# Article information:

The efficacy of vitamin B12 supplementation for treating vitamin B12 deficiency and peripheral neuropathy in metformin-treated type 2 diabetes mellitus patients: A systematic review - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S187140212200248X>

# Article summary:

1. Metformin-treated type 2 diabetes mellitus (T2DM) patients are at higher risk of vitamin B12 deficiency and more severe neuropathy symptoms.

2. Vitamin B12 supplementation increases serum level and improves neuropathy symptoms.

3. Vitamin B12 supplementation should be encouraged and included in available treatment guidelines.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

This article is a systematic review of the efficacy of vitamin B12 supplementation for treating vitamin B12 deficiency and peripheral neuropathy in metformin-treated type 2 diabetes mellitus patients. The authors conducted a thorough search of relevant literature, including PubMed, Cochrane, EBSCOHost, and Scopus databases, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline. Seven clinical trials with a total of 506 participants were included in the analysis.

The authors used the Cochrane's Risk of Bias 2 tools for clinical trials to assess study quality and risk of bias, finding that 4 studies had high risk of bias and 3 studies had low risk of bias. The results showed that there was a statistically significant increase in serum vitamin B12 levels after supplementation, as well as significant reductions in homocysteine levels after supplementation. However, its effect on neuropathy symptoms was still unclear, with 2 studies reporting a significant improvement and 1 study reporting no significant effect.

The authors concluded that their results support the implementation of vitamin B12 supplementation for metformin-treated T2DM to prevent or treat vitamin B12 deficiency and neuropathy; however, they noted that more high-quality clinical studies are required to generate quantitative analysis and to encourage supplementation in available guidelines.

In terms of trustworthiness and reliability, this article appears to be reliable due to its thorough search strategy which followed PRISMA guidelines; its use of suitable appraisal tools such as Cochrane's Risk of Bias 2 tools for clinical trials; its clear presentation of data; its detailed discussion section; its conclusion which is supported by evidence from the included studies; as well as its acknowledgement that further research is needed to generate quantitative analysis and encourage supplementation in available guidelines. There does not appear to be any potential biases or one-sided reporting present in this article.

# Topics for further research:

* Vitamin B12 deficiency and type 2 diabetes mellitus
* Vitamin B12 supplementation and peripheral neuropathy
* Metformin-treated type 2 diabetes mellitus
* PRISMA guidelines for systematic reviews
* Cochrane's Risk of Bias 2 tools
* Vitamin B12 supplementation guidelines

# Report location:

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