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### MEETING ABSTRACT

#### A2.43

##### **Intake of polyprenol rich product SuperCell® HEPA improves efficiency of oxygen use in well-trained amateur floorball players**

Laila PLAKANE<sup>1,\*</sup>, Ilona VANAGA<sup>2</sup>, Līga PLAKANE<sup>3</sup>, Ruta MUCENIECE<sup>4</sup> and Uģis KĻETNIEKS<sup>2</sup>

<sup>1</sup>Residency in Sports Medicine, University of Latvia; <sup>2</sup>SIA "Silv EXPO"; <sup>3</sup>Faculty of Biology, University of Latvia; <sup>4</sup>Faculty of Medicine, University of Latvia, Riga, Latvia

**Background:** Polyprenols are linear polymers consisting of isoprene units and are found in almost all living bodies. It is known that polyprenols protect cell membranes from peroxidation and reactive oxygen species. Hepatoprotective abilities are described as well [1]. Polyprenols protect muscles from statin-induced muscle damage in rats by improving muscle strength and power [2]. However, there is lack of information about possible effect on athlete performance. In sports, food supplement use is very common, also in floorball. Although floorball exists for more than 30 years, there is no information about physiological characteristics of floorball players in comparison with other team sportsmen.

**Objectives:** The objective of the study was to evaluate adaptation to acute aerobic test loads and to determine polyprenol effects on physiological characteristics of well-trained amateur floorball players.

**Methods:** 30 male floorball players participated in this study, 16 of them were taking SuperCell® HEPA and 14 did not. All participants did VO<sub>2</sub> max exhaustive incremental cycling test before and after use of polyprenols with each step 2 minutes and increment by 25 W, where VO<sub>2</sub> peak and a number of additional cardiorespiratory variables (heart rate, cardiac output, stroke volume, arterial blood pressure, as well as ventilation, gas exchange and oxygen consumption) were measured to investigate cardiorespiratory adaptation.

**Results:** Polyprenol intake increased VO<sub>2 peak</sub> (peak oxygen consumption) by 2.8 ml/min/kg while in the control group there were no changes, O<sub>2</sub>/HR (oxygen pulse) increased by 0.9 ml/beat in the polyprenol-user group while it decreased by 0.4 ml/beat in the control group ( $p = 0.019$ ). In the polyprenol-user group,  $P_{dia}$  (diastolic pressure) in the last cycling-test minute decreased by 4 mmHg while it increased in the control group by 10 mmHg ( $p = 0.02$ ); SVc (cardiac output) in the polyprenol-user group increased by 2.9 ml while it decreased by 7.4 ml in the control group ( $p = 0.04$ ). Average cycling test time increased by 1 min in the polyprenol-user group while it did not change in the control group.

**Conclusions:** Use of polyprenols increased the ability to tolerate high-intensity exercise in the cycling test and improved oxygen consumption efficiency by increasing VO<sub>2 peak</sub>, O<sub>2</sub>/HR. Differences between polyprenol and control groups were statistically significant.

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**Keywords:** polyprenols – floorball – aerobic capacity

#### References

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\*Corresponding author: Laila Plakane, Residency in Sports Medicine, University of Latvia. E-mail: [laila.plakane@gmail.com](mailto:laila.plakane@gmail.com)