

Childhood Overweight and Obesity: A Rising Health Concern



Prevalence of Childhood Overweight and Obesity

- Childhood overweight and obesity is a rising concern among healthcare professionals.1
- Malnutrition consists of deficiencies, imbalances, or excess nutrients, which may lead to overweight or obesity in children.1





Globally, 200 million preschoolers are overweight or obese1



Prevalence of obesity among Indian chidren-3.6 to 11.7%1



Obese children are prone to metabolic syndrome and likely to become obese adults, with non-NCDs1

Signs and Symptoms of Overweight and Obesity



Increased waist circumference



Irregular heartbeat



Digestive problems



deficiency





Cloudy



Cracked, dry lips



Eye irritations

Malabsorption and Obesity Are Interlinked

- Malnutrition is resulting in increasingly overweight and obese children.5 Malabsorption is one of the major causes of malnutrition.⁵
 - Double burden of malnutrition (DBM) results in obesity, stunting,
 - and anemia in children simultaneously.6



Anemia (Iron malabsorption)

oxidation

Impaired fat

Impaired energy regulation

Leads to excessive fat accumulation

Obesity

Reduced iron content in adipose tissue

Reduced iron importers and exporters

Impaires erythropoietin

production

Leads to anemia

- The inflammation in overweight and obesity also increases hepcidin levels.6 Hepcidin protein further reduces iron absorption in the digestive tract.6
- A higher prevalence of zinc and copper deficiency has also been observed
- among obese children.5

and Childhood Obesity Management → Inclusion of prebiotics regulates

Prebiotics for Nutrient Absorption,

- The healthy gut microbiota⁷
 Facilitates nutrient absorption⁷ - Influences the nutritional status and overall growth of children⁷:



Osmotic effect of prebiotics increases the solubility of nutrients

Prebiotics support nutrient absorption

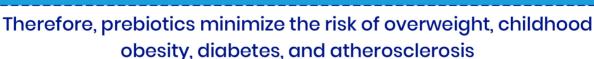
Colonocytes absorb calcium when prebiotic fermentation

produces short-chain fatty acids

Prebiotics improve iron absorption by increasing its soluble fraction

Prebiotic carbohydrates (GOS & FOS) control glucose, cholesterol,

and fatty acid levels in the blood



- → Intake of prebiotics helps to restore the normal microbiota of the gut, which gets disturbed during obesity.7
- for overweight and obese children.⁷

Prebiotics along with healthy eating habits and physical activity are beneficial

Inflammation and oxidative stress have been associated

KEY TAKEAWAYS

- with overweight, obesity, and its complications. Obesity is primarily caused by dysfunctional enterocytes in the duodenum that results in the malabsorption and
- inefficient metabolism of nutrients. Molecular and cellular alterations in overweight and

childhood obesity increase the risk of comorbidities.

Prebiotics facilitate the absorption of nutrients thus supporting in the overall growth and development of children.

1. Keats EC et al., The Lancet Child & Adolescent Health. 2021 May 1;5(5):367-84.

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DBM: Double burden of malnutrition; FOS: Fructooligosaccharides; GOS: Galactooligosaccharides; NCDs: Non-communicable disease; WHO: World health organization 5. Zuvarox T et al., Available from: https://www.ncbi.nlm.nih.gov/books/NBK553106/