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## Adolescents in southern regions of Italy adhere to the Mediterranean diet more than those in the northern regions



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#### ABSTRACT

There is a large amount of literature regarding the benefits of the Mediterranean diet in the adult population; however, there is growing curiosity about the individuals who naturally adhere to those principles early in life. The "Evaluation of Dietary Habits in Adolescents," carried out by the National Research Council of Italy in 2009, is a survey that aimed to assess the dietary habits and lifestyles of Italian adolescents and their adherence to the Mediterranean diet. We hypothesized that there would be differences across regions, with a higher adherence in Southern Italy compared with Northern Italy based on geography. The survey was conducted in 3 different geographic locations in Italy and included a convenience sample of adolescents who attended either a middle or high school. The participants were asked to fill out a questionnaire concerning demographic data, lifestyle factors, and eating patterns, and scores were assigned according to adherence to the Mediterranean diet, as calculated using Trichopoulou's Mediterranean diet scale. The final sample included 565 adolescents, between 12 and 19 years old, who attended school in the northeastern, northwestern, or southern regions of Italy in 2009. According to the findings, 38.6% of the respondents had scores indicating a low adherence to the Mediterranean diet, whereas only 14% had scores showing a high adherence. Teenagers from the Southern region showed the highest adherence. Those with a high adherence to the Mediterranean diet consumed higher quantities of fiber, iron, vitamin B6, vitamin C, folic acid, vitamin A, vitamin D, and monounsaturated fats.

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Abbreviations: BMI, body mass index; CNR, Italian National Research Council; INRAN, Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione; INRAN-SCAI, Italian National Food Consumption Survey.

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#### 1. Introduction

Since the mid 1900s, investigators began reporting on the protective role that the Mediterranean diet has on several cardiovascular risk factors [1]. Although it soon became evident that the greatest strength of this diet was not due to a single nutrient but in the interaction of its components, subsequent studies tended to concentrate on the former. The Mediterranean diet is characterized by a high intake of vegetables, legumes, fruit, cereal (in particular, nonrefined ones), fish, and monounsaturated fats (particularly, olive oil); a moderate intake of milk products such as cheese and yogurt; moderate consumption of alcohol (wine); and a low intake of saturated fats and red meat [2]. (See Figure.)

Various authors have demonstrated that adherence to the Mediterranean diet reduces the individual's global cardiovascular mortality rate as well as the risk of developing diabetes, tumors, and neurodegenerative diseases, such as Alzheimer and Parkinson diseases [3].

Adolescence is a critical, complex phase in an individual's physical and emotional development [4], and diet and nutrition are an important aspect of one's life course. Poor eating habits formed during childhood and adolescence can potentially increase the risk of some typical adult diseases. A high percentage of obese children and adolescents now present metabolic complications, such as insulin resistance, type 2 diabetes, dyslipidemia, and hepatic steatosis. This is also called the metabolic syndrome, which was only found in adults until a decade ago [5]. These complications, together with hypertension and increased concentrations

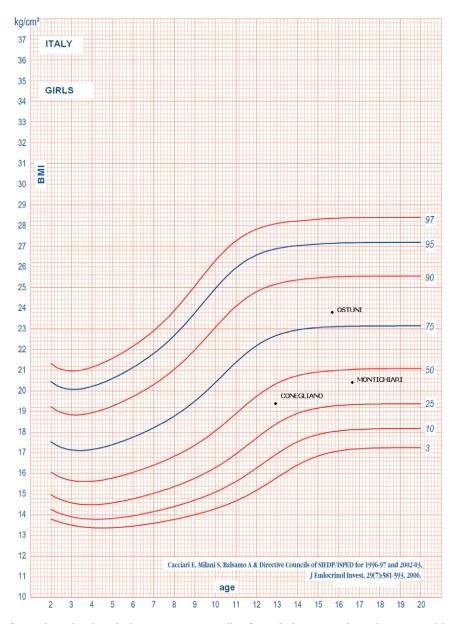


Figure - Mean BMI for each region in relation to BMI percentiles for Italy by age and gender pan A girls and panel B boys.

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