

Reasoning of dissertation topic and competency of potential supervisor for admission onto joint LSU and TU doctoral studies in 2019

Area of research (title and code)	Biomedical Sciences
Field of research (title and code)	Biology (01B)
Topic of research	
Institution	LSU

Potential supervisor

Pedagogical and scientific degree	Name, surname	Academic position
Assoc. Professor, M.D.	Daiva Imbrasienė	Assoc. Professor

Short reasoning of proposed dissertation topic

Title
„Correlation between intraocular pressure, cerebrovascular autoregulation and retinal vessels for elite athletes during intensive physical exercise“
Summary (relevance, hypothesis, methodology, not more than 2000 symbols) The high-standard physical training of Lithuanian elite athletes – a guarantee in pursuing sports results. Athletes constantly experience a huge physical, emotional and psychological load. Planning physical workload in training sessions, pre-competition and competition periods, it is important to evaluate the athletes’ cerebrovascular autoregulation potential to prevent complications such as hemorrhagic stroke, haemorrhage in the eye, retinal detachment, ocular circulatory disorders, optic nerve edema, etc. This study aims at finding out how the cerebrovascular autoregulation works, so that high-intensity workload would not cause acute brain disorders, hemorrhagic stroke and sudden death; at determining what the relationship between the increase or decrease in intraocular pressure, arterial blood pressure and cerebrovascular autoregulation dysfunction is. In this application, during our work, it will be aimed to evaluate the cerebrovascular autoregulation of individual and team sports’ elite athletes under the short-term and long-term dynamic and static physical loads and to identify the correlations of changes in intraocular pressure, blood pressure, retinal vessels, optic nerve disc. The analysis will be performed in accordance to the innovative non-invasive cerebrovascular autoregulation monitoring technology, created by Kaunas University of Technology (KTU). On the basis of the foreign authors’ research in intraocular pressure, blood pressure, cerebral perfusion pressure variations under the influence of exercise, we believe that the intense physical workload (in training sessions, pre-competition and competition periods) will cause changes in intraocular pressure, changes in retinal vessel thickness and tortuosity, dysfunction of cerebrovascular autoregulation and possible changes in the optic disc. It’s expected, that the new fundamental knowledge received during this study will lead to better identification of physical limits of elite athletes and also would allow us predict and reduce the chances of threatening health risks. The simplicity of tools’ mobility and adjustment would ensure the broader spectrum of their application.

Currently I am supervisor of 0 doctoral students.

Daiva Imbrasienė

Supervisor

(signature)

Date 2019.03.01