Test Definition: FATF

Fat, Feces

Overview

Useful For

Diagnosing fat malabsorption due to pancreatic or intestinal disorders

Monitoring effectiveness of enzyme supplementation in certain malabsorption disorders

This test is **not useful for** differentiating among pancreatic diseases.

Method Name

Nuclear Magnetic Resonance (NMR) Spectroscopy

NY State Available

Yes

Specimen

Specimen Type

Fecal

Necessary Information

Length of collection period is required.

Specimen Required

Patient Preparation:

1. For 3 days prior to and during the collection period:
a. Patient should be on a fat-controlled diet (100-150 g fat per day).
b. No laxatives (particularly mineral oil and castor oil).
c. No synthetic fat substitutes (eg, Olestra) or fat-blocking nutritional supplements.
2. The use of diaper rash ointments will falsely elevate test results. Discontinue use during collection period.
3. Barium interferes with test procedure; a waiting period of 48 hours before stool collection analysis is recommended.

Supplies: Stool Containers - 24, 48, 72 Hour Kit (T291)

Container/Tube: Stool container complies with shipping requirements, do not use other containers.

Specimen Volume:

Preferred: Entire 48-hour or 72-hour collection

Acceptable: Entire 24-hour or a minimum of 5 g from a random collection

Collection Instructions:

1. All containers must be sent together.
2. The entire collection must contain at least 5 g of feces.
3. For a random collection, a minimum of 5 g (do not send entire collection) is required.
4. The number of containers sent should be indicated on the labels (1 of 4, for example).

Additional Information:

1. Patient can store sample at refrigerate temperature during collection period.
2. A separate order and collection should take place if stool, chloride, magnesium, osmolality, phosphorus, pH, or any microbiology testing is desired.

Forms

If not ordering electronically, complete, print, and send Gastroenterology and Hepatology Test Request (T728) with the specimen

Specimen Minimum Volume

See Specimen Required

Reject Due To

Preservative, media, or charcoal	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Frozen (preferred)	180 days	
	Refrigerated	180 days	

Clinical & Interpretive

Clinical Information

Total fecal lipids include glycerides, phospholipids, glycolipids, soaps, sterols, cholesteryl esters, and sphingolipids. Excess fecal fat in feces, (steatorrhea) is indicative of malabsorption disorders, such as pancreatic insufficiency or Whipple disease. Therefore, measurement of the fecal fats can be useful in establishing a diagnosis of such pancreatic diseases as cystic fibrosis, chronic pancreatitis, neoplasia, or stone obstruction and such intestinal diseases as Whipple disease, regional enteritis, tuberculous enteritis, gluten-induced enteropathy (also called celiac disease or sprue), and the atrophy of malnutrition.

Distinguishing free fatty acids from neutral fats, once thought to be helpful in the differential diagnosis of pancreatic disease, has fallen out of favor. Note that the composition of fats in the feces, normally predominately free fatty acids, can change significantly to predominately neutral fatty acids when the patient is on orlistat. This test does not distinguish between free and neutral fatty acids.

Reference Values

Timed Collection

> or =18 years: 2-7 g fat/24 h

Reference values have not been established for patients who are younger than 18 years.

Random Collection

All ages: 0-19% fat

Interpretation

Excretion of more than 7 grams fat/24 hours, when on a diet of 100 to 150 g of fat, is suggestive of a malabsorption defect.

Abnormal results from a random specimen should be confirmed by submission of a timed collection.

Test values for timed fecal fat collections will be reported in terms of g/24 hours; the duration of the collection may be 24, 48, 72, or 96 hours. Test values for random fecal fat collections will be reported in terms of percent fat.

Coefficient of Fat Absorption (CFA) can be calculated as follows:
CFA = (grams of fat consumed - grams of fat excreted) x 100 / grams of fat consumed

Cautions

Proper patient preparation is critical (see Specimen Required). Failure to adhere to a fat-controlled diet or to exclude other oils or oil substitutes from the diet may make interpretation difficult.

Barium interferes with test procedure; a waiting period of 48 hours before fecal collection is recommended.

The use of charcoal as a marker is not recommended. If charcoal is used, please notify the laboratory.

Clinical Reference

1. Hart PA, Conwell DL. Diagnosis of exocrine pancreatic insufficiency. Curr Treat Options Gastroenterol. 2015;13(3):347-353. doi:10.1007/s11938-015-0057-8
2. Sherwood RA, Walsham NE: Evaluation of fat absorption. In: Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:764
3. Erchinger F, Engjom T, Jurmy P, Tjora E, Gilja OH, Dimcevski G. Fecal fat analyses in chronic pancreatitis importance of fat ingestion before stool collection. PLoS One. 2017;12(1):e0169993. Published 2017 Jan 17. doi:10.1371/journal.pone.0169993

Performance

Method Description

After the well-homogenized stool sample is weighed and dried, it is rolled in Teflon and placed in a nuclear magnetic resonance spectrometer (NMR). The NMR determines the percent of fat in the sample. The percent is then converted to grams fat/24 hours excretion or percent fat of random sample.(Korpi-Steiner NL, Ward JN, Kumar V, McConnell JP. Comparative analysis of fecal fat quantitation via nuclear magnetic resonance spectroscopy [1H NMR] and gravimetry. Clin Chim Acta. 2009;400[1-2]:33-36)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available
1 to 3 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
82710

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
FATF	Fat, F	16142-2

Result ID	Test Result Name	Result LOINC® Value
STWT	Total Weight	30078-0
DUR2	Duration	13363-7
PFAT	Percent Fat	35745-9
TFAT	Total Fecal Fat/24 Hr	16142-2