# Study links vitamin D deficiency to increased COVID-19 hospitalisation risk



Research led by King's College London, in collaboration with Guy's and St Thomas's NHS Foundation Trust and the University of South Australia, has found a significant link between vitamin D deficiency and an increased risk of hospitalisation due to COVID-19. The study, which analysed health data from over 150,000 participants in the UK Biobank, revealed that while low vitamin D levels did not increase the likelihood of contracting the virus, individuals deficient in this nutrient were more prone to severe illness requiring hospital care. These findings build on a growing body of evidence that suggests maintaining adequate vitamin D status may help mitigate the severity of COVID-19 infections.

Vitamin D, essential for immune system support, is commonly deficient among many people in the UK. Professor Sophia Karagiannis, a co-author of the study and Professor of Translational Cancer Immunology and Immunotherapy at King's College London, emphasised the importance of vitamin D in sustaining a healthy immune defence. Speaking to the significance of their research, she noted the need for further studies involving larger and more diverse populations globally to validate and expand upon these findings. She suggested that potential strategies to boost vitamin D levels—such as dietary changes, supplementation, and controlled sun exposure—might reduce the risk of severe COVID-19 outcomes.

Further supporting these observations, multiple systematic reviews and meta-analyses have indicated that vitamin D supplementation can reduce COVID-19 severity. Research published in the Nutrition Journal and Nutrients found that supplementation was associated with lower mortality rates, decreased need for intensive care, and reduced reliance on mechanical ventilation in hospitalised patients. Similarly, a meta-analysis in Frontiers in Public Health confirmed that vitamin D deficiency correlates with worsened COVID-19 severity and higher mortality, advocating for adequate vitamin D status as a potential mitigating factor.

An umbrella meta-analysis in Public Health Nutrition also highlighted the role of vitamin D in critical care outcomes, finding a significant increase in COVID-19 severity and infection risk linked to vitamin D deficiency. Researchers suggested that supplementation could positively impact patient outcomes by lessening disease severity. Correspondingly, a study in Frontiers in Immunology identified vitamin D levels as a possible predictor of COVID-19 severity, reinforcing the rationale for considering vitamin D supplementation in clinical management plans.

Vitamin D supplements are widely accessible and inexpensive, costing roughly two pence per tablet in UK pharmacies. However, experts caution that while these findings are promising, more definitive clinical trials are needed to establish whether vitamin D alone can substantially reduce the severity of COVID-19 or improve patient recovery. Current evidence encourages a cautious but proactive approach to managing vitamin D deficiency as part of broader public health efforts addressing COVID-19 risks.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.mirror.co.uk/news/health/common-deficiency-linked-greater-covid-36077354), [[2]](https://www.kcl.ac.uk/news/vitamin-d-deficiency-linked-to-greater-risk-of-covid-19-hospitalisation)
* Paragraph 2 – [[1]](https://www.mirror.co.uk/news/health/common-deficiency-linked-greater-covid-36077354), [[2]](https://www.kcl.ac.uk/news/vitamin-d-deficiency-linked-to-greater-risk-of-covid-19-hospitalisation)
* Paragraph 3 – [[3]](https://pubmed.ncbi.nlm.nih.gov/35166850/), [[4]](https://www.mdpi.com/2072-6643/14/10/2134), [[5]](https://pubmed.ncbi.nlm.nih.gov/35793346/)
* Paragraph 4 – [[6]](https://www.cambridge.org/core/journals/public-health-nutrition/article/role-of-vitamin-d-in-outcomes-of-critical-care-in-covid19-patients-evidence-from-an-umbrella-metaanalysis-of-interventional-and-observational-studies/7FBDE3965C5C3075B65B9EF793D343F7), [[7]](https://pubmed.ncbi.nlm.nih.gov/38008066/)
* Paragraph 5 – [[1]](https://www.mirror.co.uk/news/health/common-deficiency-linked-greater-covid-36077354), [[2]](https://www.kcl.ac.uk/news/vitamin-d-deficiency-linked-to-greater-risk-of-covid-19-hospitalisation), [[3]](https://pubmed.ncbi.nlm.nih.gov/35166850/)

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## Bibliography

1. <https://www.mirror.co.uk/news/health/common-deficiency-linked-greater-covid-36077354> - Please view link - unable to able to access data
2. <https://www.kcl.ac.uk/news/vitamin-d-deficiency-linked-to-greater-risk-of-covid-19-hospitalisation> - A study led by King's College London, in collaboration with Guy's and St Thomas's NHS Foundation Trust and the University of South Australia, found that individuals with low vitamin D levels are more likely to be hospitalised with COVID-19. The research analysed health data from over 150,000 participants in the UK Biobank and revealed that while low vitamin D levels did not increase the likelihood of contracting the virus, they were associated with a higher risk of severe illness requiring hospitalisation. The findings underscore the importance of maintaining adequate vitamin D levels for immune system support. ([kcl.ac.uk](https://www.kcl.ac.uk/news/vitamin-d-deficiency-linked-to-greater-risk-of-covid-19-hospitalisation?utm_source=openai))
3. <https://pubmed.ncbi.nlm.nih.gov/35166850/> - A systematic review and meta-analysis published in the Nutrition Journal examined the impact of vitamin D supplementation on COVID-19 severity. The study found strong evidence that vitamin D supplementation reduces the risk of mortality in COVID-19 patients. Additionally, supplementation was associated with a decreased need for intensive care and mechanical ventilation. The authors concluded that vitamin D supplementation is effective in reducing COVID-19 severity and should be considered as an adjunctive therapy. ([pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/35166850/?utm_source=openai))
4. <https://www.mdpi.com/2072-6643/14/10/2134> - A systematic review and meta-analysis published in the journal Nutrients investigated the effects of vitamin D supplementation on COVID-19-related outcomes. The study found that while vitamin D supplementation did not significantly reduce the risk of COVID-19 infection, it was associated with a lower mortality rate and reduced risk of ICU admission in hospitalised patients. The authors suggested that vitamin D supplementation may be beneficial in improving clinical outcomes for COVID-19 patients. ([mdpi.com](https://www.mdpi.com/2072-6643/14/10/2134?utm_source=openai))
5. <https://pubmed.ncbi.nlm.nih.gov/35793346/> - A systematic review and meta-analysis published in the journal Frontiers in Public Health assessed the relationship between vitamin D and COVID-19 infection, severity, and mortality. The study found that vitamin D deficiency was associated with an increased risk of severe COVID-19 disease and higher mortality rates. The authors concluded that maintaining adequate vitamin D levels may play a role in reducing the severity and mortality of COVID-19. ([pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/35793346/?utm_source=openai))
6. <https://www.cambridge.org/core/journals/public-health-nutrition/article/role-of-vitamin-d-in-outcomes-of-critical-care-in-covid19-patients-evidence-from-an-umbrella-metaanalysis-of-interventional-and-observational-studies/7FBDE3965C5C3075B65B9EF793D343F7> - An umbrella meta-analysis published in Public Health Nutrition examined the role of vitamin D in critical care outcomes for COVID-19 patients. The study found that vitamin D deficiency significantly increased the risk of COVID-19 infection and severity. The authors suggested that vitamin D supplementation could be beneficial in reducing the severity of COVID-19 and improving patient outcomes. ([cambridge.org](https://www.cambridge.org/core/journals/public-health-nutrition/article/role-of-vitamin-d-in-outcomes-of-critical-care-in-covid19-patients-evidence-from-an-umbrella-metaanalysis-of-interventional-and-observational-studies/7FBDE3965C5C3075B65B9EF793D343F7?utm_source=openai))
7. <https://pubmed.ncbi.nlm.nih.gov/38008066/> - A study published in the journal Frontiers in Immunology investigated the association between vitamin D levels and COVID-19 severity. The research found that vitamin D deficiency and insufficiency were associated with increased severity and unfavourable outcomes in COVID-19 patients. The authors suggested that vitamin D levels could be a predictor of disease severity and that supplementation may have a role in improving patient outcomes. ([pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov/38008066/?utm_source=openai))