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Oral Session 4

Gender-specific issues of strength training loads planning for elite female athletes

Viktoriiia Nagorna

Swiss Federal Institute of Sport Magglingen, Switzerland

<https://orcid.org/0000-0003-2607-7412>

Artur Mytko

Swiss Federal Institute of Sport Magglingen, Switzerland

<https://orcid.org/0000-0002-5139-3751>

Katja Oberhofer

Swiss Federal Institute of Sport Magglingen, Switzerland

<https://orcid.org/0000-0001-5469-9951>

Basil Achermann

Swiss Federal Institute of Sport Magglingen, Switzerland

<https://orcid.org/0000-0002-6166-6477>

Silvio Lorenzetti

Swiss Federal Institute of Sport Magglingen, Switzerland

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Abstract

Introduction

Strength training is a fairly popular topic, both among sports product users and among scientists in Switzerland and other countries around the world. Nevertheless, the analysis of the literature is indicating that there is not enough scientifically based research on gender-specific issues of strength training loads planning for female athletes in sports of higher achievements.

Purpose

The goal of this study was to identify gender-specific issues in the planning of strength training loads for elite female athletes based on the psychophysiological and biomechanical methods of controlling.

Methods

To determine the model characteristics of the optimal psychophysiological state (indicators of the efficiency of attention, volume of voluntary attention, productivity, coefficients of motivational, volitional and typological components, stress resistance) and balance function of elite male and female athletes during practising competitions, we compared two independent groups (women, $n = 17$ and men, $n = 24$). All participants were aware of the objectives of the study and agreed to participate. Mathematical and statistical processing and data analysis were carried out using the computing and graphic capabilities of the computer programs "Statistica" (Statsoft, version 7.0) and Microsoft Excel 2010.

Results

The analysed factors and their component indicators to determine the state of psychophysiological functions for women and men. The analysis of the obtained indicators indicates that the manifestation of the characteristics of psychophysiological functions for men and women has its own gender characteristics. For men, it is a predominance of attention, and for women, mobility and strength of nervous processes. As for the quality of the balance function, significantly higher indicators ($p < 0,05$) are observed for women precisely when performing an attempt with closed eyes.

Conclusions

The sexual peculiarities of the formation of psychophysiological functions of elite athletes, the functional peculiarities of psychomotor and mental activity, as well as the peculiarities of the psychophysiological organization of information processing were revealed. The nuances regarding the indicators of quality of the balance function among elite athletes, depending on gender, are revealed, which is primarily related to the location of the centres of gravity: in women, it is located in the hips, and in men, it is much higher. This will, for example, directly affect the difference in the recommended angle in the knee area for female and

male athletes during the strength exercise "squat with a barbell". In addition, we would like to note that the data of the studied literature sources and our previous studies allow us to formulate a hypothesis regarding the change in the speed of basic training in elite female athletes under the influence of hormonal changes in different phases of their menstrual cycle. This hypothesis will be further investigated in forthcoming research.

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Section

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