

## **Abstract**

**Title:** The effect of training exercise on lung functional capacity in gymnasts

**Objectives:** The objectives of this work is to find out the influence of gymnastic exercise on forced vital capacity (FVC), heart rate and blood LA.

**Methods:** Nine female top-level artistic gymnasts participated in the study. The age ranged between 18-25 years. FVC was measured by a personal spirometer, heart rate by a sporttester, and blood lactate level by a blood LA analyzer

Statistical analysis: Pearson correlation coefficient was used to determine the relationships between variables. The Shapiro-Wilk normality test was used to test normality in our dependent variables. Regression models were used to estimate associations between variables. Non-parametric Friedman test was used to test the differences between measurements and Wilcoxon test was used for post-hoc analysis.

**Results:** A statistically significant increasing ( $p < 0.05$ ) was found in the blood LA as well as in heart rate. A statistically significant relationship ( $p < 0.05$ ) was confirmed between resting LA level and percentage changes in FVC and LA.

**Keywords:** spirometer, sporttester, blood lactate, burpee test, LA, artistic gymnastics