

PROVIDER HANDOUT

About Saliva Testing



The Technology

In the past 20-30 years a number of research studies (see www.salivatest.com) have validated saliva as a diagnostic medium to measure the unbound, biologically-active fraction of steroid hormones in the bloodstream. Saliva is a natural ultra-filtrate of blood, and steroids not bound by carrier proteins in the blood freely diffuse into saliva. The majority (90-99%) of steroid hormones in the blood are bound tightly to carrier proteins (cortisol-binding globulin, sex-hormone binding globulin, albumin) rendering them unavailable to target tissues. Steroids are very small lipophilic (fat-loving) molecules that, when released from the binding proteins and red blood cells in the blood, freely diffuse into tissues, which include the salivary gland and saliva. The steroid hormones most extensively studied in saliva are: Estrogens (Estradiol, Estrone, and Estriol), Progesterone, Androgens (DHEA-s, Testosterone) and Cortisol for assessment of adrenal function.

Advantages

- Saliva measures the free, "bioavailable" fraction of steroid hormones that have moved out of the bloodstream (blood and urine measure total levels) and into the tissue.
- Saliva is the most reliable measurement of tissue uptake with topical hormone supplementation.
- Painless, noninvasive and **needle-free** (stress of conventional blood draw can alter test results).
- Private (home collection) convenient for both patient and doctor allows for optimal collection time.
- Hormones are stable in saliva at room temperature for weeks allowing for worldwide shipment.
- Transport of saliva samples to laboratory requires no special handling.
- Less expensive than conventional blood testing.
- Ease of collection allows for routine monitoring and adjustment of hormone supplementation as needed.

Clinical Utility

Saliva Testing can help providers:

- Identify hidden hormonal imbalances (deficiency or excess) associated with patient symptoms of menopause and andropause as well as reproductive disorders, chronic illness and diseases of aging.
- Link clinical symptoms to specific hormone imbalance(s).
- Maintain health and prevent disease through early detection of hormonal imbalance(s).
- Restore hormonal balance and patient quality of life using test results as a rational basis for treatment.
- Monitor patient hormone levels for "individualized" hormone replacement.
- Track patient progress with comparative history reports provided with follow-up testing.

A comprehensive test report and evaluation, which relates symptoms and hormone usage with hormone lab levels, is mailed, faxed or emailed to the provider within 5-7 business days of laboratory receipt of sample. Interpretation of test results may be discussed with ZRT staff toll-free at 1-866-600-1636 or in-state toll-free at 1-503-531-5327.



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Hormones We Test In Saliva

Estradiol (E2)	Estrone (E1)	Estriol (E3)
Progesterone (Pg)	Testosterone (T)	DHEA-S (DS)
Cortisol (C)	(AM/PM-Cx2)	(Diurnal-Cx4)

Estrogens (estradiol, estrone, estriol) are predominately female hormones, and in adults, they are important for maintaining the health of the reproductive tissues, breasts, bone, skin, and brain. Excessive estrogens or “estrogen dominance” can cause unwanted symptoms such as fluid retention, weight gain, and migraines as well as overstimulation of the breasts, ovaries, and uterus, which can lead to cancer. Insufficient estrogen levels can lead to hot flashes, vaginal dryness, rapid skin aging, urinary problems, excessive bone loss, and possible acceleration of dementia. In men an excess of estrogen, relative to testosterone, is thought to play a role in the development of prostate problems. Most scientists now agree that by-products of estrogen metabolism are a causative factor of both breast and prostate cancers.

Progesterone can be thought of as a hormonal balancer, particularly of estrogens. It enhances the beneficial effects of estrogens while preventing the problems associated with estrogen excess. Progesterone also helps to create a balance of all other steroids, and has intrinsic calming and diuretic properties. It is important in women, but its importance in men for the maintenance of prostate health is only now being appreciated.

Androgens (Testosterone and DHEA) play an important role for men and women in maintaining the structural integrity of skin, bones, and muscles. These anabolic hormones are also important to generate energy for all dynamic processes in the body, from brain to muscle function.

- **DHEA** is the principal androgen in both men and women. DHEA levels decline with age, and in some cases, supplementation with DHEA can restore energy, improve immune function, lift depression, and improve mental function.
- **Testosterone** is involved in maintenance of lean body mass, bone density, skin elasticity, sex drive, and cardiovascular health in both sexes. Men make more of this hormone, accounting for their greater bone and muscle mass. However, testosterone is vital to optimal health and well-being in both men and women.

Glucocorticoids, primarily Cortisol, are produced by the adrenal glands in response to stressors such as emotional upheaval, extreme exercise, surgery, illness, sleep deprivation, or eating disorders. Cortisol plays an essential role in immune function, mobilizing the body’s defenses against viral or bacterial infection, and fighting inflammation; however, chronic elevated cortisol levels suppress the action of the immune system and predispose to frequent infections. Cortisol levels are highest first thing in the morning, to combat the stress of overnight fasting and to animate the body for daily activities. Levels steadily decrease over the course of the day, falling to their lowest point at night in preparation for sleep. High cortisol, particularly when chronic and elevated at night has been closely associated with many of the diseases of aging (insulin resistance, diabetes, osteoporosis, cardiovascular disease and breast cancer). On the other hand, chronically low cortisol levels portend excessive fatigue, thyroid dysfunction, and allergies caused by a compromised immune system. Both high or low cortisol levels are a warning sign of adrenal imbalance which can accelerate the aging process and have devastating effects on health.
