

**TO  
THE CHAIRPERSON OF THE SCIENTIFIC JURY,  
APPOINTED BY ORDER No. 15-03-48#2/23.02.2026  
OF THE EXECUTIVE DIRECTOR AND THE PROCURATOR  
OF "ACIBADEM CITY CLINIC UMHAT TOKUDA"**

**OPINION**

**By Prof. Dr. Milena Staneva Staneva, PhD**  
Head of the Clinic of Angiology,  
"Acibadem City Clinic UMHAT Tokuda"

**Regarding:** Dissertation thesis for obtaining the educational and scientific degree "Doctor" (PhD) in the field of higher education 7. Healthcare and Sports, professional direction 7.1. Medicine, doctoral program "Cardiovascular Surgery".

**Author:** Dr. Nikolay Dimitrov Valchev

**Form of doctoral studies:** Independent preparation

**Scientific unit:** Clinic of Vascular Surgery, "Acibadem City Clinic UMHAT Tokuda"

**Topic:** "The Role of Mechanochemical Ablation in the Modern Algorithm for the Treatment of Patients with Chronic Venous Disease"

**Research Supervisor:** Prof. Dr. Vasil Yordanov Chervenkov, PhD

**1. General Presentation of the Procedure and the Doctoral Candidate**

The dissertation thesis was discussed and proposed for defense by an expanded Scientific Collegium of the Clinic of Vascular Surgery at "Acibadem City Clinic UMHAT Tokuda". At a meeting of the Scientific Council of "Acibadem City Clinic UMHAT Tokuda" (Protocol 61/26.11.2025) and by Order No. 15-03-48/23.02.2026 of the Executive Director and the Procurator of the hospital, I was appointed as an internal member of the Scientific Jury in connection with the dissertation thesis of Dr. Nikolay Dimitrov Valchev. I am designated to present a Review (Opinion).

No deficiencies were found in the documentation submitted by Dr. Valchev; the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of the LDASRB, and the Regulations for the Development of the Academic Staff at "Acibadem City Clinic UMHAT Tokuda" have been met.

No plagiarism was detected in the submitted reference from Metadata StrikePlagiarism.com.

I declare that I have no conflict of interest with the author of the dissertation.

Dr. Nikolay Valchev acquired the educational-qualification degree "Master" in Medicine from the Medical University – Sofia in 2015. From 2016, after successfully passing a competitive examination, he was enrolled as a specialist registrar in vascular surgery at Tokuda Hospital Sofia. After acquiring the specialty in 2021, he was appointed as a physician at the Clinic of Vascular Surgery at "Acibadem City Clinic UMHAT Tokuda" and was enrolled as a doctoral student. He holds postgraduate qualifications in "Ultrasound Vascular Diagnostics" and "Endovascular Surgery" from MU-Sofia.

Dr. Valchev has participated in postgraduate continuing education courses in Bulgaria and abroad. He has excellent command of English and German languages.

**2. Relevance of the Topic**

Chronic Venous Disease (CVD) is a socially significant disease with high frequency, affecting 20-30% of the population worldwide. The disease leads to deterioration in the quality of life, work capacity, and serious complications such as venous ulcers and

thrombosis. In recent decades, endovenous thermal methods have become the "gold standard" in treatment, but they have their limitations – risk of nerve damage and the need for tumescent anesthesia. The topic of the dissertation is extremely relevant, as the doctoral candidate investigates a relatively new, non-thermal, and non-tumescent method – mechanochemical ablation (MOCA) – and proposes an innovative "modified approach" to overcome its main drawback: the lower long-term anatomical success rate compared to thermal methods.

### **3. Understanding the Problem**

The doctoral candidate knows the state of the problem and creatively evaluates the literary material.

### **4. Research Methodology**

The chosen research methodology allows achieving the set goal and obtaining an adequate answer to the tasks solved in the dissertation thesis.

### **5. Characteristics and Evaluation of the Dissertation Thesis and Contributions**

Dr. Valchev's dissertation thesis is written on 157 pages and is illustrated with 49 figures and 53 tables. It is correctly structured and includes: Contents – 1 p., Abbreviations and symbols used – 1 p., "Introduction" – 2 pp., Chapter One: Social significance of chronic venous disease and the role of mechanochemical ablation in its treatment (Literature Review): 34 pp., Chapter Two: Research Methodology: 20 pp., Chapter Three: Results and Discussion: 67 pp., Conclusion: 3 pp., Chapter Four: Conclusions and Recommendations: 4 pp., Bibliography: 12 pp., Appendices: 5 pp. The bibliography includes 117 sources, of which 2 in Cyrillic and 115 in Latin.

**Introduction:** The research problem is well formulated, and the aim of the dissertation thesis is justified.

**The Literature Review** is well structured in accordance with the developed topic. It is written competently and shows good knowledge of the problem under consideration in its various aspects.

**Research Methodology:** The aim of the dissertation is precisely defined and fully corresponds to the topic and the preceding literature review. The six tasks set are fully adequate and successfully realized within the framework of the dissertation thesis. This section provides a detailed description of the used research materials and methods, covering both the clinical contingent (220 patients) and the applied survey, clinical, working algorithms (classical and modified approach). Appropriate methods were used for the statistical processing of the data, which guarantees the reliability of the obtained results.

**Results and Discussion:** The presented results are convincing and clear, and the analysis of the obtained data is comprehensive, including comparisons with relevant publications on the topic. The obtained results are discussed and compared with known data in medical literature. The doctoral candidate handles scientific facts freely and shows competence on the issue.

**Conclusion:** This section synthesizes the main findings of the conducted research, emphasizing the significance of mechanochemical ablation and the exclusive contribution of the proposed modified method.

**Conclusions and Recommendations:** Based on the obtained results, Dr. Valchev formulates logical and practically applicable 9 conclusions and 4 recommendations, which directly answer the set tasks and contribute to the improvement of the therapeutic algorithm in clinical practice.

**Contributions:** The contributions of the dissertation are 4, the most important of which are divided into:

1. **Scientific-applied:** Proving the advantages of the modified method of mechanochemical ablation (foam + aspiration) regarding anatomical success and safety.
2. **Applied:** Creation of a detailed working algorithm for the application of the ClariVein® catheter and defining a profile of the "suitable patient" (vein diameter <8 mm, absence of thrombophilia).
3. **Confirmatory:** Confirmation of high patient satisfaction and improved quality of life (CIVIQ-20) after MOCA. **Appendices:** This section contains all used questionnaires (CIVIQ-20, VCSS) and protocols for control examinations, ensuring full transparency and reproducibility of the applied methodology.

## 6. Abstract

The abstract reflects what is written in the dissertation thesis. Compliant with academic requirements, it presents the contributions and includes a list of publications related to the dissertation thesis.

## 7. Evaluation of Publications and Personal Contribution of the Doctoral Candidate

The doctoral candidate has applied 4 publications (1 in a scientific journal with Impact Factor) and 2 scientific reports at international congresses. This scientific activity is sufficient to cover the national minimum requirements for the educational and scientific degree "Doctor".

## 8. Critical Remarks and Recommendations

The following remarks can be made without diminishing the value of the scientific work:

- Continuation of patient follow-up up to the 5th year to verify the long-term sustainability of the results from the modified method.
- The efficacy of the modified method is directly related to the precise preparation of the foam and the dynamics of aspiration. Future studies could objectify and standardize even more strictly the amount of sclerosant and aspiration parameters per unit length of the vein, also taking into account the influence of the operator's experience.

## CONCLUSION

Dr. Nikolay Valchev's dissertation thesis is a scientific research with original and scientific-applied contributions. It offers a solution to a current problem in phlebology – increasing the effectiveness of non-thermal treatment methods. The thesis is written in a strict scientific style and meets all requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of LDASRB, and the Regulations of "Acibadem City Clinic UMHAT Tokuda".

Dr. Nikolay Valchev is an established specialist – vascular surgeon, who shows qualities and skills for independent conduct of scientific research and introduction of innovations in practice. The doctoral candidate has a keen interest in the field of modern methods for diagnosis and surgical treatment of venous vascular diseases. He works actively in the sphere of endovascular and hybrid treatment in patients with arterial and venous vascular pathology.

Due to the above, I give my **positive assessment** and confidently recommend that the members of the esteemed Scientific Jury evaluate the dissertation thesis "The Role of Mechanochemical Ablation in the Modern Algorithm for the Treatment of Patients with Chronic Venous Disease" positively and award Dr. Nikolay Dimitrov Valchev the educational and scientific degree "DOCTOR" in the field of higher education 7. Healthcare

and Sports, professional direction 7.1. Medicine, doctoral program "Cardiovascular Surgery".

23.03.2026

Sofia

Review author:

Prof. Dr. Milena Staneva, PhD

A handwritten signature in black ink, appearing to be 'MS', written over the printed name of the review author.