**Sugar (Blood Glucose)**

**Youngsters (under 60 years):**

* **Fasting:** 70-99 mg/dL
* **After Meal (Postprandial):** 70-139 mg/dL

**Elders (60 years and above):**

* **Fasting:** 80-130 mg/dL
* **After Meal (Postprandial):** 80-180 mg/dL

**Impacts:**

* **Low (Hypoglycemia):** Shaking, sweating, confusion, dizziness, and in severe cases, loss of consciousness.
* **High (Hyperglycemia):** Increased thirst, frequent urination, fatigue, blurred vision, and risk of diabetes complications over time.

**Platelets Count**

**All Ages:**

* **150,000 - 450,000 cells/µL**

**Impacts:**

* **Low (Thrombocytopenia):** Increased risk of bleeding and bruising.
* **High (Thrombocytosis):** Increased risk of blood clots, which can lead to stroke or heart attack.

**Neutrophils**

**Youngsters:**

* **40-70% of total white blood cells**

**Elders:**

* **40-70% of total white blood cells**

**Impacts:**

* **Low (Neutropenia):** Increased risk of infections.
* **High (Neutrophilia):** Possible indication of bacterial infection, inflammation, or other medical conditions.

**Lymphocytes**

**Youngsters:**

* **20-40% of total white blood cells**

**Elders:**

* **20-40% of total white blood cells**

**Impacts:**

* **Low (Lymphocytopenia):** Increased risk of infections.
* **High (Lymphocytosis):** Possible indication of viral infection or certain types of leukemia.

**Eosinophils**

**Youngsters:**

* **1-4% of total white blood cells**

**Elders:**

* **1-4% of total white blood cells**

**Impacts:**

* **Low:** Usually not significant.
* **High (Eosinophilia):** Possible indication of allergies, parasitic infections, or autoimmune diseases.

**Monocytes**

**Youngsters:**

* **2-8% of total white blood cells**

**Elders:**

* **2-8% of total white blood cells**

**Impacts:**

* **Low:** Usually not significant.
* **High (Monocytosis):** Possible indication of chronic infections, autoimmune disorders, or certain types of leukemia.

**Basophils**

**Youngsters:**

* **0.5-1% of total white blood cells**

**Elders:**

* **0.5-1% of total white blood cells**

**Impacts:**

* **Low:** Usually not significant.
* **High (Basophilia):** Possible indication of allergies, inflammation, or certain blood disorders.

**ESR (Erythrocyte Sedimentation Rate)**

**Youngsters:**

* **0-20 mm/hr**

**Elders:**

* **0-30 mm/hr**

**Impacts:**

* **Low:** Usually not significant.
* **High:** Possible indication of inflammation, infection, or autoimmune disorders.

**Hemoglobin**

**Youngsters:**

* **Male:** 13.8-17.2 g/dL
* **Female:** 12.1-15.1 g/dL

**Elders:**

* **Male:** 12.5-17.0 g/dL
* **Female:** 11.5-16.0 g/dL

**Impacts:**

* **Low (Anemia):** Fatigue, weakness, shortness of breath.
* **High (Polycythemia):** Increased risk of blood clots, which can lead to stroke or heart attack.

**RBC Count (Red Blood Cell Count)**

**Youngsters:**

* **Male:** 4.7-6.1 million cells/µL
* **Female:** 4.2-5.4 million cells/µL

**Elders:**

* **Male:** 4.5-6.0 million cells/µL
* **Female:** 4.0-5.3 million cells/µL

**Impacts:**

* **Low (Anemia):** Fatigue, weakness, shortness of breath.
* **High (Polycythemia):** Increased risk of blood clots, which can lead to stroke or heart attack.

**Hematocrit**

**Youngsters:**

* **Male:** 40.7-50.3%
* **Female:** 36.1-44.3%

**Elders:**

* **Male:** 38.0-50.0%
* **Female:** 35.0-46.0%

**Impacts:**

* **Low (Anemia):** Fatigue, weakness, shortness of breath.
* **High (Polycythemia):** Increased risk of blood clots, which can lead to stroke or heart attack.

These ranges and impacts should be considered general guidelines. Always consult a healthcare provider for personal medical advice.

Glycosylated Hemoglobin (HbA1c) is a key marker used to assess the average blood glucose levels over the past 2 to 3 months. It is particularly important in diagnosing and managing diabetes.

**Minimum and Maximum Ranges for HbA1c:**

* **Normal Range:**
  + **4.0% to 5.6%**
* **Prediabetes (Increased risk of diabetes):**
  + **5.7% to 6.4%**
* **Diabetes:**
  + **6.5% or higher**

**Impact of HbA1c Levels:**

1. **Normal Range (4.0% to 5.6%):**
   * Indicates normal blood glucose levels. Individuals within this range are at a lower risk of developing diabetes and related complications.
2. **Prediabetes (5.7% to 6.4%):**
   * Suggests that blood glucose levels are higher than normal but not yet high enough to be classified as diabetes. This range indicates an increased risk of developing Type 2 diabetes, heart disease, and stroke.
   * Lifestyle changes, such as improving diet and increasing physical activity, are often recommended to reduce the risk of progression to diabetes.
3. **Diabetes (6.5% or higher):**
   * Diagnoses diabetes. High HbA1c levels suggest chronic hyperglycemia (high blood glucose levels), which can lead to long-term complications such as cardiovascular disease, kidney damage, nerve damage, and vision problems.
   * Managing HbA1c levels through medication, diet, and exercise is crucial to prevent complications and maintain a good quality of life.

**Impact of High HbA1c:**

* **Cardiovascular Disease:** Increased risk of heart attacks and stroke.
* **Neuropathy:** Nerve damage, leading to pain, tingling, or loss of sensation, particularly in the hands and feet.
* **Nephropathy:** Kidney damage, potentially leading to kidney failure.
* **Retinopathy:** Eye damage, which can result in vision loss or blindness.
* **Poor Wound Healing:** Higher likelihood of infections and slower healing of wounds, particularly in the feet, which can lead to ulcers and amputation.

Maintaining HbA1c levels within the recommended range is essential for reducing the risk of diabetes-related complications.

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