings
- Insomnia

Postmenopause Panel™
Number of Samples: 1 saliva
Hormones Tested: Estrone, estriol, estradiol, progesterone, testosterone and DHEA/DHEA-S
Indications
- Menopause
- Low vitality and libido
- Hair thinning

Male Hormone Panel™
Number of Samples: 1 saliva
Hormones Tested: DHEA/DHEA-S, androstenedione, testosterone, DHT, progesterone, estradiol and estrone
Indications
- Andropause

About Diagnos-Techs

Background
Established in 1987, Diagnos-Techs, Inc.™ Laboratory in Kent, Washington, is considered the leading salivary-based testing and research laboratory in the United States. In 1989 Diagnos-Techs was the first laboratory to introduce salivary-based hormone testing into routine clinical practice — creating a powerful tool for evaluating stress- and hormone-related disease and illness in both genders and all age groups.

Quality Control
Diagnos-Techs maintains superior test quality by using a daily program of comprehensive quality assurance. All quantitative results are obtained from test runs which are in compliance with industry-standard testing protocols from the Clinical Laboratory Standards Institute (CLSI), World Health Organization (WHO)** and similar organizations. At least two control materials are included with each run. In addition, each and every result is reviewed by supervisory personnel to provide accurate results for initial tests as well as highly precise results in follow-up tests, ensuring the highest standard of clinical management.

Licensure and Accreditation
Diagnos-Techs laboratory is licensed by the State of Washington (License No. MTS-0327), subject to the Clinical Laboratory Improvement Act of 2003 (CLIA-2003) certification (Number 5806630141). Diagnos-Techs Laboratory has also been awarded accreditation by The Joint Commission*** for applying rigorous standards of quality in day-to-day operations, and for adopting ongoing performance improvement activities.

Specialties/Subspecialties
The laboratory is licensed in the specialties of microbiology, diagnostic immunology and chemistry. The microbiology subspecialties include bacteriology, mycology and parasitology. Diagnostic immunology includes the subspecialty of general immunology. Chemistry includes the subspecialties of general chemistry and endocrinology.

Selected Bibliography

Dissenhofer MH et al. /J Clin Endocrinol Metab 1991 Dec; 73(0): 1224-33
Jefferson WR. Arch Intern Med 1987; 147: 209-216
Huang J et al. West Psychol 1993; 8(5): 1-4
Gaydosh AB et al. Psychol Med 1994; 24(2): 245-258

Informed consent is required for all testing.

Diagnos-Techs Laboratory employs an independent laboratory information management system (LIMS) which complies with all regulatory requirements for the protection of patient confidentiality.

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The Adrenal Stress Index (ASI) panel was introduced in 1989 to evaluate stress, a leading cause of morbidity and mortality. Additional tests have been added to evaluate glucocorticoid control using multiple saliva cortisol measurements, and to evaluate adrenal capacity to produce cortisol using 17-hydroxyprogesterone. Tests in the panel are shown below.

### Clinical Purpose

- **Four cortisol tests** (Free fraction)
- **DHEA/DHEA-S** (Free fraction)
- **17-Hydroxyprogesterone**
- **Two insulin tests** (Fasting and non-fasting)
- **Total salivary IgA**
- **Glutamyl antibodies** (For grain intolerance)

### Test Explanation

#### Cortisol Rhythm

**Description:** The panel utilizes four saliva samples. Salivary cortisol reflects the free (bioavailable) fraction of serum cortisol. The test report shows the awake 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/DHEA-S

**Description:** The panel measures the average DHEA/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**: found in about 0.1% of its plasma concentration. Serum fluctuations in DHEA-S concentrations are accurately and rapidly reflected in salivary levels. DHEA-S indicates free fractions of both DHEA and DHEA-Sulfate.

**Diagram 1**

### Clinical Applications of the ASI™

- **Chronic Pain/Fibromyalgia**
  - An adequate adrenal response can maintain a higher pain threshold. 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.

- **Chronic Fatigue Syndrome (CFS)**
  - A common HPA axis defect in CFS is impaired corticotropin release. As a result, low cortisol and eventual adrenal atrophy may be observed. Depleted adrenals with flat rhythms are often seen on the ASI panel. 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. Jefreis (author of *Safe Uses of Cortisol*) discovered that patients with environmentally triggered allergies and autoimmune diseases dramatically benefited when given cortisol for other purposes. More recently, German researchers reported that disruption of the adrenal axis and cytokine relationships lead to predisposition and aggravation of autoimmune diseases.
  - 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 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 diagnosed successfully with the ASI™. Subsequent interventions to rectify the time-sensitive cortisol elevations (during the day or night) are usually effective when applied under proper supervision.

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