

Saliva vs. Serum

Saliva testing has been used to measure hormones since the late 1960s and has many advantages over serum testing. The most significant feature of saliva testing is that it reflects the non-protein bound 'free' fraction of hormones at a given point of time.

As steroid hormones are predominantly bound to carrier proteins such as cortisol binding protein, sex hormone binding globulin and albumin in the blood, the unbound fraction is considered more readily available to the cells of the body (see Diagram 1). It is these 'free' hormones that best reflect a patient's hormonally-related symptoms, rather than total or bound hormone levels as measured in serum.

Furthermore, saliva testing effectively monitors the level of supplemental hormones as well as their absorption and utilisation. Studies show that 'salivary progesterone measurements confirm applied progesterone is being absorbed, despite the lack of change in serum progesterone'. Therefore, saliva testing can influence supplementation dosages and determine whether bio-identical hormone therapy is being absorbed.

Advantages of Saliva Testing:

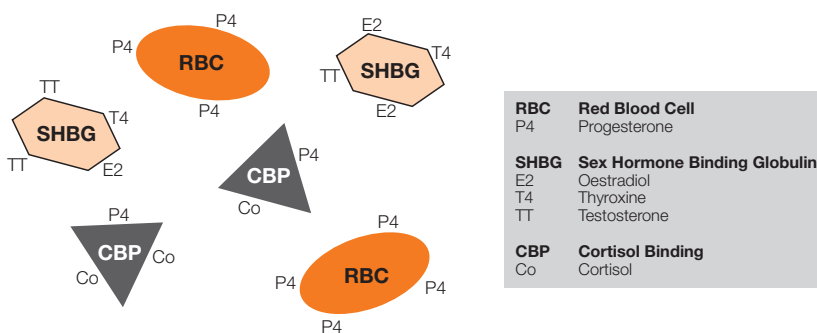
- Saliva reflects the free, bio-available hormone levels (unlike blood which measures total levels)
- Baseline hormone levels can be assessed and bio-identical hormone replacement therapy can be easily monitored and adjusted

- Testing is suitable for both men and women
- Simple, painless, non-invasive, economical and can be collected at home
- Specimens are sent directly to the laboratory without special handling
- Multiple saliva collections can be taken over a day or a number of weeks
- Hormones are stable in saliva at room temperature
- Transport to laboratory by overnight courier from anywhere in Australasia

Limitations of Saliva Testing:

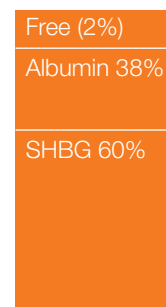
- Lack of familiarity
- Restricted to steroid hormones
- Saliva can become contaminated with topical hormones and make-up on lips/hands
- Mucous in saliva from the following may affect results:
 - Cold or flu
 - Sinus congestion
 - Allergy
 - Infection
- Blood in saliva from the following may affect results:
 - Bleeding gums
 - Oral infection
 - Open ulceration in mouth

Diagram 1: Steroid Hormone Carriers in Blood:



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Diagram 2: Hormones in Blood:



References

- Veining, RF, McKinley, RA. The Measurement of Hormone in Saliva: Possibilities and Pitfalls, J Steroid Biochem, 1987; 27: 81-94.
- Lac, G. Saliva Assays in Clinical and Research Biology, Pathology Biology, 2001; 49(8): 660-667.
- O'Leary, P. et al. Salivary Not Serum or Urinary Levels of Progesterone Are Elevated After Topical Application of Progesterone Cream to Pre and Postmenopausal Women, Clinical Endocrinology, 2000; 53: 615-620.