

## May different body mass affect the physical exercise effect in girls?

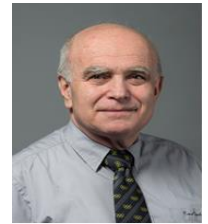
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### Abstract

Children obesity is a growing problem over the world. The cause of the overweight and obesity increase in the present population is energy intake non-adapting to its issue. In western countries an energy intake has stagnated over the past two decades, the energy expenditure for the same period drop down by 30%. The study goal was to assess the effect of movement intervention in girls differing in the BM. Study was carried out in 82 girls with normal BM (mean age=13.2±2.9years; BM=45.3±2.7kg; height=157.5±4.0cm; %BF=21.8±2.4%,  $VO_{2peak}=42.3\pm 2.6\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ ), 59 overweight girls (13.4±2.7; 54.0±3.0; 159.3±3.1; 26.6±2.7%, 36.1±2.2) and 41 obese girls (13.3±3.0; 64.2±4.1; 159.6±3.4; 30.5±3.1%, 30.6±2.2). Body composition was assessed by bioimpedance method using prediction equations that are valid for the Czech girls, functional variables were assessed on a treadmill. The intervention was on intensity ranged from 75 to 85% of  $HR_{peak}$ , and exercise duration was 9 weeks. The energy content of weekly movement program for boys with normal BM ranged from 1450 kcal to 2650 kcal (mean 2050±330 kcal) in overweight from 1591 kcal to 2390 kcal (1990±290 kcal) and in obese from 1680 kcal to 2290 kcal (1986±330 kcal). Reduction in %BF ranged from 13.9% in obese to 15.0% in normal BM of starting value, ECM/BCM relationship decreased from 11.9% in subjects with normal BM to 13.2% in obese, and in  $VO_{2peak}$  increased from 14.9% in normal BM to 15.8% in obese. In girls differing in BM are absolute changes in adiposity and aerobic fitness like a result of imposed movement intervention substantively and statistically significant. On the contrary, differences in percentages of pre-intervention values are non-significant. We can conclude that an exercise program with a similar energy content, form and intensity causes the similar changes in adiposity and in motor and functional performance in girls, differing in BM.

and International scientific societies, head of many research projects, author of the great numbers of research reports.



### Speaker Publications:

1. Bunc V (2016) Obesity – Causes and Remedies. Physical Activity Review 4:50-56.
2. Bunc V. (2018). A movement intervention as a tool of the influence of Physical fitness and Health. Trends in Sport Sciences 4(25): 209-216.
3. Han A. Fu A. Cogley S. Sanders RH. (2018) Effectiveness of exercise intervention on improving fundamental movement skills and motor coordination in overweight/obese children and adolescents: A systematic review. Journal of Science and Medicine in Sport 21(1):89-102.
4. Kim YM. Lee SJ. (2009) Physical activity and abdominal obesity in youth. Applied Physiology, Nutrition & Metabolism 34(4):571-581.
5. Veugelers PJ. Fitzgerald AI (2005) Effectiveness of School Programs in Preventing Childhood Obesity: A Multilevel Comparison. American Journal of Public Health, 95(3):432-435.

13<sup>th</sup> International Conference on Childhood Obesity and Nutrition; London, UK- March 16-17, 2020.

### Abstract Citation:

Václav Bunc, May different body mass affect the physical exercise effect in girls?, Childhood Obesity 2020, 13<sup>th</sup> International Conference on Childhood Obesity and Nutrition; London, UK- March 16-17, 2020

(<https://childhood-obesity.insightconferences.com/abstract/2020/may-different-body-mass-affect-the-physical-exercise-effect-in-girls>)



### Biography:

Václav Bunc – earned the PhD from Technical University Prague, professor in the Exercise Physiology from Charles University Prague Main topics: exercise physiology, obesity reduction, body composition, BIA methods, moving regimes for prevention in cardiac and obese patients. He is member of Czech