

**Journal of Developmental Origins of Health and Disease**

Journal of Developmental Origins of Health and Disease / Volume 5 / Issue 04 / August 2014, pp 299-306  
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 DOI: <http://dx.doi.org/10.1017/S2040174414000269> (About DOI), Published online: 25 April 2014

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**Original Article****Postprandial metabolism and inflammatory markers in overweight adolescents**

**B. C. Schauren<sup>a1</sup> †, V. L. Portal<sup>a1</sup> †, F. G. Beltrami<sup>a2</sup> †, T. J. dos Santos<sup>a2</sup> † and L. C. Pellanda<sup>a1</sup> <sup>a2</sup> †**

<sup>a1</sup> Post Graduate Program in Health Sciences: Cardiology, Instituto de Cardiologia/Fundação Universitária de Cardiologia, Porto Alegre, Brazil

<sup>a2</sup> Universidade Federal de Ciências da Saúde de Porto Alegre, Porto Alegre, Brazil

**Abstract**

Lifestyle changes have an impact on lipid metabolism. The overload of circulating lipids may lead to endothelial dysfunction, oxidative stress and exaggerated inflammatory response, which may be further aggravated in the presence of overweight. This study aims to describe the postprandial metabolism and inflammatory response in overweight and normal-weight adolescents. Sixty-two adolescents aged 11–18 years were divided into two groups: overweight (OW;  $n=38$ ) and normal weight (NW;  $n=24$ ). Total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), triglycerides (TG), glucose, insulin, high-sensitivity C-reactive protein (hs-CRP), fibrinogen and leukocytes were collected for fasting and 4 and 6 h after a oral fat tolerance test (OFTT) consisting of a high-fat meal with 1.000 Kcal, 27.4% carbohydrates, 14.7% protein and 57.8% lipids (30.4% saturated, 32.7% monounsaturated, 26.5% polyunsaturated fatty acids and 288 mg TC). Data were analyzed with repeated measures ANOVA, multiple linear regression, and Pearson, Spearman and partial correlations. OW adolescents showed significantly higher fasting values of TC ( $P=0.036$ ), LDL-C ( $P=0.010$ ), fibrinogen ( $P=0.036$ ) and hs-CRP ( $P=0.004$ ). All variables, except for glucose, increased in response to OFTT, but there were no interactions between group and time. body mass index  $z$ -score was positively correlated to LDL-C, TG, fibrinogen and hs-CRP, and inversely correlated to HDL-C. In conclusion, adolescents with OW showed higher TC, LDL-C and inflammatory markers levels than NW adolescents. These findings have clinical implications for prevention of chronic diseases, as we spend most of our days in a postprandial state.

(Received September 25 2013)

(Revised April 01 2014)

(Accepted April 02 2014)

(Online publication April 25 2014)

**Key words**

adolescent; atherosclerosis; overweight; oxidative stress; postprandial period

**Correspondence**

<sup>c1</sup> Address for correspondence: Lucia Campos Pellanda, Avenida Princesa Isabel, 370, Santana, Porto Alegre, RS 90620-001, Brazil. (Email [pellanda.pesquisa@gmail.com](mailto:pellanda.pesquisa@gmail.com))

**Footnotes**

† Equal contribution.

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