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GLOBAL AND INDIAN EVIDENCE ON FORTIFIED RICE

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RICE FORTIFICATION: SUMMARY OF SCIENTIFIC EVIDENCE

Rice fortification is a powerful intervention to curb micronutrient malnutrition. As a staple food for more than half the country, rice has the potential to reach the most vulnerable and improve India's nutritional status. Fortified rice is a cost effective and proven intervention. Several scientific studies done globally and in India, conducted on infants, children, and women have demonstrated the efficacy and effectiveness of fortified rice in improving micronutrient status.

Key findings from these studies support the efficacy of fortified rice in improving various micronutrient deficiencies at a mass scale:

Evidence shows improvement in iron status

- Significant increase in haemoglobin levels in the body.
- Significant increase in serum ferritin levels.
- Significant reduction of prevalence of anaemia[1] .
- Significant reduction in iron deficiency[2] .

Evidence shows improvement in levels of other micronutrients

- Significant increase in vitamin A levels in the body.
- Significant increase in serum zinc levels.
- Significant increase in plasma B12 levels .

[1]Anaemia is defined as Hb level: <11.5g/dL in children 5-11 years; <12g/dL in children ≥12 years; <11 g/dL during pregnancy
[2]Iron deficiency (ID) is when serum ferritin levels fall <15mcg/L

GLOBAL EVIDENCE

Perignon (2016) CAMBODIA
- Study conducted for 6 months among 6-16 year old children showed significant increase in Hb level at 3 months. Increase in ferritin levels as well significant increase in vitamin A levels.

Pinkaew (2014) THAILAND
- Study conducted among 8-12 year olds for 2 months showed significant increase in serum Vitamin A levels.

Pinkaew (2013) THAILAND
- A study done for 5 months among 4-12 year old school children showed increase in serum zinc and serum ferritin levels. Marked decrease in iron deficiency was seen.

Arcanjo (2013) BRAZIL (SOBRAL)
- A study done for 18 weeks among 2-5 year old preschoolers showed increase in their haemoglobin levels.

Arcanjo (2013) BRAZIL (SOBRAL)
- A study done for 18 weeks among10-23 month old infants showed increase in their haemoglobin levels and a decrease in anaemia prevalence.

Arcanjo (2012) BRAZIL (MOREANOSL)
- A study done for 18 weeks among 10-23 month old infants showed increase in their haemoglobin levels and a decrease in anaemia prevalence.

Angeles - Agdeppa (2011) PHILIPPINES
- A study done for 9 months among 6-9 year old children showed increase in their haemoglobin levels and a decrease in anaemia prevalence.

Beinner (2010) BRAZIL (BELO HORIZONTE)
- A study done for 5 months among mildly anaemic 6-24 month children showed increase in their haemoglobin levels, serum ferritin and a decrease in anaemia prevalence.

Bagni (2009) BRAZIL (RIO DE JANEIRO)
- A study done for 4 months 1-5 year old children showed increase in their Haemoglobin Levels, and decrease in anaemia prevalence.

Angeles - Agdeppa (2008) PHILIPPINES
- A study done for 6 months among 6-9 year old children showed increase in their haemoglobin levels, and decrease in anaemia prevalence.

Hotz (2008) MEXICO
- A study done for 6 months among 18-49 year old non-pregnant and non-lactating women showed increase in their plasma ferritin levels, iron stores and Hb levels, as well as decrease in anaemia.

Graham (2007) NEPAL
- A study done for 6 weeks on 106 night blind pregnant women showed decrease in iron deficiency anaemia, increase in erthrocyte riboflavin levels and increase in plasma ferritin levels.

Haskell (2005) NEPAL
- A study done for 6 weeks among 18-45 year old pregnant women showed signficiant increase in plasma retinol.

INDIAN EVIDENCE

Thankachan (2012) BENGALURU
- A study done for 6 months among 6-12 year old children showed increase in haemoglobin levels, increase in plasma B12 levels and decrease in anaemia prevalence.

Radhika (2011) ANDHRA PRADESH
- A sudy done for 8 months among 5-11 year old children showed increase in haemoglobin levels, increase in ferretin levels and decrease in anaemia prevalence.

Moretti (2006) BENGALURU
- A study done for 7 months among 6-13 year old children showed increase in serum ferritin, increase in body iron stores.

Zimmerman (2006) BENGALURU
- A study done for 4 months among 5-9 year old children showed increase in serum ferritin and decrease in iron deficiency.

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