

Adolescents from southern Europe are less fit and more obese than their central-northern European peers

July 9 2014

Adolescents in southern Europe are less fit in terms of cardiorespiratory capacity, strength and speed-agility than their central-northern European peers. Moreover, southern adolescents are more obese and present higher levels of total and abdominal fat than those from the centre-north of Europe.

These are some of the remarkable results from an ambitious study conducted by scientists from the University of Granada Department of Medical Physiology in collaboration with 25 other European research groups. The study compared the level of [physical fitness](#) of [adolescents](#) living in Mediterranean countries (Spain, Italy and Greece) with adolescents from the centre and north of Europe. The results have been published in the latest issue of the prestigious *Pediatrics* journal—the most important in its field worldwide.

The principal author of this research is Francisco B. Ortega, currently a Ramón y Cajal researcher in the Department of Physical and Sports Education at the University of Granada. Ortega underlines the fact that "an adolescent's level of fitness has been shown to be an important indicator of their present and future state of health, hence the relevance of differences found between southern and central-northern Europe".

The study, coordinated by the University of Granada, included a total of 3528 adolescents from southern Europe (four cities in Spain, Italy and

Greece) and central-northern Europe (six cities). All of them underwent a series of tests to measure their physical fitness, total and abdominal fat, and cardioembolic risk.

Adolescents from 9 countries

The methodology used in these 10 European cities, from nine different countries, was meticulously standardized. The researchers applied objective methods. For example, to assess [physical activity](#), they used devices called accelerometers, which the adolescents wore around their waists for seven consecutive days. The accelerometers enabled the scientists to obtain data about the length of time they spent on physical activities of different degrees of intensity, or sedentary activities like watching TV.

Ortega explains another major finding of this study: southern European adolescents participate less in physical activity and more in [sedentary activities](#) than those from northern Europe which, to a large extent, explains their lower level of fitness. "These results indicate the importance on a population-wide level of participating in physical activity in order to have a healthy level of fitness".

The study has also demonstrated that the prevalence of obesity and levels of total and [abdominal fat](#) are greater in southern European adolescents. "However, we didn't find that this was due to doing less physical activity, or to diet, or to the genetic markers that we studied, so we can't draw conclusions about why obesity is more prevalent", says the University of Granada researcher.

The study published in *Pediatrics* also analysed cardiovascular risk markers like cholesterol or blood pressure but found no consistent differences between southern and central-northern European adolescents.

More information: "Health Inequalities in Urban Adolescents: Role of Physical Activity, Diet, and Genetics." Francisco B. Ortega, Jonatan R. Ruiz, Idoia Labayen, David Martínez-Gómez, Germán Vicente-Rodriguez, Magdalena Cuenca-García, Luis Gracia-Marco, Yannis Manios, Laurent Beghin, Dénes Molnar, Angela Polito, Kurt Widhalm, Ascensión Marcos, Marcela González-Gross, Anthony Kafatos, Christina Breidenassel, Luis A. Moreno, Michael Sjöström and Manuel J. Castillo. *Pediatrics*; DOI: [10.1542/peds.2013-1665](https://doi.org/10.1542/peds.2013-1665)

Provided by University of Granada

Citation: Adolescents from southern Europe are less fit and more obese than their central-northern European peers (2014, July 9) retrieved 15 May 2024 from <https://medicalxpress.com/news/2014-07-adolescents-southern-europe-obese-central-northern.html>

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