



ABSTRACT

**Optimizing iron absorption to achieve iron adequacy for children's growth and development**

**Nutri Virtual Symposium 2020**

**Nutrition Battling on Pandemic COVID-19: How to Survive**

Link to DOI: [10.25220/WNJ.V04.S3.0017](https://doi.org/10.25220/WNJ.V04.S3.0017)

Journal Website: [www.worldnutrijournal.org](http://www.worldnutrijournal.org)

Widjaja Lukito<sup>1</sup>

<sup>1</sup>Education Program for Physician Specialist in Clinical Nutrition/Department of Nutrition, Medical Faculty, Universitas Indonesia

Iron nutrition plays important roles in human health. In many developing countries, iron deficiency, caused by many factors, prevails. One well-documented clinical form of iron deficiency is iron-deficiency anemia (IDA). Nevertheless, the health impacts of iron deficiency is beyond anemia, given the available evidence that iron homeostasis is affected by immunological, infectious, clinical and nutritional factors.

Dietary iron is basically classified as heme and non-heme iron, and in the gastrointestinal tract, they are absorbed in quite distinct manner. Heme iron, derived from hemoproteins, hemoglobin and myoglobin, is abundant in animal food source. Heme iron is the most easily absorbable form (15–35%) and contributes around 10% or more of our total absorbed iron. Non-heme iron is mostly derived from plants and iron-fortified foods and is not absorbed as good as heme-iron.

Iron absorption mainly occurs in duodenum and proximal jejunum, and it is influenced by at least the following factors: clinical conditions of duodenal mucosa, pharmacotherapy, infections, inflammation, inhibitors, competitors and enhancers of dietary compounds. Any of these has its own potential contribution to a point where iron requirement fails to be fulfilled, leading to iron deficiency. In children, iron deficiency, often combined with other nutritional deficiencies, unfavorably affect growth and development. Most functional deficits related to iron deficiency occur with the development of anemia, these include cognitive development, immunocompetence, and productivity.

Optimizing iron absorption is a good strategic entry point to overcome health problems related to iron deficiency, especially in at-risk children.

**Keywords:**

Heme iron, non-heme iron, absorption, inhibitor, enhancer, children, growth and development, cognitive development

**Corresponding author:**

Widjaja Lukito, MD, PhD

<sup>1</sup>Education Program for Physician Specialist in Clinical Nutrition/Department of Nutrition, Medical Faculty, Universitas Indonesia

Jakarta, Indonesia

Email: [wlukito298@gmail.com](mailto:wlukito298@gmail.com)