

<h1>Cortisol</h1>	
Description	Cortisol can be measured randomly or as part of a dynamic function test. First line test for the diagnosis of adrenal insufficiency or excess.
Indication	Cortisol measurement is useful in the differential diagnosis of Addison's disease, Cushing's disease, hypopituitarism, adrenal hyperplasia and carcinoma. Also monitoring steroid replacement therapy.
Additional Info	Cortisol is the most abundant circulating steroid and the major glucocorticoid secreted by the adrenal cortex. Cortisol is secreted in response to ACTH, which is itself secreted by the pituitary in response to corticotrophin releasing hormone. The level of cortisol in plasma is controlled by negative feedback on ACTH release. Cortisol maybe measured by immunoassay but has significant interference by other exogenous steroids and metabolites or by LC-MSMS which is specific for cortisol.
Concurrent Tests	ACTH
Dietary Requirements	N/A
Interpretation	In suspected Addison's disease a 9am cortisol <50nmol/L is effectively diagnostic, while a cortisol of >450nmol/L excludes the diagnosis. A short synacthen test is often used in equivocal random cortisol results but note a subnormal response may be obtained in hypopituitarism as well as in Addison's disease. Raised plasma cortisol levels are found in stress, in pregnancy and in women on oral contraceptives (high CBG). In Cushing's syndrome plasma cortisol may be normal or elevated in the morning with inappropriately high levels for the rest of the day. Confirmation of the diagnosis can be made with the low dose dexamethasone suppression test. The high dose dexamethasone suppression test is used to investigate the cause of Cushing's syndrome. Therapy with cortisone acetate (which is converted to cortisol) and hydrocortisone (cortisol) can be monitored to show adequate replacement levels using this cortisol assay.
Collection Conditions	Cortisol shows diurnal variation. Blood is usually collected between 8am and 9am. Concentrations are highest in the morning and lowest at night. Samples may be collected at midnight to detect loss of diurnal variation, an early feature of adrenal hyperfunction. Cortisol is secreted in response to stress, this should be minimised prior to collection.

Frequency of testing	N/A
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