

## Advantages of the ASI™

- The test is non-invasive and can be performed wherever you are.
- Saliva is collected under real-life conditions. There are no stressful blood draws and no gallon-sized urine containers to carry around for 24 hours.
- With blood and urine testing, a number of borderline adrenal conditions are missed due to lack of sensitivity. This is not the case with the ASI™, because samples are taken within one circadian cycle and the more definitive free fraction is measured.
- The ASI™ is an in-depth test, such that options for treatment are increased significantly over serum and urine test results.

**Note:** The ASI™ was invented and introduced by Diagnos-Techs, Inc. in 1989.

## Abnormal adrenal rhythm can influence:

- Energy production
- Bone health
- Immune system health
- Sleep quality
- Skin regeneration
- Thyroid function
- Muscle and joint function

## Do You Need the ASI™ Test?

To determine if the ASI™ is the appropriate test for you, ask your physician for a stress questionnaire. The score can help your doctor determine a course of action.

The ASI™ is ordered mainly for individuals who suffer from:

- Chronic stress and related health problems.
- Lack of vitality and energy.
- Muscle and joint pain.
- Hypoglycemia.
- Migraine headaches.
- Osteoporosis.
- Sleep disturbances.
- Poor memory.
- Alcohol intolerance.
- Stress maladaptation.
- Low sex drive.
- Low body temperature.



## The Adrenal Stress Index™ Panel Can:

- Explain excessive feelings of tiredness and an inability to cope.
- Help your physician understand how to eliminate craving for excessive calories and to help you build and maintain muscle mass.
- Reveal the strength of your immune system and increase your ability to digest wheat grains safely.



### Major Accreditation

Diagnos-Techs is the only salivary-based lab that is accredited by the Joint Commission and is committed to providing its healthcare professional clients with lab testing that is highly accurate, based on pure science and designed to assist in restoring optimal health and promoting overall wellness for patients.

### Licensure and Proficiencies

Also accredited and licensed by the State of Washington (License No. MTS-0327), subject to the Clinical Laboratory Improvement Act of 2003 (CLIA-2003) certification. Our Federal CLIA Number is 50D0630141. External proficiency testing obtained from the College of American Pathologists, American Proficiency Institute and American Association of BioAnalysts.

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## The Adrenal Stress Index™

The Science of Laboratory Medicine



# The Adrenal Stress Index™

The adrenals are two small glands, each weighing 3 to 5 grams, that are located above the kidneys. The adrenals have one of the highest rates of blood flow per gram of tissue, and the highest content of vitamin C per gram of any tissue in the body.



Each adrenal gland is composed of two separate functional entities. The outer zone, or cortex, accounts for 80% to 90% of the gland and secretes adrenal steroids (cortisol, DHEA-S and aldosterone). The inner zone, or medulla, comprises 10% to 20% of the gland and secretes the catecholamines (adrenaline and nor-adrenaline). Cortisol, DHEA and adrenaline are the three main adrenal stress hormones.

## The Adrenal Rhythm and Its Importance

The human adrenal gland does not secrete its steroid hormones at a constant level throughout the day. The hormones are actually released in a cycle, with the highest value in the morning and the lowest value at night. This 24-hour cycle is called the circadian rhythm and is depicted in Figure 1. An abnormal adrenal rhythm can influence many functions of the body, some of which are described below.

### Energy production

Abnormal adrenal function can alter the ability of cells to produce energy for the activities of daily life. People who have a hard time rising in the morning, or who suffer from low energy throughout the day, often have abnormal adrenal rhythms and poor blood sugar regulation.

The maintenance of a stable blood sugar level depends on food choice, lifestyle, adrenal function and insulin activity. The Adrenal Stress Index™ panel measures stress hormones and insulin, to help ferret out the causes of fatigue, cravings and obesity.

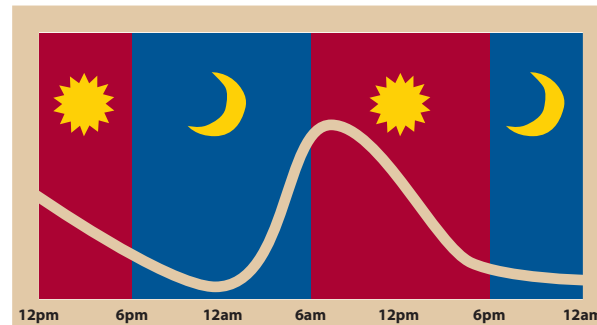
### Muscle and joint function

Abnormal adrenal rhythms are known to compromise tissue healing. Reduced tissue repair and increased tissue breakdown can lead to muscle and joint wasting with chronic pain.

### Bone health

The adrenal rhythm determines how well we build bone. If the night cortisol level is elevated and the morning level is too high, our bones do not rebuild well, and we are more prone to osteoporosis. Stress is the enemy of the bones. In postmenopausal women, the effect of stress worsens due to female hormone imbalances.

**Figure 1**  
Circadian Release of Cortisol



### Immune health

Various immune cells (white blood cells) cycle in and out of the spleen and bone marrow. The immune system trafficking follows the cortisol cycle. If the cycle is disrupted, especially at night, then the immune system is adversely affected.

Short- and long-term stress is known to suppress the immune response in the lungs, throat, urinary tract and intestines. With the reduction in the surface antibody (called secretory IgA), the resistance to infection is reduced and allergic reactions are believed to increase.

### Sleep quality

The ability to enter REM sleep cycles and experience regenerative sleep is interrupted by high cortisol values at night and in the morning. Chronic lack of REM sleep can reduce a person's mental vitality and vigor and induce depression.

### Skin regeneration

Human skin regenerates mostly during the night. With higher night cortisol values, less skin regeneration takes place. So a normal cortisol rhythm is essential for optimal skin health (see Figure 2.)



**Figure 2**  
Influence of Cortisol  
on Skin Rejuvenation

### Thyroid function

The level of cortisol at the cell level controls thyroid hormone production. Often, hypothyroid symptoms such as fatigue and low body temperature are due to an adrenal maladaptation.

### Grain intolerance and stress response

Approximately 12% to 18% of the U.S. population suffers from a genetic intolerance to grain. A high incidence occurs in people with Celtic, Nordic, non-caucasian and Mediterranean ethnicity. The gut becomes inflamed within 30 minutes after consuming grains, and this can lead to an adrenal stress response, increased cortisol and reduced DHEA.

(Several other functions that go beyond the scope of the pamphlet are also cortisol and DHEA dependent- Ask your doctor for more information.)

## The Adrenal Stress Index™ (ASI™)

Four saliva samples are used in the ASI™ for the following tests:

4 x cortisol	Helps evaluate the stress response
2 x insulin	Helps investigate blood sugar control
DHEA/DHEA-S	Helps determine stress adaptation
Secretory IgA	Helps evaluate the toll on immunity
17-OH progesterone	Helps determine adrenal reserve
Gluten antibodies	Helps identify grain intolerance

Your healthcare provider can use the findings in this panel to recommend customized treatment and preventive measures that may include diet and lifestyle changes, hormones, botanicals and vitamins.