Background: Lifestyle interventions are considered to be the basic tool for treating obesity in youth. They prevent civilization diseases such as diabetes, atherosclerosis and arterial hypertension. Globally, there are many programmes, including regular meetings with dieticians, exercise specialists, and others. Results are promising, although there is no consensus regarding one model of recommended diet, the intensity of exercise and the frequency of interventions. It is necessary to analyse the effectiveness of various programmes in order to determine a standard for children and adolescents being diagnosed as overweight or obese.

Objective and hypotheses: Assessment of preliminary results of “PoZdro” - Analysis of factors affecting reduction of body mass and change in body composition in programme participants.

Method: 870 adolescents, with excessive body mass (BMI ≥ 90 pc), age 13,8±0,7 years, 388 (44,6%) girls, 482 (55,4%) boys, were included in a two-year programme of lifestyle interventions. During the first year six interventions were realised, at six-week intervals at the beginning, and at later at three-month intervals. An intervention included a 30-minute meeting with physician, dietician, exercise specialist, and psychologist; and a healthy diet, especially reduction of simple carbohydrates and regular exercises of moderate intensity. Laboratory tests (OGTT, HOMA-IR, lipid parameters, ALT) were performed at the beginning. Anthropometric parameters (height, mass, WHR, body composition) were evaluated during each intervention.

Results: 870 participants started the programme: 125 (14,4%) have already had six interventions. Significant decrease in BMI and WHR was observed at each visit, as well as change in body composition – reduction of the body fat percentage (BFM[%]), absolute body fat mass (BFM[kg]), increase in muscle mass (MM[kg]).

Fig. 1: Change in BMI during one year of interventions

BMI dropped from 26,7±3,06 to 25,97±3,06 at six visit, WHR decreased from 0,96±0,49 to 0,87±0,07.

Fig. 2 a, b. Change in body composition during one year of intervention
a) BFM [%]

b) MM[kg]

Reduction in BFM[%] from 30,07±7,67 to 27,5±7,84 and BFM[kg] from 22,7±7,75 to 21±7,15; increase in MM[kg] from 49,0 to 52,16±8.71 were stated.

Fig. 4: Change in BMI at the last visit (No. % participants)

Change in BMI correlated inversely with baseline pBMI (r=-0,102; p=0,011) and baseline MM[kg] (r=-0,116; p=0,004). Improvement in body composition correlated with baseline BMI and MM.

Fig. 6 a, b)

a) Correlation between change in BFM[%] and baseline BFM[%]

b) Correlation between change in BFM[%] and baseline MM[kg]

Change in BFM[%] was correlated inversely with the baseline BFM[%] (r=-0,292; p<0,001) and positively correlated with baseline MM[kg] (r=0,061; p=0,001).

Change in MM[kg] was correlated positively with baseline WHR (r=0,120; p<0,003) and BFM[%] (r=0,156; p<0,001).

Conclusion: The PoZdro programme resulted in a significant reduction of BMI and WHR and an improvement in body composition. Participants with higher baseline BMI and MM[kg] achieved a greater decrease in BMI. Changes in body composition were greater in more obese adolescents.

Fig. 5 a, b.

a) Correlation between change in BMI and baseline pBMI

b) Correlation between change in BMI and baseline MM[kg]