

**Editorial:****Vitamin D – Newer Perspective**

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Vitamin D is a fat-soluble vitamin that is naturally present in very few foods, added to others, and available as a dietary supplement. It is also produced endogenously when ultraviolet rays from sunlight strike the skin and trigger vitamin D synthesis.<sup>[1]</sup>

Vitamin D deficiency has been found to be widely prevalent in general population and also in school going children because of change in life style in last two decades. The prevention is easy but its deficiency occurs, when timely action is not taken it can lead to serious impact like osteoporosis and osteomalacia which result in bone fracture and causing adverse impact on quality of life of individual and family.

It is also needed for bone growth and bone remodeling by osteoblasts and osteoclasts.<sup>[1, 2]</sup> Without sufficient vitamin D, bones can become thin, brittle, or misshapen. Vitamin D sufficiency prevents rickets in children and osteomalacia in adults.<sup>[1]</sup> Together with calcium, vitamin D also helps protect older adults from osteoporosis.<sup>[1]</sup>

Vitamin D has other roles in the body, including modulation of cell growth, neuromuscular and immune function, and reduction of inflammation.<sup>[1, 3, 4]</sup> Many genes encoding proteins that regulate cell proliferation, differentiation, and apoptosis are modulated in part by vitamin D.<sup>1</sup>

Other research studies also highlight the fact that vitamin D has other important roles for our health, apart from maintaining the density of bones.

**1. Role in prevention of cancer:**

Researchers working at the University of California San Francisco published research work suggesting genetic variations in the vitamin D receptor may explain the unusually high incidence of breast cancer in Marin County, California.<sup>[5]</sup>

Various studies have shown that people with adequate levels of vitamin D have a significantly lower risk of developing

cancer, compared to people with lower levels. Vitamin D deficiency was found to be prevalent in cancer patients regardless of nutritional status, in a study carried out by Cancer Treatment Centers of America.<sup>[6]</sup>

**2. Role in immunity regulation:**

Two studies published online in Pediatrics found that vitamin D deficiency is associated with more severe, longer lasting illness in children admitted to the hospital.<sup>[7, 8]</sup>

Vitamin D is an important way to arm the immune system against disorders like the common cold, say scientists from the University of Colorado Denver School of Medicine, Massachusetts General Hospital and Children's Hospital Boston.<sup>[6]</sup>

**3. Reduction in the risk of developing Multiple Sclerosis:**

Researchers at the Menzies Research Institute in Tasmania found that one of the main treatments for multiple sclerosis (MS) may increase the amount of vitamin D patients produce when exposed to sunlight.<sup>[9]</sup>

Vitamin D reduces the risk of developing multiple sclerosis. Multiple sclerosis is much less common the nearer you get to the tropics, where there is much more sunlight, according to Dennis Bourdette, chairman of the Department of Neurology and director of the Multiple Sclerosis and Neuroimmunology Center at Oregon Health and Science University, USA.<sup>[6]</sup>

**4. Protection against lung function decline:**

Researchers in Boston found that vitamin D deficiency in smokers is associated with worse lung function and more rapid decline in lung function over time.<sup>[10]</sup>

Research published in the American Journal of Respiratory and Critical Care Medicine found that vitamin D deficiency may be linked with poor lung function in children with asthma.<sup>[11]</sup>

Vitamin D reduces the severity and frequency of asthma symptoms, and also the

likelihood of hospitalizations due to asthma, researchers from Harvard Medical School found after monitoring 616 children in Costa Rica.<sup>[6]</sup>

#### **5. Protection against obesity, diabetes and insulin resistance:**

Researchers from the Drexel University School of Public Health found that patients who are both obese and vitamin D deficient are at greater risk of insulin resistance than patients with either factor alone.<sup>[12, 13]</sup>

Vitamin D is probably linked to maintaining a healthy body weight, according to research carried out at the Medical College of Georgia, USA.<sup>[6]</sup>

#### **6. Role in bone mineral density and reduction of risk of fractures among older adults:**

A meta-analysis published in The New England Journal of Medicine reports that higher doses of vitamin D do in fact decrease the risk of fracture in older adults.<sup>[14, 15]</sup>

Researchers from the Catholic University of Korea recently report on the connection between vitamin D, parathyroid hormone and bone mineral density in elderly Koreans.<sup>[16]</sup>

#### **7. Reduction in the risk of rheumatoid arthritis:**

Vitamin D has been shown to reduce the risk of developing rheumatoid arthritis in women.<sup>[6]</sup>

#### **8. Vitamin D and brain function:**

Vitamin D may have a key role in helping the brain to keep working well in later life, according to a study of 3000 European men between the ages of 40 and 79.<sup>[6]</sup>

Clinical observations about vitamin D effects relate to alterations of mood and cognition, brain development, Alzheimer's, multiple sclerosis, depression, schizophrenia, autisms, and others.<sup>[17]</sup>

#### **9. Role in minimizing radiation damage:**

A form of vitamin D could be one of our body's main protections against damage from low levels of radiation, say radiological experts from the New York City Department of Health and Mental Hygiene.<sup>[6]</sup>

#### **10. Vitamin D and Severe Early Childhood Caries:**

Children with severe early childhood caries have been found to lower vitamin D levels and increased Para Thyroid Hormone (PTH) levels compared to age-matched controls.<sup>[18]</sup>

#### **Prevention is easy, which includes;**

- Exposure to sunlight at least for 15 minutes daily, during this period one should have at least 20% of body surface uncovered.
- Eating food containing vitamin D e.g. Milk, cheese, butter and other foods fortified with vitamin D
- During rainy season when sun exposure is unlikely monthly supplemented through vitamin D.

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