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Peer Review

Review of: "Slow Deep Breathing Exercises Are of Value in Improving Blood Glucose Levels in Type 2 Diabetes: A Controlled Clinical Trial"

Vinoth Gnana Chellaiyan[1,2]

1. Endocrinology, Chettinad Academy of Research and Education, Chennai, India; 2. Endocrinology, Chettinad Health City, Chennai, India

Strengths:

- The title is clear, descriptive, and conveys the key intervention and outcome.
- Abstract provides a concise summary of objectives, methods, results, and conclusions.
- Clearly outlines the rationale for using deep breathing to modulate autonomic function and its potential impact on glycemic control.
- References prior relevant studies to build context.
- Controlled design with healthy and diabetic groups enhances comparability.
- Adequate sample size estimation and justification.
- Standardized breathing intervention protocol used for all participants.
- Ethical approval and informed consent are clearly reported.

Limitations:

- Add the magnitude of effect or provide detailed statistical values (e.g., confidence intervals or effect sizes) in the abstract.
- Adding in the introduction a more thorough exploration of existing gaps in the literature could benefit to justify the need for the study.
- There are certain lacunae in methods - Study design is described as both a “cohort cross-sectional” and a “randomized controlled trial”—this is contradictory and needs clarification. The duration of follow-up is extremely short (only immediate post-exercise effects are measured). Randomization and

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blinding details are missing—reducing internal validity. Reliance on RBG (random blood glucose) instead of FPG/HbA1c may limit clinical relevance.

- The reported inverse correlation between RBG and SpO_2 is weak and only significant in healthy subjects—not diabetic ones. Baseline variability and confounding factors (e.g., medications, diet, time since last meal) are not reported in the discussion.
- A major limitation—lack of autonomic testing—is noted but not addressed methodologically.
- This manuscript provides an interesting and promising look into the acute effects of slow deep breathing on glycemic control and oxygen saturation in type 2 diabetes mellitus. While the findings are statistically significant, the study's short duration, ambiguous design classification, and limited outcome measures restrict its applicability to clinical practice. Future studies with longer follow-up, robust randomization, and clinically meaningful endpoints are warranted before this can be recommended as a standard adjuvant therapy.

Declarations

Potential competing interests: No potential competing interests to declare.