

## IRON DEFICIENCY IN ANEMIA

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**Abstract:** Iron deficiency anemia is a prevalent condition caused by insufficient iron levels, leading to inadequate hemoglobin production and reduced oxygen transport in the body. This condition arises due to dietary deficiencies, chronic blood loss, malabsorption disorders, or increased physiological demands such as pregnancy. Common symptoms include fatigue, pallor, shortness of breath, and heart palpitations. Diagnosis typically involves blood tests, and treatment includes dietary adjustments, iron supplementation, or medical intervention in severe cases. Preventing iron deficiency anemia requires maintaining a balanced diet and addressing underlying health issues. Early detection and treatment are crucial in managing the condition and preventing complications.

**Keywords:** Iron deficiency, anemia, hemoglobin, iron absorption, dietary deficiency, blood loss, iron supplements, fatigue, malabsorption, prevention.

Iron deficiency anemia is one of the most common types of anemia worldwide, affecting millions of people across different age groups. It occurs when the body does not have enough iron to produce adequate hemoglobin, the protein in red blood cells responsible for transporting oxygen. Since iron plays a crucial role in many bodily functions, its deficiency can lead to serious health problems if left untreated. Understanding the causes, symptoms, and treatment options for iron deficiency anemia is essential for effective prevention and management. Iron deficiency anemia can develop for several reasons, ranging from dietary deficiencies to medical conditions that affect iron absorption. One of the primary causes is inadequate dietary intake of iron. This is particularly common in individuals who follow diets low in iron-rich foods, such as red meat, fish, poultry, and leafy green vegetables. Vegetarians and vegans are at a higher risk of iron deficiency if they do not consume sufficient plant-based iron sources or supplements.

Blood loss is another significant cause of iron deficiency anemia. Women who experience heavy menstrual periods often suffer from low iron levels due to excessive blood loss. Similarly, chronic blood loss from gastrointestinal conditions, such as ulcers, hemorrhoids, or colon cancer, can gradually deplete the body's iron stores. Internal bleeding caused by long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or aspirin can also contribute to this condition. Pregnancy is a common factor leading to iron deficiency anemia in women. During pregnancy, a woman's iron requirement increases significantly as the body needs to produce more blood to support the developing fetus. Without sufficient iron intake through diet or supplements, pregnant women are at risk of developing anemia, which can have adverse effects on both the mother and the baby. Malabsorption disorders can prevent the body from properly absorbing iron from food. Conditions such as celiac disease, Crohn's disease, and certain gastric surgeries (such as bariatric surgery) can impair iron absorption, even when dietary intake is adequate. In these cases, individuals may need additional supplementation or medical intervention to maintain proper iron levels.

The symptoms of iron deficiency anemia vary depending on the severity of the condition. In the early stages, many people may not notice any symptoms, or they may attribute mild symptoms to general fatigue or stress. However, as iron levels continue to decline, symptoms become more pronounced and can significantly impact daily life. One of the most common symptoms is fatigue and weakness. Since hemoglobin is responsible for oxygen transport, a deficiency can lead to decreased oxygen supply to muscles and tissues, causing persistent tiredness. Individuals with iron deficiency anemia may feel exhausted even after minimal physical activity. Paleness is another noticeable symptom. Since hemoglobin gives blood its red color, lower levels result in paler skin, particularly in the face, inside the lower eyelids, and nails. This symptom is more noticeable in individuals with lighter skin tones but can be observed in all individuals through specific areas like the gums or the inner lining of the eyes. Shortness of breath and dizziness are common in individuals with severe iron deficiency anemia. When the body's oxygen supply is compromised, even simple activities like climbing stairs or walking short distances can lead to breathlessness. Dizziness or lightheadedness may occur due to inadequate oxygen reaching the brain. Heart palpitations and an irregular heartbeat can also develop in more advanced cases. The heart works harder to pump oxygen-deficient blood, which can lead to an increased heart rate or irregular rhythm. In extreme cases, prolonged anemia can contribute to heart problems such as an enlarged heart or heart failure. Other symptoms may include brittle nails, hair loss, headaches, and cold hands and feet. Some individuals develop a condition called pica, which causes cravings for non-nutritive substances like ice, dirt, or chalk. This unusual craving is believed to be linked to the body's attempt to compensate for nutrient deficiencies. Preventing iron deficiency anemia involves maintaining a balanced diet rich in iron and being aware of risk factors. Women of childbearing age, pregnant women, individuals with digestive disorders, and those who have undergone surgery affecting the digestive tract should pay extra attention to their iron levels. Regular medical check-ups and blood tests can help detect anemia early and prevent complications.

Iron deficiency anemia is a widespread health concern that can lead to severe complications if left untreated. Understanding its causes, symptoms, and treatment options is essential for effective management and prevention. By ensuring an adequate intake of iron through diet and supplements, addressing underlying health conditions, and seeking medical advice when symptoms arise, individuals can maintain optimal iron levels and overall well-being. Early detection and proper treatment can significantly improve quality of life and prevent long-term health issues associated with iron deficiency anemia.

#### References:

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