**MaestraNatura educational program**

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Since 2012 ISS has been participating in the implementation of an experimental nutrition education project based on the innovative method in science education called MaestraNatura. The teaching method is based on the experiential learning: basic concept of chemistry, physics, biology, biochemistry and physiology are acquired and consolidated through practical activities carried out both at school and at home. By following this path, children learn about the origin and composition of food as well as the chemical and biochemical mechanisms involved in the processes of food transformation and absorption. The project aims at creating the basic knowledge necessary for the understanding and proper application of the nutritional principles contained in the Food Guide Pyramid. The distinctiveness of this approach lies in the educational path direction: it does not start from the knowledge of the Food Guide Pyramid to drive the behavior towards healthy eating, but, on the contrary, it uses the knowledge acquired through experience in the course of a ‘critical period’ eight-year long, namely the years of primary and secondary school, in order to understand the food choices suggested by the Pyramid and the National Guidelines for Healthy Eating. Moreover, it is clear the attempt to focus the attention on health rather than weight, promoting the whole person in every aspects without neglecting the physiological and emotional sphere of children. Consequently MaestraNatura takes in account many of the relevant aspects that should be considered and reconciled in integrated intervention programs aimed at the prevention of obesity and eating disorders.

Eating behavior develops in response to personal characteristics and genetics as well as physical and social environments. School plays a pivotal role in promoting health and preventing obesity. Although a number of expensive educational programs have been carried out in the last few years in Italy, evidence for the real effectiveness of those school-based programs is quite equivocal. Moreover, contrary to the international literature suggestions, a very limited involvement of parents in these programs have been observed.

Sperimentare Salute project, designed and managed by Istituto Superiore di Sanità together with Ministry of Health was aimed at implementing, by using MaestraNatura program, a new methodology able to fill the gaps in children knowledge on nutritional issues together with increased engagement of the families. In particular, the project aimed at extending correct knowledge about the origin and function of different food and at using food as a tool to strengthen the relationship between children and parents.

The innovative educational program MaestraNatura was implemented and tested from 2012 to 2017 in six Italian regions by involving 103 schools, 900 teachers and 21,000 students aged 6-13. As preliminary step, in order to fulfill these objectives, a survey in 25 primary and intermediate schools of Rome was carried out. First of all, 200 teachers were interviewed to know if and how nutritional issues had been presented to the students. It was found that the teachers considered these topics very relevant and dedicated about 4 hours/year to food pyramid-based nutritional program. Secondly, a questionnaire was administered to 3400 children (7-12 years) to evaluate their knowledge on food and nutrition. Results showed a high grade of confusion and misunderstanding and allowed us to elaborate 8 educational and experimental modules (150 hours) specifically aimed at filling those gaps. The didactical content were distributed by a web platform, which also allowed a complete traceability of both school and home activities including cooking.

Over the last two years we were interested in assessing the effectiveness of MaestraNatura nutrition education program addressed to the students of the last class of primary school and of the second class of secondary-first level schools in filling the gaps in children’s knowledge on food, food processing, adequate nutrition, sustainable nutrition, good lifestyle habits. One hundred and two classes, corresponding to about 2250 students, were enrolled. At the beginning and at the end of the scholastic year, students (n=1000) were required to organize a weekly meal planner; each of them totalized a score that allowed to evaluate possible improvements in their performances. The statistical analyses performed showed that the scores totalized at the end of the didactical path were significantly higher than those at the beginning. MaestraNatura program, thus, might represent a useful new tool for carrying out educational interventions on food and nutrition among children. Furthermore, the web platform represent an economic, fast, and easy-to-use tool for spreading the didactical contents and collecting students’ activities, and also for the transfer of knowledge on those issues to parents, which represents an indispensable stage if changes in behavior are sought after.