



Ginger supplements and HbA1c in type 2 diabetes: what the 2024 review shows

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1. ABSTRACT

The 2024 review evaluated whether oral ginger intake can improve fasting glycemia and glycated hemoglobin in people with type 2 diabetes. By pooling five clinical trials, the authors did not find an overall statistically significant effect, despite some favorable individual studies. Type 2 diabetes involves a persistent increase in blood glucose. To assess its control, studies often look at fasting glycemia, which is the value measured after several hours without eating, and HbA1c or glycated hemoglobin, which reflects the average glucose exposure over the previous months. Schumacher and colleagues examined randomized trials—studies in which assignment to the product or the comparison group occurs randomly—on ginger in capsules or powder taken orally. Doses ranged from 1.2 to 2 grams per day, and treatments lasted from 4 to 12 weeks. Five studies were included in the quantitative synthesis. When the results were combined, there was no statistically significant reduction in either fasting glycemia or HbA1c. However, two studies, when considered separately, had detected a decrease in fasting glycemia. The practical significance is cautious: some data suggest a possible metabolic signal, but the body of evidence analyzed does not demonstrate a stable and reproducible benefit. Differences in formulations, duration, baseline values, and the groups studied may contribute to the observed variability.

VIDEO ARTICLE



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2. WHAT THIS RESEARCH ANALYZED

The 2024 study by Schumacher and colleagues examined whether ginger taken as a supplement can help control blood sugar in type 2 diabetes. The authors searched for randomized clinical trials in the PubMed, Scopus, and Web of Science databases up to January 2022. They identified 6,063 initial records and included five eligible studies. The comparison was between oral ginger and a control, often a placebo. The primary outcomes were fasting glycemia and HbA1c. The former describes the amount of glucose at a specific moment; the latter indicates the average trend of glycemia over the previous months. The authors also assessed the risk of methodological bias using RoB 2.0, a tool that verifies the extent to which a study's design may alter its conclusions. The analysis of the combined results is derived from this.

3. WHAT RESULTS EMERGE FROM THE STUDY

The main takeaway is that the available studies have not provided statistical proof of an overall effect of isolated ginger on fasting glycemia and HbA1c. Simply put, when aggregating the data from the five studies, the difference between those who took ginger and those who received the control was not consistent enough to reasonably rule out chance. The doses ranged from 1.2 to 2 g per day, and the duration lasted between four and twelve weeks. Two individual studies reported a significant decrease in fasting glycemia, but this was not enough to make the synthesis result significant. The data suggests variability in response, not an absolute absence of effect. However, it does not prove that ginger lowers glycemia in all people or that it reduces diabetes complications. Therefore, to interpret this, one must consider the clinical and methodological context.

4. WHY THIS STUDY IS RELEVANT

This publication is relevant because it distinguishes the impression created by certain positive results from the conclusion that can be drawn when multiple trials are evaluated together. An improvement observed in a small study may be real, coincidental, or linked to the specific characteristics of the participants, the diet, concomitant treatments, or the product used. The review therefore distinguishes a possible biological

signal from clinical evidence sufficient to claim a consistent benefit. For a person with type 2 diabetes, glycemia and HbA1c remain important indicators, but any change in them following supplementation does not automatically equate to a lower probability of complications. The 2024 study by Schumacher and colleagues supports the research interest in ginger, but does not change its role: a support to be studied, not a substitute for prescribed therapies.

5. STUDY LIMITATIONS AND WHAT IT DOES NOT DEMONSTRATE

The main limitation is the small number of available trials. Five studies do not allow us to understand precisely which individuals might respond best, which preparation is most suitable, or whether the effect persists beyond a few weeks. The capsules were not all identical, and the quantity of active ginger compounds is not uniformly standardized. Differences in dosage, duration, and participants make direct comparison difficult. Furthermore, the research measured laboratory markers rather than clinical events such as hospitalizations, microvascular complications, or quality of life. It does not demonstrate a causal effect on diabetes complications, does not identify a one-size-fits-all dose, and does not allow for the replacement of medications, personalized nutrition, physical activity, or medical monitoring. The null result of the synthesis does not even prove that every formulation is ineffective: it indicates that the evidence examined was not uniform enough for a solid positive conclusion.

6. INDEPENDENT CONFIRMATORY EVIDENCE

An updated meta-analysis of 13 randomized trials found average reductions in fasting glycemia and HbA1c, but with very high heterogeneity: I^2 of 86.39% and 92.09%. The I^2 indicates how much of the differences between scientific papers appears to depend on real variations between studies rather than chance alone. The authors also judged the effects to be of limited clinical importance. This passage confirms, above all, the caution of the Schumacher study: a favorable average signal exists, but it is not uniform [1]. A previous meta-analysis of ten randomized trials, conducted exclusively in type 2 diabetes, observed an average reduction in fasting glycemia of 18.81 mg/dL



and HbA1c of 0.57 percentage points. Here, too, however, heterogeneity was high, with $I^2=77.4\%$ respectively. The relationship with the 2024 review is direct: it supports the hypothesis of a possible effect, but shows that estimates change significantly depending on the studies included and the analysis methods [2]. A third meta-analysis included nine trials in different populations, four of which involved type 2 diabetes. It reported an average variation in fasting glycemia of -1.35 mg/dL and HbA1c of -1.01 , with confidence intervals that did not cross zero. Since it did not exclusively concern type 2 diabetes, the confirmation is indirect. Furthermore, sample sizes ranged from 10 to 88 participants and the clinical context was heterogeneous [3].

7. CONFLICTING EVIDENCE

Some publications reach more favorable conclusions compared to the overall null result of the 2024 review.

Daily and colleagues pooled five randomized trials and found a significant decrease in fasting glycemia and HbA1c. However, they did not observe a statistically significant reduction in fasting insulin or HOMA-IR, an index that estimates insulin resistance. This difference suggests that any variations in glycemia alone do not identify the mechanism involved [4]. In a double-blind, placebo-controlled trial, Arablou and colleagues involved 70 people with type 2 diabetes: 1,600 mg per day of ginger for 12 weeks was associated with significant reductions in fasting glycemia, HbA1c, insulin, and HOMA compared to the placebo. This finding contrasts with the null synthesis by Schumacher, but it does not invalidate it: it is a single study, of short duration, with a specific dose and population. In the same trial, no significant differences emerged for HDL cholesterol, LDL cholesterol, and TNF-alpha, an inflammatory marker [5].

8. QUADRO COMPARATIVO E SINTESI DELLE EVIDENZE

Independent publications show a potentially favorable signal, but also relevant differences between estimates, populations, and the quality of evidence.

Quadro comparativo

Publication	Design and model	Main result	Relationship to the 2024 study
Chen et al., 2026 [1]	Meta-analysis of 13 randomized trials in people with type 2 diabetes	Mean reductions in fasting glycemia and HbA1c, with very high heterogeneity	Confirms that an average signal can coexist with inconsistent results of limited clinical relevance
Ebrahimzadeh et al., 2022 [2]	Meta-analysis of 10 randomized trials in type 2 diabetes	Mean reduction in fasting glycemia and HbA1c, but high heterogeneity	Supports a possible effect, without resolving the variability between studies
Mazidi et al., 2016 [3]	Meta-analysis of 9 trials in mixed clinical populations	Mean improvements in glycemia and HbA1c; only four studies involved type 2 diabetes	Indirect confirmation of the metabolic signal, with limited generalizability
Daily et al., 2015 [4]	Meta-analysis of 5 randomized trials	Significant reduction in fasting glycemia and HbA1c, but not in insulin or HOMA-IR	More favorable conclusion compared to the null synthesis of 2024
Arablou et al., 2014 [5]	Randomized, double-blind, placebo-controlled trial; 70 participants	Significant reductions in glycemia, HbA1c, insulin, and HOMA after 12 weeks	Individual positive result that does not demonstrate uniformity or duration of the effect



9. SINTESI EDITORIALE E CONCLUSIONI

EDITORIAL CONCLUSION

The 2024 review by Schumacher and colleagues examined five randomized trials on oral ginger supplementation in type 2 diabetes. Formulations and timing of intake varied, with doses ranging from 1.2 to 2 grams per day for four to twelve weeks. Two individual studies showed a reduction in fasting glycemia, but the overall synthesis did not find statistically significant effects on either fasting glycemia or HbA1c. Other meta-analyses, however, report favorable average reductions, often accompanied by wide heterogeneity, meaning results varied significantly between studies. This discrepancy does not prove that one publication is correct and the others are wrong; rather, it highlights the uncertainty due to small sample sizes, non-uniform preparations, and short durations. Ginger remains an interesting topic of nutritional research, but the evidence does not demonstrate a consistent benefit or the prevention of complications. It does not replace medical treatment, clinical monitoring, personalized nutrition, or physical activity.

Aggiornato al 21/10/2026. Questo contenuto riflette una sintesi divulgativa delle evidenze scientifiche al momento della pubblicazione e non sostituisce il parere medico.

10. TRANSPARENCY AND SCIENTIFIC RESPONSIBILITY

Artificial Intelligence was used solely as a tool for editorial and documentary support. All content, interpretations, bibliographic citations and conclusions have been verified, reviewed and approved by the author, who assumes full scientific responsibility for them.

The manuscript was also subjected to independent peer review prior to publication.

To ensure the greatest transparency, the complete history of the article, including the dates of submission, revision, acceptance and publication, as well as information on the peer review process, is available on the dedicated Article History page.

11. RIFERIMENTI BIBLIOGRAFICI

- [1] Meta-analysis of the effects of ginger supplementation on glycemic control, blood pressure and lipid profile in patients with type 2 diabetes
Chen et al., 2026
Systematic Reviews
DOI: <https://doi.org/10.1186/s13643-026-03251-5>
- [2] The effect of ginger supplementation on metabolic profiles in patients with type 2 diabetes mellitus: A systematic review and meta-analysis of randomized controlled trials
Ebrahimzadeh et al., 2022
Complementary Therapies in Medicine
DOI: <https://doi.org/10.1016/j.ctim.2022.102802>
- [3] The effect of ginger supplementation on serum C-reactive protein, lipid profile and glycaemia: a systematic review and meta-analysis
Mazidi et al., 2016
Food & Nutrition Research
DOI: <https://doi.org/10.3402/fnr.v60.32613>
- [4] Efficacy of ginger for treating Type 2 diabetes: A systematic review and meta-analysis of randomized clinical trials
Daily et al., 2015
Journal of Ethnic Foods
DOI: <https://doi.org/10.1016/j.jef.2015.02.007>
- [5] The effect of ginger consumption on glycemic status, lipid profile and some inflammatory markers in patients with type 2 diabetes mellitus
Arablou et al., 2014
International Journal of Food Sciences and Nutrition
DOI: <https://doi.org/10.3109/09637486.2014.880671>