
Overview

Useful For

Diagnosing male infertility

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

Quantifying the number of germinal and WBCs per mL of semen

Method Name

Kruger Criteria Strict Morphology

NY State Available

No

Specimen

Specimen Type

Semen

Additional Testing Requirements

Conventional semen analysis (FER / Semen Analysis, Semen) should be performed in conjunction with each strict criteria sperm morphology.

Shipping Instructions

Send specimen Monday through Friday

Necessary Information

Sperm count/mL is required (million/mL).

Specimen Required

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

Container/Tube: Slides

Specimen Volume: 2 slides-10 microL of liquefied semen on each slide

Collection Instructions:

1. If sperm concentration is <10 million/mL, centrifuge the specimen at 300 x G for 10 minutes before making slides.
2. Label 2 frosted slides **in pencil** with the patient's first and last name and the date of specimen collection. No adhesive labels.
3. Allow the semen to liquefy for 30 minutes.

4. Place 10 mL of liquefied semen on the label end of each slide, and evenly smear the specimen using a plain slide (this process is the same as making a blood smear).
5. Allow the smears to air dry for 15 minutes before placing both slides into 1 slide holder for shipment.

Specimen Minimum Volume

A minimum count of sperm is needed; lab will determine

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		

Clinical & Interpretive

Clinical Information

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

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 greatly assists with selecting the most cost-effective in vitro sperm processing and insemination treatment for the couple's in vitro fertilization (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.

Reference Values

Normal forms: > or =4.0%

Germinal cells/mL

<4 x 10⁶ (normal)

> or =4 x 10⁶ (elevated germinal cells in semen are of unknown clinical significance)

WBC/mL

<1 x 10⁶ (normal)

> or =1 x 10⁶ (elevated white blood cells in semen are of questionable clinical significance)

Interpretation

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

fertilization.

Cautions

No significant cautionary statements.

Clinical Reference

1. Kruger Morphology Conference, Boston, MA, October 9, 1993
2. WHO laboratory manual for the examination and processing of human semen. 5th ed. WHO Press; 2010
3. WHO laboratory manual for the examination and processing of human semen. 6th ed. World Health Organization; 2021

Performance**Method Description**

Sperm is categorized according to strict criteria based on measurements of head and tail sizes and shapes. Sperm with abnormalities in head, tail size, or shape are not capable of completing steps in the sperm transport and fertilization process. Quantification of the germinal and white blood cell (WBC) content in semen is performed because the presence of germinal and WBC are indicative of possible disorders in spermatogenesis and genital tract infection, respectively. The information collected will help 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 WHO laboratory manual for the examination and processing of human semen. 6th ed. World Health Organization; 2021)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

2 to 4 days

Specimen Retention Time

At least 6 months

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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

89398

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MSTC1	Strict Sperm Morphology, Slide	48812-2

Result ID	Test Result Name	Result LOINC® Value
OVAL2	Strict Morph NL	10622-9
ACRSM	Acrosom Defect	In Process
HDSAB	Head Shape Abnormal	In Process
HDZAB	Head Size Abnormal	In Process
MD	Midpiece Defect	10603-9
TAILD	Tail Defect	10604-7
DBLF	Double Forms	In Process
MULTI	Multiple Defects	In Process
GERM3	Germ Cells/mL	10576-7
WBC6	WBC/mL	10579-1
CMT56	Comment	48767-8