

STATEMENT

By Assoc. Prof. Martin Konstantinov Barnev, MD

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MEMBER OF THE SCIENTIFIC JURY SELECTED BY ORDER No. P-109-46/16.01.2026

TO THE RECTOR OF THE MEDICAL UNIVERSITY

"PROF. DR. PARASKEV STOYANOV" - VARNA

Re: dissertation for the award of an educational and scientific degree "Doctor" in the field of higher education 7. Healthcare and Sports, professional field 7.1. "Medicine," scientific specialty "Orthopedics and Traumatology," prepared by Dr. Petar Valentinov Petkov, full-time doctoral student at the Department of Orthopedics and Traumatology, Faculty of Medicine, Medical University "Prof. Dr. Paraskev Stoyanov" - Varna.

Thesis topic "Post-traumatic stiffness of the elbow joint"

Scientific supervisor: Prof. Dimitar Ivanov Raikov, MD, PhD

The set of documents submitted in paper and electronic form complies with the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of LDASRB, and the Regulations for the Development of Academic Staff at the Medical University (MU) of Varna.

Biographical information about the candidate

Dr. Petar Valentinov Petkov was born on July 24, 1990, in Ruse, where he completed his secondary education at Geo Milev Language High School in 2009. In 2015, he completed his higher education in medicine with a master's degree from the Medical University of Varna. He specialized in orthopedics and traumatology in 2021. Dr. Petkov is currently a final-year student in the Master's program in Health Management at the Medical University of Varna.

His professional medical career began in 2016 when he was appointed as a resident physician at the Department of Orthopedics and Traumatology at St. Anna Hospital in Varna. Since 2021, Dr. Petkov has been working at DCC 4 in Varna, and since 2023, he has been working as a specialist physician at the

Maternity Hospital. Since 2021, Dr. Petkov has been working at DCC 4 in Varna, and since 2023 as a specialist physician at St. Anna Hospital.

Dr. Petar Petkov has participated in numerous international and Bulgarian conferences and congresses, and is involved in two national projects at the Medical University of Varna: Improving Translational Achievements in Medicine (MUVE-TEAM) and the Science Fund.

Additional professional qualifications and specializations:

1. 01.02.17 Course on elbow arthroscopy on frozen cadavers – Thessaloniki, Greece (1st Seminar of Elbow Arthroscopy on Fresh Frozen Cadaveric Specimens)
2. From February 2, 2017, to February 4, 2017, course on tendon transfers of the upper limb on frozen cadavers – Thessaloniki, Greece (3rd Seminar on tendon transfers of the upper limb on fresh frozen cadaveric specimens)
3. От 12.11.21 до 14.11.21г.: „AO Trauma Course – Basic Principles of Fracture Management
4. FESSH Academy Foundation Course in hand surgery 28 February – 2 March 2024 in Budapest, Hungary
5. Postgraduate qualification course in orthopedic surgery: Joint replacement at the training base: St. Marina University Hospital EAD - Varna, 30 days.

Relevance of the problem

Post-traumatic elbow stiffness is one of the most common and clinically significant complications following traumatic injuries and surgical interventions in the elbow joint area. Due to the complex anatomy and biomechanics of the elbow, even minimal structural damage can lead to significant impairment of joint function, most often manifested by limited range of motion.

Disruption of normal joint architecture due to fractures, ligament damage, postoperative changes, or prolonged immobilization leads to the development of fibrotic changes, capsular contracture, and secondary degenerative processes. In clinical practice, post-traumatic elbow stiffness is often disabling and significantly limits the functional capacity of the upper limb, adversely affecting patients' daily activities and ability to work.

The choice of therapeutic approach for post-traumatic elbow stiffness depends on a number of factors, including the severity and duration of the contracture, the type of primary injury, the surgical or conservative treatment performed, and the patient's general condition. In modern orthopedic practice, effective management of this condition requires a comprehensive and step-by-step approach, in which the timely initiation of functional treatment is crucial for the final outcome.

This study offers a comparative analysis of functional recovery in patients with post-traumatic elbow stiffness, focusing on the timing of the start of active mobilization as the main therapeutic variable. The study was conducted on a clinical sample that allows for statistical analysis and objective assessment of functional outcomes at different start times of the rehabilitation process.

Within the scope of the study, the assessment of therapeutic efficacy focused on functional outcomes and restoration of joint mobility as key indicators of successful treatment outcome, in accordance with current orthopedic criteria for functional assessment of the elbow joint.

Structure of the dissertation

The dissertation of Dr. Petar Valentinov Petkov is presented in 124 standard pages, in ten sections with an adequate ratio. It is illustrated with 19 figures, 9 tables, 7 graphs, and 6 appendices.

The structure complies with the requirements specified in the Regulations for the Development of the Academic Staff at MU-Varna. The bibliography consists of 172 sources, of which 2 are in Cyrillic and 170 are in Latin, with 54% of them published in the last 5 years.

Literary review

The literature review provides a detailed overview of the etiology, pathogenesis, classification, and clinical picture of post-traumatic elbow stiffness.

The currently established therapeutic approaches, both surgical and conservative, are presented.

The studies published to date, examining surgical and non-surgical methods of treatment in patients with elbow stiffness, have been summarized and systematized.

The main characteristics of conservative treatment are described in detail, including the types of orthoses used and the application of physical factors in the treatment process.

Goal, tasks, and hypotheses

The dissertation is based on a clearly formulated objective: to make a comparative assessment of functional recovery according to the factor "start of movement" of the elbow joint: on the 14th day (early onset) and after the 30th day (late onset), with already diagnosed PTHS.

The tasks and hypotheses are logically formulated in accordance with preliminary studies and subordinate to the set goal.

Methodology and study design

The study included a total of 90 patients of both sexes aged between 18 and 70 years, after acute trauma/surgical intervention in the elbow joint. The patients were randomly divided into two groups, each with 45 people. The patients were followed up at three time points: T1 – when the immobilization was removed, T2 – 15 days after the immobilization was removed, and T3 – 30 days after the immobilization was removed.

To achieve the set goals, the necessary data were studied and analyzed: anamnestic data, functional status, patients populatesscale for functional assessment of the elbow joint: Mayo Elbow Performance Score (MEPS) and Visual analog scale;

The doctoral student has chosen appropriate statistical methods that provide a complete and reliable assessment of the data in accordance with the objective of the presented study.

Results and discussion

The results correspond to the tasks set. The doctoral student has well synthesized and illustrated with tables, figures, and graphs the distribution of patients in the two groups and the results obtained.

The data from the dissertation study show conclusive and statistically significant results of conservative treatment of post-traumatic elbow stiffness. A significant reduction in pain symptoms, a significant increase in the range of motion in the elbow joint, and an improvement in functional results measured by the Mayo Elbow Performance Score (MEPS) were reported. In addition to the differences between the two therapeutic groups, in which patients in Group 1 achieved functional capacity more quickly than those in Group 2, there were also significant variations in the recovery process among the different etiological subgroups. There was a tendency for better functional results in Group 2 on day 1 (removal of immobilization) due to less severe or absent pain symptoms.

The results of the study show that early initiation of rehabilitation (as early as the 14th day) leads to faster and more complete functional recovery compared to late initiation of mobilization (after the 30th day). This has direct practical implications.

Based on the results obtained, there is an opportunity to optimize diagnostic and therapeutic algorithms through early identification of patients at increased risk of developing elbow stiffness and their timely inclusion in targeted rehabilitation programs.

The paper also emphasizes the importance of an individualized therapeutic approach, combining various physiotherapy methods with analgesic, anti-edema, anti-inflammatory, and functionally targeted action. This comprehensive approach leads to better functional results and has the potential for wide application in everyday orthopedic practice.

In conclusion, the most important results of the study are summarized. Five conclusions are formulated, which provide summary information on the results of the study and fully meet the set goals and objectives.

The dissertation was discussed and referred for defense to the Department Council of the Department of Orthopedics and Traumatology on December 17, 2025.

Publications related to the dissertation

Two full-text publications presented by Dr. Petar Valentinov Petkov in scientific periodicals are related to the topic of the scientific paper.

Abstract

The abstract is structured in accordance with the requirements, its content correlates with the dissertation.

Critical remarks and recommendations

A well-written and systematic paper is presented, which complies with the regulatory requirements for such a format standard. This presentation by Dr. Petkov confirms and further develops the need for a multidisciplinary approach to the personalized treatment of patients with musculoskeletal injuries, specifically supracondylar fractures of the humerus. It serves as further evidence of the effective teamwork and technological collaboration in modern traumatology.

For me in particular, and in principle for our surgical specialty, I find the practical focus of the work somewhat lacking, namely the influence of the choice of specific surgical access and implant, as well as the method of its placement and their relationship to the degree of elbow stiffness. This recommendation does not diminish the value of the proposed work, but could provide a starting point for further research and development of the good results achieved so far.

Conclusion

The dissertation submitted for review by Dr. Petar Valentinov Petkov is methodologically sound, with clearly formulated objectives and tasks, concrete and well-founded conclusions, and a significant contribution to science.

The materials provided meet all the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the implementation of LDASRB and the Regulations of MU-Varna.

Based on the above presentation, I give my positive assessment and propose that the distinguished members of the scientific jury vote in favor of awarding Dr. Petar Valentinov Petkov the educational and scientific degree of "Doctor" in Medicine in the scientific specialty of " Orthopedics and Traumatology."

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Varna

Statement

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§1, б. „В“ от Регламент (ЕС)
2016/679

(Assoc. Prof. Martin Konstantinov Barnev, MD)