

**The D-Lightful Vitamin D and the COVID 19 Pandemic: Historical and Up-to-Date Perspectives on the Use of Sunlight and the Sunshine Vitamin for the Third Decade of the 21<sup>st</sup> Century.** Michael F Holick, Section of Endocrinology, Diabetes, Nutrition and Weight Management, Department of Medicine, Boston University Medical Center, Boston Massachusetts.

It has been exactly 100 years when it was first reported by Alfred Hess and Lester Unger that exposure of rachitic infants to sunlight on the roof of their New York City Hospital had a dramatic healing effect as demonstrated by marked increased mineralization of their skeletons on X-rays. They published their observations *The Cure of Infantile Rickets by Sunlight* in JAMA 1921. Within the next decade this sunshine vitamin's structure was elucidated and was named vitamin D. The fortification of milk and other foods with vitamin D dramatically reduced the incidence of rickets in North America and Europe. It is now realized 100 years later that essentially every cell and organ system in the body has a vitamin D receptor. It is estimated that upwards of 3000 genes, approximately 1/6 of the human genome, are directly or indirectly influenced by vitamin D. This helps explain the pleotropic actions of the sunshine vitamin and the role it plays in reducing risk of many chronic and acute illnesses including autoimmune disorders, cardiovascular diseases, some deadly cancers, type 2 diabetes, neurocognitive disorders including Alzheimer's disease and infectious diseases. Recent evidence suggests that maintaining a healthy vitamin D status can reduce risk of infectivity, morbidity and mortality associated with COVID 19. Vitamin D deficiency/insufficiency continues to be one of the most common medical conditions worldwide. It has been estimated that approximately 40% and 60% of children and adults are vitamin D deficient or insufficient respectively. With all of the potential health benefits that vitamin D provides, there continues to be a great need to improve the vitamin D status of the world's population. This can be easily accomplished by instituting vitamin D food fortification programs worldwide that include foods consumed by local populations, sensible sun exposure recommendations and the use of vitamin D supplementation.