

Spermolyzer



Computer Assisted Semen Analysis System utilizes modern computer and advanced image processing techniques for clinical test of sperm motility, quality, morphology, vitality, DNA fragmentation, HOS and nuclear protein. Based on the sperm test standards of the WHO 5th criteria (2010), the system can analyze the characteristic of sperm comprehensively through image processing of sperms. The system analyzes these values and generates accurate parameters to reflect sperms' quality. The whole procedure is fast and provides several important information that are vital to present scientific basis for the male reproductive ability.

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Description

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The analysis is performed according to the recommendations given by The world health organization (WHO) for the latest 5th edition for motility patterns & Morphometric assessment of human semen.

The system performs the following analysis :

1- Motility

- The method is designed to estimate the spermatozoa concentration and their motility in a native specimen.
- Determining spermatozoa concentration in (million/ml)
- Measuring spermatozoa movement parameters and classify this movement to classes in accordance of WHO recommendations .
- Measuring spermatozoa dynamic parameters (VCL / VSL / VAP / MAD / ALH / BCF / LIN / WOB / STR / DCL / DAP / DSL)
- Ability to exclude round cells for more accurate calculated parameters and count.

2- Morphology

- The method is designed to determine the morphological parameters of spermatozoa.
- The software calculates the (TZI/SDI/MAI) according to the latest criteria of the world health organization.
- Two different method for analysis (Semi & Fully automatic detection)

3- Vitality

This test is important to determine if the non-motile spermatozoa are alive or dead. It should be assessed if a low percentage of sperm are progressively motile, e.g., 30 - 40%. The two most common methods of sperm vitality assessment:

- Eosin-nigrosin staining.
- The hypo-osmotic swelling test (HOS).

4- DNA Fragmentation

This test provides a reliable analysis of sperm DNA integrity that may help to identify men who are at risk of failing to initiate a healthy ongoing pregnancy. Information about sperm DNA integrity may help in the clinical diagnosis, management and treatment of male infertility and may be of prognostic value in assessing outcome of assisted conception treatment.

5- HOS

The hypo-osmotic swelling test is based on the semi-permeability of the intact cell membrane, which causes spermatozoa to "swell" under hypo-osmotic conditions.

All the curled tail sperm are labeled as 'Live Sperm'. The damaged / broken sperm membrane, allows fluids to pass across the membrane without any accumulation & hence there is No Cytoplasmic Swelling & the tail remains straight (No Curling). All these sperm are labeled as the Dead sperm.

6- Nuclear Protein

The mature chromatin contains around 85% Protamine & 15% Histone, where as immature chromatin contains more than 15% Histone. Increased levels of persistent Histone in turn indicate a break in the development sequence of Histone – Transition Protein – Protamines, which significantly affect the DNA chain folding & vulnerability for increased DNA Fragmentation & this leads to decline in sperm fertilizing potential. Hence by evaluating Nucleoprotein assessment the diagnosis & prognosis of Male Infertility can be determined.

Semen specimen warmer is a temperature control system which is ergonomically designed to give ease of work and specimen handling. The system has heater & sensor programmed to attain & maintain 37°C. It has very high accuracy with $\pm 0.20\text{C}$.

Warmer for DNA fragmentation Test



DNA fragmentation test warmer is a dual temperature control system, designed to expose the agarose tubes at 70°C or at 37°C in separate blocks of instrument. The two blocks for two different temperatures can be used simultaneously.

You can thereby cut off the hassle included in conventional method and do the work in ease in just one instrument.

Also, Its ergonomics allows user to handle each tube without disturbing others.

Sperm Centrifuge 37°C



perm centrifuge machine designed to work at 37°C, that is same as the in-vivo temperature, to maintain the natural functionality of sperm.

Technical specifications:

- Maximum speed: 4000 RPM (with rotor 4x 15ml.)
- Maximum RCF: 2,719 X g (with rotor 4x 15ml.)
- Maximum sample volume: 60 ml.
- Speed setting & display: Digital.
- Speed accuracy : $\pm 100\text{RPM}$.