

Background: The gut microbiota has an essential role in the cognition & metabolism. The excess iron in the intestinal environment can create pathobionts (potentially pathological cells) which can lead to various pathological conditions like inflammatory bowel disease, colon cancer etc .

Objective: a) To understand the influence of iron fortification and supplementation on the gut microbiome. b) To understand the role of prebiotics, probiotics, synbiotics approach in iron deficiency treatment.

Design: Literature review of the studies concerned with the influence of iron fortification and supplementation on the gut microbiome.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Iron Supplementation Influence on the Gut Microbiota and Probiotic Intake Effect in Iron Deficiency – A Literature Based Review

Nutrients vol. 12,7 1993. 4 Jul. 2020, doi:10.3390/nu12071993

Results: Various studies have shown the beneficial effect of pre and probiotics on the gut microbiota. Review demonstrated how the use of lactobacillus plantarum 299v helps in prevention of iron deficiency anemia (IDA). Study review shows the efficacy of prebiotic and/or synbiotic intake to an increase of iron availability, mostly by converting Fe³⁺ to Fe²⁺ owing to their ferric-reducing activity, and promoting iron uptake by enterocytes. An innovative formulation composed of iron oxide nano particles, pectin and lactic acid bacteria can protect the gut microbiota and also ensure the safe soluble iron delivery to enterocytes.

Conclusion: IDA is a global issue and is due to several causes, foremost being nutritional deficiency. Cytotoxicity of unabsorbed iron on the enterocytes needs to be extensively addressed. Gut microbiota modulation through pre and probiotics foods can help in improving iron absorption.

Key Message: Innovative ways to improve the IDA without harming the gut microbiota should also be the considered, while prescribing the iron supplements.

EXPERT COMMENT



“Gut microbiota is a new science, fast emerging with various implications in the treatment of whole lot of diseases. It is important to understand the impact of drugs which we prescribe to our patients and its impact on the natural flora of the body. The review shows beneficial effect of adding pre and probiotics with iron supplements, more studies are needed to investigate this point further.

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Reference

Ioana Gabriela Rusu et al. Iron Supplementation Influence on the Gut Microbiota and Probiotic Intake Effect in Iron Deficiency—A Literature-Based Review. Nutrients. 2020 Jul; 12(7): 1993. Published online 2020 Jul 4. doi: 10.3390/nu12071993