

# Hypo-osmotic Swelling Test

HUMAN SPERM VITALITY DIAGNOSTIC (5X 20 TESTS)

HOST medium is sterilized by sterile filtration

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For *in vitro* diagnostic use only – Reagent for professional use only



## INTENDED USE

The Hypo-osmotic Swelling Test is a semi-quantitative test based on the semi-permeability of the intact cell membrane, which causes spermatozoa to “swell” under hypo-osmotic conditions, when an influx of water results in an expansion of cell volume (Drevius & Eriksson, 1966). The test was introduced by Jeyendran et al. (1984). The HOS test should not be used as a sperm function test but may be used as an optional, additional vitality test. It is simple to perform and easy to score and gives additional information on the integrity of the cell membrane of the sperm tail. The HOS test may help in assessing the diagnosis and the management of male infertility.

## MATERIAL INCLUDED WITH THE KIT

Product code: HOST (5x 20ml Hypo-osmotic Swelling Test medium)

A certificate of analysis and MSDS are available on request or can be downloaded from our website ([www.fertipro.com](http://www.fertipro.com)).

## MATERIAL NOT INCLUDED WITH THE KIT

Microscope object glasses, cover glasses, phase-contrast microscope, pipettes

## PRE-USE CHECKS

Do not use the product if it becomes cloudy, or shows any evidence of microbial contamination. Do not use the product if seal of the container is opened or defect when the product is delivered.

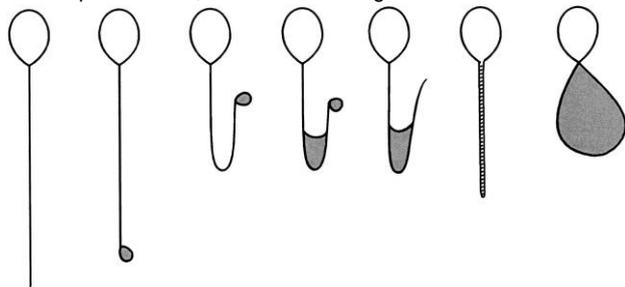
## METHOD

We recommend to view our demonstration video.

Download via link on our website, or scan barcode (e.g. with the App “REA PharmaScan”):



1. Test semen sample preferably within one hour after ejaculation. Let semen liquefy and keep the sample warm at 37°C.  
**Note:** In some samples the tails of the spermatozoa may be deformed before performing the test. We advice to determine the percentage of tail abnormalities ( % curled or swollen) before the test.
2. Warm 1mL of HOST solution in a closed Eppendorf tube at 37°C for about 5 minutes
3. Add 100µL of semen to the 1mL HOST solution and mix gently with the pipette
4. Keep at 37°C for at least 30 minutes (but not longer than 120 minutes)
5. Evaluate 200 spermatozoa by microscopy at 200x or 400x magnification (preferably phase-contrast). Swelling of sperm is identified as changes in shape of the tail, as shown in the figure below.



The left most cell: no change

Other cells: various types of tail changes due to swelling

(Source: WHO laboratory manual for the examination and processing of human semen, 2010)

## RESULT

Live cells are distinguished by evidence of swelling or curling of the sperm tail; score all forms of swollen tails as live spermatozoa (WHO, 2010). Calculate the percentage of spermatozoa with swollen or curled tails following incubation with HOST medium. Subtract the % of spermatozoa with deformed tails observed before the test.

## INTERPRETATION

It is clinically important to know whether immotile spermatozoa are alive or dead. Vitality results should be assessed in conjunction with motility results from the same semen sample. The presence of a large proportion of vital but immotile cells may be indicative of structural defects in the flagellum; a high percentage of immotile and non-viable cells (necrozoospermia) may indicate epididymal pathology.

A semen sample is considered **normal if 58% or more of the sperm cells are alive** (WHO, 2010).

## REAGENT STORAGE AND SHELF LIFE

Suitable for transport or short term storage at elevated temperatures (up to 5 days at 37°C). Store at 2-8°C. Does not contain antibiotics. Use a sterile syringe to remove reagents from the bottles. Work under strict hygienic conditions, preferably under laminar flow. Sterility is not guaranteed once the bottle has been opened or rubber seal has been punctured. Use within 7 days after opening. Shelf life is 12 months from date of manufacture.

## WARNING AND PRECAUTIONS

All human, organic material should be considered potentially infectious. Handle all specimens as if capable of transmitting HIV or hepatitis. Always wear protective clothing when handling specimens.

## BIBLIOGRAPHY

1. WHO laboratory manual for the examination and processing of human semen, WHO, 5th edition, 2010
2. Drevius L., Eriksson H., Osmotic swelling of mammalian spermatozoa, Experimental Cell Research, 1966, 42: 136-56
3. Jeyendran R.S., et al, Development of an assay to assess the functional integrity of the human sperm membrane and its relationship to the other sperm characteristics, Journal of Reproduction and Fertility, 1984, 70: 219-28.