

ADRENAL TESTING

DISTINGUISHING HYPERCORTISOLISM FROM CUSHING'S SYNDROME

Background: In normal individuals, ACTH (adrenocorticotrophic hormone) is produced by the pituitary gland, and it stimulates the adrenal cortex to produce cortisol, aldosterone, and sex hormones. In certain diseases, there is abnormally high production of cortisol either due to independent production in the adrenal glands or excessive production of ACTH from either the pituitary gland or tumors outside the pituitary. It can be difficult to distinguish a true disorder of excessive cortisol production from "pseudo-Cushing's" in which the entire hypothalamic-pituitary-adrenal axis is "turned on", but is appropriately restrained by normal cortisol negative feedback.

The **Dexamethasone-suppressed CRH stimulation test** is used in making the difficult determination between mild Cushing's disease and pseudo-Cushing's states. This test will be done if you had an abnormal 24-hour urine cortisol or an abnormal 1mg overnight dexamethasone suppression test.

You will be given two prescriptions to fill in preparation for this test.

The first one is for **Dexamethasone tablets** (0.5mg) – these tablets will be taken orally every six hours for eight doses, starting with a dose at 12 Noon two days prior to your test and with the last dose at 6:00 AM on the morning of the test.

The second is for **ACTHREL (CRH = Corticotrophin Releasing Hormone)** - this will be administered intravenously on the morning of the test. As this is an injectable medication, your pharmacy will need to order this for you. Please plan to drop this off at our office two days prior to your scheduled test date. If your pharmacy cannot do this, please contact our office so we can assist you in this process.

Plan to arrive to the office at 6:30 AM on the morning of your test. An IV catheter will be placed by 7:00 AM. You must sit and relax for one hour after the IV is placed so this will not affect your cortisol levels (as this is a stress hormone). The CRH will be administered through the IV at 8:00AM. Blood will be drawn from the catheter prior to the CRH, and then at timed intervals up to one hour after the CRH is given. The testing should be completed by approximately 9:30 AM.

We will then schedule a follow-up appointment to review the results with the doctor seven to ten days later **to review the results of your test.**

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Dexamethasone-suppressed CRH stimulation test

Day/Time/Date

Monday – 12 noon - _____ Dexamethasone 0.5 mg

Monday – 6 PM - _____ Dexamethasone 0.5 mg

Monday – 12 MN - _____ Dexamethasone 0.5 mg

Tuesday – 6 AM - _____ Dexamethasone 0.5 mg

Tuesday – 12 noon- _____ Dexamethasone 0.5 mg

Tuesday – 6 PM - _____ Dexamethasone 0.5 mg

Tuesday – 12 MN- _____ Dexamethasone 0.5 mg

Wednesday – 6 AM - _____ Dexamethasone 0.5 mg

Arrive at the office at 6:30 AM; no food after midnight, but please drink plenty of water and wear a heavy sweat shirt (to facilitate placement of the IV catheter).

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PATIENT NAME:

DATE:

DIAGNOSIS:

Dexamethasone-suppressed CRH stimulation test

Place IV catheter by 7 AM. Allow the patient to sit comfortably and relax.

<u>Time</u>	<u>Actual Time</u>	<u>ACTH</u>	<u>Cortisol</u>	<u>Vital Signs/ Comments</u>
-10 min				
Baseline				
8 AM	Give	1 mcg/kg	(max dose 100 mcg)	CRH =ACTHREL IV push
+15 min				
+30 min				
+60 min				

A serum cortisol >1.4 mcg/dl measured 15 minutes after the administration of CRH correctly identified patients with Cushing's syndrome.

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A plasma ACTH >15 pg/ml sometime during the test is usually seen in patients with Cushing's syndrome. Patients without Cushing's syndrome usually have plasma ACTH levels <10 pg/ml throughout the test.