

# Measurement of salivary cortisol in 2012 - laboratory techniques and clinical indications.

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### **Abstract**

The utility of measuring salivary cortisol has become increasingly appreciated since the early 1980s. Salivary cortisol is a measure of active free cortisol and follows the diurnal rhythm of serum or plasma cortisol. The saliva sample may be collected by drooling or through the use of absorbent swabs which are placed into the mouth until saturated. Salivary cortisol is therefore convenient for patients and research participants to collect noninvasively on an outpatient basis. Several assay techniques have been used to measure salivary cortisol, including radioimmunoassay and more recently liquid chromatography-tandem mass spectrometry. The analytical sensitivity varies between these assay methods, as does the potential for cross-reactivity with other steroids. The interpretation of salivary cortisol levels relies on rigorous standardization of sampling equipment, sampling protocols and assay technology with establishment of a local reference range. Clinically, the commonest use for salivary cortisol is measuring late-night salivary cortisol as a screening test for Cushing's syndrome. Several studies have shown diagnostic sensitivities and specificities of over 90%, which compares very favourably with other screening tests for Cushing's syndrome such as the 24-h urinary-free cortisol and the 1-mg overnight dexamethasone suppression test. There are emerging roles for the use of salivary cortisol in diagnosing adrenal insufficiency, particularly in conditions associated with low cortisol-binding globulin levels, and in the monitoring of glucocorticoid replacement. Finally, salivary cortisol has been used extensively as a biomarker of stress in a research setting, especially in studies examining psychological stress with repeated measurements.