

SEMEN ANALYSIS

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Semen analysis: WHO 1992

- ▼ Sexual abstinence 48 H 7 days
- ▼ Two samples 7 days... 3 months
- ▼ Adequate T° 20° C - 40° C
- ▼ Adequate collection
 - ▼ non toxic glass or plastic container
 - ▼ masturbation
 - ▼ no condoms
- ▼ Adequate lab. delivery ≤1 hour post collection

Semen analysis: WHO 1992

- ▼ Volume $\geq 2\text{ml}$
- ▼ Consistency thread $< 2\text{ cm}$
- ▼ pH 7.2 - 7.8
- ▼ Viability $\geq 75\%$
- ▼ Sperm concentration $\geq 20 \times 10^6 /\text{ml}$
- ▼ Total sperm count $\geq 40 \times 10^6 /\text{ml}$

Semen analysis: WHO 1992

▼ Motility (60 min)

- ▼ rapid linear (a): $\geq 20 \mu\text{m}/\text{sec}$ $\geq 25 \%$
- ▼ progressive forward (a+b): $< 20 \mu\text{m}/\text{sec}$ $\geq 50 \%$

▼ Morphology

$\geq 30 \%$ normal forms

Semen analysis: WHO 1992

- ▼ Leucocytes $\leq 10^6$ /ml
- ▼ Mixed antiglobulin
Reaction Test (MAR) ≤ 10 %
- ▼ Immunobead test ≤ 20 %

Semen analysis: WHO 1992

- ▼ fructose $\geq 13 \mu\text{mol}$ per ejaculate
- ▼ Zinc $\geq 2.4 \mu\text{mol}$ per ejaculate
- ▼ α -glucosidase $\geq 20 \text{ mU}$ per ejaculate

- ▼ carnitine

Semen analysis: description

- ▼ Normal semen quality **Normospermic**
- ▼ No ejaculate **Aspermia**
- ▼ No spermatozoa **Azoospermia**
- ▼ Low spermatozoa concentration **Oligozoospermia**
- ▼ Low spermatozoal motility **Asthenozoospermia**
- ▼ Low normal morphology **Teratozoospermia**

Semen analysis and prostate dysfunction

- ▼ Delayed liquefaction
- ▼ Increased viscosity
- ▼ Increased pH
- ▼ Decreased Zinc concentration

Semen analysis and seminal vesicles dysfunction

- ▼ low volume
- ▼ decreased fructose concentration
- ▼ decreased pH

Semen analysis: appearance

- ▼ **very clear**
 - ▼ low sperm count

- ▼ **brown**
 - ▼ hematospermia

Semen analysis: liquefaction and viscosity

- ▼ ↑ liquefaction time
 - ▼ prostate dysfunction
- ▼ ↑ viscosity
 - ▼ prostate dysfunction

Semen analysis: volume

▼ low volume

- ▼ incomplete collection
- ▼ seminal vesicle agenesis
- ▼ ejaculatory ducts obstruction
- ▼ retrograde ejaculation

▼ high volume

- ▼ long periods of abstinence
- ▼ varicocele

Semen analysis: pH

▼ ↑ pH

- ▼ prostate dysfunction

▼ ↓ pH

- ▼ seminal vesicle dysfunction or agenesis
- ▼ vas deferens agenesis
- ▼ ejaculatory ducts obstruction
- ▼ incomplete collection

Semen analysis: azoospermia

▼ Aspermia

- ▼ neuropathic failure of emission
- ▼ complete retrograde ejaculation

▼ Low volume

- ▼ congenital absence of vas deferens and seminal vesicle
- ▼ ejaculatory duct obstruction

Semen analysis: azoospermia

- ▼ **Normal volume**
 - ▼ **Elevated serum FSH**
 - ▼ germinal cell failure
 - ▼ **Normal serum FSH**
 - ▼ post infectious vasal or epidydimal obstruction
 - ▼ Young's syndrome
 - ▼ embryologic malunion of vas and epidydimis
 - ▼ **Low serum FSH**
 - ▼ hypogonadotropic hypogonadism

Semen analysis and fertility

Rehan et al., 1975 Fertil. Steril., 26: 492

Sperm count (10⁶/ml)	Fertile men (n=1300) (%)
<20	7
20 - 39	16
40 - 59	18
> 60	59

Semen analysis and fertility

MacLeod et al., 1951 J.Urol., 66: 436

Sperm count (10⁶/ml)	Fertile men (%) n=1000	Infertile men (%) n=1000
< 20	5	16
20 - 39	12	13
40 - 59	12	11
>60	71	60

Semen analysis and fertility

Smith et al., 1977 Fertil. Steril., 28: 1314

Motility sperm count	Pregnancy rate (%)
< 5.1	33.3
5.1 -10	27.8
10 - 20	52.9
20 - 40	57.1
40 - 60	60
60 - 100	62.5

Semen analysis and fertility

Steinberger et al. 1996 *Reproductive Medicine*, New York Raven, 187-197

