NAME	**: Mr. SHUBHAM GOEL**		
AGE/ GENDER	: 34 YRS/MALE	**PATIENT ID**	: 1706135
COLLECTED BY	: SURJESH	**REG. NO./LAB NO.**	**: 012412220058**
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SWASTHYA WELLNESS PANEL: 1.1

COMPLETE BLOOD COUNT (CBC)

Test Name	Value	Unit	Biological Reference interval
RED BLOOD CELLS (RBCS) COUNT AND INDICES			
HAEMOGLOBIN (HB) *by CALORIMETRIC*	15.7	gm/dL	12.0 - 17.0
RED BLOOD CELL (RBC) COUNT *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	**5.3^{H}**	Millions/cmm	3.50 - 5.00
PACKED CELL VOLUME (PCV) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	49.2	%	40.0 - 54.0
MEAN CORPUSCULAR VOLUME (MCV) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	92.9	fL	80.0 - 100.0
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	29.7	pg	27.0 - 34.0
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	32	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	13.8	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	48.2	fL	35.0 - 56.0
MENTZERS INDEX *by CALCULATED*	17.53	RATIO	BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0
GREEN & KING INDEX *by CALCULATED*	24.25	RATIO	BETA THALASSEMIA TRAIT:<= 65.0 IRON DEFICIENCY ANEMIA: > 65.0
WHITE BLOOD CELLS (WBCS)			
TOTAL LEUCOCYTE COUNT (TLC) *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	7510	/cmm	4000 - 11000
NUCLEATED RED BLOOD CELLS (nRBCS) *by AUTOMATED 6 PART HEMATOLOGY ANALYZER*	NIL		0.00 - 20.00
NUCLEATED RED BLOOD CELLS (nRBCS) % *by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER*	NIL	%	< 10 %

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Test Name	Value	Unit	Biological Reference interval
DIFFERENTIAL LEUCOCYTE COUNT (DLC)			
NEUTROPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	51	%	50 - 70
LYMPHOCYTES *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	36	%	20 - 40
EOSINOPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	6	%	1 - 6
MONOCYTES *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	7	%	2 - 12
BASOPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	0	%	0 - 1
ABSOLUTE LEUKOCYTES (WBC) COUNT			
ABSOLUTE NEUTROPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	3830	/cmm	2000 - 7500
ABSOLUTE LYMPHOCYTE COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	2704	/cmm	800 - 4900
ABSOLUTE EOSINOPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	**451^{H}**	/cmm	40 - 440
ABSOLUTE MONOCYTE COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	526	/cmm	80 - 880
ABSOLUTE BASOPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY*	0	/cmm	0 - 110
PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.			
PLATELET COUNT (PLT) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	236000	/cmm	150000 - 450000
PLATELETCRIT (PCT) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	0.27	%	0.10 - 0.36
MEAN PLATELET VOLUME (MPV) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	11	fL	6.50 - 12.0
PLATELET LARGE CELL COUNT (P-LCC) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	83000	/cmm	30000 - 90000
PLATELET LARGE CELL RATIO (P-LCR) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	34.9	%	11.0 - 45.0
PLATELET DISTRIBUTION WIDTH (PDW) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE*	16.4	%	15.0 - 17.0

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

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Test Name	Value	Unit	Biological Reference interval

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Test Name	Value	Unit	Biological Reference interval

ERYTHROCYTE SEDIMENTATION RATE (ESR)

ERYTHROCYTE SEDIMENTATION RATE (ESR)	8	mm/1st hr	0 - 20

by RED CELL AGGREGATION BY CAPILLARY PHOTOMETRY

INTERPRETATION:

1. ESR is a non-specific test because an elevated result often indicates the presence of inflammation associated with infection, cancer and auto-immune disease, but does not tell the health practitioner exactly where the inflammation is in the body or what is causing it.
2. An ESR can be affected by other conditions besides inflammation. For this reason, the ESR is typically used in conjunction with other test such as C-reactive protein
3. This test may also be used to monitor disease activity and response to therapy in both of the above diseases as well as some others, such as systemic lupus erythematosus

CONDITION WITH LOW ESR

A low ESR can be seen with conditions that inhibit the normal sedimentation of red blood cells, such as a high red blood cell count (polycythaemia), significantly high white blood cell count (leucocytosis) , and some protein abnormalities. Some changes in red cell shape (such as sickle cells in sickle cell anaemia) also lower the ESR.

NOTE:

1. ESR and C - reactive protein (C-RP) are both markers of inflammation.
2. Generally, ESR does not change as rapidly as does CRP, either at the start of inflammation or as it resolves.
3. **CRP is not affected by as many other factors as is ESR, making it a better marker of inflammation.**
4. If the ESR is elevated, it is typically a result of two types of proteins, globulins or fibrinogen.
5. Women tend to have a higher ESR, and menstruation and pregnancy can cause temporary elevations.
6. Drugs such as dextran, methyldopa, oral contraceptives, penicillamine procainamide, theophylline, and vitamin A can increase ESR, while aspirin, cortisone, and quinine may decrease it

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Test Name	Value	Unit	Biological Reference interval

CLINICAL CHEMISTRY/BIOCHEMISTRY

GLUCOSE FASTING (F)

GLUCOSE FASTING (F): PLASMA *by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)*	**119.17^{H}**	mg/dL	NORMAL: < 100.0 PREDIABETIC: 100.0 - 125.0 DIABETIC: > 0R = 126.0

INTERPRETATION

IN ACCORDANCE WITH AMERICAN DIABETES ASSOCIATION GUIDELINES:

1. A fasting plasma glucose level below 100 mg/dl is considered normal.
2. A fasting plasma glucose level between 100 - 125 mg/dl is considered as glucose intolerant or prediabetic. A fasting and post-prandial blood test (after consumption of 75 gms of glucose) is recommended for all such patients.
3. A fasting plasma glucose level of above 125 mg/dl is highly suggestive of diabetic state. A repeat post-prandial is strongly recommended for all such patients. A fasting plasma glucose level in excess of 125 mg/dl on both occasions is confirmatory for diabetic state.

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LIPID PROFILE : BASIC

Test Name	Value	Unit	Biological Reference interval
CHOLESTEROL TOTAL: SERUM *by CHOLESTEROL OXIDASE PAP*	149.45	mg/dL	OPTIMAL: < 200.0 BORDERLINE HIGH: 200.0 - 239.0 HIGH CHOLESTEROL: > OR = 240.0
TRIGLYCERIDES: SERUM *by GLYCEROL PHOSPHATE OXIDASE (ENZYMATIC)*	**174.19^{H}**	mg/dL	OPTIMAL: < 150.0 BORDERLINE HIGH: 150.0 - 199.0 HIGH: 200.0 - 499.0 VERY HIGH: > OR = 500.0
HDL CHOLESTEROL (DIRECT): SERUM *by SELECTIVE INHIBITION*	30.25	mg/dL	LOW HDL: < 30.0 BORDERLINE HIGH HDL: 30.0 - 60.0 HIGH HDL: > OR = 60.0
LDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	84.36	mg/dL	OPTIMAL: < 100.0 ABOVE OPTIMAL: 100.0 - 129.0 BORDERLINE HIGH: 130.0 - 159.0 HIGH: 160.0 - 189.0 VERY HIGH: > OR = 190.0
NON HDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	119.2	mg/dL	OPTIMAL: < 130.0 ABOVE OPTIMAL: 130.0 - 159.0 BORDERLINE HIGH: 160.0 - 189.0 HIGH: 190.0 - 219.0 VERY HIGH: > OR = 220.0
VLDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	34.84	mg/dL	0.00 - 45.00
TOTAL LIPIDS: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	473.09	mg/dL	350.00 - 700.00
CHOLESTEROL/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	**4.94^{H}**	RATIO	LOW RISK: 3.30 - 4.40 AVERAGE RISK: 4.50 - 7.0 MODERATE RISK: 7.10 - 11.0 HIGH RISK: > 11.0

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Test Name	Value	Unit	Biological Reference interval
LDL/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	2.79	RATIO	LOW RISK: 0.50 - 3.0 MODERATE RISK: 3.10 - 6.0 HIGH RISK: > 6.0
TRIGLYCERIDES/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	**5.76^{H}**	RATIO	3.00 - 5.00

INTERPRETATION:

1.Measurements in the same patient can show physiological& analytical variations. Three serial samples 1 week apart are recommended for Total Cholesterol, Triglycerides, HDL & LDL Cholesterol.
2. As per NLA-2014 guidelines, all adults above the age of 20 years should be screened for lipid status. Selective screening of children above the age of 2 years with a family history of premature cardiovascular disease or those with at least one parent with high total cholesterol is recommended.
3. Low HDL levels are associated with increased risk for Atherosclerotic Cardiovascular disease (ASCVD) due to insufficient HDL being available to participate in reverse cholesterol transport, the process by which cholesterol is eliminated from peripheral tissues.
4. NLA-2014 identifies Non HDL Cholesterol (an indicator of all atherogeniclipoproteins such as LDL , VLDL, IDL, Lpa, Chylomicron remnants) along with LDL-cholesterol as co- primary target for cholesterol lowering therapy. Note that major risk factors can modify treatment goals for LDL &Non HDL.
5. Additional testing for Apolipoprotein B, hsCRP,Lp(a) & LP-PLA2 should be considered among patients with moderate risk for ASCVD for risk refinement

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LIVER FUNCTION TEST (COMPLETE)

Test Name	Value	Unit	Biological Reference interval
BILIRUBIN TOTAL: SERUM *by DIAZOTIZATION, SPECTROPHOTOMETRY*	1.17	mg/dL	INFANT: 0.20 - 8.00 ADULT: 0.00 - 1.20
BILIRUBIN DIRECT (CONJUGATED): SERUM *by DIAZO MODIFIED, SPECTROPHOTOMETRY*	0.22	mg/dL	0.00 - 0.40
BILIRUBIN INDIRECT (UNCONJUGATED): SERUM *by CALCULATED, SPECTROPHOTOMETRY*	0.95	mg/dL	0.10 - 1.00
SGOT/AST: SERUM *by IFCC, WITHOUT PYRIDOXAL PHOSPHATE*	41.8	U/L	7.00 - 45.00
SGPT/ALT: SERUM *by IFCC, WITHOUT PYRIDOXAL PHOSPHATE*	**67.1^{H}**	U/L	0.00 - 49.00
AST/ALT RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	0.62	RATIO	0.00 - 46.00
ALKALINE PHOSPHATASE: SERUM *by PARA NITROPHENYL PHOSPHATASE BY AMINO METHYL PROPANOL*	92.34	U/L	40.0 - 130.0
GAMMA GLUTAMYL TRANSFERASE (GGT): SERUM *by SZASZ, SPECTROPHTOMETRY*	21.52	U/L	0.00 - 55.0
TOTAL PROTEINS: SERUM *by BIURET, SPECTROPHOTOMETRY*	6.96	gm/dL	6.20 - 8.00
ALBUMIN: SERUM *by BROMOCRESOL GREEN*	4.22	gm/dL	3.50 - 5.50
GLOBULIN: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	2.74	gm/dL	2.30 - 3.50
A : G RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	1.54	RATIO	1.00 - 2.00

INTERPRETATION

NOTE:- **To be correlated in individuals having SGOT and SGPT values higher than Normal Referance Range.**

USE:- Differential diagnosis of diseases of hepatobiliary system and pancreas.

INCREASED:

DRUG HEPATOTOXICITY	> 2
ALCOHOLIC HEPATITIS	> 2 (Highly Suggestive)
CIRRHOSIS	1.4 - 2.0
INTRAHEPATIC CHOLESTATIS	> 1.5
HEPATOCELLULAR CARCINOMA & CHRONIC HEPATITIS	> 1.3 (Slightly Increased)

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Test Name	Value	Unit	Biological Reference interval

DECREASED:

1. Acute Hepatitis due to virus, drugs, toxins (with AST increased 3 to 10 times upper limit of normal)
2. Extra Hepatic cholestatis: 0.8 (normal or slightly decreased).

PROGNOSTIC SIGNIFICANCE:

NORMAL	< 0.65
GOOD PROGNOSTIC SIGN	0.3 - 0.6
POOR PROGNOSTIC SIGN	1.2 - 1.6

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Test Name	Value	Unit	Biological Reference interval
KIDNEY FUNCTION TEST (COMPLETE)			
UREA: SERUM *by UREASE - GLUTAMATE DEHYDROGENASE (GLDH)*	23.6	mg/dL	10.00 - 50.00
CREATININE: SERUM *by ENZYMATIC, SPECTROPHOTOMETERY*	1.02	mg/dL	0.40 - 1.40
BLOOD UREA NITROGEN (BUN): SERUM *by CALCULATED, SPECTROPHOTOMETRY*	11.03	mg/dL	7.0 - 25.0
BLOOD UREA NITROGEN (BUN)/CREATININE RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	10.81	RATIO	10.0 - 20.0
UREA/CREATININE RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	23.14	RATIO	
URIC ACID: SERUM *by URICASE - OXIDASE PEROXIDASE*	5.99	mg/dL	3.60 - 7.70
CALCIUM: SERUM *by ARSENAZO III, SPECTROPHOTOMETRY*	9.67	mg/dL	8.50 - 10.60
PHOSPHOROUS: SERUM *by PHOSPHOMOLYBDATE, SPECTROPHOTOMETRY*	2.84	mg/dL	2.30 - 4.70
ELECTROLYTES			
SODIUM: SERUM *by ISE (ION SELECTIVE ELECTRODE)*	142.9	mmol/L	135.0 - 150.0
POTASSIUM: SERUM *by ISE (ION SELECTIVE ELECTRODE)*	4.05	mmol/L	3.50 - 5.00
CHLORIDE: SERUM *by ISE (ION SELECTIVE ELECTRODE)*	107.18	mmol/L	90.0 - 110.0
ESTIMATED GLOMERULAR FILTERATION RATE			
ESTIMATED GLOMERULAR FILTERATION RATE (eGFR): SERUM *by CALCULATED*	98.9		

INTERPRETATION:

To differentiate between pre- and post renal azotemia.

INCREASED RATIO (>20:1) WITH NORMAL CREATININE:

1. Prerenal azotemia (BUN rises without increase in creatinine) e.g. heart failure, salt depletion,dehydration, blood loss) due to decreased glomerular filtration rate.
2. Catabolic states with increased tissue breakdown.
3. GI haemorrhage.

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Test Name	Value	Unit	Biological Reference interval

4. High protein intake.
5. Impaired renal function plus
6. Excess protein intake or production or tissue breakdown (e.g. infection, GI bleeding, thyrotoxicosis, Cushing's syndrome, high protein diet, burns, surgery, cachexia, high fever).
7. Urine reabsorption (e.g. ureter colostomy)
8. Reduced muscle mass (subnormal creatinine production)
9. Certain drugs (e.g. tetracycline, glucocorticoids)

INCREASED RATIO (>20:1) WITH ELEVATED CREATININE LEVELS:

1. Postrenal azotemia (BUN rises disproportionately more than creatinine) (e.g. obstructive uropathy).
2. Prerenal azotemia superimposed on renal disease.

DECREASED RATIO (<10:1) WITH DECREASED BUN :

1. Acute tubular necrosis.
2. Low protein diet and starvation.
3. Severe liver disease.
4. Other causes of decreased urea synthesis.
5. Repeated dialysis (urea rather than creatinine diffuses out of extracellular fluid).
6. Inherited hyperammonemias (urea is virtually absent in blood).
7. SIADH (syndrome of inappropiate antidiuretic harmone) due to tubular secretion of urea.
8. Pregnancy.

DECREASED RATIO (<10:1) WITH INCREASED CREATININE:

1. Phenacimide therapy (accelerates conversion of creatine to creatinine).
2. Rhabdomyolysis (releases muscle creatinine).
3. Muscular patients who develop renal failure.

INAPPROPIATE RATIO:

1. Diabetic ketoacidosis (acetoacetate causes false increase in creatinine with certain methodologies,resulting in normal ratio when dehydration should produce an increased BUN/creatinine ratio).
2. Cephalosporin therapy (interferes with creatinine measurement).

ESTIMATED GLOMERULAR FILTERATION RATE:

CKD STAGE	DESCRIPTION	GFR (mL/min/1.73m2)	ASSOCIATED FINDINGS
G1	Normal kidney function	>90	No proteinuria
G2	Kidney damage with normal or high GFR	>90	Presence of Protein , Albumin or cast in urine
G3a	Mild decrease in GFR	60 -89	
G3b	Moderate decrease in GFR	30-59	
G4	Severe decrease in GFR	15-29	
G5	Kidney failure	<15	

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NAME	**: Mr. SHUBHAM GOEL**		
AGE/ GENDER	: 34 YRS/MALE	**PATIENT ID**	: 1706135
COLLECTED BY	: SURJESH	**REG. NO./LAB NO.**	**: 012412220058**
REFERRED BY	:	**REGISTRATION DATE**	: 22/Dec/2024 03:06 PM
BARCODE NO.	: 01522852	**COLLECTION DATE**	: 22/Dec/2024 03:13PM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 22/Dec/2024 05:04PM
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Test Name	Value	Unit	Biological Reference interval

COMMENTS:

1. Estimated Glomerular filtration rate (eGFR) is the sum of filtration rates in all functioning nephrons and so an estimation of the GFR provides a measure of functioning nephrons of the kidney.
2. eGFR calculated using the 2009 CKD-EPI creatinine equation and GFR category reported as per KDIGO guideline 2012
3. In patients, with eGFR creatinine between 45-59 ml/min/1.73 m2 (G3) and without any marker of Kidney damage, It is recommended to measure eGFR with Cystatin C for confirmation of CKD
4. eGFR category G1 OR G2 does not fullfill the criteria for CKD, in the absence of evidence of Kidney Damage
5. In a suspected case of Acute Kidney Injury (AKI), measurement of eGFR should be done after 48-96 hours of any Intervention or procedure
6. eGFR calculated by Serum Creatinine may be less accurate due to certain factors like Race, Muscle Mass, Diet, Certain Drugs. In such cases, eGFR should be calculated using Serum Cystatin C
7. A decrease in eGFR implies either progressive renal disease, or a reversible process causing decreased nephron function (eg, severe dehydration).

ADVICE:

KDIGO guideline, 2012 recommends Chronic Kidney Disease (CKD) should be classified based on cause, eGFR category and Albuminuria (ACR) category. GFR & ACR category combined together reflect risk of progression and helps Clinician to identify the individual who are progressing at more rapid rate than anticipated

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CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 22/Dec/2024 04:26PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

THYROID STIMULATING HORMONE (TSH)

THYROID STIMULATING HORMONE (TSH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* **3rd GENERATION, ULTRASENSITIVE**	1.154	µIU/mL	0.35 - 5.50

INTERPRETATION:

AGE	REFFERENCE RANGE (µIU/mL)
0 – 5 DAYS	0.70 – 15.20
6 Days – 2 Months	0.70 – 11.00
3 – 11 Months	0.70 – 8.40
1 – 5 Years	0.70 – 7.00
6 – 10 Years	0.60 – 5.50
11 - 15	0.50 – 5.50
> 20 Years (Adults)	0.27 – 5.50
PREGNANCY	
1st Trimester	0.10 - 3.00
2nd Trimester	0.20 - 3.00
3rd Trimester	0.30 - 4.10

NOTE:-*TSH levels are subjected to circardian variation, reaching peak levels between 2-4 a.m and at a minimum between 6-10 pm. The variation is of the order of 50 %. Hence time of the day has influence on the measured serum TSH concentration.*

USE:- TSH controls biosynthesis and release of thyroid harmones T4 & T3. It is a sensitive measure of thyroid function, especially useful in early or subclinical hypothyroidism, before the patient develops any clinical findings or goitre or any other thyroid function abnormality.

INCREASED LEVELS:

1.Primary or untreated hypothyroidism, may vary from 3 times to more than 100 times normal depending on degree of hypofunction.
2.Hypothyroid patients receiving insufficient thyroid replacement therapy.
3.Hashimotos thyroiditis.
4.DRUGS: Amphetamines, Iodine containing agents and dopamine antagonist.
5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge.

DECREASED LEVELS:

1.Toxic multi-nodular goitre & Thyroiditis.
2.Over replacement of thyroid harmone in treatment of hypothyroidism.
3.Autonomously functioning Thyroid adenoma
4.Secondary pituatary or hypothalmic hypothyroidism
5.Acute psychiatric illness
6.Severe dehydration.
7.DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.

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Test Name	Value	Unit	Biological Reference interval

8.Pregnancy: 1st and 2nd Trimester

LIMITATIONS:

1.TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy.

2.Autoimmune disorders may produce spurious results.

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Test Name	Value	Unit	Biological Reference interval

TESTOSTERONE: TOTAL

TESTOSTERONE - TOTAL: SERUM	3.38	ng/mL	0.47 - 9.80

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:

1.Testosterone is secreted in females by the ovary and formed indirectly from androstenedione in adrenal glands.
2.In males it is secreted by the testes. It circulates in blood bound largely to sex hormone binding globulin (SHBG). Less than 1% of the total testosterone is in the free form.
3.The bioavailable fraction includes the free form and that "weakly bound" to albumin (40% of the total in men and 20% of the total in women) and bound to cortisol binding globulin (CBG). It is the most potent circulating androgenic hormone.
4.The total testosterone bound to SHBG fluctuates since SHBG levels are affected by medication, disease, sex steroids and insulin.

CLINIC USE:

1.Assesment of testicular functions in males
2.Management of hirsutism and virilization in females

INCREASED LEVELS:

1.Precocious puberty (Males)
2.Androgen resistance
3.Testoxicosis
4.Congenital Adrenal Hyperplasia
5.Polycystic ovarian disease
7.Ovarian tumors

DECREASED LEVELS:

1.Delayed puberty (Males)
2.Gonadotropin deficiency
3.Testicular defects
4.Systemic diseases

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CLINICAL PATHOLOGY

URINE ROUTINE & MICROSCOPIC EXAMINATION

Test Name	Value	Unit	Biological Reference interval
PHYSICAL EXAMINATION			
QUANTITY RECIEVED *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	10	ml	
COLOUR *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	PALE YELLOW		PALE YELLOW
TRANSPARANCY *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	CLEAR		CLEAR
SPECIFIC GRAVITY *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	>=1.030		1.002 - 1.030
CHEMICAL EXAMINATION			
REACTION *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	ACIDIC		
PROTEIN ***by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY***	**1+**		**NEGATIVE (-ve)**
SUGAR *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	Negative		NEGATIVE (-ve)
pH *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	6		5.0 - 7.5
BILIRUBIN *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	Negative		NEGATIVE (-ve)
NITRITE *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY.*	Negative		NEGATIVE (-ve)
UROBILINOGEN *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	Normal	EU/dL	0.2 - 1.0
KETONE BODIES *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	Negative		NEGATIVE (-ve)
BLOOD *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	Negative		NEGATIVE (-ve)
ASCORBIC ACID *by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY*	NEGATIVE (-ve)		NEGATIVE (-ve)
MICROSCOPIC EXAMINATION			
RED BLOOD CELLS (RBCs) *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	NEGATIVE (-ve)	/HPF	0 - 3

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Test Name	Value	Unit	Biological Reference interval
PUS CELLS *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	2-3	/HPF	0 - 5
EPITHELIAL CELLS *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	1-2	/HPF	ABSENT
CRYSTALS *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	NEGATIVE (-ve)		NEGATIVE (-ve)
CASTS *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	NEGATIVE (-ve)		NEGATIVE (-ve)
BACTERIA *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	NEGATIVE (-ve)		NEGATIVE (-ve)
OTHERS *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	NEGATIVE (-ve)		NEGATIVE (-ve)
TRICHOMONAS VAGINALIS (PROTOZOA) *by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT*	ABSENT		ABSENT

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SEMEN ANALYSIS/SEMINOGRAM

Test Name	Value	Unit	Biological Reference interval
PHYSICAL EXAMINATION			
TIME OF SPECIMEN COLLECTION	22-12-2024	AM/PM	
DURATION OF ABSTINENCE	3 DAYS	DAYS	2 - 7
TYPE OF SAMPLE	FRESH		
LIQUIFACTION TIME AT 37*C	< 30 MINS	MINS	30 - 60
VOLUME	1	ML	
COLOUR	WHITISH OPAQUE		WHITISH OPAQUE
VISCOSITY	VISCOUS		VISCOUS
pH	**8H**		5.0 - 7.5
AUTOMMATED SEMEN ANALYSIS, GOLD STANDARD, WHO APPROVED (SQA GOLD)			
TOTAL SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	187.4	Millions/mL	12 - 16
TOTAL MOTILITY (GRADE A + GRABE B + GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	60	%	> = 42.0
RAPIDLY PROGRESSIVE MOTILITY (GRADE A) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	28	%	> = 30.0
SLOWLY PROGRESSIVE MOTILITY (GRADE B) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	26	%	>= 30
NON PROGRESSIVE MOTILITY (GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	6	%	<= 1
IMMOTILE *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	40	%	
MORPHOLOGY NORMAL *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	11	%	> = 4.0
MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	112	Millions/mL	> = 6.0
RAPIDLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	51.7	Millions/mL	> = 5.0
SLOWLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	49.3	Millions/mL	
FUNCTIONAL SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	24.9	Millions/mL	
VELOCITY (AVERAGE PATH VELOCITY)	57	Mic/sec	> = 5

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Test Name	Value	Unit	Biological Reference interval
by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM			
SPERM MOTILE INDEX (SMI) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	540		> = 80
TOTAL PER EJACULATION			
TOTAL SPERM NUMBER *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	187.4	Millions/ejc.	> = 39.0
TOTAL MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	112	Millions/ejc.	> = 16.0
TOTAL PROGRESSIVE MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	101.1	Millions/ejc.	> = 12.0
TOTAL FUNCTIONAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	24.9	Millions/ejc.	
TOTAL MORPHOLOGY NORMAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	20.6	Millions/ejc.	> = 2.0
MANUAL MICROSCOPY AND MORPHOLOGY			
VITALITY *by MICROSCOPY*	71	%	
RED BLOOD CELLS (RBCs) *by MICROSCOPY*	NOT DETECTED	/HPF	NOT DETECTED
PUS CELLS *by MICROSCOPY*	5-7	/HPF	0 - 5
AGGLUTINATES *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
AMORPHOUS DEPOSITS/ROUND CELLS/DEBRIS *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
BACTERIA *by MICROSCOPY*	NEGATIVE (-ve)		NEGATIVE (-ve)
HEAD DEFECTS *by MICROSCOPY*	36	%	
PIN HEADS *by MICROSCOPY*	8	%	
NECK AND MID-PIECE DEFECTS *by MICROSCOPY*	25	%	
TAIL DEFECTS *by MICROSCOPY*	17	%	
CYTOPLASMIC DROPLETS *by MICROSCOPY*	2	%	

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Test Name	Value	Unit	Biological Reference interval
ACROSOME/NUCLEUS DEFECTS *by MICROSCOPY*	1	%	

CHEMICAL EXAMINATION

SEMEN FRUCTOSE (QUALITATIVE) ***by QUALITATIVE METHOD USING RESORCINOL***	**POSITIVE (+ve)**	**POSITIVE (+ve)**

INTERPRETATION:

1.Fructose is the energy source for sperm motility. A positive fructose is considered normal.
2.Azoospermia and fructose negative results may indicate an absence of seminal vesicles / vas deferens in the area of seminal vesicles / obstruction of seminal vesicles.

*** End Of Report ***

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