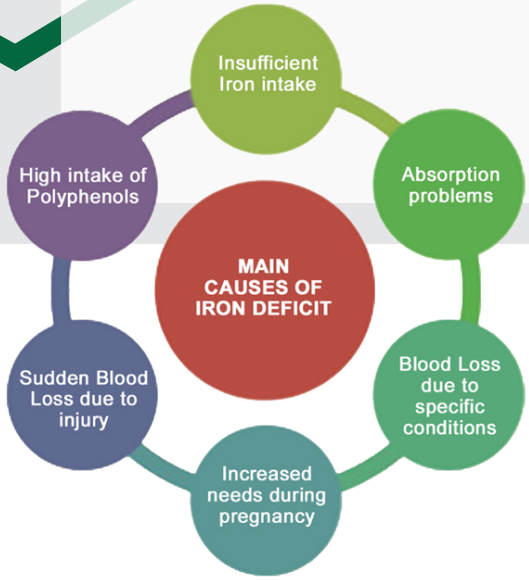
FeFA **Girls**
Iron for adolescents project

Background:

Iron (Fe) deficiency anaemia is a condition in which blood lacks adequate healthy red blood cells (RBCs) which carry oxygen to the body's tissues. It effects more women than men and is common during adolescence and pregnancy leading to several health problems. Fe deficiency in adolescent girls is an important component of the continuous cycle of malnutrition.

The human gut harbors trillions of microbes that helps in efficient absorption of nutrients from food. Absence of these beneficial microbes can severely affect iron absorption in humans even in the presence of adequate iron in diet. Administration of iron tablets leave excessive amounts of unabsorbed iron in the gut which causes unappreciated side effects.



Our Approach:

To use practical food-based solution using biofortified crops rich in iron and dietary fibers that have been shown to improve the gut microbiome composition, to achieve overall iron homeostasis in adolescent girls with mild to moderate iron deficiency.

Project Goals:

- To determine the effect of national IFA supplementation programme on hemoglobin improvement and gut microbiota modulation in anemic adolescent girls.
- Effect of peanut-pearl millet (biofortified for iron) bar supplementation rich in dietary fibers and iron on gut microbiota health and iron status among anaemic adolescent girls.

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Project 1: Effect of National IFA Supplementation Programme on Gut Modulation and iron status among adolescents

Project 2: Efficacy of peanut-pearl millet bar supplementation on gut microbiota health and iron status among anaemic adolescent girls

Strategy

	Project 1: Iron-Folic acid supplementation (3 months)	Project 2: Peanut-pearl millet bar supplementation (3 months)
Cohort selection 16-19 yrs	▪ Normal (12-15.5g/dl) ▪ Mild anaemic (11-11.9g/dl) ▪ Moderate anaemic (8-10.9g/dl) Student Welfare Hostels, Hyderabad	60 NORMAL subjects 60 MILD subjects 60 MODERATE subjects
Sample Collection	▪ Physiological parameters ▪ Blood samples ▪ Faecal samples	▪ Socio-demographic information ▪ Dietary pattern ▪ Anthropometric history ▪ Menstrual history ▪ Morbidity history on diarrhea
Data generation	▪ Metadata ▪ Bio-clinical parameters ▪ Gut microbiota profiling	Whole Metagenome Sequencing using Illumina Next Generation Sequencing platform

Expected Outcomes

- Unravel the impact of Fe supplementation on iron status and overall health
- Scientific evidences on the role of gut microbiome in improving Fe absorption
- Establish sustainable diet-based approaches for more effective Fe supplementation

Team

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