

REFERENCE VALUES for SEMEN ANALYSIS, SWIM-OUT, DIAGNOSTIC IUI

<u>Semen Analysis Measure</u>	<u>Reference Value</u>	<u>Source, Explanation</u> (* Computer generated number)
Abstinence from ejaculation	2 – 5 days	3 – 4 days is optimal
Time Collection to Analysis	20 – 60 min	Motility compromised after 60 min; conditions of transport
Volume	≥1.5 mL	WHO 2010; no upper limit
pH	7.8 – 8.6	MFL, value dependent on technique, time
Appearance	Opalescent grayish-white / slightly yellowish	WHO 2010, MFL
Liquefaction	Complete	No masses or strands (outside ref range not an abnormal SA)
Viscosity	3 or 4	Subj scale; forms drops / drops connected by thin strands (“
Sperm concentration	≥15 x10 ⁶ / mL	WHO 2010
Total sperm number	≥ 39 x10 ⁶ / ejaculate	WHO 2010
% Motility	≥ 40%	WHO 2010; All motile and twitching sperm
Total motile sperm	≥ 15.5 x10 ⁶ / ejaculate	Calculation of WHO 2010 values; NOT ON REPORT
% Progressive motility	≥ 32%	WHO 2010
Total Progr motile sperm	≥ 12.5 / ejaculate	Calculation of WHO 2010 values
% Rapid Progressive motility	≥ 25%	MFL; former WHO category a motility;* NOT ON REPORT
% Rapid & Linear motility	≥ 12%	MFL; % sperm with VSL [†] ≥ 25µm/sec and LIN [†] ≥ 60*
Mean VSL	≥ 25 µm/sec	VSL = Straight-line velocity* NOT ON REPORT
Mean VCL	≥ 70 µm/sec	VCL = curvilinear (path) velocity* NOT ON REPORT
Mean LIN	≥ 35	LIN = linearity (100% x VSL/VCL)* NOT ON REPORT
Sperm Viability	≥ 58% viable	WHO 2010; Reflexive: Performed if motility ≤ 25%
Sperm Agglutination	None or Slight	MFL; ≤ 10% of sperm are agglutinated
Sperm morphology	≥ 4% strict normal	WHO 2010; Tygerberg/Kruger strict morphology*
Morphological defects	Any defect < 20%	Small or no acrosome; midpiece; tail; specific head shape
<u>Round Cell Differential</u>		Reflexive; Performed if >1000 round cells/mm ³
Leukocyte concentration	≤ 1 x10 ⁶ / mL	MFL; Calc. from differential and round cell concentration
Peroxidase-positive cells	<10 %	MFL; Indicative of cells with potential to damage sperm
Red blood cells	None	“Microhematospermia” if not visibly pink
<u>Swim Out Motility and Recovery</u>		(separate test)
Swim out motility	≥80%	MFL
Swim out recovery	≥10 x10 ⁶ / ejaculate	Calc for entire ejac; ability of sperm to swim out of semen
<u>Sperm Recovery and Survival (Diagnostic IUI)</u>		(separate test)
Sperm Recovery	≥ 10 x10 ⁶ motile sperm	Calc for entire ejac; recovery by DG or SO separation
Overnight Survival	≥ 70% motility	Motility after overnight incubation (stress test)