



Iron Deficiency Anemia Background

How Iron Works in the Body

Iron is critical to a number of processes in the human body and is a key component of the hemoglobin molecule where it serves a vital role in oxygen transport from the lungs to tissues. Oxygen in the air is transferred across the lungs into the blood and is carried by the iron in hemoglobin within the red blood cells (RBC) to the rest of the body. Lack of iron in the body is known as iron deficiency and results in decreased oxygen delivery to the different organs. When there is an inadequate number of RBC and/or hemoglobin due to iron deficiency, the condition is called iron deficiency anemia (IDA). Insufficient numbers of RBC are a consequence of blood loss or decreased production of RBC. IDA is a result of inadequate amounts or inadequate absorption of iron in the diet or blood loss. IDA can cause a number of symptoms including fatigue, lethargy, poor concentration, shortness of breath, palpitations, and dizziness. IDA can be confirmed by blood tests.

Iron deficiency is the end result of a period of negative iron balance resulting from:

- Decreased dietary iron intake
- Poor absorption of dietary iron
- Increased physiologic iron requirements
- Increased blood loss

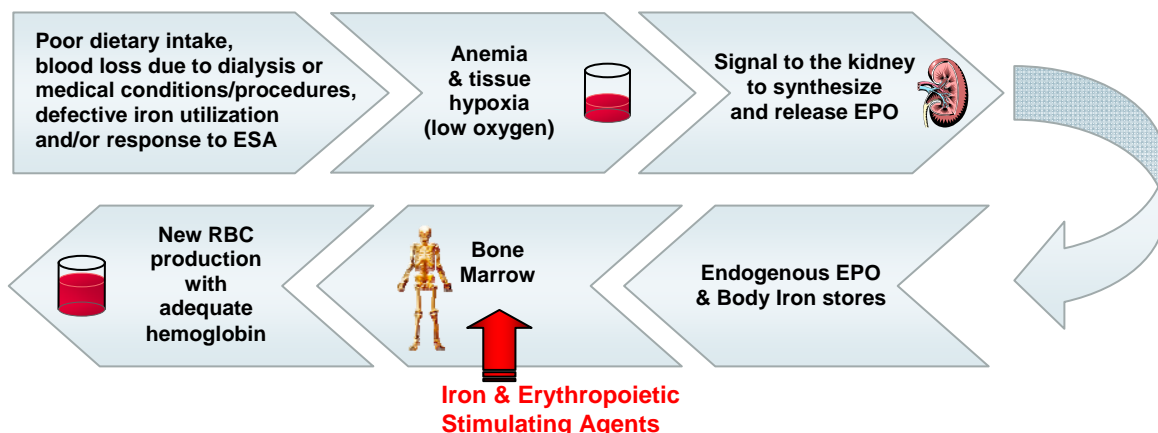
Iron is essential for:

- Hemoglobin and RBC synthesis
- Enzyme function critical for the body's normal metabolic processes

IDA is a common clinical problem. IDA affects approximately 1-2% of adult men and 1-4% of adult women in the U.S. Overall, approximately 4.8 million adults (age 20+) have iron deficiency anemia in the U.S.¹

IDA results from iron deficiencies that are sufficiently severe to reduce the production of red blood cells. IDA can be associated with a host of disease states such as chronic kidney disease (CKD), cancer, inflammatory bowel disease, and heavy menstrual bleeding. In CKD in particular, decreased production of RBC can occur in patients because of IDA and/or decreased production of the hormone erythropoietin (EPO) by the diseased kidneys.

Although IDA can occur in association with many diverse clinical conditions, the common underlying mechanism is the depletion of body iron stores. The depletion of body iron stores makes the anemia in these differing disease states amenable to a treatment strategy involving the repletion of the bodies' iron stores with intravenous iron or oral iron therapy.



¹MMWR 2002 NHANES 1999-2000: estimates for children taken from different age groups in NHANES, 1-2, 3-11, 12-19, and applied to US Census age groups. Looker, et al. NHANES 1988-2004, for men. US Census Bureau website 2006 Population by Cohort