

СОФИЙСКИ УНИВЕРСИТЕТ
„СВ. КЛИМЕНТ ОХРИДСКИ“
МЕДИЦИНСКИ ФАКУЛТЕТ



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To the Chairman
of the Scientific Jury appointed
from the Rector of MU-Varna
with order No. P-109-639/ 21.12.2023

STATEMENT

by **Assoc. Prof Iskra Dimitrova Takeva, MD, PhD**

Scientific specialty "Physical and rehabilitation medicine"

Head of the Department Physical and rehabilitation medicine by

Lozenetz University Hospital Sofia

RE: The thesis for awarding for educational and **scientific degree "Doctor"** in the field of higher education 7. Health and sport, professional field 7.1 Medicine, scientific discipline Physiotherapy, Thalassotherapy and Rehabilitation at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna.

PhD student: **Dr. Tsvetomir Yankov Yankov**, in full-time study at the Department of Physiotherapy, Rehabilitation and Talasotherapy of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna

PhD thesis: "**Study on the combined use of high-energy laser and manual therapy in patients with functional thoracic spine disorders**"

Thesis supervisor: **Assoc. Prof. Dr Iliya Todorov Todorov, MD, PhD**

By order of the Rector of the Medical University "Prof. dr. Paraskev Stoyanov" - Varna № P-109-639/ 21.12.2023, and the decision under protocol № 215/ 14.12.2023 of the Faculty Council of the Faculty of Public Health at MU Varna, I am appointed as an external member of examination committee of the dissertation of Dr. Tsvetomir Yankov Yankov.

The statement was developed and submitted in accordance with the requirements of the Academic Staff Development in the Republic of Bulgaria Act (ASDRBA), the ASDRBA Implementing Regulations and the Regulations of MU-Varna.

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Biography notes and professional qualifications for PhD candidate

Dr. Tsvetomir Yankov Yankov was born on 25.05.1989 in Veliko Tarnovo. In 2008 he completed his secondary education at the High School of Mathematics and Nature "Vasil Drumev" Veliko Tarnovo. In 2014 he completed his higher education in medicine with a Master's degree at the Medical University Varna. In 2020 he acquires a specialty in Physical and Rehabilitation Medicine.

In 2016 Dr. Tsvetomir Yankov was appointed as a resident at the Clinic of Physical and Rehabilitation Medicine at the University Hospital "St. Marina" Varna EAD. Since 2020 he holds the position of assistant to the Board of "Thalasotherapy, Physiotherapy and Rehabilitation" at the Department of Physiotherapy, Rehabilitation, Talasotherapy and Occupational Diseases at Medical University Varna.

Dr. Tsvetomir Yankov Yankov has participated in a number of qualification courses for postgraduate training: laser therapy, Cyriax orthopaedic medicine, manual therapy and PNF. Dr. Tsvetomir Yankov Yankov is fluent in written and spoken English and Russian.

His main professional and scientific interests are in the field of manual medicine and laser therapy. Dr Tsvetomir Yankov Yankov is a member of the Bulgarian Medical Association, the Association of Physical and Rehabilitation Medicine and the Bulgarian Society of Manual Medicine.

Relevance of the PhD thesis

Functional disorders are a leading cause of pain, discomfort and limitation of movement in the thoracic spine. Due to the anatomical complexity of the thoracic segment and the lack of ability to diagnose them with imaging methods, there is currently less literature information on their etiology, risk factors and treatment methods. The higher prevalence of functional disorders in the thoracic spine regions compared to structural pathologies indicate the need to develop therapeutic protocols.

Manual medicine is a fundamental method for diagnosis, treatment and prevention of pain-related functional disorders. The high-energy MLS laser is a physical factor with antioedema, anti-

inflammatory and analgesic effects. Combining manual therapy and MLS laser in a common protocol is a novel approach for the treatment of functional thoracic spine disorders.

Because of the above, I believe that the topic chosen by the PhD student is debatable and has scientific and practical value.

Structure of the PhD thesis

The dissertation of Dr. Tsvetomir Yankov Yankov is presented in 143 standard pages, in eleven sections with adequate proportion. The material is illustrated with 42 figures and 24 tables. The work concludes with 16 appendices in which all tests and scales used are presented, as well as the therapeutic approaches. The bibliography consists of 166 sources, of which 18 are in Cyrillic and 148 in Latin. About 40% of the citations are from the last ten years, 10% of which are from the last five years.

The structure of the dissertation is according to the requirements specified in the Regulations for the Development of the Academic Staff of MU-Varna.

There is a logical and meaningful relationship between the different parts, which include the introduction, literature review, aim, objectives, material and method, analysis and evaluation of results and contributions. The writing style is concise, making the text clear and easy to understand.

The dissertation begins with an introduction that defines in a synthesized way the scientific scope and states the problem to be investigated as well as its importance in the scientific field.

The **literature review** is written in 40 pages, which presents in detail the anatomy and kinesiology of the thoracic spine, as well as the etiology, pathogenesis, classification and clinical manifestation of functional disorders. The main methods of treatment of this type of pathology are comprehensively described, with the main emphasis on manual therapy. The application and clinical experience with a high-energy MLS laser and its advantages in musculoskeletal dysfunctions are presented.

The literature review is characterized by a conscious thoroughness and reveals the lack of studies on the effect of high-energy MLS-laser radiation on functional disorders in the thoracic department, as well as its combined application with manual therapeutic techniques. Conclusions were drawn from the literature review, which determine the need to improve the diagnosis and treatment of patients.

The **aim** of the dissertation is precisely and clearly formulated: „to study the effect of the combined application of high-energy laser and manual therapy in patients with functional thoracic spine disorders“.

In order to realize the set goal, the author identifies **five tasks**, which are aimed at: approbation of own methodology for the treatment of functional thoracic spine disorders, with a combination of manual manipulations and high-energy MLS laser radiation; tracking immediate and long-term effects; comparative analysis of the treatment effect between the two therapeutic protocols used, in terms of eight monitored parameters; to determine whether the course of laser therapy eliminates the need for

repeated manual manipulation; establishing the presence or absence of adverse effects of the therapeutic protocols applied.

Three scientific hypotheses are formulated in relation to the tasks set.

Page | 4 **Material and methods**

A total of 82 patients with functional disorders in a thoracic spine were followed. According to the study design, patients meeting the inclusion criteria are divided into two groups of 41 in each of them – group "A" (applied treatment by manual manipulations) and group "B" (manual therapy and high-energy MLS laser therapy).

Appropriate methods for objectifying the results have been selected, which allow to solve the tasks set. An Ott flexion and extension test and goniometry with an inclinometer for rotational movements were used to assess mobility in a thoracic spine. During the study, spontaneous and palpatory pain was monitored using the Visual Analogue Scale (VAS) and the McGill Short Form Questionnaire (SF-MPQ). The Functional Rating Index was also used to quantify subjective perception for the limitations in performance of daily activities in spine musculoskeletal disorders.

The **methodology** of the study is described in detail. Patients were assessed at three different times: at baseline before starting treatment, after completion of the course of therapy, and at day 45 after initiation of therapy.

The PhD student has chosen appropriate statistical methods giving a complete and reliable evaluation of the data, according to the purpose of the presented study.

Results and discussions

Own results and discussion are presented in 46 standard pages, fully answering the tasks set. The PhD student has synthesized and illustrated with tables and figures the distribution of patients in both groups according to gender, age, occupation, physical activity, level of functional disorders in the thoracic department and the data obtained from the monitored parameters. The homogeneity of the groups studied was established, which is an important sign for the credibility of the results obtained from the comparative analysis.

The presented data showed statistically significant improvement in the condition of patients in both groups in terms of monitored parameters, both after the end of treatment and in the long term on day 45.

Through the comparative analysis of the data between the two groups, the superiority of the combined application of manual therapy and high-energy laser over monotherapy from manual treatment in terms of spontaneous and palpatory pain on the VAS-pain, a short form of the McGill questionnaire (SF-MPQ)

and the Functional Rating Index was demonstrated. The same therapeutic efficacy has been established for both therapeutic protocols in terms of influencing the range of motion in a thoracic spine.

Page | 5 The discussion is done in two parts, and the obtained data are compared with the available studies in the world literature. First, the clinical effectiveness of the applied treatment in both groups according to the monitored indicators was discussed. The clinical effectiveness between the two applied therapeutic protocols was then compared.

I fully agree with the six conclusions formulated on the basis of the obtained results, which summarize the data from the conducted study.

Based on the results, six conclusions are drawn that clearly and concretely summarise the findings of the study. The dissertant has indicated four theoretical-methodological and three practical-applied contributions of the dissertation

Contributions and significance of the development for science and practice

The PhD student has defined and justified four theoretical-methodological and three practical-applied contributions of his dissertation to the study of the scientific problem.

In my opinion, of scientific value is the demonstration of a better impact on patients with functional thoracic spine disorders of the combined use of manual therapy and high-energy MLS laser compared to monotherapy with manual therapy, in terms of half of the monitored indicators. The established protocols for manual therapy using pistol technique for manipulation of thoracic motor segments and for conducting MLS laser are relevant to the practice. A new, scientifically based therapeutic method for the treatment of patients with functional thoracic spine disorders, including manual therapy and high-energy MLS laser, is proposed. I believe that the contributions of the research work are significant, both in scientific and applied directions.

Publications related to the thesis

There are three full-text publications related to the topic of the scientific work in periodical scientific publications, in which dr. Tsvetomir Yankov Yankov is the lead author.

The abstract is structured in accordance with the requirements, reflecting faithfully and comprehensively the main points of the thesis.

CONCLUSION

The dissertation of Dr. Tsvetomir Yankov meets all the requirements of the Academic Staff Development in the Republic of Bulgaria Act (ASDRBA), the ASDRBA Implementing Regulations and the Regulations of MU-Varna. It shows in-depth theoretical and practical knowledge in the field of physical and rehabilitation medicine, demonstrating qualities and skills for independent scientific research.

Based on the above, I give my convinced **POSITIVE assessment** of the conducted research, the results obtained and the contributions made, and I propose to the respected members of the Scientific Jury to vote for awarding the educational and scientific degree "**DOCTOR**" to Dr. Tsvetomir Yankov Yankov in the professional field: 7.1. Medicine in the scientific specialty: "Physiotherapy, resort medicine and rehabilitation".

20. 01. 2024 г.

Sofia

Prepared the statement:

Заличено на основание чл. 5,
§1, б. „В“ от Регламент (ЕС)
2016/679

/Assoc. Prof Iskra Takeva, MD, PhD/