



Spit Happens - Salivary Hormone Testing & You by Joseph A. Schnurr, M.D.

Until recently, I was of the belief that there was essentially no scientific evidence to support the clinical usefulness of measuring naturally occurring steroid hormones in the saliva. However, reviewing the medical literature, I have found this belief to be unfounded. This article briefly reviews some of that evidence in order to understand what role salivary hormone testing can play to evaluate an individual's hormonal status and some of the advantages and disadvantages of this testing method.

For women in mid-life, this method is very useful for testing steroid hormones that are responsible for many of the reproductive functions, some which cause symptoms during perimenopause and menopause.

Why Salivary Hormone Testing?

Salivary hormone testing is a relatively new assessment tool reported in articles in scientific journals dating back to about 50 years ago.

Initially, steroid hormones were measured by 24-hour urine collection and this method is still used today. Urine testing has several disadvantages, however, not the least of which is that it is difficult and time-consuming to perform, but also because it measures the metabolites (by-products) of the steroid hormones.

For the most part, blood testing has now replaced urine testing for steroids, but this also has a number of disadvantages:

- ✗ It requires a specialized test centre and trained technicians;
- ✗ There are risks from performing the testing to both technicians and patients alike;
- ✗ Some test results are of little value, such as:
 - 1) Serum (blood) cortisol level to test adrenal function - unless this level is either very low or very high, it is difficult to interpret any result in between. This is because our blood cortisol level can rise dramatically in a short time period in response to a stressful event (i.e., anxiety over having a blood test done or nearly getting hit in the parking lot of the test centre prior to blood testing).
 - 2) Blood testing measures both the protein-bound and free hormone, but it is only the free hormone that is desired as it is the most biologically active.

Salivary hormone testing offers several advantages:

- ✓ It is easily and non-traumatically collected by the patient herself/himself at their convenience in the comfort of their own home without need for specialized test centres or technicians;
- ✓ The sample contains the biologically active hormone needed to determine functioning;

- ✓ A number of steroid hormones, abused substances, pharmaceutical agents, and antibodies can easily be measured via this method.

One big disadvantage is that, at the present time, the patient is responsible for the costs of saliva testing and such tests can be somewhat expensive (i.e., a typical 5-panel screen that includes estradiol, progesterone, testosterone, cortisol and DHEA-S will cost the patient approximately \$250).

How Reliable is This Testing?

Of particular concern to clinicians is the reliability of the test results. This is very important, especially if

physicians will prescribe their treatment according to the results obtained. Saliva testing is relatively new. It has only been since the late 1970s that sensitive and selective radioimmunoassays (radio-labelled substances to test for immunological reactions) for detecting steroid hormone levels in saliva have become more widely available (Voss 1999). Since then, these methods have undergone more refinements and continued to improve, and research into the reliability of such testing has grown. Unfortunately, since saliva testing is still in its comparative infancy, clinical trials are still somewhat conflicting. However, without question, salivary cortisol sampling is considered to be the method of choice in:

- ✦ Assessing cortisol levels and adrenal functioning (Vining and McGinley 1987);
- ✦ Salivary estriol appears to be a reliable test for pre-term labour and delivery (Voss 1999; Hedriana et al. 2001; Heine et al. 1999), for the prediction of onset of labour (Hedriana et al. 2001) and for the assessment of feto-placental function (Vining et al. 1983; Lachelin and McGarrigle 1984);
- ✦ Measurement of salivary estrogen in perimenopausal and postmenopausal women appears to be helpful in assessing the need for and the effectiveness of estrogen therapy (Read 1993);
- ✦ Mid-luteal salivary progesterone measurements appear to reflect corpus luteum function (Ishikawa et al 2002; Finn et al 1992);
- ✦ Serial salivary testosterone measurements have proven worthwhile (Miller 1994).

I predict that as further refinements take place in assay techniques and larger scale studies are undertaken, we will see in the near future a broader use of salivary hormone testing in the diagnosis and treatment of hormonal disorders.

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