

Dated: 20.05.2018 (Sunday)

**Think F+** by Ambrish Mithal



Deficiency of vitamin D (also known as the sunshine vitamin), has emerged as a silent public health challenge in India. About 70% of urban Indians are deficient in this vitamin. Contrary to belief, even if one has a diet replete with ‘calcium rich’ milk and milk products, little calcium reaches our bones in the absence of vitamin D.

Over the years, I have often been asked this question: Why would a sunny country like India have a high prevalence of vitamin D deficiency? Vitamin D is formed in our skin under the influence of ultra-violet B (UVB) rays that are found in sunlight. The only dietary sources of the vitamin are fatty fish such as salmon and tuna. However, Indians rarely consume these fish, and typically demonstrate ‘sun-fleeing behaviour’,

especially in the urban areas, in order to avoid the heat and skin darkening. Atmospheric pollution too makes it difficult for UV rays to reach the earth's surface which further aggravates the problem.

Vitamin D controls the absorption of calcium which is essential for the growth and maintenance of bones and muscles. Its deficiency affects both children and adults, especially among populations that are starved of sun exposure, causing bone diseases such as rickets in children, and osteomalacia and osteoporosis in adults. In addition, low vitamin D has been found to be associated with conditions such as asthma, infections, auto-immune disorders, depression and even cancer.

### **Multiple strategies**

Overcoming widespread vitamin D deficiency needs a combination of strategies. There is a need for awareness about the need for sunlight exposure between 11 a.m. and 3 p.m. However, it is often impractical to implement this for the typical, office-going urban Indian; atmospheric pollution is also a barrier. In this regard, food fortification — the process of adding vitamins and minerals to commonly consumed staples — is a proven and cost-effective strategy. Being fat rich, milk and edible oil are suitable for fortification with fat soluble vitamins A and D. In the United States, fortification of milk with vitamin D was started as far back as 1933 which reduced the prevalence of several types of bone [disease](#) dramatically. Recognising the benefits of fortification, the Food Safety and Standards Authority of India, in late 2016, set standards and safety guidelines for fortifying milk and edible oil with vitamins D and A. States such as Himachal Pradesh, Gujarat, Rajasthan, Madhya Pradesh and parts of Haryana have already introduced fortified edible oil in the public distribution system and mid-day meal programmes. In another welcome move, well-known dairy chains in India have also initiated the fortification of milk.

In addition to widespread vitamin D deficiency, more than half the population across all age groups consumes much less than their daily needs of iron, zinc, vitamin A and other B vitamins. These seemingly minor 'micronutrients' are vital for health and deserve attention. Although their deficiency may not always be overtly manifest, there is often a subtle, insidious effect, which may ultimately culminate in a serious disease. Attempts are being made to tackle such deficiencies too by appropriate food fortification

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Scaling up these efforts to ensure greater availability and uptake of fortified food (marked by the F+ logo) is essential. Raising awareness about the benefits of vitamin D fortified food in building better bones is an important component of these efforts. Concurrently, there is a need for monitoring and long-term studies on the impact of fortified food at the population level.

India already has an impressive record with iodine-fortified salt, which has virtually eradicated goitre and cretinism. I believe that a similar effort to promote widespread use of vitamin D fortified milk and edible oil can result in a marked reduction in the prevalence of vitamin D deficiency across India.

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