
Lab Dept: Urine/Stool

Test Name: CORTISOL, FREE, TIMED 24 HR URINE

General Information

Lab Order Codes: CORTU

Synonyms: Quantitative Urine Free Cortisol

CPT Codes: 82530 – Cortisol; free

Test Includes: 24-hr urine volume, Free cortisol urine in mcg/24 h.

Logistics

Test Indications: Preferred screening test for Cushing syndrome. Diagnosis of pseudo-hyperaldosteronism due to excessive licorice consumption. Test may not be useful in the evaluation of adrenal insufficiency.

Lab Testing Sections: Urine/Stool - Sendouts

Referred to: Mayo Clinic Laboratory (Mayo test: CORTU)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 2-5 days, test set up Monday-Friday.

Special Instructions: Submit an entire 24-hour urine collection. Boric acid (10 grams) in the collection container at the start of the collection preferred but not required. If no preservative is used, the specimen must be refrigerated throughout collection. Contact the lab for a container with preservative or see [Mayo's catalog](#) for acceptable options. A 24-hour urine is required.

Note: Starting and ending times of collection are required for a timed urine collection and must be documented on the specimen so data can be transmitted electronically or on the proper request form.

Specimen

Specimen Type: Urine, timed collection

Container: Plastic leakproof container with **10 g Boric Acid preservative** that must be present in the container at the start of the collection. Urine GUARD® collection container is preferred for a timed urine sample.

Draw Volume: Submit an entire 24-hour urine collection

Processed Volume: 5 mL (Minimum: 3 mL) urine

Collection: For timed urine collections, empty the bladder, discard the voided sample, and note the start time. Collect all urine voided for the specified time period. At the end of the period, note the finishing time, add the last voided sample to the container by emptying the bladder. Bring the refrigerated container to the lab. Make sure all specimens submitted to the laboratory are properly labeled with the patient's name, medical record number and date of birth, date/time of collection start, and date/time of collection end.

Special Processing: Lab Staff: Mix sample well. Record 24 hour volume. Remove a 5 mL aliquot (Minimum: 3 mL) urine. Store and ship urine aliquot refrigerated.

See [Mayo's catalog](#) for acceptable specimen [preservative options](#). Refrigeration throughout collection (without preservative addition) is acceptable.

Specimen stable refrigerated (preferred) for 14 days or frozen for 28 days.

Patient Preparation: Provide patient with acceptable collection and preservation instructions and confirm understanding.

Sample Rejection: Mislabeled or unlabeled specimens; collections less than 24 hours; improper preservation.

Interpretive

Reference Range:

Free Cortisol, Urine mcg/24 hours	
0-2 years:	Not established
3-8 years:	1.4 - 20
9-12 years:	2.6 - 37
13 – 17 years:	4.0 - 56
≥18 years:	3.5 - 45

Critical Values: N/A

Limitations:

Acute stress (including hospitalization and surgery), alcoholism, depression, and many drugs (eg, exogenous cortisone, anticonvulsants), can obliterate normal diurnal variation, affect response to suppression/stimulation tests, and increase baseline levels.

This test has limited usefulness in the evaluation of adrenal insufficiency.

This methodology eliminates analytical interferences including carbamazepine and synthetic corticosteroids.

Renal disease (decreased excretion) may cause falsely low 24-hour urinary free cortisol values.

Improper collection may alter results. For example, a missed morning collection may result in false-negative tests; an extra morning collection (i.e., >24 hours) may give false-positive results.

Twenty-four hour urinary free cortisol values may be elevated to twice the upper limit of the normal range during pregnancy.

Patients with exogenous Cushing syndrome caused by ingestion of hydrocortisone will not have suppressed cortisol levels.

Methodology:

Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

References:

[Mayo Clinic Laboratories](#) September 2023

Updates:

9/1/2021: Testing moved from Esoterix to Mayo.

9/19/2023: Added specimen stability timeline, added links to acceptable preservation methods.