



Iron-Deficiency Anemia Related to Milk Consumption



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Iron-Deficient Anemia Related to Milk Consumption

Despite the public perception of nutritional benefits, over consumption of cow's milk is the leading cause of anemia in toddlers over one year of age. While the American Academy of Pediatrics recommends no more than 16 ounces (or 2 cups) of cow's milk per day, many toddlers consume much more. Nearly 10 percent of toddlers between 1-3 years of age have iron deficiency, and about 50% of iron-deficient toddlers will develop iron deficiency anemia.

When toddlers overconsume cow's milk, the following issues may develop:

1. Decreased iron absorption and a higher risk for iron deficiency
2. Child becomes full before eating other iron-rich foods
3. Increased risk of blood loss from the gastrointestinal track

Signs and Symptoms of Iron Deficiency and Anemia in Toddlers

- Paler than normal complexion
- Tiredness and weakness
- Shortness of breath
- Cravings for non-food items like clay, dirt, chalk, soap, or ice
- Behavioral problems
- Brittle hair or nails
- Pale insides of lower eyelids (conjunctival pallor)
- Pale crease lines on palms when fingers are gently pulled back



Pale crease lines, low hemoglobin of 8.5



Normal crease lines, hemoglobin of 12

Testing for Iron-Deficiency and Anemia

The American Academy of Pediatrics recommends that all children be screened for iron deficiency at approximately one year of age, and that screening should be repeated in children with risk factors for iron deficiency.

Method of testing:

Hemoglobin concentration: Anemia is defined as a hemoglobin concentration < 11 g/dL in toddlers. While screening using hemoglobin concentration is the simplest to do, this will miss toddlers with who have iron deficiency but do not yet have anemia.

Complete blood count: In addition to the hemoglobin concentration, this will provide information on size of red blood cells. Iron deficiency leads to small red blood cells.

Ferritin: This is the best marker for iron deficiency. Ferritin is the storage form of iron in the body. We consider iron deficiency that requires treatment to be a ferritin < 20. Children with ferritin values between 20 and 30 may benefit from an iron supplement or a multivitamin with iron.

Preventing and Treating Iron-Deficiency Anemia

In children one to five years old, the following may help prevent anemia due to overconsumption of milk:

- Cow's milk consumption should be limited to less than 16 ounces (600 mL) a day, or no more than 16 ounces as a precaution.
- Children one to five years old should have at least 3 servings of iron rich foods per day (i.e. fortified green leafy vegetables, fortified breakfast cereals or meats.)
- If you think your child is not eating enough iron-rich foods, consider a multivitamin with iron. Choose non-gummy chewable or pill versions of multivitamins with iron. Most gummy vitamins do not have very much iron.
- Ensure caregivers are starting foods for babies at the right time. Breastfed babies who aren't eating table foods at 6 months are more likely to develop anemia.

Recommend soy or almond milk as an alternative. While this will not completely reverse the risk of iron deficiency, these milk alternatives will not interfere with iron absorption like cow's milk does.

Treatment of an Iron-Deficient Toddler

Simple changes in diet or consistent vitamin supplements will help prevent iron deficiency. If a child has iron deficiency or iron deficiency anemia, he or she will need more than a multivitamin as treatment. Treatment for iron deficiency requires a dedicated iron supplement like ferrous sulfate or polysaccharide iron complex. Ask your pediatrician to make sure the dose of the supplement is enough to correct iron deficiency.

When to Refer to Hematology at Nationwide Children's Hospital

If the iron-deficiency continues despite supplementation or the patient is showing severe signs of anemia, consult a hematologist at Nationwide Children's by calling the Physician Direct Connect line at (614) 355-0221, or the hematology department at (614) 722-3250.

Referrals and Consultations

Online: [NationwideChildrens.org/Hematology-Oncology-BMT](https://www.nationwidechildrens.org/Hematology-Oncology-BMT)

Phone: (614) 355-1272 | Fax: (614) 722-3369

Physician Direct Connect Line for 24-hour urgent physician consultations:
(614) 355-0221 or (877) 355-0221.

