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, Biology (01B), Physiology (B470)
Field of research (title and code)	Exercise therapy
Topic of research	Assessment the efficiency of Differential Learning methodology exercise therapy
Institution	Lithuanian Sports University

Potential supervisor

Pedagogical and scientific degree	**Name, surname**	**Academic position**
prof.habil.dr.	Jonas Poderys	professor

Short reasoning of proposed dissertation topic

Title

The holistic effects of differential learning methodology in exercise therapy while regaining balance, coordination and gait in elderly.

Summary

There is weak evidence that some types of exercise are moderately effective, immediately post intervention, in improving clinical outcomes in older people. A lot of reviews published during the last decade point out that future studies should focus on holistic approach, on quality of life and other functional outcomes while the new means, methods or methodologies are suggested.

An increased variance of the movements is a feature of Differential Learning (DL). There was showed a lot of evidence about greater efficiency of DL in variety of fields of human training. Undoubtedly in all physiological systems and at all body levels undergoes adaptation changes what can explain the essence of such methodology. While assessing the efficiency of physiotherapy it is important not to describe some changes of balance, coordination or gait, but also to evaluate whole body functioning as one holistic system. The holistic assessment of physiotherapy can be described by the interaction between the physiological systems, between various physiological mechanisms. When the system performance is pushed up, there exists a threshold above which interaction between its components overtakes the outside interaction. Interrelation mechanisms of body systems and components' interactions are essential in determining how body functions as a whole as a holistic as a complex dynamic adaptive system. Separate indices show only a particular functionality issue, therefore, the following research was initiated as to find-out the dynamical changes in interaction between indicators of the body's functional performance.

It is also important to identify and follow-up the residual effects of exercise therapy. Shortly, the purpose – to define the peculiarities of acute and long-term adaptation while the exercise therapy is based on Differential Learning methodology. The obtained results will allow a deeper understanding of these principles and more specific applications of this methodology in exercise therapy.

Please indicate the links between the proposed topic for the doctoral thesis and health promotion / physical therapy / sports study programs.

Increase the effectivity of exercise therapy; evaluation of aplied procedures and residual effects is the important competencies of bachelor and master Physiotherapy study programs LSU.

Is the proposed topic for the doctoral thesis related to currently funded research projects?

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Is the proposed topic for the doctoral thesis related to joint research with a foreign institution?

Prof. Wolfgang I. Schöllhorn (Institute of Sports Science, Johannes Gutenberg-University, Mainz, Germany) as an author of DifferentialLearning metodology will be aseked to be the consultant and one or two visits and joint reseach will be planned.

Currently I am supervisor of __3___ doctoral students.

Supervisor _____ **Jonas Poderys**

(signature) *(Name, surname)*

Date: *2019-03-10*