



ORIGINAL ARTICLE

Aggregation of risk indicators to cardiometabolic and musculoskeletal health in Brazilian adolescents in the periods 2008/09 and 2013/14^{☆,☆☆}



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Received 15 December 2016; accepted 22 March 2017

Available online 23 August 2017

KEYWORDS

Health;
Physical fitness;
Obesity

Abstract

Objective: To assess the occurrence of an aggregate risk to cardiometabolic and musculoskeletal health of Brazilian adolescents in the period 2008/09 and 2013/14 and to identify whether there are differences in risk between the genders and in these periods.

Methods: This was a trend epidemiological study with a quantitative approach, consisting of a voluntary sample of adolescents from 16 Brazilian states. Data were extracted from the database of Brazil Sports Project (Projeto Esporte Brasil). Health-related physical fitness was evaluated based on body mass index, cardiorespiratory fitness, flexibility, and abdominal strength/resistance. Descriptive analysis, chi-squared test, and Poisson log regression were used for the statistical treatment.

[☆] Please cite this article as: Gaya AR, Dias AF, Lemes VB, Gonçalves JC, Marques PA, Guedes G, et al. Aggregation of risk indicators to cardiometabolic and musculoskeletal health in Brazilian adolescents in the periods 2008/09 and 2013/14. J Pediatr (Rio J). 2018;94:177–183.

^{☆☆} Study carried out at Universidade Federal do Rio Grande do Sul (UFRGS), Escola Superior de Educação Física, Fisioterapia e Dança (ESEFID), Research Group: Brazil Sports Project (PROESP-Br), Porto Alegre, RS, Brazil.

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PALAVRAS-CHAVE

Saúde;
Aptidão física;
Obesidade

Results: In the years 2008/09, 14.6% of Brazilian youngsters showed an aggregate risk to cardiometabolic health and 17.1% an aggregate risk for musculoskeletal indicators, whereas in 2013/14, the values of the risk indicators were, respectively 40.0% and 22.4%. It was observed that, in the years 2013/14, the risk to the cardiometabolic health of boys was 2.51 times greater than in 2008/09, while for girls, a three-fold increase in risk was observed. Concerning musculoskeletal health, girls showed a 2.21 risk of being in the risk zone in 2013/14 when compared with 2008/09.

Conclusion: The occurrence of an aggregate risk to the cardiometabolic and musculoskeletal health of Brazilian adolescents increased in the 2008/09 and 2013/14 periods. Regarding gender, an increase in the cardiometabolic and musculoskeletal risk between these periods was observed in girls. As for boys, an increase was observed only in cardiometabolic risk.

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Agregação dos indicadores de risco à saúde cardiometabólica e musculoesquelética em adolescentes brasileiros nos períodos de 2008/09 e 2013/14

Resumo

Objetivo: Verificar a ocorrência de risco agregado à saúde cardiometabólica e musculoesquelética de adolescentes brasileiros no período de 2008/09 e 2013/14 e identificar se existem diferenças no risco entre os sexos e nesses períodos.

Métodos: Trata-se de um estudo epidemiológico de tendência com abordagem quantitativa, composto por uma amostra voluntária de adolescentes, de 16 estados brasileiros. Os dados foram extraídos da base de dados do Projeto Esporte Brasil. A aptidão física relacionada a saúde foi avaliada a partir de: índice de massa corporal, aptidão cardiorrespiratória, flexibilidade, e força/resistência abdominal. Para o tratamento estatístico foi utilizado análise descritiva, qui-quadrado e regressão Poisson log.

Resultados: Nos anos de 2008/09, 14,6% de jovens brasileiros apresentaram risco à saúde cardiometabólica agregada e 17,1% risco agregado dos indicadores musculoesqueléticos. Enquanto em 2013/14, os valores dos indicadores de risco foram, respectivamente 40,0% e 22,4%. Observou-se que nos anos de 2013/14 o risco à saúde cardiometabólica dos meninos era 2,51 vezes maior que em 2008/09. Já para as meninas o aumento desse risco foi de 3 vezes. No que se refere à saúde musculoesquelética, as meninas apresentaram risco de 2,21 de estar na zona de risco em 2013/14 em relação à 2008/09.

Conclusão: A ocorrência de risco agregado à saúde cardiometabólica e musculoesquelética de adolescentes brasileiros aumentou no período de 2008/09 e 2013/14. Com relação ao sexo houve um aumento no risco cardiometabólico e musculoesquelético nas meninas entre esses períodos. Já para os meninos houve aumento apenas do risco cardiometabólico.

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Introduction

Recent studies have demonstrated an association between health risk factors such as overweight/obesity and low levels of cardiorespiratory fitness (CRF), with the early risk of developing metabolic diseases.¹ Low levels of musculoskeletal fitness, *i.e.*, of flexibility and muscular strength/resistance criteria, have also been considered predictors of problems such as postural deviations and other musculoskeletal disorders.² According to Thomas et al.,³ cardiorespiratory, musculoskeletal, neuropsychological, endocrine, and metabolic health depend directly on the level of physical fitness and, thus, fitness has become an important marker of health in children and adolescents.⁴

However, this population has shown low levels of health-related physical fitness (HRPF).⁵ In the United States and in Brazil, these inadequate levels have alarmingly increased in recent years, with occurrences ranging from 42% to 63%.⁶⁻⁸ The greatest impact of these data is disclosed when studies indicate that low levels of CRF combined with overweight and obesity indicators (such as body mass index [BMI]) have become predictors of early risk for cardiometabolic diseases, such as insulin resistance, type II diabetes, and myocardial infarction.^{1,2} Additionally, according to Ortega et al.,² a low level of CRF, when considered alone, is already an indicator of health risk, since it is associated with high mortality rates.⁸ The same can be said about BMI, which is even more of a concern, considering that approximately 30%

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