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ORIGINAL ARTICLE

Physical, clinical, and psychosocial parameters of adolescents with different degrees of excess weight[☆]

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KEYWORDS

Overweight;
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Abstract

Objective: To compare body composition, hemodynamic parameters, health-related physical fitness, and health-related quality of life of adolescents with anthropometric diagnosis of overweight, obesity, and severe obesity.

Methods: 220 adolescents with excess body weight were enrolled. They were beginners in a intervention program that included patients based on age, availability, presence of excess body weight, place of residence, and agreement to participate in the study. This study collected anthropometric and hemodynamic variables, health-related physical fitness, and health-related quality of life of the adolescents. To compare the three groups according to nutritional status, parametric and non-parametric tests were applied. Significance level was set at $p < 0.05$.

Results: There was no significant difference in resting heart rate, health-related physical fitness, relative body fat, absolute and relative lean mass, and health-related quality of life between overweight, obese, and severely obese adolescents ($p > 0.05$). Body weight, body mass index, waist and hip circumference, and systolic blood pressure increased as degree of excess weight increased ($p < 0.05$). Diastolic blood pressure of the severe obesity group was higher than the other groups ($p < 0.05$). There was an association between the degree of excess weight and the prevalence of altered blood pressure (overweight: 12.1%; obesity: 28.1%; severe obesity: 45.5%; $p < 0.001$). The results were similar when genders were analyzed separately.

Conclusion: Results suggest that overweight adolescents presented similar results compared to obese and severely obese adolescents in most of the parameters analyzed.

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[☆]Study conducted at Universidade Estadual de Maringá, Maringá, PR, Brazil.

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PALAVRAS-CHAVE

Obesidade;
Saúde do adolescente;
Atividade motora;
Qualidade de vida

Parâmetros físicos, clínicos e psicossociais de adolescentes com diferentes graus de excesso de peso**Resumo**

Objetivo: Comparar composição corporal, parâmetros hemodinâmicos, aptidão física relacionada à saúde e qualidade de vida relacionada à saúde em adolescentes com o diagnóstico antropométrico de sobrepeso, obesidade e obesidade grave.

Métodos: Foram selecionados 220 adolescentes com excesso de peso, ingressantes em um programa de intervenção segundo os critérios de inclusão neste programa, baseados na idade, disponibilidade, presença de excesso de peso, local de residência e concordância na participação do estudo. Foram coletadas variáveis antropométricas, hemodinâmicas, aptidão física relacionada à saúde e qualidade de vida relacionada à saúde dos adolescentes. Para a análise de comparação entre os três grupos, foram utilizados testes paramétricos e não paramétricos quando apropriado. A significância foi pré-estabelecido em $p < 0,05$.

Resultados: Não houve diferença significativa para a frequência cardíaca de repouso, aptidão física relacionada à saúde, gordura relativa, massa magra (relativa e absoluta) e qualidade de vida relacionada à saúde entre adolescentes com sobrepeso, obesos e obesos graves ($p > 0,05$). O peso, índice de massa corporal, circunferência de cintura e de quadril e pressão arterial sistólica aumentaram conforme aumentou o grau de excesso de peso ($p < 0,05$). A pressão arterial diastólica do grupo com obesidade grave foi maior que a dos demais grupos ($p < 0,05$). Observou-se associação entre o aumento grau de excesso de peso e a prevalência de pressão arterial alterada (sobrepeso: 12,1%; obesidade: 28,1%; obesidade grave: 45,5%; $p < 0,001$). Os resultados foram semelhantes quando os sexos foram analisados separadamente.

Conclusão: Os resultados sugerem que adolescentes com sobrepeso apresentam resultados semelhantes aos obesos e obesos graves nas variáveis analisadas.

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Introduction

Recent data from the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE)¹ indicate that 20% of the population between 10 and 19 years have excess weight (overweight or obesity). This disease may bring health complications such as increased risk of cardiovascular disease as early as school age,² type 2 diabetes,³ and reduction in physical, emotional, and social well-being.⁴

Levels of health-related physical fitness (HRPF) are inversely associated with the degree of excess weight in children and adolescents.^{5,6} Aires *et al*⁶ observed an inverse correlation between body mass index (BMI) and maximal aerobic capacity in boys and girls with overweight and obesity. Levels of cardiorespiratory fitness and strength are also lower in adolescents with excess weight, compared to their normal-weight peers; however, there is no difference between overweight individuals in comparison to the obese.⁵

Another parameter that suffers a negative impact from obesity is health-related quality of life (HRQoL). Studies have found that excess weight is associated with lower HRQoL in adolescents.^{4,7} Poeta *et al*⁸ found that obese adolescents had worse HRQoL scores for the physical, social, emotional, psychosocial, and total domains when compared to adolescents with normal weight.

Although studies comparing overweight adolescents with normal weight adolescents show results that demonstrate the need for special attention to the young obese population, there are few comparisons between adolescents with different degrees of excess weight. In this context, Ricco *et al*⁹ compared adolescents diagnosed with overweight and those with obesity, and found that overweight adolescents had similar health risks to the obese for values of fasting blood glucose, oral glucose tolerance test (OGTT), total cholesterol, LDL-cholesterol, HDL-cholesterol and triglycerides.

Recently, Cole and Lobstein¹⁰ proposed cutoff points based on BMI classification for a further degree of excess weight in children and adolescents, which is known as severe obesity, based on a BMI of 35 kg/m² for adults. Children and adolescents classified as having severe obesity are at increased risk for metabolic syndrome, insulin resistance, triglycerides, and interleukin-6 when compared to the obese.¹¹

However, as far as it is known, there are still few studies on the differences in anthropometric variables, body composition, hemodynamics, HRPF, and HRQoL in adolescents classified as having overweight, obesity, and severe obesity, and it is necessary to understand which health-related parameters a higher level of excess weight can influence. To know the variables that are most affected as the degree of excess weight increases can contribute to intervention

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