



Vitamin D and immunity : reality or phantasy?

Hamid Jan Bin Jan Mohamed,

Nutrition Programme, School of Health Sciences, Universiti Sains Malaysia

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A PubMed search using the terms “vitamin D and immunity” reveals more than 6,000 papers. While a PubMed search using the terms “vitamin D and COVID-19” results in more than 1,000 paper with both showing an increasing trend of publications. What’s these indicates to us? Vitamin D has been attracting a lot of attention from researchers, pharmaceutical industries and public mainly because of its potential extra-skeletal effects in health and in various diseases such as diabetes, cardiovascular diseases, cancer and autoimmune diseases. Historically, vitamin D was associated with diseases such as rickets in children and osteoporosis in adults. However, during the COVID-19 pandemic, vitamin D gained a special focus related to its immune modulating ability. Previously, vitamin D is reported to help in boosting the immune system via several mechanisms.¹⁻³ With regards to viral infection such as COVID-19, vitamin D enhances cellular immunity by reducing the cytokine storm by reducing the expression of pro-inflammatory cytokines and increasing the expression of anti-inflammatory cytokines. A detailed mechanistic and therapeutic insights is discussed by Marcinkowska and Brown (2022). Unfortunately, vitamin D or the sunshine vitamin is surprisingly lacking in people in the Asian region and across all age groups.^{1,5,10,11} This is mainly due to limited intake of vitamin D rich food source in this region and due to sun ray avoidance behaviour⁴ and monsoon season.⁸ Obesity further exacerbates deficiency as the fat-soluble vitamin D is sequestered and stored in adipose tissue instead of blood circulation.¹²

COVID-19 is a wakeup call for everyone to rethink on the importance of ensuring adequate intake of vitamin D in their daily diet and the importance of maintaining healthy body weight. It is also an urgent reminder to researcher to explore more on this topic as data and publications on this area is lacking particularly in the Asian region.

Keywords: congenital heart disease, malnutrition, surgery

References

1. Al-Sadat N, Majid HA, Sim PY, et al. (2016) Vitamin D deficiency in Malaysian adolescents aged 13 years: findings from the Malaysian Health and Adolescents Longitudinal Research Team study (MyHeARTs)
2. Eamon Laird & Rose Anne Kenny (2020), Vitamin D deficiency in Ireland –implications for COVID-19. Results from the Irish Longitudinal Study on Ageing (TILDA). Report <https://www.doi.org/10.38018/TildaRe.2020-05>
3. Grant, W.B.; Lahore, H.; McDonnell, S.L.; Baggerly, C.A.; French, C.B.; Aliano, J.L.; Bhattoa, H.P. (2020) Evidence that Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths. *Nutrients*. 12, 988.

Corresponding author:

Hamid Jan B. Jan Mohamed
Nutrition Programme, School of Health Sciences, Universiti
Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia
E-mail: hamidjan@usm.my

4. Jamil, N. A., Shahudin, N. N., Abdul Aziz, N. S., Jia Qi, C., Wan Aminuddin, W., Mat Ludin, A. F., Chin, K. Y., Abd Manaf, Z., & Mat Daud, N. (2019). Knowledge, Attitude and Practice Related to Vitamin D and Its Relationship with Vitamin D Status among Malay Female Office Workers. *Int. J. Environ. Res. Public Health*, 16(23), 4735. <https://doi.org/10.3390/ijerph16234735>
5. Jan Mohamed HJ, Rowan A, Fong B, Loy S-L (2014) Maternal Serum and Breast Milk Vitamin D Levels: Findings from the Universiti Sains Malaysia Pregnancy Cohort Study. *PLoS ONE* 9(7): e100705. <https://doi.org/10.1371/journal.pone.0100705>
6. Marcinkowska E and Brown G (2022) Editorial: Vitamin D and COVID-19: New Mechanistic and Therapeutic Insights. *Front. Pharmacol.* 13:882046. doi: 10.3389/fphar.2022.882046
7. Martineau Adrian R, Jolliffe David A, Hooper Richard L, Greenberg Lauren, Aloia John F, Bergman Peter et al. (2017) Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data *BMJ*; 356 :i6583
8. Norliyana Aris, Amal K Mitra, Wan Mohd Izani, Hamid Jan Bin Jan Mohamed (2020). Effects of occupational sunlight exposure and monsoon season on vitamin D concentration among outdoor and indoor workers in Malaysia. *Mal J Nutr.* 26(3): 425-439
9. Peter Lloyd-Sherlock, Shah Ebrahim, Leon Geffen, Martin and McKee (2020), Bearing the brunt of covid-19: older people in low and middle income countries. *BMJ* 2020;368:m1052 doi: 10.1136/bmj.m1052.
10. Pulungan A, Soesanti F, Tridjaja B, Batubara J. Vitamin D insufficiency and its contributing factors in primary school-aged children in Indonesia, a sun-rich country. *Ann Pediatr Endocrinol Metab.* 2021 Jun;26(2):92-98. doi: 10.6065/apem.2040132.066.
11. Shafinaz, I.S., Moy, F.M. Vitamin D level and its association with adiposity among multi-ethnic adults in Kuala Lumpur, Malaysia: a cross sectional study. (2016) *BMC Public Health* 16, 232 (2016). <https://doi.org/10.1186/s12889-016-2924-1>
12. Zakharova I, Klimov L, Kuryaninova V, Nikitina I, Malyavskaya S, Dolbnya S, Kasyanova A, Atanesyan R, Stoyan M, Todieva A, Kostrova G and Lebedev A (2019) Vitamin D Insufficiency in Overweight and Obese Children and Adolescents. *Front. Endocrinol.* 10:103. doi: 10.3389/fendo.2019.00103