

# A practice teaching from GIMSI (Italian Multidisciplinary Syncope Group) 2025: yoga as a treatment for recurrent vasovagal syncope

Erika Poggiali,<sup>1</sup> Monica Solbiati,<sup>2,3</sup> Ivo Casagrande,<sup>4</sup> Lorenzo Ghiadoni<sup>4</sup>

<sup>1</sup>Emergency Medicine Unit, Guglielmo da Saliceto Hospital, Piacenza; <sup>2</sup>Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan; <sup>3</sup>Department of Clinical Sciences and Community Health, University of Milan, Milan; <sup>4</sup>Academy of Emergency Medicine and Care, Pavia, Italy

The XII Italian National Congress of GIMSI (Italian Multidisciplinary Syncope Group) has taken place in Milan on February 6-7, 2025. This report summarizes a practice teaching from the congress regarding the role of yoga and physical exercise in managing Vasovagal Syncope (VVS). VVS is a very common clinical condition with an estimated lifetime prevalence of 35%<sup>1</sup> and a frequent reason for emergency department visits.<sup>2</sup> Although VVS is not associated with an increased rate of mortality, there is a significant deterioration in the Quality Of Life (QoL) in conjunction with the severity and frequency of recurrences.<sup>3</sup> Pharmacological and non-pharmacological therapies, such as elastic compression stocking, dietary modification with oral rehydration salts and increased salt intake, tilt training (also known as standing training), and physical counter-pressure manoeuvres,

have demonstrated only limited and modest efficacy, which can be frustrating for both patients and clinicians.<sup>4,5</sup> There is no single uniformly accepted protocol to prevent VVS recurrences and some patients with recurrent syncope end up being submitted to procedures, such as pacemaker implantation or cardioneuroablation. The latter is showing promising results, but it is an invasive manoeuvre, and its long-term effects are unknown.<sup>6</sup>

In a meta-analysis by Alharbi *et al.* including 18 studies and 1,130 participants, non-pharmacological interventions such as yoga, physical counter pressure manoeuvres, and tilt training are viable treatment options for preventing recurrent VVS episodes.<sup>7</sup>

As reported in the literature, yoga represents a safe, efficacious, and affordable adjunctive treatment option that can improve QoL for patients with hypertension, atrial fibrillation, and during post-myocardial infarction rehabilitation.<sup>8-10</sup> This ancient Indian practice is based on the principles of mind-body medicine and includes physical postures (asanas), breathing exercises (pranayama), relaxation, and meditation (dhyana).<sup>13</sup> The combination of these three elements can help reduce stress and modulate the autonomic system by balancing the central and peripheral sympathetic-parasympathetic drives.<sup>14,15</sup> Research has shown that these practices can provide documented benefits for patients with VVS.<sup>16-19</sup> According to Shenthar *et al.*, guided yoga therapy is significantly more effective in preventing syncope recurrences and improving QoL compared with guideline-directed dietary and physical manoeuvres in highly symptomatic patients with recurrent VVS.<sup>18</sup> The effectiveness of the single yoga posture Tadasana, which resembles the isometric aspect of standing training and gradually corrects orthostatic imbalance by strengthening protective neuromuscular reflexes, as an additional method to reduce the frequency of VVS clinical events has been demonstrated by Rao BH *et al.*<sup>20</sup> In a randomized single-center study, adults aged 15 to 70 who were diagnosed with VVS and a positive Head-Up Tilt Test (HUTT) within 3 months, with at least 2 syncope or presyncope events in the 3 months, were randomized to receive either a specialized yoga training program in addition to current guideline-based therapy or current guideline-based therapy alone over a period of 12 months.<sup>19</sup> The mean number of syncopal and presyncopal events at 12 months significantly decreased in patients who practiced yoga with a significant improvement of QoL and no adverse events. The authors conclude that yoga, when used as an adjunctive therapy, is more effective than standard therapy alone in reducing symptoms and enhancing the QoL for patients with recurrent VVS.

Yoga can have a multidimensional effect acting through both central and peripheral mechanisms, including physical, psychological, and autonomic pathways.<sup>21</sup> Regular practice of asanas, which consists of various isotonic postures engaging different muscle groups, enhances muscle and vascular tone while also building muscle strength. Improved vascular and muscular tone, particularly in the lower limbs, can help mitigate the venodilation phase during a syncope episode and may also expedite venous return. Additionally, yoga breathing and relaxation techniques have

Correspondence: Erika Poggiali, Emergency Medicine Unit, Guglielmo da Saliceto Hospital, Milan, via Taverna 49, Italy.  
E-mail: erikapoggiali2@gmail.com

Key words: syncope, vasovagal syncope, reflex syncope, yoga, yoga therapy.

Contributions: all the authors approved the final version and equally contributed to the work.

Conflicts of interest: EP, IC, and LG are members of the editorial board of ECJ. This work was not supported by any grant.

Ethics approval and consent to participate: not necessary.

Acknowledgments: the authors thank all GIMSI members for their ongoing efforts to improve syncope management. Erika Poggiali expresses gratitude for her yoga teacher, Paola Ginevra Buonomo, for her enlightening explanations and support.

Received: 10 March 2025.

Accepted: 10 March 2025.

Early view: 10 March 2025.

This work is licensed under a Creative Commons Attribution 4.0 License (by-nc 4.0).

©Copyright: the Author(s), 2025

Licensee PAGEPress, Italy

Emergency Care Journal 2025; 21:13810

doi:10.4081/ecj.2025.13810

*Publisher's note: all claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article or claim that may be made by its manufacturer is not guaranteed or endorsed by the publisher.*

shown to increase vagal tone and improve autonomic balance. This can potentially reduce sympathetic overdrive and interrupt the activation of c-mechanoreceptors, which is a critical step in the syncope cascade.<sup>22</sup> Additionally, mindfulness may help allay anxiety and alleviate stress, which could potentially shorten the VVS cascade by inhibiting the central sympathetic drive. This, in turn, may prevent or decrease the intensity of clinical events. The meditation and mindfulness aspects of yoga positively influence mental health and overall well-being. These studies are burdened by limitations that cannot be overcome such as the open-label design and, for some, the lack of randomisation. On the other hand, despite what one might think, there was a very high adherence to the practice.

Previous evidence shows that while patients may experience fainting episodes for decades, they do so infrequently. Additionally, many patients may enjoy years or even decades of complete remission, punctuated by periods of syncope when they are more likely to faint. A meta-analysis of outcomes in observational studies and the control arms of randomized trials shows that the likelihood of recurring syncope drops markedly once patients have seen by specialists even in the absence of active treatment.<sup>23</sup>

Given the increasing emphasis on aggressive treatment for recurrent VVS, including procedures like ablating epicardial autonomic ganglia<sup>6</sup> and implanting permanent pacemakers in otherwise healthy young and middle-aged people,<sup>24</sup> all the above evidence prompts us to some considerations. Yoga might help reduce VVS episodes with integrating both physical exercise and psychological benefits not forgetting physical counter pressure manoeuvres, and tilt training. Second, patients with recurrent VVS syncope might benefit more from the very presence of someone who makes them feel cared for than from 'traditional' treatment. This approach emphasizes the importance of empathy, optimism, and fostering a strong human connection between doctors and patients.<sup>25</sup>

## References

1. Ganzeboom KS, Mairuhu G, Reitsma JB, et al. Lifetime cumulative incidence of syncope in the general population: a study of 549 Dutch subjects aged 35-60 years. *J Cardiovasc Electrophysiol* 2006;17:1172-6.
2. van Dijk N, Boer KR, Colman N, et al. High diagnostic yield and accuracy of history, physical examination, and ECG in patients with transient loss of consciousness in FAST: the Fainting Assessment study. *J Cardiovasc Electrophysiol* 2008;19:48-55.
3. Bartoletti A, Fabiani P, Bagnoli L, et al. Physical injuries caused by a transient loss of consciousness: main clinical characteristics of patients and diagnostic contribution of carotid sinus massage. *Eur Heart J* 2008;29:618-24.
4. Shen WK, Sheldon RS, Benditt DG, et al. 2017 ACC/AHA/HRS guideline for the evaluation and management of patients with syncope: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *Heart Rhythm* 2017;14:e155-e217.
5. Kuriachan V, Sheldon RS, Platonov M. Evidence-based treatment for vasovagal syncope. *Heart Rhythm* 2008;5:1609-14.
6. Pachon JC, Pachon EI, Pachon JC, et al. "Cardioneuroablation" – new treatment for neurocardiogenic syncope, functional AV block and sinus dysfunction using catheter RF-ablation. *Europace* 2005;7:1-13.
7. Alharbi A, Shah M, Gupta M, et al. The efficacy of non-pharmacological and non-pacing therapies in preventing vasovagal syncope: Tilt training, physical counter pressure maneuvers, and yoga - A systematic review and meta-analysis. *Auton Neurosci* 2024;251:103144.
8. Ghatai N, Killa AK, Sharma G, et al. A randomized trial of the immediate effect of bee-humming breathing exercise on blood pressure and heart rate variability in patients with essential hypertension. *Explore (NY)* 2021;17:312-9.
9. Hagins M, States R, Selfe T, Innes K. Effectiveness of yoga for hypertension: systematic review and meta-analysis. *Evid Based Complement Alternat Med* 2013;2013:1-13.
10. Lakkireddy D, Atkins D, Pillarisetti J, et al. Effect of yoga on arrhythmia burden, anxiety, depression, and quality of life in paroxysmal atrial fibrillation: the YOGA My Heart Study. *J Am Coll Cardiol* 2013;61:1177-82.
11. Gomes-Neto M, Rodrigues ES Jr, Silva WM Jr, Carvalho VO. Effects of yoga in patients with chronic heart failure: a meta-analysis. *Arq Bras Cardiol* 2014;103:433-9.
12. Prabhakaran D, Chandrasekaran AM, Singh K, et al. Yoga-based cardiac rehabilitation after acute myocardial infarction: a randomized trial. *J Am Coll Cardiol* 2020;75:1551-61.
13. Feuerstein G. The yoga tradition: its history, literature, philosophy, and practice. Prescott, AZ: Hohm Press; 1998.
14. Ross A, Thomas S. The health benefits of yoga and exercise: a review of comparison studies. *J Altern Complement Med* 2010;16:3-12.
15. Streeter CC, et al. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Med Hypotheses* 2012;78:571-9.
16. Abdelazeem B, Abbas KS, Manasrah N, et al. Yoga as a treatment for vasovagal syncope: A systematic review and meta-analysis. *Complement Ther Clin Pract* 2022;48:101579.
17. Gunda S, Kanmanthareddy A, Atkins D, et al. Role of yoga as an adjunctive therapy in patients with neurocardiogenic syncope: a pilot study. *J Interv Card Electrophysiol* 2015;43:105-10.
18. Shenthar J, Gangwar RS, Banavalikar B, et al. A randomized study of yoga therapy for the prevention of recurrent reflex vasovagal syncope. *Europace* 2021;23:1479-86.
19. Sharma G, Ramakumar V, Sharique M, et al. Effect of yoga on clinical outcomes and quality of life in patients with vasovagal syncope (LIVE-Yoga). *JACC Clin Electrophysiol* 2022;8:141-9.
20. Rao BH, Surath M. "Tadasana" yoga maneuver for preventing vasovagal syncope recurrences: a pilot study. *JACC Clin Electrophysiol* 2022;8:253-4.
21. Udupa K, Sathyaprabha TN. Influence of yoga on the autonomic nervous system. In S Telles, N Singh (eds). *Research-Based Perspectives on the Psychophysiology of Yoga*. Hershey PA, USA: IGI Global, 2018. pp. 67-85.
22. Govindaraj R, Karmani S, Varambally S, Gangadhar BN. Yoga and physical exercise - a review and comparison. *Int Rev Psychiatry* 2016;28:242-53.
23. Pourmazari P, Sahota I, Sheldon R. High remission rates in vasovagal syncope: systematic review and meta-analysis of observational and randomized studies. *JACC Clin Electrophysiol* 2017;3:384-92.
24. Brignole M, Russo V, Arabia F, et al. Cardiac pacing in severe recurrent reflex syncope and tilt-induced asystole. *Eur Heart J* 2021;42:508-16.
25. Sheldon RS, Raj SR. Treating syncope without drugs: Standing still, exercising hard, or simply the "expert's touch"? *J Cardiovasc Electrophysiol* 2022;33:1871-3.