Factor analysis of metabolic syndrome components in severely obese girls and boys.

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Factor analysis is a multivariate correlation technique frequently employed to characterise the aggregation of abnormalities underlying the metabolic syndrome (MS), but scarcely used in obese adolescents. Aim of the study was to investigate the clustering of anthropometric and metabolic variables related to the MS in 487 obese pubertal adolescents (140 boys, 347 girls) in the range of age 11-18 yr employing the factor analysis with exploratory approach. Principal component analysis reduced 11 correlated physiological variables to 4 uncorrelated factors that explained 68.7% of the variance in the original parameters in boys, and 68.4% in girls. In boys, these factors were: obesity/hypertension, insulin resistance, dyslipidemia, and hyperglycemia, with elements related to obesity and fat distribution loaded also in dyslipidemia and insulin resistance. In girls no commonalities were detected, but elements of dyslipidemia and insulin resistance were loaded in a single factor, whereas elements of obesity and hypertension were loaded in separate factors. The identification of 4 independent factors suggests a multiple physiological origin of the MS also in youngsters. The measures of adiposity were correlated with development of hypertension, insulin resistance, and dyslipidemic phenomena in boys only, whereas in girls anthropometric measures were not correlated with any tested component of the MS, possibly disclosing the protective effect of female sex hormones in the juvenile age span.