

## Iron Supplementation in Pediatrics

**What is Anemia?** Iron is an essential mineral needed by the body to carry out normal physiological functions. In humans, iron is the integral component of proteins involved in oxygen transport (1). Thus when iron levels are deficient, organs and tissues cannot get the oxygen delivery they need, resulting in fatigue, poor performance, and decreased immunity (1). This condition, referred to as iron deficiency anemia, is prevalent in the pediatric population (2). Iron deficiency left untreated may lead to more serious problems such as delays in physical and cognitive development (4).

**Why Supplement?** Infants and children are at an increased risk for becoming iron deficient due to their rapid growth (2). Additionally, cow's milk interferes with iron absorption, thus children who drink more than 24 oz. daily may be at increased risk for developing an iron deficiency. However, before recommending iron supplementation, a blood test should be performed to check iron levels, as high iron levels can also be very harmful to the child's health (3). The child's age, health status, progression of anemia, and medication tolerance should be taken into account before supplementing (2).

### Guidelines for Iron Supplementation in Children (6):

Age	Dosage
6-24 months	12- 20 mg Iron
2-5 years	20-30 mg Iron
6-11 years	30-60 mg Iron
12-18 years	60 mg Iron

### Supplement Usage & Side Effects:

Gastrointestinal complaints are common, including constipation, nausea, diarrhea, and abdominal distress (1). Iron supplements are often taken in the morning on an empty stomach or with a source of vitamin C such as orange juice, as vitamin C helps the body absorb the iron more easily (2).

**Dietary Iron:** Dietary iron is found in two forms: heme and nonheme. Heme iron is more readily absorbed by the body, and is found in animal foods such as red meats, poultry, and fish. The nonheme form is found in plant foods such as leafy greens and legumes as well as fortified foods such as grains, infant formulas, and cereals. The majority of dietary iron is consumed in the nonheme form and is less readily absorbed (1).

**Dosage & Form:** Children require between 7 and 11 mg of iron daily, yet on average only absorb 10 percent of the iron they consume (2). Thus the oral dosage may need to be higher than the child's daily requirement. The American Academy of Family Physicians recommends a liquid iron supplement for children in the form of ferrous sulfate, which is readily absorbed (3). Liquid forms are especially recommended for children younger than 2 years of age, although a powder or crushable tablet could potentially be mixed with infant food. Thus the higher cost associated with the liquid form would need to be weighed against the potential for greater compliance and ease (3).

### References:

- 1). DHHS. NIH. Office of Dietary Supplements. Dietary Supplement Fact Sheets: Iron.
- 2). Iron and Your Child. (2011). Nemours Foundation. Kidshealth.org
- 3). Kazal, J.R. Prevention of Iron Deficiency in Infants and Toddlers. *Am Fam Physician*. 2002 Oct 1; 66(7):1217-1225.