

## Comparison of Eating Disorders among Professional Ballet School Dancers and Ordinary School Students, and Interconnection with % Body Fat and Energy Intake

*Līga Kalniņa<sup>1</sup>, Guntars Selga<sup>2</sup>, Melita Sauka<sup>1</sup>,  
Aija Randoha<sup>1</sup>, Eva Krasovska<sup>1</sup>, Viesturs Lāriņš<sup>3</sup>*

<sup>1</sup> University of Latvia

<sup>2</sup> Rīga Stradiņš University, Department of Oral Medicine, Latvia

<sup>3</sup> Latvian Academy of Sport Education

**Introduction.** Ballet dancers are at a high risk of eating disorders (ED). 12% body fat has recently been suggested as the minimal level for female athlete adolescents, including ballet dancers and consumed energy 30–45 kcal/kg fat-free mass daily.

**Aim, Materials and Methods.** The aim of this study was to assess ED level of adolescent ballet dancers and of a control group, adolescents from ordinary school, and compare these results with the amount of energy intake and % of body fat level.

Thirty-nine female ballet dancers (median age 13 years, range 12–14) and seventy female respondents from ordinary school as controls (median age 14 years, range 13–15) were selected for the study. All ballet dancers had been actively training for at least three years ( $5.84 \pm 2.39$  years). Training volume at the time of the study was  $24.42 \pm 3.42$  h/week. Controls reported no history of participation in competitive sports and were not excluded if they participated in recreational sports (duration 1–5 h/week). Body composition were measured using a multi frequency 8-polar bioelectrical impedance leg-to-hand analyser (BIA) (X-Scan Plus II, Korea). Dietary intakes were assessed using three-day estimated food record. Eating disorders was measured using Eating Examination Questionnaire (EDE-Q). The study was approved by Rīga Stradiņš University Ethics Committee. Anthropometric and body composition characteristics and daily nutrient intakes were computed as the mean and standard deviation (SD). Daily nutrient intake variables were subjected to ANOVA between the control group (ordinary school adolescents) and the study group (ballet dancers).

**Results.** Using EDE-Q, restraint, eating, weight and shape concerns were assessed and global score calculated. In both groups, ED were not diagnosed, global score did not exceed four points. Calculating scores to all four parameters (restraint, eating, weight and shape concerns) there were no statistically significant differences between mean of scores between study and control groups ( $p > 0.05$ ). According to % of body fat (under or above 12% of body fat) only mean of global scores were higher for leaner teenagers ( $1.70 \pm 1.16$  and  $1.15 \pm 0.96$ ;  $p < 0.05$ ). Analysing ED scores among ballet dancers and their energy intake, those who consume less than 30–45 kcal/kg fat-free mass had higher scores for restraint ( $1.45 \pm 1.12$  and  $1.01 \pm 1.06$ ;  $p < 0.05$ ), eating concerns ( $1.22 \pm 1.09$  and  $0.86 \pm 0.85$ ;  $p < 0.05$ ), shape concern ( $2.54 \pm 1.64$  and  $1.70 \pm 1.73$ ;  $p < 0.05$ ), weight concern ( $2.65 \pm 1.62$  and  $1.54 \pm 1.74$ ;  $p < 0.001$ ) and global score ( $2.02 \pm 1.58$  and  $1.28 \pm 1.26$ ;  $p < 0.001$ ).

**Conclusions.** On average, a higher risk of ED for ballet dancers was not obtained. Dancers had a greater shape, weight and eating perception than other teenagers. Although the data on the ED did not reveal an alarming prevalence of the ED, a higher level of the ED occurs among dancers who are leaner and consume energy less than 30 kcal/kg fat-free mass. Lean dancers deserve special attention toward nutrition and physical load.