

OPINION

by Assoc. Eng. Ognyan Tishinov, Ph.D

Regarding: The documents submitted for the preparation of an opinion of the Chief Assistant Ivan Mirchev Ivanov, Ph.D. apply for participation in a competition for the academic position of "associate professor" in professional direction 7.6 Sport, specialty biomechanics.

The submitted documents are accompanied by a detailed reference with scientometric data of the applicant. Regarding the reference, it can be said that it fully meets the requirements of the Law on the Development of the Academic Staff in Bulgaria. Ivan Mirchev Ivanov graduated in 1996 as an engineer-physicist and continues his studies at the Institute of Mechanics, Bulgarian Academy of Sciences for the educational-scientific degree "doctor" in biomechanics. The candidate performs research, planning and conducting experimental work, processing results, participating in project work.

He participated in the training of students under the Erasmus program. He is the head of one and has participated in three scientific research projects, and the articles published in national and international journals and reports have a total number of 23. Ivan Mirchev Ivanov has presented a monograph on the rheological behavior of blood in large blood vessels and the hematocrit as an indicator with great importance for the general properties of blood as a biological fluid. The monographic work contains an impressive list of 346 cited sources.

Hematocrit as a metric reflects the balance between the production and destruction of red blood cells, but is also known to be affected by dehydration and body posture. Heart rate and blood pressure are higher when the body is upright compared to sitting or lying down. Higher standing blood pressure is associated with

the movement of intravascular fluid (ie, plasma) into the interstitial compartments. This leads to a decrease in plasma volume and an increase in hematocrit.

The competent interpretation of the parameters characterizing the changes in the hemorheological characteristics of the body during physical exertion (vasodilation, viscosity, blood volume, endothelium of the vascular walls) is impressive. Beneficial hemorheological effects of prolonged aerobic exercise have been studied and described. Well-trained athletes, especially participants in strength sports (requiring increased endurance), often show changes in hematocrit values. The slight decrease in hematocrit immediately after exercise is probably due to an increase in the volume of blood plasma and the changes in basic bioconstants that occur.

19 of the presented publications are related to blood rheology, two publications are related to the study of the stabilographic profile in elite athletes, three publications are related to the assessment of the relationship between kinematic and anthropometric characteristics in elite athletes. Applications of ultrasound methods to study the effect of stretching in athletes are described.

The candidate has participated in four scientific conferences of national and international importance. Ivan Mirchev Ivanov supervised two graduates.

A good impression is made by the fact that Ivan Mirchev Ivanov has presented a detailed description of the number of citations in scientific works, theses, dissertations and other sources.

An experimental model was developed to study the influence of isometric stretching on intra-articular spatial characteristics of the knee joint.

A funded project on the topic "Theoretical and experimental study of intra-articular movements during isometric stretching" has been signed with the Fund for Scientific Research in Bulgaria.

The subject of the monographic work is an analysis of personal and global experience in the field of hemorheology in athletes.

The scientific interests of Ivan Mirchev Ivanov are wide-ranging - from the field of high sportsmanship and introduction and validation of new research methods.

All required documents for the candidacy of Ivan Mirchev Ivanov have been submitted correctly and comprehensively. The candidature fully meets the requirements of the Law on the Development of the Academic Staff in Bulgaria and I propose that the commission approves Chief Assistant Ivan Mirchev Ivanov - PhD in the academic position of "associate professor" in professional direction 7.6 Sport, specialty biomechanics.

12/03/2023

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