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PROSELF PLUS BFF (FOR MEN) - PART 1

CBC (Complete Blood Count), Blood				
<u>PARAMETER</u>	<u>RESULTS</u>	BIOLOGICAL REF RANGE	<u>METHOD</u>	
RBC PARAMETERS				
Haemoglobin	14.0	13.0-17.0 g/dL	Spectrophotometric	
RBC	5.15	4.5-5.5 mil/cmm	Elect. Impedance	
PCV	43.2	40-50 %	Calculated	
MCV	83.8	80-100 fl	Measured	
MCH	27.2	27-32 pg	Calculated	
MCHC	32.5	31.5-34.5 g/dL	Calculated	
RDW	14.1	11.6-14.0 %	Calculated	
WBC PARAMETERS				
WBC Total Count	7420	4000-10000 /cmm	Elect. Impedance	
WBC DIFFERENTIAL AND ABSO	LUTE COUNTS			
Lymphocytes	21.9	20-40 %		
Absolute Lymphocytes	1620	1000-3000 /cmm	Calculated	
Monocytes	10.7	2-10 %		
Absolute Monocytes	790	200-1000 /cmm	Calculated	
Neutrophils	66.1	40-80 %		
Absolute Neutrophils	4880	2000-7000 /cmm	Calculated	
Eosinophils	1.3	1-6 %		
Absolute Eosinophils	100	20-500 /cmm	Calculated	
Basophils	0.0	0.1-2 %		
Absolute Basophils	0	20-100 /cmm	Calculated	
Immature Leukocytes	-			

WBC Differential Count by Absorbance & Impedance method/Microscopy.

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PLATELET PARAMETERS

Platelet Count	265000	150000-400000 /cmm	Elect. Impedance
MPV	8.9	6-11 fl	Measured
PDW	14.7	11-18 %	Calculated

RBC MORPHOLOGY

Hypochromia Microcytosis Macrocytosis Anisocytosis Poikilocytosis -

Polychromasia
Target Cells
Basophilic Stippling

Normoblasts -

Others Normocytic, Normochromic

WBC MORPHOLOGY PLATELET MORPHOLOGY COMMENT -

Specimen: EDTA Whole Blood

ESR, EDTA WB 4 2-20 mm at 1 hr. Westergren

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M. Jain

Dr.MILLU JAIN

M.D.(PATH)

Pathologist

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Hexokinase

Hexokinase

PROSELF PLUS BFF (FOR MEN) - PART 1

BIOLOGICAL REF RANGE METHOD **PARAMETER RESULTS**

GLUCOSE (SUGAR) FASTING, 102.2 Non-Diabetic: < 100 mg/dl Fluoride Plasma Impaired Fasting Glucose:

100-125 mg/dl

Diabetic: >/= 126 mg/dl

GLUCOSE (SUGAR) PP, Fluoride 125.7 Non-Diabetic: < 140 mg/dl Plasma PP/R

Impaired Glucose Tolerance:

140-199 mg/dl

Diabetic: >/= 200 mg/dl

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UV Test

PROSELF PLUS BFF (FOR MEN) - PART 1 LDH

135-225 U/L

<u>PARAMETER</u> <u>RESULTS</u> <u>BIOLOGICAL REF RANGE</u> <u>METHOD</u>

Clinical significance: Lactate dehydrogenase (LDH) is an enzyme, widely distributed in tissues, particularly in the heart, liver, muscles, kidneys and red blood cells (RBCs) and in lesser amounts in lungs, smooth muscle and brain. LDH is widely distributed through the body, and is therefore

Intended Use:

LDH, Serum

• As a general indicator of the existence and severity of acute or chronic cellular or tissue damage.

148.8

not a specific indicator of any one disease or indicative of injury to any one organ.

- Used to support diagnosis and monitoring of some diseases involving the heart (myocardial infarctions), liver, red blood cells (especially hemolytic anemias), kidneys, skeletal muscle, brain, and lungs.
- To help stage, determine prognosis, and/or monitor treatment (i.e., chemotherapy) of cancers, such as germ cell tumors (e.g., some types of testicular cancer and ovarian cancer), lymphoma, leukemia, melanoma, and neuroblastoma.

Interpretation:

- Increased levels: Myocardial infarction; Pulmonary disease; Hepatic disease; RBC disease; Skeletal muscle disease and injury; Renal parenchymal disease; Intestinal ischemia and infarction; Neoplasms; Pancreatitis; Diffuse disease or injury
- Decreased levels: Irradiation, Genetic deficiency of subunits

Reflex test

- Cardiac troponins in suspected acute cardiac conditions.
- As per clinical indication for testing.

Limitations:

- Hemolyzed samples will cause falsely high LDH levels because LDH exists in the RBCs.
- · Strenuous exercise may cause elevation of total LDH.
- Drugs that can cause increased LDH levels include alcohol, anesthetics, aspirin, clofibrate, fluorides, mithramycin, narcotics, and procainamide.
- Drugs that may cause decreased levels include ascorbic acid.

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Reference:

- AACC Patient Information Lactate Dehydrogenase (LD)
- Wallach's Interpretation of Diagnostic Tests
- Mosby's Manual of Diagnostics and Laboratory Tests
- LDH Kit insert

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UV Test

PROSELF PLUS BFF (FOR MEN) - PART 1 CPK-TOTAL

20-200 U/L

PARAMETER RESULTS BIOLOGIC

75.0

BIOLOGICAL REF RANGE METHOD

Intended Use:

CPK-TOTAL. Serum

- Creatine Kinase (CK) activity is greatest in striated muscle, heart tissue, and brain. The determination of CK activity is used in the
 investigation of skeletal muscle disease (muscular dystrophy) and is also useful in the diagnosis of myocardial infarction (MI) and
 cerebrovascular accidents.
- Marker for injury or diseases of cardiac muscle with good specificity.
- Measurement of choice for striated muscle disorders.

Interpretation:

Increased In- Necrosis or inflammation of cardiac muscle, striated muscle, Muscular dystrophy, Myotonic dystrophy, Amyotrophic lateral sclerosis, Polymyositis, Thermal and electrical burns (values usually higher than in AMI), Rhabdomyolysis, Severe or prolonged exercise as in marathon running, Status epilepticus, Parturition and frequently the last few weeks of pregnancy, Malignant hyperthermia, Hypothermia, Familial hypokalemic periodic paralysis, Drugs, chemicals, Half of patients with extensive brain infarction and Some patients with large muscle mass (</=times normal) (e.g., football players).

Reflex Tests: Troponin I and CK-MB

Limitations of the test:

- Following MI, CK activity increases 4-8 hours after acute onset, activities peak at 12-36 hours, and usually returns to normal activities in 3-4 days. Although total CK has been used as a diagnostic tool for MI detection, along with CK-MB, it has been predominantly replaced with troponin I or T due to lack of myocardial specificity.
- Exercise and muscle trauma (contact sports, traffic accidents, IM injections, surgery, convulsions, wasp or bee stings, and burns) can elevate serum CK values.
- To distinguish myoglobinuria from hemoglobinuria, serum CK and LD may be helpful. CK is normal with uncomplicated hemolysis, but LD and LD-1 usually are increase

Reference:

- · Wallachs Interpretation of diagnostics tests.
- Kit insert.

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PROSELF PLUS BFF (FOR MEN) - PART 1 KIDNEY FUNCTION TESTS

<u>PARAMETER</u>	RESULTS	BIOLOGICAL REF RANGE	<u>METHOD</u>
BLOOD UREA, Serum	16.3	17.1-49.3 mg/dl	Kinetic
BUN, Serum	7.6	8-23 mg/dl	Calculated
CREATININE, Serum	0.89	0.67-1.17 mg/dl	Enzymatic
eGFR, Serum	88	>60 ml/min/1.73sqm	Calculated
TOTAL PROTEINS, Serum	7.5	6.4-8.3 g/dL	Biuret
ALBUMIN, Serum	4.3	3.5-5.2 g/dL	BCG
GLOBULIN, Serum	3.2	2.3-3.5 g/dL	Calculated
A/G RATIO, Serum	1.3	1 - 2	Calculated
URIC ACID, Serum	5.1	3.5-7.2 mg/dl	Enzymatic
PHOSPHORUS, Serum	3.4	2.7-4.5 mg/dl	Molybdate UV
CALCIUM, Serum	9.3	8.8-10.2 mg/dl	N-BAPTA
SODIUM, Serum	139	135-148 mmol/l	ISE
POTASSIUM, Serum	5.6	3.5-5.3 mmol/l	ISE
CHLORIDE, Serum	99	98-107 mmol/l	ISE

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Homocysteine, EDTA Plasma -

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5.46-16.2 umol/L

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PROSELF PLUS BFF (FOR MEN) - PART 1 HOMOCYSTEINE

<u>PARAMETER</u> <u>RESULTS</u> <u>BIOLOGICAL REF RANGE</u> <u>METHOD</u>

7.41

Homo

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Intended Use:

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- To determine if a person has a vitamin B12 or folate deficiency.
- To help diagnose homocystinuria.

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As part of screening for people at high risk for heart attack or stroke.

Clinical Significance:

- Homocysteine (total) if elevated is compatible with either cobalamin or folate deficiency. If normal, both can be excluded.
- Elevations in homocysteine levels are also an independent risk factor of coronary or cerebral vascular disease.

Increased In: Vitamin B12, vitamin B6, or folate deficiency, Homocysitnuria, Hypothyroidism, Chronic renal failure and Coronary heart disease. <u>Decreased In:</u> Down syndrome, Pregnancy, Hyperthyroidism and Early diabetes.

Reflex Tests: Vitamin B12, B6 and folate levels

Limitations of the test:

- Some drugs may elevate levels of homocysteine, like methotrexate, carbamazepine, phenytoin, nitrous oxide, anticonvulsants, nicotinic acid, theophylline, L-dopa and 6-azauridine triacetate.
- Cigarette smoking and coffee consumption increase total homocysteine levels.
- Intraindividual variability is approximately 8%; it can be as much as 25% in patients with hyperhomocystinemia.
- Generally, a single measurement of total homocysteine is considered adequate.
- Heterophilic antibodies in human specimens can react with reagent immunoglobulins, interfering with the test.

References:

- Homocysteine Pack Insert
- AACC Patient Resources: Homocysteine
- Wallach's Interpretation of Diagnostic Tests
- Henry's Clinical Diagnosis and Management by Laboratory methods

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HS-CRP, Serum



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PROSELF PLUS BFF (FOR MEN) - PART 1 HIGH SENSITIVE CRP

<u>PARAMETER</u> <u>RESULTS</u> <u>BIOLOGICAL REF RANGE</u> <u>METHOD</u>

2.6

For Cardiovascular disease Low risk: <1.0 mg/l

Average risk: 1.0 - 3.0 mg/l High risk: >3.0 mg/l For Neonates and Children 0 - 3 wks: 0.1-4.1 mg/l 2 mths - 15 yrs: 0.1-2.8 mg/l Imm.Turbidimetry

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Clinical significance:

- High-sensitivity C-reactive protein (hs-CRP or cardiac CRP) is an acute phase reactant produced by hepatocytes and induced by the release of interleukin 1 and 6.
- It reflects activation of systemic inflammation. The hs-CRP test is more sensitive than the standard CRP test.
- hs-CRP is an independent risk factor for cardiovascular disease, stroke, and peripheral vascular disease. It adds to the predictive value of total cholesterol and HDLcholesterol for future events.
- hs-CRP may be useful as an independent marker of prognosis for recurrent events in patients with stable coronary disease or acute coronary syndrome. Optimally, the average of hsCRP results repeated two weeks apart should be used for risk assessment.

Interpretation:

- hs-CRP appears within 24-48 hours, peaks at 72 hours, and becomes negative after 7 days.
- hs-CRP correlates with peak CK-MB levels, but the CRP peak occurs 1-3 days later. 3)Failure of hs-CRP to return to normal indicates tissue damage in the heart or elsewhere.
- CRP is usually normal in patients with unstable angina in the absence of tissue necrosis and a normal troponin T (<0.1 ng/mL). CRP may remain increased for at least 3 months following AMI.

Increased In: Acute or chronic inflammatory change, Tissue injury or necrosis, Ischemia or infarction of other tissues, Infections, inflammation, tissue injury, or necrosis (possible) Metabolic syndrome, Elevated blood pressure, Malignant (but not benign) tumors, especially of the breast, lung, and GI tract, Pancreatitis, Postsurgery, Burns, trauma, Leukemia: fever, blast crisis, or cytotoxic drugs, Cigarette smoking, Hormone therapy, estrogen, and progesterone.

Reflex Tests: ECG, 2D echo.

Note:

- Increases in CRP are non-specific and should not be interpreted without a complete clinical history.
- Acute coronary syndrome management should not depend on CRP measurement.
- Patients with persistently unexplained CRP levels above 10 mg/L should be evaluated for other non-cardiovascular etiologies.
- Testing for cardiovascular risk assessment should not be performed while there is an indication of active infection, systemic inflammation, or trauma.
- Secondary prevention measures should be based on an array of risk factors (global risk assessment) and not depend on CRP.

Limitations: Testing for any risk assessment should not be performed while there is an indication of infection, systemic inflammation or trauma. In very rare cases, gammopathy, in particular type IgM (Waldenström's macroglobulinemia), may cause unreliable results.

Reference:

- Wallach's interpretation of diagnostic tests
- hs-CRP Pack Insert.





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PROSELF PLUS BFF (FOR MEN) - PART 1 TESTOSTERONE

PARAMETER RESULTS

BIOLOGICAL REF RANGE METHOD

TESTOSTERONE, Serum 314.9 193-740 ng/dl ECLIA

Intended use: The total testosterone test measures testosterone that is bound to proteins in the blood (e.g., albumin and sex-hormone binding globulin [SHBG]) as well as testosterone that is not bound. However, a test for free or bioavailable testosterone may be used if the level of SHBG in the blood is abnormal.

Interpretation:

Increased In- Adrenal virilizing tumor causing premature puberty in boys or masculinization in women, Congenital adrenal hyperplasia (CAH), Stein-Leventhal syndrome and Use of certain drugs that alter thyroxine-binding globulins may also affect testosterone-binding globulins; however, the free testosterone level is not affected.

Decreased In- Primary and Secondary hypogonadism, Testicular feminization, Klinefelter syndrome and Estrogen therapy.

Reflex Tests:

- In Males: Bioavailable and Free Testosterone
- In Females: 17 OH-Progesterone, in cases of suspected Congenital adrenal hyperplasia and FSH & LH, Serum: in suspected cases of congenital adrenal hyperplasia, Ovarian insufficiency & Polycystic ovary syndrome (PCOS)

Limitations:

 For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination, and other findings.

Reference:

- Wallach's Interpretation of Diagnostic Tests
- Testosterone kit insert

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VITAMIN B12, Serum

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PROSELF PLUS BFF (FOR MEN) - PART 1 VITAMIN B12

<u>PARAMETER</u> <u>RESULTS</u> <u>BIOLOGICAL REF RANGE</u> <u>METHOD</u>

1108 197-771 pg/ml ECLIA

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Intended Use:

- Vitamin B12 is also referred to as cyanocobalamin/cobalmin.
- It is essential in DNA synthesis, haematopoiesis & CNS integrity.
- It cannot be synthesized in the human body & is seldom found in products of plant origin.
- The absorption of Vit B12 depends on the presence of Intrinsic factor (IF) & may be due to lack of IF secretion by the gastric mucosa (e.g. gastrectomy, gastric atrophy) or intestinal malabsorption (e.g. ileal resection, small intestinal diseases).
- Dietary Sources of vitamin B12 are meat, fish, eggs & dairy products.

Clinical Significance:

- Vitamin B12 or folate are both of diagnostic importance for the recognition of vitamin B12 or folate deficiency, especially in the context of the differential diagnosis of megaloblastic anemia.
- Untreated deficiencies will lead to megaloblastic anemia, irreversible central nervous system degeneration, peripheral neuropathies, dementia, poor cognitive performance & depression.

Interpretation:

Increased In- Vit B12 supplements, chronic granulocytic leukemia, COPD, Chronic renal failure, diabetes, leucocytosis, hepatitis, cirrhosis, obesity, polycythemia vera, protein malnutrition, severe CHF, uremia, Vit A intake, estrogens, drugs such as chloral hydrate.

Decreased In- Inflammatory bowel disease, pernicious anaemia, strict vegetarians, malabsorption due to gastrectomy, smoking, pregnancy, multiple myeloma & haemodialysis. Alcohol & drugs like aminosalicylic acid, anticonvulsants, cholestyramine, cimetidine, colchicine, metformin, neomycin, oral contraceptives, ranitidine & triamterine also cause a decrease in Vit B12 levels.

Reflex Tests: Active B12 (holotranscobalamin), Folate, Homocysteine, Methylmalonic acid (MMA) and Intrinsic factor antibody & parietal cell antibody.

Limitations: Preservatives, such as fluoride and ascorbic acid may cause interference

Reference: Vitamin B12 Pack insert

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PROSELF PLUS BFF (FOR MEN) - PART 1
GLYCOSYLATED HEMOGLOBIN (HbA1c)

PARAMETER RESULTS BIOLOGICAL REF RANGE METHOD

Glycosylated Hemoglobin (HbA1c), EDTA WB - CC

6.2

Non-Diabetic Level: < 5.7 % Prediabetic Level: 5.7-6.4 %

Diabetic Level: >/= 6.5 %

mg/dl

Estimated Average Glucose (eAG), EDTA WB - CC

131.2

Calculated

HPLC

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Intended use:

- In patients who are meeting treatment goals, HbA1c test should be performed at least 2 times a year
- In patients whose therapy has changed or who are not meeting glycemic goals, it should be performed quarterly
- For microvascular disease prevention, the HbA1C goal for non pregnant adults in general is Less than 7%.

Clinical Significance:

- · HbA1c, Glycosylated hemoglobin or glycated hemoglobin, is hemoglobin with glucose molecule attached to it.
- The HbA1c test evaluates the average amount of glucose in the blood over the last 2 to 3 months by measuring the percentage of glycosylated hemoglobin in the blood.

Test Interpretation:

- The HbA1c test evaluates the average amount of glucose in the blood over the last 2 to 3 months by measuring the percentage of Glycosylated hemoglobin in the blood.
- HbA1c test may be used to screen for and diagnose diabetes or risk of developing diabetes.
- · To monitor compliance and long term blood glucose level control in patients with diabetes.
- · Index of diabetic control, predicting development and progression of diabetic micro vascular complications.

Factors affecting HbA1c results:

Increased in: High fetal hemoglobin, Chronic renal failure, Iron deficiency anemia, Splenectomy, Increased serum triglycerides, Alcohol ingestion, Lead/opiate poisoning and Salicylate treatment.

Decreased in: Shortened RBC lifespan (Hemolytic anemia, blood loss), following transfusions, pregnancy, ingestion of large amount of Vitamin E or Vitamin C and Hemoglobinopathies

Reflex tests: Blood glucose levels, CGM (Continuous Glucose monitoring)

References: ADA recommendations, AACC, Wallach's interpretation of diagnostic tests 10th edition.

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TOTAL PSA, Serum

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PROSTATE SPECIFIC ANTIGEN (PSA)

PARAMETER RESULTS

2.01

0.03-6.5 ng/ml

BIOLOGICAL REF RANGE METHOD

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Clinical Significance:

- PSA is detected in the serum of males with normal, benign hyper-plastic, and malignant prostate tissue.
- Monitoring patients with a history of prostate cancer as an early indicator of recurrence and response to treatment.
- Prostate cancer screening 4. The percentage of Free PSA (FPSA) in serum is described as being significantly higher in patients with BPH than in patients with prostate cancer. 5. Calculation of % free PSA (ie. FPSA/TPSA x 100), has been suggested as way of improving the differentiation of BPH and Prostate cancer.

Increased In- Prostate diseases, Cancer, Prostatitis, Benign prostatic hyperplasia, Prostatic ischemia, Acute urinary retention, Manipulations like Prostatic massage, Cystoscopy, Needle biopsy, Transurethral resection, Digital rectal examination, Radiation therapy, Indwelling catheter, Vigorous bicycle exercise, Drugs (e.g., testosterone), Physiologic fluctuations. Also found in small amounts in other cancers (sweat and salivary glands, breast, colon, lung, ovary) and in Skene glands of female urethra and in term placenta, Acute renal failure, Acute myocardial infarction.

Decreased In- Ejaculation within 24-48 hours, Castration, Antiandrogen drugs (e.g., finasteride), Radiation therapy, Prostatectomy, PSA falls 17% in 3 days after lying in hospital, Artifactual (e.g., improper specimen collection; very high PSA levels). Finasteride (5-α -reductase inhibitor) reduces PSA by 50% after 6 months in men without cancer.

Reflex Tests: % FREE PSA, USG Prostate

Limitations:

- tPSA values determined on patient samples by different testing procedures cannot be directly compared with one another and could be the cause of erroneous medical interpretations. If there is a change in the tPSA assay procedure used while monitoring therapy, then the tPSA values obtained upon changing over to the new procedure must be confirmed by parallelmeasurements with both methods. Immediate PSA testing following digital rectal examination, ejaculation, prostatic massage, indwelling catheterization, ultrasonography and needle biopsy of prostate is not recommended as they falsely elevate levels.
- Patients who have been regularly exposed to animals or have received immunotherapy or diagnostic procedures utilizing immunoglobulins or immunoglobulin fragments may produce antibodies, e.g. HAMA, that interferes with immunoassays.
- PSA results should be interpreted in light of the total clinical presentation of the patient, including: symptoms, clinical history, data from additional tests, and other appropriate information.
- Serum PSA concentrations should not be interpreted as absolute evidence for the presence or absence of prostate cancer.

Reference:

- Wallach's Interpretation of diagnostic tests
- Total PSA Pack insert

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25-hydroxy Vitamin D, Serum

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METHOD

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BIOLOGICAL REF RANGE

PROSELF PLUS BFF (FOR MEN) - PART 1
VITAMIN D TOTAL (25-OH VITAMIN D)

PARAMETER RESULTS

12.5

Deficiency: < 10 ng/ml ECLIA Insufficiency: 10 - 30 ng/ml

Sufficiency: 30 - 30 ng/ml Toxicity: > 100 ng/ml

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Diagnosis of vitamin D deficiency

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Differential diagnosis of causes of rickets and osteomalacia

Monitoring vitamin D replacement therapy

Diagnosis of hypervitaminosis D

Clinical Significance: Vitamin D is a steroid hormone known for its important role in regulating body levels of calcium and phosphorus and in the mineralization of bone. Measured 25-OH vitamin D includes D3 (Cholecalciferol) and D2 (Ergocalciferol) where D2 is absorbed from food and D3 is produced by the skin on exposure to sunlight. The major storage form of vitamin D is 25-OH vitamin D and is present in the blood at up to 1,000 fold higher concentration compared to the active 1,25-OH vitamin D; and has a longer half life making it an analyte of choice for determination of the vitamin D status.

Interpretation:

Increased In- D intoxication & Excessive exposure to sunlight

Decreased In: Lack of sunlight, Steatorrhea, Biliary and Portal cirrhosis, Pancreatic insufficiency, Inflammatory bowel disease, Alzheimer's disease, Malabsorption, Thyrotoxicosis, Dietary osteomalacia, Anticonvulsant osteomalacia, Celiac disease and Rickets

Reflex Tests: Serum Calcium, PTH and BMD

Limitation:

- For diagnostic purposes, results should be used in cunjunction with other data; e.g. symptoms, results of other tests, clinical impressions, etc.
- Heterophilic antibodies in human serum can react with reagent immunoglobulins, interfering with in vitro immunoassays. Patients routinely exposed to animals or to animal serum products can be prone to this interference and anomalous values may be observed.
- Patients routinely exposed to animals or to animal serum products can be prone to this interference and anomalous values may be observed.
- Various methods for measuring vitamin D are available but correlate with significant differences.

Reference:

- Wallach's interpretation of diagnostic tests
- Vitamin D kit insert

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EXAMINATION OF FAECES

<u>PARAMETER</u>	<u>RESULTS</u>	BIOLOGICAL REF RANGE
------------------	----------------	-----------------------------

PHYSICAL EXAMINATION

ColourBrownBrownForm and ConsistencySemi SolidSemi SolidMucusAbsentAbsentBloodAbsentAbsent

CHEMICAL EXAMINATION

Reaction (pH) Acidic (6.5) -

Occult Blood Absent Absent

MICROSCOPIC EXAMINATION

Protozoa Absent **Absent** Flagellates **Absent Absent** Ciliates Absent Absent **Parasites** Absent Absent Macrophages Absent Absent Mucus Strands Absent Absent Fat Globules Absent **Absent** RBC/hpf Absent Absent Absent WBC/hpf Absent Yeast Cells Absent Absent **Undigested Particles** Present ++ Concentration Method (for ova) No ova detected **Absent** Reducing Substances Absent

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M. Jain

Dr.MILLU JAIN

M.D.(PATH)

Pathologist

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PROSELF PLUS BFF (FOR MEN) - PART 1 LIDINE EXAMINATION DEDOCT

<u>URINE EXAMINATION REPORT</u>			
<u>PARAMETER</u>	<u>RESULTS</u>	BIOLOGICAL REF RANGE	<u>METHOD</u>
PHYSICAL EXAMINATION			
Color	Pale yellow	Pale Yellow	-
Reaction (pH)	7.0	4.5 - 8.0	Chemical Indicator
Specific Gravity	1.005	1.001-1.030	Chemical Indicator
Transparency	Clear	Clear	-
Volume (ml)	30	-	-
CHEMICAL EXAMINATION			
Proteins	Absent	Absent	pH Indicator
Glucose	Absent	Absent	GOD-POD
Ketones	Absent	Absent	Legals Test
Blood	Absent	Absent	Peroxidase
Bilirubin	Absent	Absent	Diazonium Salt
Urobilinogen	Normal	Normal	Diazonium Salt
Nitrite	Absent	Absent	Griess Test
MICROSCOPIC EXAMINATION			
Leukocytes(Pus cells)/hpf	1-2	0-5/hpf	
Red Blood Cells / hnf	Absont	0-2/hpf	

Red Blood Cells / hpf Absent 0-2/hpf

Epithelial Cells / hpf 0-1

Casts Absent Absent Crystals **Absent Absent** Amorphous debris Absent Absent

Bacteria / hpf 6-8 Less than 20/hpf

Others

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PROSELF PLUS BFF (FOR MEN) - PART 1 LIPID PROFILE

<u>PARAMETER</u>	RESULTS	BIOLOGICAL REF RANGE	<u>METHOD</u>
CHOLESTEROL, Serum	161.4	Desirable: <200 mg/dl Borderline High: 200-239mg/dl High: >/=240 mg/dl	CHOD-POD
TRIGLYCERIDES, Serum	121.7	Normal: <150 mg/dl Borderline-high: 150 - 199 mg/dl High: 200 - 499 mg/dl Very high:>/=500 mg/dl	GPO-POD
HDL CHOLESTEROL, Serum	66.5	Desirable: >60 mg/dl Borderline: 40 - 60 mg/dl Low (High risk): <40 mg/dl	Homogeneous enzymatic colorimetric assay
NON HDL CHOLESTEROL, Serum	94.9	Desirable: <130 mg/dl Borderline-high:130 - 159 mg/dl High:160 - 189 mg/dl Very high: >/=190 mg/dl	Calculated
LDL CHOLESTEROL, Serum	71.0	Optimal: <100 mg/dl Near Optimal: 100 - 129 mg/dl Borderline High: 130 - 159 mg/dl High: 160 - 189 mg/dl Very High: >/= 190 mg/dl	Calculated
VLDL CHOLESTEROL, Serum	23.9	< /= 30 mg/dl	Calculated
CHOL / HDL CHOL RATIO, Serum	2.4	0-4.5 Ratio	Calculated
LDL CHOL / HDL CHOL RATIO, Serum	1.1	0-3.5 Ratio	Calculated

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PROSELF PLUS BFF (FOR MEN) - PART 1 THYROID FUNCTION TESTS

<u>PARAMETER</u>	<u>RESULTS</u>	BIOLOGICAL REF RANGE	<u>METHOD</u>
Free T3, Serum	4.3	3.5-6.5 pmol/L	ECLIA
Free T4, Serum	18.2	11.5-22.7 pmol/L	ECLIA
sensitiveTSH, Serum	1.29	0.35-5.5 microIU/ml	ECLIA

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A thyroid panel is used to evaluate thyroid function and/or help diagnose various thyroid disorders.

Clinical Significance:

- 1)TSH Values between high abnormal upto15 microIU/ml should be correlated clinically or repeat the test with new sample as physiological
- can give falsely high TSH.
- 2)TSH values may be trasiently altered becuase of non thyroidal illness like severe infections liver disease, renal and heart severe burns, trauma and surgery etc.

TSH	FT4 / T4	FT3 / T3	Interpretation
High	Normal	Normal	Subclinical hypothyroidism, poor compliance with thyroxine, drugs like amiodarone, Recovery phase of non-thyroidal illness, TSH Resistance.
High	Low	Low	Hypothyroidism, Autoimmune thyroiditis, post radio iodine Rx, post thyroidectomy, Anti thyroid drugs, tyrosine kinase inhibitors & amiodarone, amyloid deposits in thyroid, thyroid tumors & congenital hypothyroidism.
Low	High	High	Hyperthyroidism, Graves disease, toxic multinodular goiter, toxic adenoma, excess iodine or thyroxine intake, pregnancy related (hyperemesis gravidarum, hydatiform mole)
Low	Normal	Normal	Subclinical Hyperthyroidism, recent Rx for Hyperthyroidism, drugs like steroids & dopamine), Non thyroidal illness.
Low	Low	Low	Central Hypothyroidism, Non Thyroidal Illness, Recent Rx for Hyperthyroidism.
High High Interfering anti TPO anti epileptics.		High	Interfering anti TPO antibodies, Drug interference: Amiodarone, Heparin, Beta Blockers, steroids & anti epileptics.

Diurnal Variation: TSH follows a diurnal rhythm and is at maximum between 2 am and 4 am, and is at a minimum between 6 pm and 10 pm. The variation is on the order of 50 to 206%. Biological variation: 19.7% (with in subject variation)

Reflex Tests: Anti thyroid Antibodies, USG Thyroid ,TSH receptor Antibody. Thyroglobulin, Calcitonin

Limitations:

- 1. Samples should not be taken from patients receiving therapy with high biotin doses (i.e. >5 mg/day) until atleast 8 hours following the last biotin administration.
- 2. Patient samples may contain heterophilic antibodies that could react in immunoassays to give falsely elevated or depressed results. this assay is designed to minimize interference from heterophilic antibodies.

Reference:

- 1.O.koulouri et al. / Best Practice and Research clinical Endocrinology and Metabolism 27(2013)
- 2.Interpretation of the thyroid function tests, Dayan et al. THE LANCET . Vol 357
- 3. Tietz , Text Book of Clinical Chemistry and Molecular Biology -5th Edition
- 4. Biological Variation: From principles to Practice-Callum G Fraser (AACC Press)

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PROSELF PLUS BFF (FOR MEN) - PART 1 LIVER FUNCTION TESTS

<u>PARAMETER</u>	RESULTS	BIOLOGICAL REF RANGE	<u>METHOD</u>
BILIRUBIN (TOTAL), Serum	0.71	0.1-1.2 mg/dl	Colorimetric
BILIRUBIN (DIRECT), Serum	0.29	0-0.3 mg/dl	Diazo
BILIRUBIN (INDIRECT), Serum	0.42	0.1-1.0 mg/dl	Calculated
TOTAL PROTEINS, Serum	7.5	6.4-8.3 g/dL	Biuret
ALBUMIN, Serum	4.3	3.5-5.2 g/dL	BCG
GLOBULIN, Serum	3.2	2.3-3.5 g/dL	Calculated
A/G RATIO, Serum	1.3	1 - 2	Calculated
SGOT (AST), Serum	18.6	5-40 U/L	NADH (w/o P-5-P)
SGPT (ALT), Serum	24.6	5-45 U/L	NADH (w/o P-5-P)
GAMMA GT, Serum	21.9	3-60 U/L	Enzymatic
ALKALINE PHOSPHATASE, Serum	58.1	40-130 U/L	Colorimetric

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PROSELF PLUS BFF (FOR MEN) - PART 1 Iron studies

<u>PARAMETER</u>	RESULTS	BIOLOGICAL REF RANGE	<u>METHOD</u>
IRON, Serum	104.4	33-193 μg/dL μg/dL	Colorimetric
UIBC (measured), Serum	186.9	125-345 µg/dL µg/dL	Ferrozine
TOTAL IRON BINDING CAPACITY (TIBC), Serum	291.3	250-425 μg/dL μg/dL	Calculated
TRANSFERRIN (measured), Serum	241.3	200-360 mg/dl	Imm.Turbidimetry
TRANSFERRIN SATURATION, Serum	30.7	15-45 %	Calculated
FERRITIN, Serum	44.6	30-400 ng/ml	ECLIA

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Intended Use: This test is used to evaluate iron metabolism in patients when iron deficiency, overload, or poisoning is suspected.

Clinical Significance:

Abnormal levels of iron are characteristic of many diseases, including iron-deficiency anemia and hemochromatosis. As much as 70% of the iron in the body is found in the hemoglobin of the red blood cells (RBCs). The other 30% is stored in the form of ferritin and hemosiderin. Iron is supplied by the diet. About 10% of the ingested iron is absorbed in the small intestine and transported to the plasma. There the iron is bound to a globulin protein called transferrin and carried to the bone marrow for incorporation into hemoglobin. Usually about one third of the transferrin is being used to transport iron. Because of this, the blood serum has considerable extra iron-binding capacity, which is the Unsaturated Iron Binding Capacity (UIBC). The serum ferritin study is a good indicator of available iron stores in the body. Ferritin, the major iron-storage protein, is normally present in the serum in concentrations directly related to iron storage.

Test Interpretation:

- Serum iron is increased in hemosiderosis, hemolytic anemias, thalassemia, sideroblastic anemias, hepatitis, acute hepatic necrosis, hemochromatosis, inappropriate iron therapy, and iron poisoning.
- Serum iron is decreased in cases of insufficient dietary iron, chronic blood loss, inadequate absorption of iron, impaired release of iron stores (commonly observed in inflammation), infection, and chronic diseases.
- Serum TIBC is done in conjunction with serum iron levels in the evaluation and diagnosis of anemia.
- Iron deficiency anemia is characterized by a decreased serum iron, increased TIBC or transferrin, and a decreased transferrin saturation.
- Serum TIBC is increased in iron deficiency and decreased in anemia of chronic disease.

Limitations of the test

- Recent blood transfusions or recent ingestion of a meal containing high iron content may increase serum iron and ferritin levels.
- Hemolytic diseases may be associated with an artificially high iron content.
- Drugs that may cause increased iron levels include chloramphenicol, dextran, estrogens, ethanol, iron preparations, methyldopa, and oral contraceptives.
- Drugs that may cause decreased iron levels include adrenocorticotropic hormone (ACTH), cholestyramine, chloramphenicol, colchicine, deferoxamine, methicillin, and testosterone.
- Drugs that may cause increased TIBC levels include fluorides and oral contraceptives.
- Drugs that may cause decreased TIBC levels include ACTH and chloramphenicol.
- Diurnal variation is seen with iron levels low in mid afternoon and very low near mid night.
- · Acute and chronic inflammatory conditions and Gaucher disease can falsely increase ferritin levels

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