Overview

Useful For
Determining male fertility status
Selecting the most cost-effective therapy for treating male-factor infertility
Quantifying the number of germinal and WBCs per mL of semen

Profile Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Reporting Name</th>
<th>Available Separately</th>
<th>Always Performed</th>
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<tbody>
<tr>
<td>FER</td>
<td>Semen Analysis</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>MSTC</td>
<td>Strict Criteria Sperm Morphology</td>
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</tbody>
</table>

Method Name
FER: Manual
MSCT: Kruger Criteria Strict Morphology

NY State Available
No

Specimen

Specimen Type
Semen

Advisory Information
Semen analysis specimens submitted to Mayo Clinic Laboratories are not acceptable for fructose testing due to the use of dilution media. See FROS / Fructose, Semen or Seminal Plasma for specimen requirements for fructose testing in azoosperma patients.

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**

A minimum count is needed. Lab will determine.

**Reject Due To**

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

**Specimen Stability Information**

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<th>Temperature</th>
<th>Time</th>
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<tr>
<td>Semen</td>
<td>Ambient</td>
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**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 FROS / Fructose, Semen or Seminal Plasma. 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)

WBC: <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 patient'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

**Performance**

**Method Description**

Semen Analysis:


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 WBCs in semen is performed because the presence of germinal and WBCs 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, Baltimore, MD, 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. Fifth edition. Cambridge University Press, 2010)
Test Definition: SEMB
Semen Analysis with Strict Morphology

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No

**Day(s) and Time(s) Test Performed**
Monday through Friday; 3 p.m.

Send specimen Monday through Thursday only and not the day before a holiday.

**Analytic Time**
1 day

**Maximum Laboratory Time**
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 U.S. 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**

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