

STATEMENT

by

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regarding the PhD dissertation submitted for the award of the educational and scientific degree

Doctor

**“Biochemical and Ultrasonographic Markers of Early Cardiovascular Damage in Patients
with Spondyloarthritis”**

in the higher education field 7. Healthcare and Sports,

professional field 7.1. Medicine,

doctoral program *Internal Medicine*

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I hereby declare that I have no conflict of interest regarding the dissertation submitted for
evaluation and that I have not identified any evidence of plagiarism.

General Characteristics and Relevance of the Topic

The dissertation addresses an issue of substantial importance to internal medicine—early
vascular alterations in chronic inflammatory diseases. Chronic inflammation is a major driver of
accelerated atherosclerosis, and inflammatory arthritides represent a well-recognized pathogenic
model of this process.

Spondyloarthritis, traditionally viewed as a group of rheumatologic entities, is increasingly recognized as a systemic condition in which cardiovascular damage is among the leading contributors to increased morbidity.

Dr. Markov's work aligns with modern trends promoting an integrated approach between rheumatology and cardiology, with emphasis on the non-invasive assessment of vascular function. The author has applied ultrasonographic methods to evaluate arterial elasticity (CIMT, PWV, β -stiffness) in combination with serum markers of endothelial activation (VCAM-1, ICAM-1). This conceptual framework enables early identification of patients at increased cardiovascular risk and is fully consistent with European recommendations for primary prevention.

Aim, Tasks, and Methodological Justification

The aim of the study is to assess non-invasive ultrasonographic and biochemical markers as predictors of early vascular injury in patients with ankylosing spondylitis and psoriatic arthritis.

The research tasks are clearly defined and consistently executed. The study includes **154 participants**, divided into three well-matched groups.

The methodology is selected with notable professional precision—using echo-tracking ultrasonography, ELISA quantification of adhesion molecules, and validated clinical indices for evaluating disease activity and cardiovascular risk.

Statistical processing is correct and ensures reliable interpretation of the obtained results.

Main Results and Scientific Contributions

The study identifies early signs of vascular stiffness and structural vascular damage in patients with spondyloarthritis compared to healthy controls. The observed increases in CIMT, β -stiffness, and PWV indicate reduced arterial elasticity.

The most pronounced abnormalities are found in patients with psoriatic arthritis, suggesting an additional contribution of metabolic comorbidities. The author demonstrates relationships between inflammatory activity, atherogenic indices, and ultrasonographic parameters, emphasizing the central role of systemic inflammation in the development of atherosclerotic changes.

Of particular interest is the finding that VCAM-1 correlates with markers of arterial stiffness and can be considered a biochemical indicator of endothelial dysfunction.

The dissertation proposes a functional model for comprehensive vascular risk assessment that carries potential for implementation in clinical practice.

Conclusion

The dissertation of Dr. Miroslav Penev Markov is methodologically sound, scientifically substantiated, and of practical relevance. The obtained results have significant implications for the evaluation and prevention of cardiovascular risk in patients with chronic inflammatory diseases. The work fully meets the requirements of the Bulgarian legislation concerning academic staff development and the regulations of the Medical University of Varna.

Therefore, I recommend that the esteemed Scientific Jury vote positively and award Dr. Miroslav Penev Markov the educational and scientific degree **Doctor**.

Date: 18.11.2025

Signature:

Prof. Ivan Tomov Gruev, MD, PhD

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