Test Definition: NITF

Nitrogen, Total, Feces

Overview

Useful For

Determining nitrogen balance, when used in conjunction with 24-hour urine nitrogen measurement

Assessing nutritional status (protein malnutrition)

Evaluating protein catabolism

Genetics Test Information

Method Name

Dumas Combustion

NY State Available

Yes

Specimen

Specimen Type

Fecal

Shipping Instructions

Send **entire stool collection** (must contain at least 5 g of feces) frozen on dry ice in Mayo Clinic Laboratories-approved container.

Necessary Information

Length of collection period is required.

Specimen Required

Patient Preparation: Laxatives and enemas should not be used during collection as barium and boric acid interfere with test procedure.
Supplies: Stool Containers - 24, 48, 72 Hour Kit (T291)
Container/Tube: Stool container; complies with shipping requirements, do not use other containers.
Specimen Volume: Entire collection (24, 48, 72, or 96 hours)
Collection Instructions:
1. All containers must be sent together.
2. Entire collection must contain at least 5 g of feces.
3. The number of containers sent should be indicated on the labels (ie, 1 of 4)
Specimen Stability Information: Frozen 3 years
Additional Information: Patient can store sample at refrigerate temperature during collection period.

Specimen Minimum Volume

See Specimen Required

Reject Due To

Urine and stool mixed	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Frozen (preferred)		
	Ambient	7 days	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information

Nitrogen is a key component of proteins. Nitrogen balance is the difference between the amount of nitrogen ingested and the amount excreted in the urine and feces. A majority of nitrogen is excreted as urea in the urine; however, fecal nitrogen can account for 30% to 50% of total nitrogen excretion.

A patient who is in negative nitrogen balance is catabolizing muscle protein to meet the metabolic requirements of protein catabolism; therefore, urine and fecal nitrogen concentrations may be increased due to stress, physical trauma, surgery, infections, burns, and 11-oxysteroid or thyroxine use. Testosterone and growth hormone have anabolic effects on protein synthesis and may decrease urine and fecal nitrogen levels.

In the course of chronic progressive pancreatitis, as the pancreas is destroyed, serum amylase and lipase may revert to normal. However, excessive fecal nitrogen levels persist and are used as an indicator of pancreatic atrophy.

Reference Values

<16 years: Not established
> or =16 years: 1-2 g/24 hours

Interpretation

Average fecal nitrogen (N) excretion is approximately 1 to 2 g N/24 hours.

Significantly abnormal excretion rates, resulting in negative nitrogen balance, may be associated with severe stress due to multiple traumas, head injury, sepsis, or extensive burns.

Elevated values above 2.5 g N/24 hours may be consistent with chronic progressive pancreatitis. The goal with therapy for a depleted person is a positive nitrogen balance of 4 to 6 g N/24 hours.

Cautions

Measurement of both urine and fecal nitrogen is necessary for the accurate determination of nitrogen balance.

During nitrogen balance studies, nitrogen lost from exuding wounds, such as burns, and from copious sputum must be included in the patient's evaluation.

Fecal samples with visible blood may exhibit a positive bias for nitrogen due to the contribution of nitrogens present within hemoglobin.

Clinical Reference

1. Morse MH, Haub MD, Evans WJ, Campbell WW. Protein requirement of elderly women: nitrogen balance responses to three levels of protein intake. J Gerontol A Biol Sci Med Sci. 2001;56(11):M724-730
2. Phinney SD. The assessment of protein nutrition in the hospitalized patient. Clin Lab Med. 1981;1:767-774
3. Konstantinides FN, Kostantinides NN, Li JC, Myaya ME, Cerra FB. Urinary urea nitrogen: too insensitive for calculating nitrogen balance studies in surgical clinical nutrition. J Parenter Enteral Nutr. 1991;15(2):189-193
4. Borowitz D, Konstan MW, O'Rourke A, Cohen M, Hendeles L, Murray FT. Coefficients of fat and nitrogen absorption in healthy subjects and individuals with cystic fibrosis. J Pediatr Pharmacol Ther. 2007;12(1):47-52. doi:10.5863/1551-6776-12.1.47
5. Dickerson RN. Nitrogen balance and protein requirements for critically ill older patients. Nutrients. 2016;8(4):226. doi:10.3390/nu8040226

Performance

Method Description

The nitrogen analyzer utilizes the Dumas combustion method of determining total nitrogen in feces.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Friday

Report Available

1 to 8 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

84999

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
NITF	Nitrogen, Total, F	16141-4

Result ID	Test Result Name	Result LOINC® Value
DUR9	Collection Duration	13363-7
17416	Total Weight	30078-0
17417	Nitrogen, Total, F	16141-4