


## Computer Assisted Semen Analysis (CASA)

The system follows WHO (2010) strict criteria for motility patterns & morphometric assessment of human semen.

### ICASA software package

Barcode		BarCode No(17z	Ref. by	
Name	يوسف عز مكايي /	Collection Date	01-09-2024 / 07:33:00 PM	
Age	19 Years	Analysis Date	01-09-2024 / 08:03:00 PM	

#### Specimen Description :

Volume	2	[ N > 2,0 ]
PH value	7.5	[ N : 7.2 - 8.0 ]
Color	white-gray	[ white-gray ]
Odor	Normal	[ Normal ]
Viscosity	Normal	[ Normal ]
Liquefaction time	25 min.	[ N : 10 - 30 min. ]
Liquefaction state	Complete	

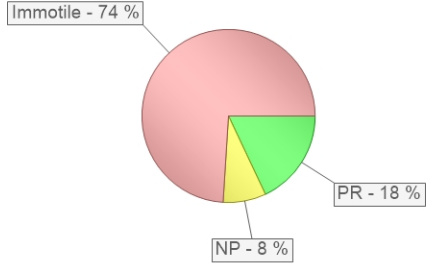
#### Collection Info. :

Coll. Locations	Voided at lab
Abestination	4 Days [ N: 3 - 7 days ]
Coll. Method	by Masturbation

#### Agglutination & Aggregation :

Aggregation	Mixd
Agglutination	Grade ( 1 ) : Isolated <10

#### Test result :

Test	Result	Status	Reference Value	Sperm Distribution
Concentration (million/ml)	45.63	PASSED	>= 15 (million/ml)	
Total sperm no. (million)	91.26	PASSED	>=39 (million/Ejaculate)	
Progressive motility (PR)	18 %	FAILED	>=32 %	
Total Motility (PR+NP)	26 %	FAILED	>=40 %	
Morphology index	18.00 %	PASSED	>= 4 % normal is accepted	
Vitality	91.43 %	PASSED	>58 %	

#### Cells other than sperms :

White Blood Cells	3 - 5	< 5 /H.P.F	Pinheads : 0.5 million/ml
Red Blood Cells	2 - 4	< 5 /H.P.F	Pinheads sperms are not counted as spermatozoa or head defects because they possess no chromatin or head structure anterior to the basal plate.
Spermatogenic cells	2 - 3	/H.P.F	
Epithelial cells	1 - 2	/H.P.F	

#### Comment :

MOTILITY :- Normozoospermia (Sperms count between 15 – 250 ×10 ^6)  
MOTILITY :- Asthenoospermia ((PR+NP Classes) below the lower reference limit)

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## CONCENTRATION AND MOTILITY ANALYSIS

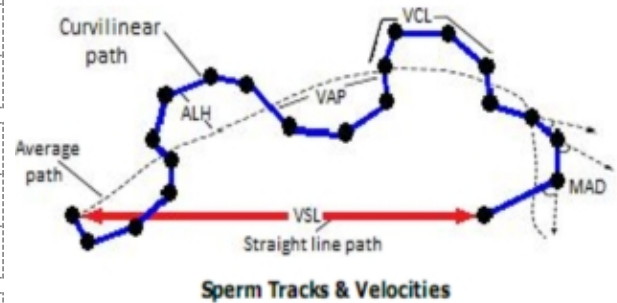
### Dynamic Parameters Report ( I ) :

Test	Conc. (million/ml)	Total number (million)	Percentage %	Reference Value
Tested sperm	45.63	91.26	100 %	>= 15 (million/ml)
Total motility (PR+NP)	11.86	23.73	26 %	>=40 %
Progressive motility (PR)	8.21	16.43	18 %	>=32 %
Non progressive (NP)	3.65	7.30	8 %	
Immotile (IM)	33.77	67.53	74 %	<50 %

- \* Progressive motility (PR) : spermatozoa moving actively, either linearly or in a large circle, regardless of speed.
- \* Non-progressive motility (NP) : all other patterns of motility with an absence of progression, i.e. swimming in small circles, the flagellar force hardly displacing the head, or when only a flagellar beat can be observed.
- \* Immotile (IM) : no movement.

### Dynamic Parameters Report ( II ) :


Parameters	values	Description
VCL [ $\mu\text{m/s}$ ]	40.89	Curvilinear velocity
VSL [ $\mu\text{m/s}$ ]	27.17	Straight line Velocity
VAP [ $\mu\text{m/s}$ ]	33.66	Average Path Velocity
MAD[°]	32.79	Mean Angular Degree
ALH [ $\mu\text{m}$ ]	5.08	Amplitude of Lateral head Disp.
BCF [Hz]	5.97	Beat-cross Frequency
LIN	60.08 %	Linearity (VSL/VCL)
WOB	45.15 %	Wobble (VAP/VCL)
STR	44.67 %	Straightness (VSL/VAP)



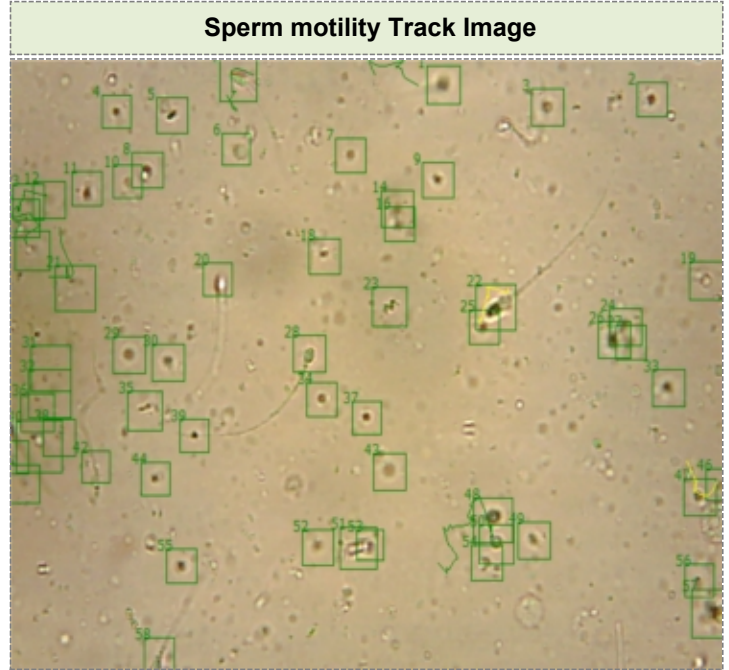
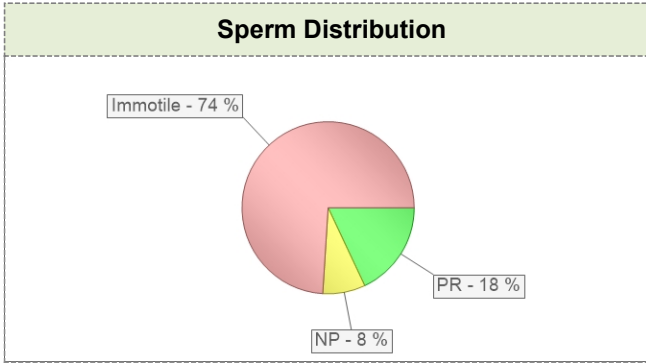
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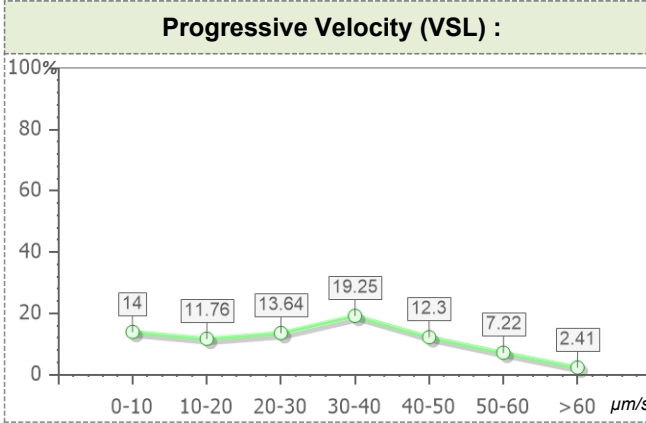
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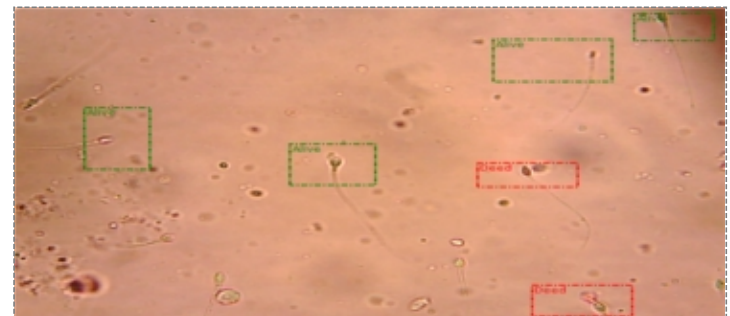
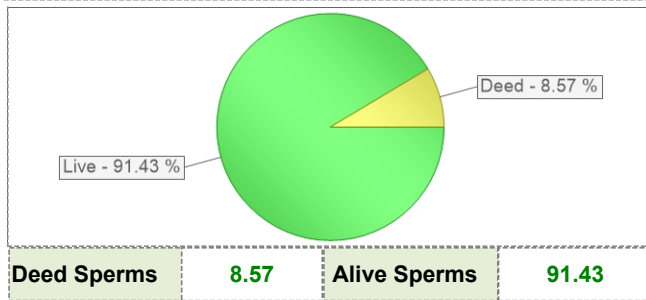
### Semen Analysis Charts (CASA - WHO 2010)



\* the microscopic image is taken in real time.  
\* Each track is presented in colour code according to the type of spermatozoa W.H.O classification.




### Sperm Vitality



## Computer Assisted Semen Analysis (CASA)

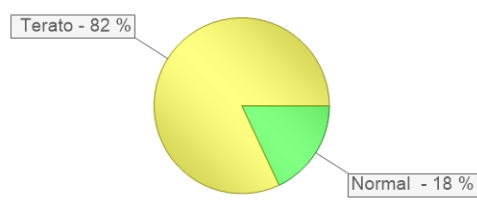
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### SPERM CYTOMORPHOLOGICAL STUDY

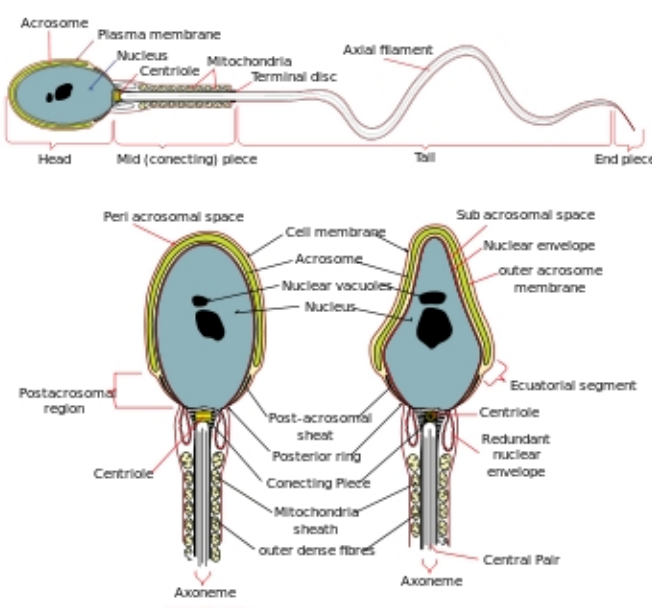
Sperm Class Analyzer -Automatic System of sperm analysis by computer (CASA)

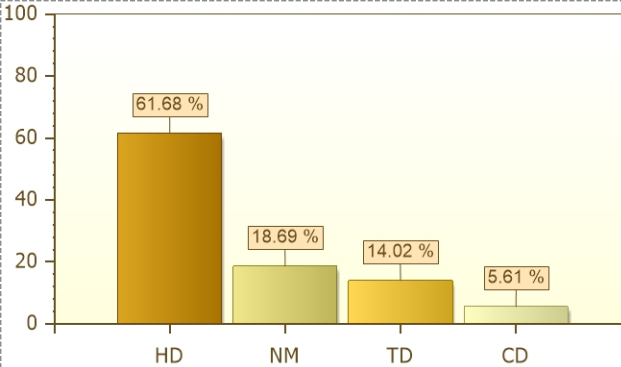
Parameters	Result	Status	Reference Value	Morphology Chart
Normal Sperms	18.00%	PASSED	> 4% is accepted	
Terato Sperms	82.00%			
MAI	1.23			
TZI	1.3	PASSED	up to 1.6	
SDI	1.07	PASSED	up to 1.6	

\* **MAI** Multiple Anomalies Index (MAI) : The mean number of anomalies per abnormal spermatozoon.

\* **TZI** TeratoZoospermic Index (TZI) : Total number of defects divided by the number of abnormal sperms.

\* **SDI** Sperm Deformity Index (SDI) : Total number of defects divided by the number of sperms counted.

Defectes Classification	Total	Percentage	Chart Diagram of a human sperm cell
Total Defectes	107	100 %	
Head defects (HD)	66	61.68 %	
Neck & midpiece (NM)	20	18.69 %	
Tail defects (TD)	15	14.02 %	
Cytoplasm droplets (CD)	6	5.61 %	



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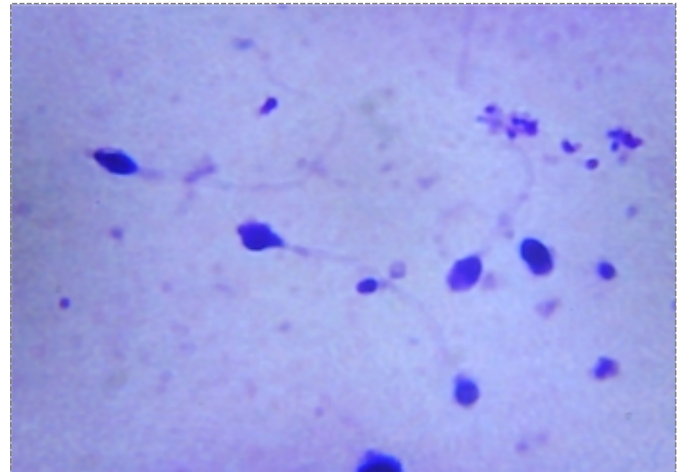
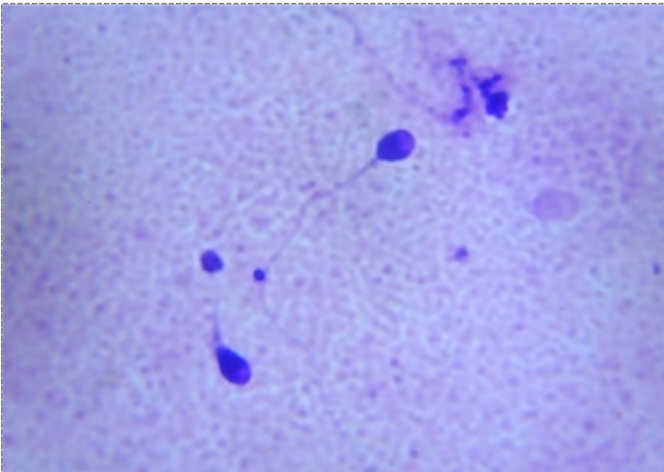
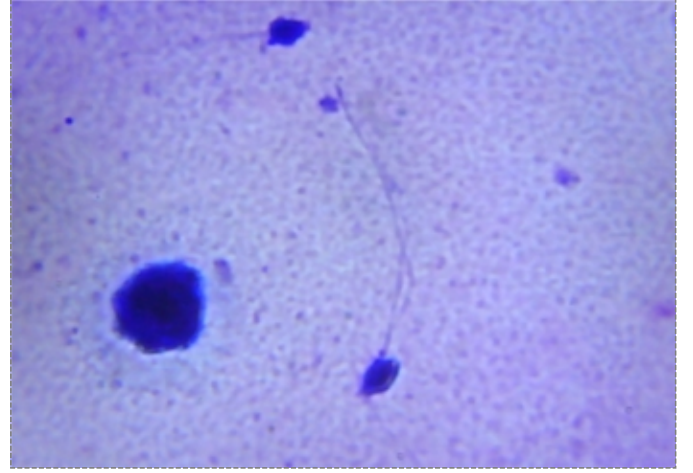
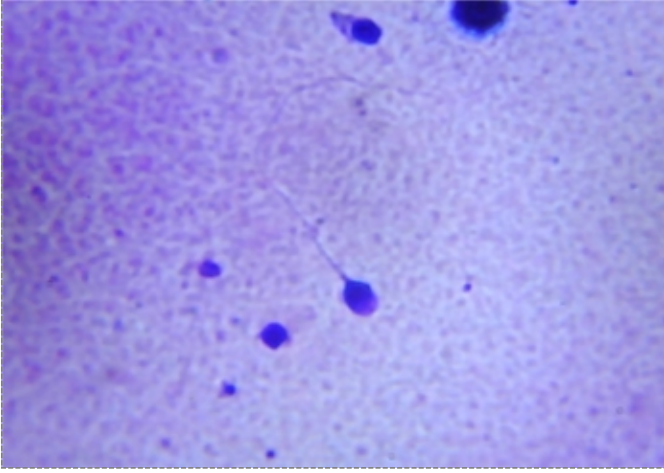
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Sperm Class Analyzer -Automatic System of sperm analysis by computer (CASA)



\* the microscopic image is taken in real time.  
\* Images Cropping and Classification according to W.H.O .

Normal Sperms

Abnormal Sperms

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