



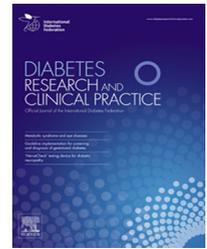
Contents available at [ScienceDirect](#)

Diabetes Research
and Clinical Practice

journal homepage: www.elsevier.com/locate/diabres



International
Diabetes
Federation



Letter to the Editor

**Re Niroomand M, Fotouhi A, Irannejad N et al.
Does high-dose vitamin D supplementation impact
insulin resistance and risk of development
of diabetes in patients with pre-diabetes?
A double-blind randomized controlled trial.
Diabetes Res Clin Pract. 2019;148:1–9**



Barbara J. Boucher

The Blizzard Institute, Barts & The London School of Medicine & Dentistry, Queen Mary University of London, 4 Newark Street, London E12AT, UK

To the editor,

Reductions of abnormally increased insulin resistance following correction of vitamin D deficiency by vitamin D supplementation, as you report [1], supports earlier findings [2]. The significantly reduced risk of overt T2DM over 6 months despite unchanged overall fasting or 2-hour OGTT glycaemia demonstrates that many subjects did not achieve this benefit. Since serum 25(OH)D increased in all supplemented subjects' other factors must be involved. For example, six-month supplementation during the prolonged period of increased insulin resistance preceding overt T2DM [T2DM being accepted to result from progressive loss of islet beta cell insulin secretory function over about 10 yrs] means that pre-diabetic population groups must contain subjects at different stages of beta cell damage. Thus, even more risk reduction might be found if supplementation of vitamin D deficient subjects with increased insulin resistance began before glucose intolerance appeared and continued over 5–10 years. It would be valuable, therefore, to determine whether the plateau in incidence of childhood T1DM in Finland following virtual abolition of deficiency at the population level by vitamin D food fortification [3] will be reproduced for T2DM, perhaps from 2020, [ten years after food fortification was doubled to achieve repletion].

Furthermore, the planned examination of chronic health burdens in Finland during the vitamin D food fortification programme may well demonstrate reducing T2DM prevalence rates, as may reanalyses of long-term RCT data for those whose baseline deficiency was corrected [4]. Such evidence would provide valuable support for the continuing suspicion that the avoidance of vitamin D inadequacy at the population-level should reduce T2DM-associated risks [5].

Funding

The author received no funding from an external or internal source in connection with the preparation of this letter.

Declaration of Competing Interest

The author has no conflicts of interest of any type to declare.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.diabres.2019.107782>.

REFERENCES

- [1] Niroomand M, Fotouhi A, Irannejad N, et al. Does high-dose vitamin D supplementation impact insulin resistance and risk of development of diabetes in patients with pre-diabetes? A double-blind randomized controlled trial. *Diabetes Res Clin Pract* 2019;148:1–9.
- [2] von Hurst PR, Stonehouse W, Coad J. Vitamin D supplementation reduces insulin resistance in South Asian women living in New Zealand who are insulin resistant and vitamin D deficient – a randomized, placebo-controlled trial. *Br J Nutr* 2010;103(4):549–55.
- [3] Makinen M, Simell V, Mykkanen J, et al. An increase in serum 25-hydroxyvitamin D concentrations preceded a plateau in type 1 diabetes incidence in Finnish children. *J Clin Endocrinol Metab* 2014;99(11):E2353–6.
- [4] Palaanen L, Harkanen Tm Tolonen H. Protocol of a research project 'Projections of the burden of disease and disability in Finland – health policy prospects' using cross-sectional health surveys and register-based follow-up. *BMJ* 2019;9(6):1–8. e0293399.
- [5] Boucher BJ, Inadequate vitamin D status: does it contribute to the disorders comprising syndrome 'X'?. *Br J Nutr* 1998;79(4):315–27; Boucher BJ, Vitamin D insufficiency and diabetes risks. *Curr Drug Targets*. 2011; 12(1):61–87. [Reviews].