



PIROGOV UNIVERSITY MULTIPROFILE HOSPITAL FOR ACTIVE  
TREATMENT AND EMERGENCY EAD

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## STATEMENT

**By Assoc. Prof. Dr. Krasimira Milcheva Kazalakova, M.D.  
Head of the Department of "Physical and Rehabilitation Medicine"  
UMBALSM "N. I. Pirogov" - Sofia**

**MEMBER OF THE SCIENTIFIC JURY  
CHOSEN BY ORDER No. P-109-151/29.04.2024  
BY THE RECTOR OF THE MEDICAL UNIVERSITY  
"PROF. Dr. PARASKEV STOYANOV" - VARNA**

**Regarding:** The Dissertation work of Dr. Detelina Damyanova Nedyalkova-Petkova for awarding the educational and scientific degree "Doctor" in medicine in the field of higher education 7. "Health and sport", professional direction 7.1. "Medicine", scientific specialty "Physiotherapy, spa treatment and rehabilitation"

**Dissertation topic** "Therapeutic effectiveness of physical factors in early rehabilitation in patients with talocrural joint distortion"

**Research supervisor:** Assoc. Prof Dr. Mariyana Mihaylova Krasteva-Ruseva MD.

## BIOGRAPHICAL REFERENCE OF THE CANDIDATE

Dr. Detelina Damyanova Nedyalkova-Petkova was born on 29.04.1990 in the city of Shumen, where she completed her secondary education at the "Nancho Popovich" High School of Science and Mathematics in 2009. In 2016, she completed higher education in medicine with an educational and qualification Master's degree at MU-Varna. She acquired a specialty in "Physical and Rehabilitation Medicine" in 2021.

Her professional path as a doctor began in 2016 at Center of Emergency Medical Aid –city of Varna.

Since 2017, Dr. Detelina Damyanova Nedyalkova-Petkova has been appointed as a specialist doctor at UMBAL "St. Marina" Varna EAD.

In 2020, she was appointed as an assistant to the Faculty of Sea Therapy, Physiotherapy and Rehabilitation at the Department of Physiotherapy, Rehabilitation, Sea Therapy and Occupational Diseases of the University of Varna. She leads classes in academic disciplines:

Physiotherapy and rehabilitation for 1st, 2nd and 3rd year medical students of BEO and AEO, specialty "Rehabilitator".

## **RELEVANCE OF THE PROBLEM**

Distortion of ankle joint (ankle sprain) is a common problem in emergency medicine. Ankle ligament injuries are mistakenly thought of as harmless injuries with no lasting consequences - from overstretching to complete rupture of the ligament fibers.

Untimely, incorrect and inadequate treatment is a prerequisite for chronic ankle instability, arthrosis changes, reduced work capacity and/or repeated incidents, months and years after the initial injury.

An actual problem of modern medicine is the search, development and introduction into medical practice of methods of prevention, treatment and rehabilitation, which have a multifaceted effect on the most important links in the pathogenesis of this disease.

The hitherto known methods of treating ankle sprain are presented. The options for operative and conservative treatment (medicated and with physiotherapeutic methods) were considered. The emphasis is on deep oscillation low frequency electrostatic field treatment. Current world trends for influencing this pathology with the various physical modalities are examined in detail.

Existing scientific data show that deep oscillation therapy is a physical factor with pronounced anti-edema, anti-inflammatory and analgesic effects. There are studies describing the clinical effectiveness of the application of deep oscillation therapy for pain and limited range of motion in the ankle joint.

Dr. Nedyalkova-Petkova's dissertation compared the clinical effectiveness of an electrostatic field using the deep oscillation method, the "PRICE" protocol, and their combined application in early rehabilitation in patients with talocrural joint distortion.

## **STRUCTURE OF THE DISSERTATION**

The dissertation work of Dr. Detelina Damyanova Nedyalkova-Petkova is presented in 146 standard pages, in eleven sections with adequate ratio, illustrated with 33 figures, 20 tables and 10 appendices. The structure is according to the requirements specified in the Regulations for the Development of the Academic Staff of MU-Varna.

The presented bibliography covers 279 sources, of which 7 are in Cyrillic and 272 are in Latin.

## **LITERATURE REVIEW**

The etiology, pathogenesis, classification and clinical picture of talocrural joint distortion are discussed in detail in the literature review.

Presented are the currently known methods of treatment with the main emphasis on the factors of physical medicine.

The studies available to date on the effect of deep oscillation therapy in patients with ankle pathology are systematized.

The main characteristics of the DO methodology are comprehensively described and the application and clinical experience in medical practice are presented.

## **PURPOSE, AIMS AND HYPOTHESIS**

The dissertation work is based on a clearly formulated goal - To make a comparative assessment of the effect of an electrostatic field using the deep oscillation method, the "PRICE" protocol and their combined application in early rehabilitation in patients with talocrural joint distortion.

The tasks and the hypotheses are logically formulated according to the preliminary studies and subordinated to the set goal.

## **STUDY METHODOLOGY AND DESIGN**

A total of 120 individuals of both sexes, aged between 18 and 50 years, with clinical manifestations of ankle joint distortion with a duration of symptoms of no more than 7 days, who meet specific inclusion criteria, were included in the study. The patients were randomly divided into three groups, each with 40 people. Patients were followed immediately before the start of treatment, at the end of treatment (day 7th) and on day 21st. To achieve the set goals, the necessary data was studied and analyzed: anamnestic data (pain, swelling, stiffness, etc.), functional status (examination, palpation, specialized manual tests, centimetry, goniometry), patients fill in a short form of the questionnaire The Foot and Ankle Disability Index and assess pain on the Visual Analog Scale.

The Postgraduate student has chosen appropriate statistical methods giving a complete and reliable assessment of the data, in accordance with the purpose of the presented study.

## **RESULTS AND DISCUSSION**

The results correspond to the tasks set. The dissertation student has well synthesized, visualized with tables and figures the distribution of patients in the three groups and the obtained results.

Before therapy, there was no statistically significant difference between the observed and compared groups regarding the monitored parameters. From the analysis of the initial values of the indicators, it can be seen that there is no difference between the three groups, which leads to their homogeneity with respect to each other.

The obtained results of the study show that DO therapy in combination with standard care "PRICE" provides comprehensiveness from the earliest stage of treatment of the condition to the 21st day. The obtained values are statistically significant and proven by examining the set follow-up parameters.

The discussion on the obtained results highlights their significance by comparing them with other studies in the world literature.

In conclusion, the most important results of the study were summarized.

Six formulated conclusions have been synthesized, which provide a summary of the results of the conducted research and fully meet the set goals and objectives. The dissertation student has indicated three theoretical-methodological and four practical-applied contributions of this dissertation work for Bulgaria.

This dissertation work was discussed over and directed for defense at the Departmental Council of the Department of Physiotherapy, Rehabilitation and Sea Therapy, held on 12.04.2024.

## **DISSERTATION RELATED PUBLICATIONS**

Three full-text publications presented by Dr. Detelina Damyanova Nedyalkova-Petkova in periodical scientific publications are related to the topic of the scientific work.

## **ABSTRACT**

The abstract is structured in accordance with the requirements, its content corresponds to the dissertation work, 20 tables and 29 figures are presented to illustrate the results obtained from the scientific research.

## **CONCLUSION**

The presented dissertation on the topic "Therapeutic effectiveness of physical factors in early rehabilitation in patients with talocrural joint distortion" is methodologically precise with a clearly formulated goal and tasks, with specific and well-founded conclusions and an up-to-date contribution to science. The provided materials meet all requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of the LDASRB and the Regulations of MU-Varna.

This dissertation shows that the Dissertation student, Dr. Detelina Damyanova Nedyalkova-Petkova, has in-depth theoretical and practical knowledge, demonstrating qualities and skills for independent conduct of scientific research.

I believe that the development of a protocol for the treatment of patients with ankle joint distortion in the acute phase of the condition is of practical importance and can support the work of physiotherapists who have a similar device and deal with the relevant contingent of patients.

**I give a positive assessment and suggest to the Honorable members of the Scientific Jury to vote positively for the awarding of the educational and scientific degree "Doctor" to Dr. Detelina Damyanova Nedyalkova-Petkova in the scientific specialty "Physiotherapy, spa treatment and rehabilitation".**

Date: 23.05.2024

Sofia

Statement was drawn up by:

(Assoc. Prof. Dr. Krasimira Milcheva Kazalakova, MD)

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