Test Definition: SEMB

Semen Analysis with Strict Morphology

Overview

Useful For

Determining male fertility status

Selecting the most cost-effective therapy for treating male-factor infertility

Quantifying the number of germinal and white blood cells per milliliter of semen

Profile Information

Test ID	Reporting Name	Available Separately	Always Performed
FER	Semen Analysis	No	Yes
MSTC	Strict Criteria Sperm Morphology	Yes	Yes

Method Name

FER: Manual

MSCT: Kruger Criteria Strict Morphology

NY State Available

No

Specimen

Specimen Type

Semen

Ordering Guidance

This test should not be used to check patientâ€™s sterility following a vasectomy. For such cases, order POSV / Post Vasectomy Check, Semen.

Semen analysis specimens submitted to Mayo Clinic Laboratories are not acceptable for fructose testing due to the use of dilution media. For specimen requirements for fructose testing in azoospermia patients, see FROS2 / Fructose, Qualitative, Semen.

Submit separate specimen to rule-out ejaculatory duct blockage. Positive result indicates no blockage.

Shipping Instructions

Specimen must arrive within 24 hours of collection. Send specimen Monday through Thursday only and not the day before a holiday. If holiday falls on a Saturday, holiday will be observed on the preceding Friday. Sunday holidays are observed on the following Monday. Specimen should be collected and packaged as close to shipping time as possible. Laboratory does not perform testing on weekends.

Necessary Information

Include the following information:

-**Semen volume (required)**

-Viscosity

-pH

-Appearance (color)

-Number of days of sexual abstinence

Specimen Required

Patient Preparation: Patient should have 2 to 7 days of sexual abstinence at the time of semen collection for accurate results.

Supplies: Semen Analysis Kit - Dilution Media (T178)

Specimen Volume: Total ejaculate

Collection Instructions:

1. After collection, allow the specimen to liquefy for 1 hour.

2. Measure the volume.

3. Place the specimen into media within 1 hour.

Specimen Minimum Volume

See Specimen Required

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Semen	Ambient	36 hours	

Clinical and Interpretive

Clinical Information

Infertility affects 1 out of 6 couples of child-bearing age. Approximately 40% of infertility has a female-factor cause and 40% a male-factor cause. The remaining 20% of infertility is due to a combination of male- and female-factor disorders or is unexplained.

Semen is composed of spermatozoa suspended in seminal fluid (plasma). The function of the seminal fluid is to provide nutrition and volume for conveying the spermatozoa to the endocervical mucus. Male infertility can be affected by a number of causes. Chief among these is a decrease in the number of viable sperm. Other causes

include sperm with abnormal morphology and abnormalities of the seminal fluid. One of the more successful treatments for male and female infertility is in vitro fertilization (IVF). Male partners are tested with the strict criteria sperm morphology test prior to IVF to assist in the diagnosis of male-factor defects.

Abnormalities in sperm morphology are related to defects in sperm transport, sperm capacitation, the acrosome reaction, binding and penetration of the zona pellucida, and fusion with the oocyte vitelline membrane. All of these steps are essential to normal fertility.

Strict criteria sperm morphology testing also greatly assists with selecting the most cost-effective in vitro sperm processing and insemination treatment for the couple's IVF cycle. Sperm with severe head abnormalities are unlikely to bind to the zona pellucida. These patients may require intracytoplasmic sperm injection in association with their IVF cycle to ensure optimal levels of fertilization are achieved. This, in turn, provides the patient with the best chance of pregnancy.

Multiple semen analyses are usually conducted over the course of the spermatogenic cycle (approximately 70 days).

Reference Values

SEMEN ANALYSIS

Appearance: normal

Volume: > or =1.5 mL

pH: > or =7.2

Motile/mL: > or =6.0 x 10(6)

Sperm/mL: > or =15.0 x 10(6)

Motility: > or =40%

Grade: > or =2.5

Note: Multiple laboratory studies have indicated that semen parameters for motility and grade on average retain 80% of original parameters when our shipping method is used for transport. Using these averages, samples with 32% to 39% motility and grade of 2 may be in the normal range if testing was performed shortly after collection. Therefore, these borderline patients may need to collect another sample at a local fertility center to verify fertility status.

Motile/ejaculate: > or =9.0 x 10(6)

Viscosity: > or =3.0

Agglutination: > or =3.0

Supravital: > or =58% live

Fructose: positive

Note: Fructose testing cannot be performed on semen analysis specimens shipped through Mayo Clinic Laboratories. If patient is azoospermic, refer to FROS2 / Fructose, Qualitative, Semen. Submit separate specimen to rule-out ejaculatory duct blockage. Positive result indicates no blockage.

STRICT MORPHOLOGY

Normal forms: > or =4.0% normal oval sperm heads

Germ cells: <4 x 10(6) (normal)

> or =4 x 10(6)/mL (elevated germinal cells in semen are of unknown clinical significance)

White blood cell count:

<1 x 10(6) (normal)

> or =1 x 10(6)/mL (elevated white blood cells in semen are of questionable clinical significance)

Interpretation

Semen specimens can vary widely in the same man from specimen to specimen. Semen parameters falling outside of the normal ranges do not preclude fertility for that individual. Multiple samples may need to be analyzed prior to establishing patientÃ¢â‚¬â„¢s fertility status.

Sperm are categorized according to strict criteria based on measurements of head and tail sizes and shapes. Sperm with abnormalities in head/tail size/shape may not be capable of completing critical steps in sperm transport and fertilization.

Cautions

Results may be unreliable if specimen transportation requirements are not followed.

Clinical Reference

1. Kruger Morphology Conference, Boston, MA, October 9, 1993

2. The World Health Organization Laboratory Manual for the examination of human semen and sperm-cervical mucus interaction. 5th ed. Cambridge University Press; 2010

Performance

Method Description

Semen Analysis:

The sample is measured for volume and analyzed microscopically to determine the number of sperm present, the number of moving or motile sperm, and the properties of the sperm motility.(The World Health Organization Laboratory Manual for the examination of human semen and sperm-cervical mucus interaction. 5th ed. Cambridge University Press; 2010)

Strict Morphology:

Sperm is categorized according to strict criteria based on measurements of head and tail sizes and shapes. Sperm with abnormalities in head/tail size/shape are not capable of completing steps in the sperm transport and fertilization process. Quantification of germinal and white blood cells (WBC) in semen is performed because the presence of germinal and WBC may indicate disorders in spermatogenesis and genital tract inflammation, respectively. The information collected will help to determine the most cost-effective therapy for treating male-factor infertility.(Wazzan W, Thomas A: Genital infection and male infertility. AFS Annual Meeting, Postgraduate course, 1990; Menkveld R, Oettle E, Kruger T, et al: Atlas of Human Sperm Morphology. Williams and Wilkins; 1991; Scoring is based on a

modified method of The World Health Organization Laboratory Manual for the examination of human semen and sperm-cervical mucus interaction. 5th ed. Cambridge University Press; 2010)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

1 to 4 days

Specimen Retention Time

See Individual Test IDs

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

89310-Semen Analysis

89398-Strict Criteria Sperm Morphology

If both components performed,

89322-Semen Analysis with Strict Morphology

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
SEMB	Semen Analysis with Strict Morphology	54231-6

Result ID	Test Result Name	Result LOINC Value
OVAL2	Strict Morph NL	10622-9
ACRSM	Acrosom Defect	66494-6
ABSTN	Abstinence	10587-4

Result ID	Test Result Name	Result LOINC Value
CLST1	Collection Site	56816-2
HDSAB	Head Shape Abnormal	66495-3
HDZAB	Head Size Abnormal	66496-1
TY	Study Type	54453-6
CNTN	Container Type	74384-9
MD	Midpiece Defect	10603-9
TAILD	Tail Defect	10604-7
DBLF	Double Forms	66497-9
MULTI	Multiple Defects	66498-7
APP3	Appearance	13359-5
VL53	Semen Volume	3160-9
GERM3	Germ Cells/mL	10576-7
WBC6	WBC/mL	10579-1
PH1	pH	2752-4
CMT56	Comment	48767-8
MOTML	Motile/mL	42531-4
SPML	Sperm/mL	9780-8
MOTY	Motility	6800-7
GR2	Grade	13942-8
MOTEJ	Motile/Ejaculate	6800-7
VISC	Viscosity	32789-0
AGGLU	Agglutination	33217-1
STAIN	Supravital Stain	4466-9
FRCT	Fructose	13943-6
CMT45	Comment	48767-8