Titel document	Does osteopathic manipulative treatment have an effect on type 2 Diabetes Mellitus patients? (2022)
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Probleemstelling	The prevalence of type 2 diabetes mellitus is reaching epidemic proportions. Furthermore, the costs of healthcare due to complications of type 2 diabetes mellitus are rising very fast. Patients with type 2 diabetes mellitus are sometimes treated by osteopaths. They come for other reasons like pain or disability. But are there actually studies that prove that this way of treatment has beneficial effects on patients with diabetes?
Sleutelwoorden	Diabetes mellitus type 2, osteopathic manipulative treatment

Abstract
(probleemstelling/methode/resultaten/ conclusie)

The prevalence of type 2 diabetes mellitus is reaching epidemic proportions. Furthermore, the costs of healthcare due to complications of type 2 diabetes mellitus are rising very fast. Patients with type 2 diabetes mellitus are sometimes treated by osteopaths. They come for other reasons like pain or disability. But are there actually studies that prove that this way of treatment has beneficial effects on patients with diabetes?

Objective
The article's objective is to review the existing evidence on the effect of osteopathic manipulative treatment on type 2 diabetic mellitus patients.

Study design
Literature review

Method
To be able to find the necessary studies a literature search was conducted between May till June 2022 on the following websites:
Google Scholar, PubMed, Cochrane Library, International Journal of Osteopathic Medicine, The Journal of the American Osteopathic Association, Akademie Für Osteopathie, Osteopathic research web and Osteopathic Medical Digital Repository and Science Direct.

Out of the final 24 articles, three were found relevant to this study. Those were assessed with PEDro scale.

Results
Small-scale studies found improvement in patient's parameters after OMT was applied. The findings were as follow: decreased blood glucose level, increased Plasma insulin level, decreased HbA1c value, significantly lowered the severity of low back pain and there is a possible mechanism which reduces circulating levels of TNF-α.

All three articles that were included are low to fair quality RCTs.

Conclusion
Larger and more extensive research needs to be done to be able to evaluate the effectiveness and benefits of OMT on type 2 diabetes mellitus patients, in order to demonstrate clinical significance.

Aanbevelingen	1. Two similar groups, control and therapy, need randomly to be allocated and being blind to the research. 2. The number of patients needs to be above 80 patients to strengthen the research validity. 3. To be able to reach points 1 and 2, a strong collaboration between SCOA and DM association and/or hospitals needs to be founded. 4. Preferably the treating osteopaths will be blinded as well to the research. 5. The treatment intervals will be identical for all patients. Preferably every 2-3 months. 6. The research will be longer than five years to assess long-term effects. 7. The patients need to be categorized as having type 2 diabetes mellitus by the GP or any medical worker that is authorized to do so. 8. The treatment group will be treated by the “blackbox” method. 9. The placebo group will be treated by a pre-made protocol. 10. The measurement that needs to be taken are: • HbA1c value; • Blood insulin and glucose level; • VAS pain scale; • QOL questionnaires; • Cytokine serum concentration (IL-1β, IL-6, IL-8, IL-10 and TNF-α).