

Reasoning of dissertation topic and competency of potential supervisor for admission into LSU biology doctoral studies with a participation of Tartu university 2024

Area of research (title and code)	Natural Science
Field of research (title and code)	Biology
Topic of research	Intensified training and tapering in highly trained athletes
Institution	Lithuanian Sports University

Potential supervisor

Pedagogical and scientific degree	Name, surname	Academic position
Prof. dr.	Sigitas Kamandulis	Head Researcher at LSU

Short reasoning of proposed dissertation topic

<p>Title</p> <p>MANAGING FATIGUE DURING INTENSIFIED TRAINING AND TAPERING IN HIGHLY TRAINED YOUTH AND ADULT ATHLETES</p>
<p>Short research description (including aims and objectives) (maximum 1500 characters).</p> <p>Training athletes involves a complex interplay of practices, each critical for optimizing performance and preventing injuries. Failing to periodize training into distinct phases can lead to plateaus or overtraining. A common method of periodization includes periods of increased training intensity followed by tapering phases (Buchheit et al., 2013; Antualpa et al., 2017; Fernandes et al., 2022). Research has indicated that this strategy can enhance fitness and performance in both team and individual sports (Papacosta et al., 2013; Nunes et al., 2014; Wang et al., 2023).</p> <p>The main aim of the new project is to analyze the relationship between fatigue markers and variations in training load volume and intensity under applied practice conditions in both elite and youth athletes. The research will focus on strategies for managing large training loads during various training periods, while carefully monitoring fatigue and recovery to minimize the risk of overreaching and overtraining. Additionally, the project will explore how tapering periods can be manipulated to achieve the optimal balance between intensified and reduced training for peak performance. While the primary focus will be on judo competitors, the study may also include athletes from other dual sports. This comprehensive monitoring of training loads, fatigue, and recovery from youth to elite levels aims to inform best practices for athlete development, helping to minimize burnout and overtraining.</p>

Relevance of the problem, its novelty at national and international level (maximum 1500 characters).

Neglecting the balance between workload and recovery can lead to overtraining or undertraining, which are globally recognized problems in the sports community (Meeusen et al., 2013; Gabbett, 2016; Carrard et al., 2022; Kuikman et al., 2022). Another challenge is the variability in the competitive performance of elite athletes, with frequent failures to achieve their best results during

major competitions (Malcata and Hopkins, 2014). This study will provide continuous real-time data on athlete fatigue, with dynamic adjustments in training load—both volume and intensity—across different phases of athlete training. By identifying the thresholds at which increased training loads begin to yield diminishing returns or adverse effects, this research will offer valuable, evidence-based guidelines that can be implemented in coaching practices. Furthermore, the project will conduct comparative analyses between elite and youth athletes, offering insights into how age and developmental stages affect the efficacy of different periodization strategies. This aspect of the study will fill a significant gap in current sports science research, which often focuses predominantly on adult elite athletes, neglecting the specific needs and responses of younger athletes.