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## Note Table no 0

| **Note:** |
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## Note Table No 1 TFT

| **Summary :**  The Biological reference interval provided is for Adults.  Interpretation: |
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| | **TSH** | **Free T4** | **Free T3** | **Condition** | | --- | --- | --- | --- | | Normal | Normal | Normal | ● None | | Low | High | High | ● Hyperthyroidism | | Low | Normal | Normal | ● Subclinical Hyperthyroidism | | Low | Normal | High | ● T3 Toxicosis | | Low | High | Normal | ● Thyroiditis  ● T4 ingestion  ● Hyperthyroidism in the elderly or comorbid illness | | Low | Low | Low | ● Euthyroid sick syndrome  ● Central hypothyroidism | | High | Normal | Normal | ● Subclinical hypothyroidism  ● Recovery from euthyroid sick syndrome | | High /Normal | Low | Low | ● Primary Hypothyroidism | | High | High | High | ● TSH producing pituitary adenoma | | Normal | High | High | ● Thyroid hormone resistance syndrome | |
| ● Please note test values may vary depending on the assay method used.  ● TSH Levels are subjected to circadian variation, rising several hours before the onset of sleep, reaching peak levels between 11 pm and 6 am. Nadir concentrations are observed during the afternoon. Diurnal variation is TSH levels is approx 50% +/-, hence time of the day can influence the measured serum concentration.  ● For monitoring of therapy it is advisable to test parameters by the same assay method.The values with different methods cannot be used interchangeably due to difference in test procedures and reagent specificity. |

## Note Table No 3 Anti-CCP

| **Summary:**  Anti-CCP Assay:  1. Specimens with concentration less than the cut off value are negative for Anti-CCP.  2. Specimens with concentration greater than or equal to the cut off value are positive for Anti-CCP.  **CLINICAL SIGNIFICANCE:**  Rheumatoid arthritis (RA) is an inflammatory rheumatic disorder with a worldwide prevalence of about 0.5-1%. The serum of RA patients contains a variety of antibodies directed against self-antigens. The most widely known of these autoantibodies is the rheumatoid factor (RF) antibody directed against the constant domain of IgG molecules. Although the RF test has good sensitivity for RA, it is not very specific for the disease as it can also be detected in the serum of patients with other rheumatic or inflammatory diseases and even in a substantial percentage of the healthy (elderly) population. The RF antibodies are sensitive but not very specific markers; In contrast, Anti-CCPs are characterized by a specificity of over 90% in patients affected by RA and are detectable in a very early asymptomatic stage in the approximately 70% of RA patients whereas only 2% of the control subjects resulted positive. Therefore, the presence of Anti-CCP antibodies can be used in the diagnosis of RA, particularly in the case of erosive arthritis, in childhood in the case of juvenile RA. The Anti-CCP antibody test, together with the determination of RF, increases the ratio of sensitivity/specificity. The simultaneous positive result of a sample to RF and CCP has a positive predictive value of about 100%. The advantage of CCP antibodies is a higher sensitivity and specificity for the diagnosis of rheumatoid arthritis in comparison to the rheumatoid factors alone. Anti-CCP is often found at a very early stage of the disease and it has a high predictive value for development of the disease. |
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## Note Table No 4 Vitamin D

| **Reference Range :**  Deficiency: < 20  Insufficiency: 20 - <29  Sufficient: 30-100  Toxicity : > 100  **Summary:**  Vitamin D is a group of fat-soluble steroid hormone precursors responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, and multiple other biological effects, which is mainly produced in the skin by exposure to sunlight. Vitamin D from the skin synthesis is biologically inactive; hydroxylation in the liver and kidney is required for activation. In humans, the most important compounds in this group are vitamin D3 and vitamin D2, both of them can be ingested from the diet and from supplements. Only a few foods contain vitamin D. The major natural source of the vitamin is synthesis of vitamin D3 in the skin from cholesterol through a chemical reaction that is dependent on sun exposure. Vitamin D is transported to the liver in combination with a binding protein in the bloodstream, converted to 25-hydroxyvitamin D in the liver, and then converted to 1,25-hydroxyvitamin D in the kidney. This is an active ingredient in which vitamin D functions. The 1,25 hydroxy vitamin D content in the circulation is extremely low, with a half-life of only 4 h. This primary circulating form of vitamin D (25-OH) is biologically inactive with levels approximately 1000-fold greater than the circulating 1,25-dihydroxy vitamin D. The half-life of circulating vitamin D (25-OH) is 3 weeks. Vitamin D can regulate the balance of calcium and phosphorus metabolism and bone formation, and is closely related to cardiovascular disease, autoimmune diseases, diabetes and hypertension etc. |
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## Note Table No 5 Vitamin B12

| **Summary :**  Vitamin B 12 along with folate is essential for DNA synthesis and myelin formation.  Vitamin B 12 deficiency can be because of nutritional deficiency, malabsorption and other gastrointestinal causes. The test is ordered primarily to help diagnose the cause of microcytic/ megaloblastic anemia.  **Decreased levels** are seen in anemia, normal near term pregnancy, vegetarianism, partial gastrectomy/ ileal damage, celiac disease, with oral contraceptive use, parasitic competition, pancreatic deficiency, treated epilepsy, smoking, hemodialysis and advancing age.  **Increased levels** are seen in renal failure, hepatocellular disorders, myeloproliferative disorders and at times with excess supplementation of vitamins pills.  \*Please note test values may vary depending on the assay method used. |
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## Note Table No 6 TSH

| **Summary:**  TSH (thyroid stimulating hormone) is a peptide hormone synthesized and secreted by thyrotropic cells in the anterior pituitary gland, which regulates the endocrine function of the thyroid gland. The determination of serum or plasma levels of TSH is recognized as a sensitive method in the diagnosis of primary and secondary hypothyroidism. TSH is secreted by the anterior lobe of the pituitary gland and induces the production and release of T4 (thyroxine) and T3 (triiodothyronine) from the thyroid gland.  Although the concentration of TSH in the blood is extremely low, it is essential for the maintenance of normal thyroid function. The release of TSH is regulated by TRH (TSH-releasing hormone) produced by the hypothalamus. The levels of TSH and TRH are inversely related to the level of thyroid hormone. When there is a high level of thyroid hormone in the blood, less TRH is released by the hypothalamus, so less TSH is secreted by the pituitary. The opposite action will occur when there is decreased thyroid hormone in the blood. This process is known as a negative feedback mechanism and responsible for maintaining the proper blood levels of these hormones. |
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## Note Table No 7 HBA1C

| **Reference Range:**  Normal range :- 4-5.6  Increased risk of Diabetes :- 5.7-6.4  Diabetes :- 6.5 and above  **Summary:**  HbA1c level reflects the mean glucose concentration over the previous period (approximately 8-12 weeks, depending on the individual) and provides a much better indication of long-term glycemic control than blood and urinary glucose determinations. This test is used to screen, diagnose and monitor prediabetes and diabetes.  The ADA recommends measurement of HbA1c (typically 3-4 times per year for type 1 and poorly controlled type 2 diabetic patients, and 2 times per year for well-controlled type 2 diabetic patients) to determine whether a patient's metabolic control has remained continuously within the target range.  Certain health conditions can cause a higher hemoglobin A1c result such as:  ● Anemia  ● High-dose aspirin  ● Iron, vitamin B12, or Folate deficiency  Factors that can lead to a lower hemoglobin A1c result include:  ● Pregnancy  ● Chronic kidney disease and its treatment  ● Blood transfusion recipients  ● Inherited disorders affecting hemoglobin production, such as sickle cell disease  ● High alcohol consumption. |
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## Note Table No 8 IPTH

| **Summary :**  Parathyroid hormone regulates calcium and phosphorus metabolism and is the main hormone that maintains the body calcium balance.  Its secretion level affects blood calcium and phosphorus level, and promotes blood calcium level. The level rises, and the blood phosphorus level drops.  Parathyroid hormone detection can also be used to evaluate and treat other bone metabolic diseases including osteoporosis and renal bone diseases.  Hyperthyroidism can lead to increased secretion of parathyroid hormone, which can be used to assess hyperthyroidism.  Therefore, the detection of parathyroid hormone has important clinical significance. |
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## Note Table No 9 VDRL

| **Summary**:  VDRL is a screening test for Syphilis. Syphilis is a sexually transmitted (venereal) disease caused by the spirichere Treponema pallidum.After infection the host forms Treponemal andtibodies to Treponemal pallidum, in addition, the host also forms Non Treponemal anti lipoidal antibodies in response to the lipoidal material released from the damage host cells. These antibodies are traditionally referred to as Reagin.  **Interpretation of Result:**  The titre of anti lipoidal antibodies is the highest dilution of the test.  **Note**:  It is strongly recommended that the result of the test should be correlate with clinical findings. |
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