

STATEMENT

BY ASSOC. PROF. NIKOLAY NEDEV, PhD

Member of the Scientific Jury pursuant to Order No. R-109-149 of 26.03.2026 issued by the Rector of Medical University “Prof. Dr. Paraskev Stoyanov” – Varna

Regarding: Defence of a dissertation on the topic “*Application of Medical Dry Needling in Subacromial Impingement Syndrome of the Shoulder Joint*” under the procedure for awarding the educational and scientific degree of “*Doctor, PhD*” by Denislav Krassimirov Ivanov, in the field of higher education “7. Healthcare and Sport”, professional field “7.4. Public Health”, in the scientific specialty “*Management of Healthcare*”.

By Order No. R-109-149 of 26.03.2026 of the Rector of Medical University “Prof. Dr. Paraskev Stoyanov” – Varna, I was appointed as a member of the Scientific Jury, and pursuant to Minutes No. 1/31.03.2026, designated to prepare an Statement on the procedure.

Brief biographical data

Denislav Ivanov obtained his Bachelor’s degree in Sport and Exercise Science (Sport Injuries) from Edinburgh Napier University, Edinburgh, Scotland. In 2020, he obtained the educational and professional qualification degree of “Professional Bachelor” in the specialty of “Rehabilitation Therapist” at the Medical College of Medical University “Prof. Dr. Paraskev Stoyanov” – Varna, after which he furthered his education and qualifications with a Master’s programme in Physical Therapy and Rehabilitation at the National Sports Academy “Vasil Levski”, Sofia.

He began his professional career as a sports therapist in 2014 at Football Club “Links United”, Edinburgh, where he worked until 2016. Between 2020 and 2023, he worked as a rehabilitation therapist at Medical Centre “Tervel” – EOOD. Since 2023, he has been working as a rehabilitation therapist at Medical Centre “Dobritch Physio Centre” – EOOD.

Continuing education courses and short-term specialisations in the field of rehabilitation have further contributed to his development as a highly qualified specialist in rehabilitation.

In 2024, Denislav Ivanov was enrolled as a doctoral student in independent study mode with the dissertation topic “Application of medical dry needling in subacromial impingement syndrome of the shoulder joint” in the doctoral programme “Management of Healthcare”.

He has publications in peer-reviewed scientific journals and has participated in scientific conferences.

His project activities include participation as a national scholarship holder of the “Sts. Constantine and Elena” Foundation, rehabilitation and thalassotherapy section.

He is a member of IAOM – US (International Academy of Orthopaedic Medicine – United States);

Member of BAPHIP (Bulgarian Association of Healthcare Professionals).

The doctoral candidate has extensive practical experience and excellent professional training in the field of rehabilitation.

He has a high level of foreign language proficiency: he is proficient in and uses English in his professional activities.

Relevance and significance of the dissertation

The topic of the doctoral dissertation addresses a highly relevant and significant medical and social issue – the quality and effectiveness of rehabilitation care for patients with Subacromial Impingement Syndrome (SIS) and the improvement of their functional recovery, pain reduction, restoration of musculoskeletal balance, and quality of life. There is enormous potential for real practical application of the results.

The dissertation contains an analysis of global experience, identification of best practice examples, new ideas and approaches that can be extremely valuable both for researchers in this field and for the development of rehabilitation practice and care for patients with SIS.

The significance is substantially enhanced by the potential for implementing the method of Medical Dry Needling as an effective means of optimising rehabilitation care and improving the possibilities for functional recovery and quality of life in these patients.

Structure and content of the dissertation

The dissertation is presented in a total volume of 218 standard pages and is structured into four main chapters. Its structure is logically constructed and includes: Chapter I – Literature review; Chapter II: Aim, Objectives, Methods; Chapter III: Results and discussion; Chapter IV: Original algorithm for physiotherapeutic treatment of subacromial impingement syndrome incorporating medical dry needling.

Logically, the content continues with “Conclusions”, “Contributions”, “Recommendations”, “Publications and participation in scientific events related to the dissertation”, “Bibliography”, and “Add-ons”. The scientific work and its results are richly illustrated with 48 tables and 20 figures. The bibliography contains 202 references, duly cited throughout the text, of which 4 are in Cyrillic and 198 in Latin script. Contemporary sources from the last 5 years predominate, which is indicative of the author’s excellent familiarity with the literature and up-to-date awareness of the field.

Aim, objectives and methods

The aim of this work is clearly and precisely formulated: “To assess the effect of the therapeutic modality of medical dry needling as an adjunct to a conventional physiotherapy protocol in the non-operative treatment of patients with Subacromial impingement syndrome (SIS)”. It is justified by the in-depth literature review, the author’s practical experience, and the identified unresolved problems.

Seven main objectives have been formulated, logically sequential and comprehensively covering the scientific research.

Three working hypotheses have been investigated, which are clearly formulated and correspond to the set objectives.

Material, methods, instrumentations

The methodology has been appropriately selected and is presented with precision. The study design and the research methods employed are fully adequate to the set objectives. The study subjects are sufficient in number and were selected in accordance with inclusion and exclusion criteria. The following were used:

- Assessment instruments and tests (grouped by criteria), including: “Provocative and Diagnostic Tests for SIS”, “Range of Motion and Mobility Tests”, “Muscle Strength Tests”, and “Pain and Functional Scales”;
- Interventions, including: a conventional physiotherapy protocol for the control group, and a combined physiotherapy protocol incorporating medical dry needling for the experimental group.

A rich set of statistical methods was applied, appropriately selected according to the study design and the sought relationships. All of this guarantees the reliability of the results from the original research and the correct derivation of conclusions from the scientific work, which is an excellent testament to the investigative capabilities of the doctoral candidate.

Results of the original research

The results of the original research and their discussion are comprehensively presented in several categories and are well-structured according to the set objectives and formulated hypotheses.

The results of the Hawkins–Kennedy diagnostic physical test – a functional assessment of subacromial compression – demonstrate clear differences in the dynamics of recovery between the two groups. The

experimental group (EG), in which medical dry needling was added to physiotherapy, showed faster reduction of pain symptoms.

The Neer diagnostic physical test – assessment of subacromial impingement – shows a sharp decrease in positive reactions in the experimental group (EG) after the third week, with maintenance of negative results up to the sixth month.

The Jobe diagnostic physical test – assessment of m. supraspinatus function – shows significant improvement in the experimental group (EG) as early as the end of the third week (T2), which remains stable at subsequent follow-ups (T3 and T4).

The Lift-Off (Gerber) diagnostic physical test – assessment of m. subscapularis – shows that in the experimental group, recovery occurs as early as after the first three weeks (T2), with values normalising completely at T3 and remaining stable until the sixth month.

The Hand-Behind-Back (HBB) functional test – functional range of internal rotation – confirms that the addition of medical dry needling to the standard physiotherapy programme leads to faster and more lasting overcoming of the capsular pattern of restriction in patients with SIS.

Assessment of shoulder joint range of motion in patients with SIS, performed by goniometry using the SFTR method by Moor, six months post-therapy, shows stable and maintained range of motion values in the experimental group, indicating a long-lasting therapeutic effect of the combined approach.

Assessment of shoulder joint muscle strength by manual muscle testing at the fourth follow-up period confirms the long-term effectiveness of the dry needling intervention applied in the experimental group. The achieved results are maintained with no signs of regression in muscle strength.

Assessment of shoulder joint muscle strength by dynamometry (Meloq device) at the fourth follow-up period (6 months after completion of therapy) confirms that the improvements are not only maintained but also consolidated.

Results presented through the Visual Analogue Scale for pain (VAS) show that both groups reach values classified as pain-free; however, the experimental group demonstrates faster and more lasting pain relief.

Assessment of pain and functional capacity of the shoulder joint using the SPADI (Shoulder Pain and Disability Index) clearly demonstrates that the dry needling intervention exerts a specific and substantial impact on both the subjective component (pain reduction) and the objective component (improvement of functional activity).

Assessment of pain and functional changes using the UCLA Shoulder Rating System in patients with SIS shows in the experimental group an additional improvement – an increase in the total UCLA score by 1 further point, reaching 32 points, which is close to the upper limit for “good” recovery and on the boundary of the “excellent” category.

The summarised results of the study lead to the conclusion that patients with SIS who received physiotherapy care incorporating the integrated method of medical dry needling have better long-term recovery compared to the remaining patients.

A merit of the scientific work with great potential for practical application is the algorithm for physiotherapeutic treatment proposed by the doctoral candidate, incorporating the dry needling method, designed to reinforce the positive therapeutic effects and to contribute to improving the quality of life in patients with SIS.

Conclusions and contributions of the dissertation

The main conclusions (4 in total) are clearly formulated, follow the set research objectives, and logically derive from the results obtained.

The work has significant theoretical-cognitive and practical-applied contributions, predominantly original in character.

Theoretical-cognitive contributions: 1) The theoretical model of the pathokinesiobiological aspects of subacromial impingement syndrome has been expanded; 2) The role of the medical dry needling method within the multimodal rehabilitation model for SIS has been scientifically substantiated and conceptually justified; 3) Contemporary scientific knowledge regarding the clinical, functional, and medico-social significance of SIS has been systematised, and a structured conceptual framework for an integrated therapeutic approach has been proposed.

Practical-applied contributions: 1) An original algorithm integrating medical dry needling for patients with SIS has been developed and clinically validated; 2) An objective, standardised, and reproducible system for functional assessment has been introduced; 3) For the first time in a national context, the statistical and clinical superiority of the combined therapy (physiotherapy in combination with the dry needling method) has been experimentally demonstrated; 4) The durability of the therapeutic effect has been proven through medium- and long-term follow-up (up to 6 months), confirming the clinical effectiveness and practical applicability of the developed algorithm.

The dissertation is written in an excellent scientific style, with a commitment to accuracy and precision in the presentation and interpretation – demonstrated throughout the entire work.

Publications on the topic of the dissertation

In connection with the dissertation, 2 full-text publications have been presented. Denislav Ivanov is the sole author of 2 publications related to the doctoral dissertation, which is additional evidence of the candidate's commitment to the researched problem.

Evaluation of the extended abstract

The extended abstract has been prepared in accordance with the requirements and reflects the content of the doctoral dissertation in a synthesised and complete manner. It is richly illustrated with 6 figures and 34 tables.

Critical remarks / Recommendation

I have no critical remarks regarding the presented work. My recommendation is directed towards encouraging the author to take the necessary steps and actions to implement the recommendations set out in the dissertation to the relevant stakeholders and to realise in practice the proposals contained therein, with the aim of improving the effectiveness of rehabilitation for patients with SIS.

Personal impressions of the candidate

I have known Denislav Ivanov since his student years at the Medical College – Varna. My personal impressions of him characterise him as consistent and purposeful, hardworking, organised, responsible, and dedicated – someone who continually strives for development and self-improvement.

Conclusion

The presented doctoral dissertation addresses an exceptionally relevant and dissertable topic, executed with precision at a high methodological level. It is original, provides new knowledge contributing to the development of physiotherapeutic practice, and offers significant theoretical and applied contributions. The dissertation fully meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Academic Staff Development Regulations of Medical University – Varna.

All the merits of the dissertation give me grounds to provide a positive opinion and to confidently propose that the Scientific Jury vote in favour of awarding Denislav Krassimirov Ivanov the educational and scientific degree of “Doctor, PhD” in the field of higher education “7. Healthcare and Sport”, professional field “7.4. Public Health”, in the scientific specialty “Management of Healthcare”.

15.04.2026

Varna

Assoc. Prof. Nikolay Nedev

Prepared by

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