

Food synergy: A sustainable approach to improve the iron status of adolescent girls

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Low consumption of iron-rich foods combined with poor bio-availability of non-heme iron, has been considered as the foremost cause of iron deficiency in developing countries. According to National Family Health Survey (NFHS-4), 2015-16, the prevalence of anaemia among women aged 15-49 years is 53.1 percent in India, which demands due emphasis on approaches that can bring down the total prevalence among rural adolescent girls. Evidence has proven that foods and food patterns act synergistically and can reduce the risk of chronic diseases. The exclusive initiative of food synergy is the interaction between nutrients among many foods rather than single food component. When synergistic foods are consumed together, the support for potential health benefits becomes stronger. The present study was conducted to investigate the cross-sectional synergistic relationship between different nutrient combinations to increase the absorption and bio-availability of non-heme iron required to combat iron deficiency anemia among rural adolescent girls in the age group of 10-19 years. They were considered for the intervention of developed iron and vitamin C rich food with the mixture of rice flakes , jaggery, amla powder and cauliflower leaves. The finding indicated that the combination of poorly absorbed plant source non-heme iron and vitamin C rich food improves the bio-availability of the non-heme. Ascorbic acid has been considered as the most potent enhancer of non-heme iron absorption in our body even in the presence of inhibitors like phytates, oxalates, etc. It converts food ferric iron to the ferrous, which increases the absorption by 75-98 percent. Adding 50mg of Vitamin C to the same meal, doubles the iron absorption. This synergistic effect of food helps in combating iron deficiency anemia among adolescent girls and improves their nutritional status. Thus, this synergistic relationship between mineral and vitamin helps in development of sustainable food for iron deficient adolescent girls.

Key words: anemia, bio-availability, adolescent, ascorbic acid