

REVIEW

on a procedure for appointment of academic position of Associate Professor in the field of higher education 7. Health and sports, professional field 7.1. Medicine, specialty "Physical therapy, Resortology and Rehabilitation", Prof. Dr. Assen Zlatarov University - Burgas, according to an announcement in the State Gazette No. 13 / 13.02. 2024
Candidate: Iliya Todorov Todorov, MD

Member of the scientific jury: Prof. Ivan Nikolov Dimitrov, MD, PhD, DSc, according to order of the Rector of Prof. Dr. Assen Zlatarov University – Burgas No. 135 / 12.04.2024

1. Biographical data, professional qualification and pedagogical training of the candidate

Dr. Iliya Todorov graduated from the University of Medicine - Varna with a Master's degree in Medicine in 2001. Since 2007, he has been a specialist in Physical and Rehabilitation Medicine. He has attended a number of training courses in the country and abroad. In 2012, he acquired the educational and scientific degree "Doctor" in Physical and Rehabilitation Medicine with a thesis entitled "Possibilities of influencing the functional disorders of the sacroiliac joint with some physical factors." He is certified for teaching laser therapy by ASA, Florence, Italy, certified instructor - Michael Kuchera, DO, USA, etc. In 2018, he obtained his master's degree in Health Management from UNSS - Sofia. From 2016 to 2019, he was an associate professor, head of the "Physiotherapy and Rehabilitation" academic department at the Medical University - Varna and head of the Physical and Rehabilitation Medicine clinic at the "Sveta Marina" hospital - Varna. From January 2022, he is the head of the Department of Rehabilitation at the "Heart and Brain" hospital - Burgas.

The applicant's teaching experience accumulated between 2003 and 2019 is 16 years and 2 months. He progressed successively through the positions of Assistant, Senior Assistant, Chief Assistant and Associate Professor. He does not currently hold an academic position.

Since 2006, Dr. Todorov has been elected secretary of the Bulgarian Society of Manual Medicine. He annually participates as a delegate of Bulgaria in the annual assemblies and conferences of FIMM (Fédération Internationale de Médecine Manuelle).

From 2012 to 2018, he participated as a teacher in Manual Medicine courses held in Istanbul and Ankara, Turkey. Since 2015, he has been a member of ESSOMM (European Scientific Society of Manual Medicine). Since 2017, he has been elected Chairman of the FIMM Training Board. Since 2018, he has been elected Chairman of the BAMM. He participated as a medical consultant in several projects for health facilities, including the Hospital for Specialized Rehabilitation of Athletes (2018) and the Specialized Hospital for Rehabilitation and Long-Term Care of the Elderly (2015). Since 2019, he has been participating as an international lecturer and teacher in laser practice for ASA, Italy (manufacturer of medical lasers). He has participated as a teacher in Seoul, South Korea (2019) and Bangkok, Thailand (2019).

2. Scientific research and applied scientific activity of the candidate

According to the materials provided, the candidate has good scientific and publication activity. In the current competition, he participates with 41 scientific papers subject to review. They include 1 monograph, 1 publication referenced and indexed in world-renowned scientific databases and 39 – published in peer-reviewed journals. Dr. Todorov is the first author of 12 of the publications on the list (29%). He is the sole author of 3 of them: 1 monographic work and 2 articles. Additionally, an auto-abstract of a doctoral thesis is presented.

Publications are grouped into areas including Manual Medicine, Clinical Physical Therapy, Neurology, Clinical Methodology, Balneology and Laser Therapy.

I. Manual medicine

This is one of the areas on which the candidate places a primary focus.

In a monographic work, the "frozen" shoulder syndrome is presented with its features and a modern therapeutic approach is proposed (1). The book reports the author's own research results, giving grounds for making recommendations for clinical practice. According to the author, in case of failure of conservative therapy for more than 6 months, manual manipulations under anesthesia, arthroscopic release and open release of the joint can be applied, as the most effective and sparing method of the listed are arthroscopic interventions.

In a team with lead author Dr. Todorov, the manual diagnosis of the sacroiliac joints was studied in 62 patients with persistent low back pain (3). In most of these patients, a functional dysfunction /blockage/ was found in the sacroiliac joints, which was diagnosed with the hypomobility tests - useful for clinical practice. The anatomic -functional features of the sacroiliac joint, the most frequently used diagnostic tests for blockages in this joint, as well as the concept of pelvic distortion (4) have been reviewed. Three new techniques for manual

treatment of the joint are described, approved within a year's work, which are recommended to all manual medicine specialists. Manual medicine has been identified as the most effective non-invasive method to address sacroiliac joint dysfunction (10). Another article (11) presents an algorithm of manual tests, enabling the most accurate diagnosis of dysfunctions of the sacroiliac joints. The tests are divided according to their specificity and informativeness, which is evaluated as a good guideline for manual medicine practitioners. Of interest from a scientific and practical point of view is also the article in which 3 specific tests are offered, the positive results of 2 of which give 94% diagnostic accuracy for sacroiliac joint blockage (17). The author's research in this direction is undoubtedly thorough. He emphasizes what is illustrated by modern manual therapy practice, that the sacroiliac joint is not only reflexively connected to the spine and the occurrence of blockages at certain levels, but it itself often blocks. Considering the importance of the concept of "blockage", the candidate, together with two co-authors, addresses it in a separate article (12).

The frequency of functional disorders /blockages, muscle imbalance, spasm, etc./ in one of the most common pathologies, lumbar radicular syndromes (5), was studied. The role of manual medicine in influencing these functional disorders, shortening the phase for therapy and rehabilitation is emphasized. Again, in a team with lead author Dr. Todorov, the biological and clinical aspects of disc lesions in acute cases of low back pain were examined (14). Conservative therapy / manual therapy, kinesitherapy / is recommended, both to influence the articular dysfunction, as well as the segmental muscle dysfunction. The thoracolumbar transition syndrome, interesting from a diagnostic, pathogenetic and therapeutic point of view, known as Maigne's syndrome, has been described (19). The options for manual diagnosis and therapy, as well as other means of physical medicine for the treatment of this little-known but common syndrome, are discussed. The examination of spinal pathology continues with an analysis of modern methods of physical therapy in disc disease, among which manual therapy is again present (22). Focus on the cervical spine is placed in the article "Cervical-cranial pain syndrome and cervical blockages – clinical findings, diagnosis and therapy" (26). An in-depth analysis of the history data and the objective finding during the examination, the correct interpretation of which leads to the selection of the best therapeutic approach, was made.

In the article "Manual-therapeutic clinical approach in painful and spastic m.iliopsoas" (25) the possibilities for diagnosis and influence with the methods of manual medicine on one of the muscles most often responsible for the occurrence of muscle imbalance in the thoracolumbar transition, lumbar department and lower limbs, are shown. An original conclusion is that manual diagnosis is proven to be a leading technique in detecting the somatic

dysfunction of the muscle, and the effect of applied postisometric relaxation is undoubtedly superior to NSAID medication.

The etiology of Tietze syndrome (15) is presented, the differential diagnosis, modern treatment methods are commented on.

Some review articles are also included. Cases in which manual therapy is recommended are discussed in the article entitled "Manual Therapy: Why and When?" (18). It emphasizes the modern understanding of the pathogenesis of functional blockages, examines two main groups of causes leading to hypomobility - mechanical and neuroreflectory. It is useful to consider the most common indications for manual therapy affecting three main groups of pathology – vertebral functional disorders, peripheral functional disorders and spondylogenic complaints. The author's thoroughness and effort not only to present the positive aspects of manual therapy, but also to pay attention to possible risks and incidents, is evident in a separate published article (28).

II. Clinical Physical Therapy

In co-authorship with a foreign lead author, the influence of functional electrostimulation on the recovery of motor parameters after operative reconstruction of anteromedial knee instability is discussed (7). It is accepted that by incorporating functional electrical stimulation to exercise, better regenerative development is achieved than by active exercise alone. The same team investigates the effect of local cryotherapy on lower leg muscle and skin perfusion (13). The successful application of physical therapy methods in spinal and joint diseases has been described in several articles (32, 35, 37, 39).

Dr. Todorov studies the therapeutic possibilities of the combined application of injectable collagen and kinesitherapy for the treatment of the "frozen" shoulder syndrome - it turns out that the applied therapeutic scheme is significantly effective in 83% of patients (20), which is a very good treatment result. Evidence of the interest in the syndrome is also the article on its treatment by kinesitherapy (24).

The desire for an interdisciplinary approach in the work of Dr. Todorov is highlighted by the articles in which the carpal tunnel syndrome is considered and the opinion is expressed that a good collaboration between specialists at the right time is the key to finding a correct and timely approach to the treatment of the syndrome, which is of utmost importance for maximal recovery of hand function (23, 31).

An innovative approach can be seen in the publications concerning methods of vestibular re-education and its importance in elderly patients (36) and SPA and wellness presented as a new philosophy of harmony in life (33) – striving to achieve full prosperity of

the human personality through synergy of all aspects of health – physical, mental, intellectual, emotional and social.

III. Neurology

This direction is of essential importance, bearing in mind the multitude of neurological diseases that also fall under the domain of physiotherapy. A journal publication, refereed and indexed in world-renowned databases of scientific information, is devoted to disc herniations in patients with multiple sclerosis (2). The author's team supports the thesis that the comorbidity has an additional adverse effect on the patient's disability and individual quality of life.

An article was published on the influence of electrotherapy of the denervated muscle on the blood supply of the forearm in patients with brachial plexus lesion (6), as well as another presenting an original study on load parameters and pressure distribution of the foot during walking in patients with disc lesions of different segments in the lumbar region (9). In addition to presenting important scientific and practical results, publications written together with foreign authors are evidence of the candidate's ability to work in a team and of the international recognition of his scientific work.

Disc disease, a common neurological but also interdisciplinary problem, is addressed in separate articles and outside the specifics of manual therapy. One of the articles focuses on the application of extension therapy for the treatment of vertebral diseases (27). A complex methodology was applied, including basic treatment and pulse extension therapy, which gives better results than the basic treatment in all investigated indicators – an indisputable contribution of a scientific and practical nature. A conclusion from another article is that the correct and timely applied extension treatment is a reliable curative conservative therapeutic means and leads to a rapid regression of complaints and improvement of the quality of life of patients with lumbar disc disease (29). It has also been established that physical therapy not only contributes to prolonging periods of remission, preserves the functional capacity of patients, reduces the risk of a new relapse or rapid progression of the disease, but is even important for the pathology in question from the point of view of economic efficiency (30). Another publication in this series reviews traction therapy, which was well tolerated by patients with lumbar disc disease and contributed to an improvement in both their pain syndrome and their psycho-emotional state (34).

Together with co-authors, physiotherapists and neurologists, Dr. Todorov studied the effect of decimeter waves in patients with Parkinson's disease (8). Good therapeutic results of

the method have been reported, which allow a reduction of the prescribed drug therapy. This is a desired effect in Parkinson's disease, according to the specifics of its drug treatment.

Considering the importance of cerebrovascular diseases, the application of the modified Rankin scale as a method for evaluating the results of the rehabilitation of affected patients can be considered an important contribution (16).

IV. Balneology

This direction includes one publication co-authored with colleagues from the clinic in which Dr. Todorov worked by that time. The physico-chemical characteristics and therapeutic possibilities of the geothermal water from the nearby spring R-119X were examined. The article reports results in the treatment of coxarthrosis, gonarthrosis, spondylarthrosis, etc. The positive effects in the treatment of the aforementioned diseases to achieve a better therapeutic effect and the tendency to replace balneotherapy with balneoprophylaxis are discussed.

V. Laser therapy

Three publications related to the author's subspecialization in this direction and his scientific interest are included here. A detailed review is provided, based on a wide range of scientific publications, in chronological order, documented clinical applications and their results, synthesizing the current knowledge of the effect of MLS laser therapy in various pathological processes (38). Specific applications of the method with good efficiency are described in articles dedicated respectively to the application of high-energy laser in peritendinitis of the glenohumeral joint (40) and the combined application of high-energy laser and manual therapy in patients with functional disorders in the thoracic region (41).

VI. Clinical methodology

This section includes a number of articles that contain descriptions of various methodologies. In order to avoid repetition, they are discussed in the previous sections, as they are specific to each of them.

3. Basic scientific and applied contributions

The following original contributions may be accepted:

- Manual diagnostic tests for the sacroiliac joint were divided into specific and non-specific ones, and the final correlation with the established results was proven.
- For the first time in Bulgaria, the combined use of kinesitherapy and injectable collagen was studied in patients with frozen shoulder syndrome. A highly effective kinesitherapeutic protocol has been created to deal with motor deficits, and the studied methodology has been proven to be more effective than conventional kinesitherapy.

- The scientific collaboration with an author from the University of Cologne, Germany allows the conduct of original studies using the material base of the German university.
- For the first time in Bulgaria, non-contact infrared skin thermometry was used and proved to be an effective method in pathology of the sacroiliac joint. A thorough analysis of the established temperature curves was carried out, and a reliable anatomical-physiological explanation for similar reactions was given.
- The review of the clinical effectiveness of the MLS high-energy laser is a world first.
- For the first time in Bulgaria, a comparison is made between the effect of high-energy laser and manual therapy in patients with thoraco-lumbar transition syndrome.
- Vestibular re-education is a little-known methodology and the article is the first of its kind for Bulgaria.

There are also contributions of applied nature:

- Both the immediate and long-term effects of manual therapy on the sacroiliac joints were studied in terms of improved kinesiology and the potential for symptom recurrence.
- Manual therapeutic approaches have been developed and scientifically substantiated for a number of diseases such as the syndrome of m. piriformis, lumbar radicular syndromes, acute lumbar discogenic pain, Tietze's syndrome, thoraco-lumbar transition syndrome, etc.
- A protocol has been created for examination, diagnosis and therapy of patients with sacroiliac dysfunction, as well as a diagnostic algorithm with particularly high accuracy, including tests used for the first time in a scientific work in Bulgaria.
- The modified Rankin Scale was introduced as a method for assessing functional recovery in post-stroke hemiparesis.
- DASH questionnaire and Simple Shoulder Test have been translated and modified in a form that allows their use in Bulgaria.
- The research from the sphere of balneology of the geothermal spring R-119X, located on the territory of the Sveta Marina Hospital - Varna, demonstrates the healing properties of the water and contributes to the development of the trend to replace balneotherapy with balneoprophylaxis.
- The combined application of kinesitherapy and injectable collagen, discussed in the monograph, represents an awarding of a basic physiotherapeutic approach with another method of treatment, which leads to an increase in clinical effectiveness.

- Inverted shoulder prosthesis is still rare in Bulgaria and the article about the modern rehabilitation approach in such patients is of high practical value.

The specified contributions are significant, indisputable and fully meet the requirements for the academic position "Associate Professor".

4. Assessment of the diagnostic and therapeutic activity

Dr. Iliya Todorov has a long experience as a specialist in Physical and Rehabilitation Medicine. He has the opportunity to work in a state institution, in private practice, to improve as a doctor in the country and abroad. From 2016 to 2019, he was the head of the Physical and Rehabilitation Medicine Clinic at Sveta Marina Medical Center - Varna, and from January 2022, he was the head of the Rehabilitation Department at the Heart and Brain Medical Center - Burgas. This testifies to his qualities as a professional and leader.

5. Scientometric indicators

According to the submitted documents, Dr. Iliya Todorov fully meets the mandatory conditions, quantitative criteria and scientometric indicators determined according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Application and the Rules for the Development of the Academic Staff of Prof. Assen Zlatarov University, Burgas, regarding the Academic position "Associate Professor". The candidate fulfills the criteria of groups of indicators A and C and exceeds those of D, E and F. He thus obtains a total of 778 points while the minimum required is 450.

Compliance with the scientometric requirements for the academic position "Associate Professor"

Group of metrics	National requirements	Requirements of Prof. Dr. Assen Zlatarov University	Points of the candidate
A Indicator 1	50	50	50
C Indicators 3 or 4	100	100	100
D Sum of indicators 5 to 9	200	220	448
E Sum of indicators 10 to 12	50	60	110
F Sum of indicators from 13 to end	-	20	70
Total	400	450	778

In conclusion, bearing in mind all of the above, I vote positively for awarding Dr. Iliya Todorov Todorov, MD with the academic position of "Associate Professor" in the professional field of Medicine, specialty "Physiotherapy, Resortology and Rehabilitation" at Prof. Dr. Assen Zlatarov University – Burgas and I advise the members of the Scientific Jury to support the procedure as well.

Burgas
28.05.2024

Reviewer;
/Prof. Ivan ~~Nikolov~~ Dimitrov, MD, PhD, DSc/