

## Title

The Food Aid and Promotion of Healthy Nutrition Program – “DIATROFI”

## Short description

The DIATROFI Program supports students in primary and secondary public schools in socioeconomically vulnerable areas throughout Greece, contributing to the fight against food insecurity and obesity. DIATROFI is implemented by the Institute of Preventive Medicine Environmental and Occupational Health - Prolepsis with the Stavros Niarchos Foundations as the funding donor. The Program provides a daily free meal to all students in participating schools, which includes a sandwich or other healthy baked goods, a seasonal fresh fruit and white milk or yogurt with honey. Furthermore, the program promotes healthy nutrition through educational material and activities aimed at the students and their families. Food items follow strict nutritional standards and are mostly Greek with no preservatives. In order to avoid stigmatization, all students (regardless of their SES status or food insecurity levels) participate in the program. Educational materials with nutritional messages encouraging healthy eating practices and other healthy habits are distributed to students and their families and health-promotion events and/or demonstrations are often organized. Throughout the school year, constant evaluation of the practice takes place through surveys, questionnaires and focus groups/interviews. Since 2012 12.8 million meals have been distributed to 90.000 students in 530 schools of the country. For the 2016-2017 school year the Program is implemented in 161 schools with 11,912 students, due to limited availability of funds. However, more than 2,090 school applications have been submitted, indicating the urgent need to expand the Program to serve a greater number of schools. So far, results indicate that in participating schools, food insecurity has decreased, the number of underweight, as well as overweight and obese children has decreased, and children's eating habits have improved. Additionally, the Program has contributed to a reduction in school dropouts and strengthening of social bonds in the school environment.

## Topic

Consuming – food

## Characteristics (type, level)

Neighborhood, Local/Regional Intervention

## Country/Countries of implementation

Greece

## Aims and Objectives

The aims and objectives of the program are designed to meet a dual purpose. It aims to provide all students of participating schools with daily free meals while promoting healthy nutrition both for students and their families. In parallel, educational activities including material with nutritional messages encouraging healthy eating practices and other healthy habits are distributed to students and their families throughout the school year. The specific objectives are:

- To effectively and efficiently provide healthy, high quality food to students who are at risk of food insecurity and/or hunger throughout the country.
- To encourage healthy nutritional practices knowledge and attitudes among students, through educational programs.
- To encourage parents and children to make healthy choices through actions aimed at raising awareness and providing dietary and nutritional information

### Target Group

Students of public schools in disadvantaged areas of Greece.

### Status

Ongoing

### Start and Completion dates

2012 – June 2017 – the program will be implemented also in the coming school year 2017-2018

### Lifestyle and Behavior Change

The DIATROFI program encourages behavioral change through the distribution of healthy meals. For the duration of a school year students receive on a daily basis a meal comprised of healthy options, vegetables and fruit. Through educational and health promotion activities directed also to the family the adoption of healthy nutritional behaviors is reinforced.

### Effects on:

<p><b>Health and Wellbeing</b></p>	<p>Directly, the DIATROFI program impacts students of low socioeconomic areas. Adequate and healthy nutrition during childhood impacts health and wellbeing throughout the life course and is a protective factor for chronic diseases.</p>
<p><b>Vulnerable populations</b></p>	<p>The DIATROFI program was specifically created to target vulnerable populations. Students who benefit from the program are those experiencing negative effects on their nutrition due to the economic crisis. By providing free, healthy meals daily, students receive the required 1/3 of the total amount of energy intake necessary for their development and wellbeing. Results are also evident in terms of school performance and dropout rates. Parents also save money through the practice as they do not need to worry about preparing food from home or providing money to their children for school-lunch.</p>

<b>Environment</b>	Food items used in DIATROFI are produced locally in Greece, with the exception of bananas. Through the program new learning experiences were achieved in the school environment, such as waste management (it was necessary to develop a plan for dealing with the waste created by the lunch packs), while according to principals and teachers, the program offers important lessons regarding respect for food and social solidarity for all those involved.
--------------------	---

### Initiated and/or implemented by

DIATROFI is implemented by the Institute of Preventive Medicine Environmental and Occupational Health – Prolepsis with the Stavros Niarchos Foundations as the funding donor. Prolepsis, is an NGO in Athens actively engaged in the field of public health. Prolepsis designed and implemented the practice as a way to combat the adverse effects of the ongoing economic recession particularly in terms of food insecurity as well as addressing childhood obesity and overweight which is high in Greece.

### Stakeholders and sectors involved

- The DIATROFI program is implemented under the auspices of the Ministry of Education and Religion
- Schools and school community in general ( school directors, teachers, canteen owners), Parent associations),
- The food sector (food industry)
- Ministry of health, local communities and authorities
- A number of other private foundations, organizations, companies, individuals who support the program financially

### Financial support

- Stavros Niarchos Foundation: main funding donor
  - Many other supporters/donors including foundations, public bodies, private companies and individuals. The list of funders and donors is mentioned on: <http://diatrofi.prolepsis.gr>

### Evidence-base

The DIATROFI program is based on sound scientific evidence about the effectiveness of school based feeding programs. The multidisciplinary team of experts comprising physicians, nutritionists, food technicians, psychologists, epidemiologists, sociologists, statisticians, health promotion and health communication specialists have extensive knowledge of the scientific evidence which underpin all stages of program development and implementation.

The evidence base for the development of DIATROFI include the following facts:

- Child malnutrition and childhood obesity are two sides of the same coin

57.2% of families participating in the DIATROFI Program experience food insecurity, meaning they do not have access to adequate, safe and nutritional food, and 24.6% of families face hunger.

Adverse economic circumstances can drive families to make poor nutritional choices and develop unhealthy habits, further burdening the health of children and adolescents. For this reason, and despite food insecurity problems, which, unfortunately, are appearing more frequently in the current period, Greece continues to hold one of the highest rates of childhood obesity.

- Of the 27 EU member states, Greece has the largest percentage of overweight children; overweight rates are 44.4% for boys and 37.7% for girls respectively.
- Almost 1 out of 10 students participating in the Program has weight below normal for his/her age (10.7%)
- About 3 out of 10 students participating in the Program are overweight or obese (31%).

In terms of healthy nutrition promotion, the DIATROFI Program is driven by theories of health behavior at the interpersonal level which assume that individuals exist within environments where other people's thoughts, advice, examples, and assistance, affect their own feelings, behaviors and health. In particular, in the design of the project activities we used the social cognitive theory as well as the theory of planned behavior. According to these theories the role of significant individuals and groups, which include family members, co-workers, peers, teachers, principals, health professionals, and other social entities who are similar to or influential for one, can affect one's decisions and choices. According to the above mentioned theories, people are both influenced by, and influential in, their social environments. Concepts of such theoretical models were used as the Program aims at achieving changes within the person (raising awareness and knowledge), but also acting on the environment (by providing healthy food choices).

### Main activities

School Selection process: School selection takes into account multiple criteria, so as to ensure efficient prioritization to address those most in need. Such criteria include: (a) recorded food insecurity rates from previous years in each school, (b) relative regional taxable income and unemployment, (c) written reports by school principals providing estimates of the number of students facing food insecurity and special characteristics of schools (i.e. students residing in social institutions, Roma students, fainting episodes) and (d) personal interviews, conducted by an expert in qualitative methodology, aiming to weigh the level of food insecurity in the school, when deemed necessary. All students of participating schools are offered the opportunity to participate, regardless of their socioeconomic status, so as to avoid stigmatization.

School Integration process: The initial preparatory phase of the DIATROFI Program includes a detailed communication process with all stakeholders of each school and particularly with the schools' principals and parents in order to inform them about the Program. More specifically:

- A member of the Institute's team visits the selected school and informs the principal about the implementing procedures.
- Detailed informative material about the Program and about healthy nutrition and questionnaires are distributed to all students addressed to the families.

- Contracts with canteen owners are signed in all schools where a canteen is operating. Canteen owners are compensated for their services, with € 0.15 per each meal they distribute. In schools without canteens an agreement with the principal is signed.
- During the preparatory visit, other needs related to the implementation of the Program are documented as well, such as the need for refrigerators for the proper and safe preservation of the meals.

Meal design: The meal is designed so as to cover a significant proportion of students' daily nutrition requirements in terms of energy, proteins, fibers, calcium, iron and vitamins. No Trans fats, no added sugars, no preservatives or additives are allowed, while all meals are prepared exclusively with use of olive oil and 60% whole wheat flour. The composition of the meal is determined by Prolepsis scientific team (consisting of nutritionists, pediatricians, medical doctors and food technologists), with the direct input of world renowned scientists. The guidelines of the World Health Organization (2006) on how to develop and implement a meal in a school-nutrition program are also used.

More specifically, the menu is designed on a monthly basis, alternating every 2 weeks. Regarding the composition of the daily menu the following parameters are considered:

- Children's daily energy requirements
- Children's daily requirements in macronutrients (carbohydrates, proteins, lipids)
- Micronutrient requirements (vitamins and nutritionally essential minerals that are necessary for the normal growth of children and adolescents (vitamin C, vitamin B complex, calcium, phosphorus, iron, etc.)
- Students' preferences as documented from the previous year's implementation

The daily meal consists of a sandwich (with cheese, egg or chicken and vegetables), or pie (eg. Spinach, or leek pie), or breadsticks, or raisin bread, fresh fruit on a daily basis and three times a week milk and/or yogurt with honey. Greek products are exclusively used.

Daily distribution of a free healthy meal to participating students: The meal is produced by food suppliers, according to the Institute's instructions and distributed to participatory schools by a logistic company on a daily basis. The distribution takes place early in the morning (between 7:00-9:30).

Inspection and quality control - Monitoring Procedures: With the initiation of meal distribution, Prolepsis coordinators, who have been trained accordingly, visit the schools on a daily basis monitoring the proper implementation of the Program. The goal is to ensure that the meals are distributed according to the designated method and that every student acquires a meal. Coordinators also collect samples of the meal, which are inspected, weighted and analyzed in accredited laboratories. In addition to daily school visits, telephone communication takes place at least once a week with each canteen owner and with Program supervisors (usually the school's principal or other educator designated by the principal), documenting the progress of the Program. Close monitoring of the process enables prompt corrective actions where necessary or the adoption of proactive measures to minimize food waste, delivery delays or other dysfunctions. Moreover, the coordinator's frequent presence in the school assists in enhancing communication with the teachers and other stakeholders, thus forming a trusting relationship that facilitates smooth implementation, enriched cooperation and improved procedures.

**Promotion of Healthy Nutrition:** One of the main goals of the Program is to develop healthy nutritional habits for students and their parents through various educational activities and information sessions.

**Promotion and Communication:** Promotional and communication activities include: Extensive presence in the social media (facebook, Instagram) with news, updates and events related to the Program's objectives and progress; Continuous update of Program's website; Dissemination of promotional material; Organization and/or participation of events; Publication of newsletters and press releases; Communication with journalists; Press conference.

**Fundraising – Sustainability:** One of the primary goals of the Program is ensuring its viability and sustainability for the following years. In order to achieve this goal, advocacy actions and an extensive fundraising campaign is developed and executed. The main activities comprise of communication and meetings with various public and private organizations, proposals for CSR programs, organization of fundraising events and in kind donations.

## Evaluation

**Program Evaluation:** Monitoring of the project is continuous with the use of process evaluation and impact assessment. This is achieved through internal quality assurance procedures, for example monitoring of processes and replacement where necessary. Impact assessment includes appraisal of program results with respect to key outcomes (i.e. food insecurity, obesity, dietary habits, educational benefits) using a set of validated instruments and questionnaires. Both internal and external evaluation is conducted through qualitative and quantitative research methodology. Participatory methodology – through the use of focus groups – is a core part of the project which provides important insight and knowledge on the target groups' needs and perceptions.

Coordinators also collect meal samples which are inspected, weighted and analyzed in accredited laboratories. In addition to daily school visits, telephone communication takes place at least once a week with each canteen owner and with Program supervisors (usually the school's principal or other educator designated by the principal), documenting the progress of the Program. Close monitoring of the process enables prompt corrective actions where necessary or the adoption of proactive measures to minimize food waste, delivery delays or other dysfunctions. Moreover, the coordinator's frequent presence in the school assists in enhancing communication with the teachers and other stakeholders, thus forming a trusting relationship that facilitates smooth implementation, enriched cooperation and improved procedures.

The continuous evaluation of the process, the impact and the effectiveness of the Program allow the constant improvement of the Program in terms of cost-effectiveness. This includes improvements in subcontracting so as to take into advantage economies of scale resulting in cost reduction, improvements in meal design so as to take into account both healthy choices and students' preferences, improved quality control at all stages of implementation, more efficient school selection based on detailed data gathered per school, as well as more precise measurements of the effectiveness of various aspects of the program through additional instruments.

## Main results

The results below concern the 2015-2016 school year:

### **REDUCTION OF FOOD INSECURITY**

- The average index of food insecurity decreased by 7%.
- 18.9% of the families who faced food insecurity at the beginning, did not at the end of the school year
- 36% of the families who faced food insecurity with hunger, did not at the end

### **EFFECTIVELY ADDRESSING WEIGHT PROBLEMS**

- 14.5% of students who were obese at the beginning reached a normal weight at the end
- 32.9% who were overweight at the beginning reached a normal weight at the end
- 45.2% who were underweight at the beginning reached a normal weight at the end
- 32.4% who did not attain normal weight at the beginning, reached a normal weight at the end

### **INCREASING STUDENTS' CONSUMPTION OF HEALTHY DIETARY CHOICES**

- 59% of the students who did not consume fruits, now do
- 48.6% of the students who did not eat raw vegetables, now do
- 67.1% of students who did not consume milk or yogurt, now do
- 48.8% of students who did not consume whole wheat bread, now do

#### **In addition:**

- 92.3% of parents stated that their child eats healthier
- 90.5% of parents stated that their child eats more fruits, 82.6% more vegetables, 89.7% more dairy products, 75.7% more legumes, 74.2% consumes more olive oil and 79.8% stated that snack consumption has decreased.
- 92.8% of parents stated that the child's participation in the program improved his/her knowledge in regards to healthy eating and 89% reported that the parents' healthy eating knowledge has also improved.
- 88.9% of parents reported that nowadays they buy and have at home healthier food products and 84.6% reported that the child asks for healthier food at home.

### **HEALTH RELATED QUALITY OF LIFE**

- 51.3% of the students improved their health related quality of life
- 39.3% of the students improved their physical functioning
- 41.5% of the students improved their emotional functioning
- 32.4% of the students improved their social functioning

### **FINANCIAL SUPPORT FOR FAMILIES PARTICIPATING IN THE PROGRAM**

- 91.6% of parents reported that the Program helped their family financially
- 77.4% of parents reported that their child now eats more at school, and 73.7% report that their child eats more in general
- 88.2% of parents believed that the Program covers a need for most of the participating families

### **EDUCATIONAL BENEFITS**

The parents who participated in the Program reported that the Program positively affected the student's:

- concentration in his/her lessons (66.3%)
- performance in school (65.3%)
- interest in going to school (69.9%)
- interest during class (70.2%)
- attitude in school (66.7%)

#### **FURTHER SOCIAL AND EDUCATIONAL IMPACTS**

School principals, teachers and parents of the students reported that:

- school dropout has decreased
- social cohesion, collegiality and solidarity has been strengthened within the school community
- the educational work of the school and cooperation and communication between parents and the school has been enhanced

#### **Key success factors and barriers**

Success factors:

- The dual purpose of the program:
  - It provides food-aid through the distribution of a free, daily, healthy and nutritious meal to all students in participating schools.
  - It promotes healthy eating through educational material and activities aimed at the students and their families.
- Continuous and extensive evaluation which monitors process, outcome and impact
- To avoid stigmatization, all students (regardless of their SES status or food insecurity levels) participate in the program.

Barriers:

- Continuous need for funding - 2,100 school applications have been submitted, indicating the urgent need to expand the Program to serve a greater number of schools in Greece.
- Implementing the program in isolated rural areas presents several logistical difficulties

#### **INHERIT Perspective**

The DIATROFI program was included within INHERIT as it is considered to have positive impacts on health, the environment and vulnerable populations. Disadvantaged students, who experience food insecurity, receive free healthy meals daily, thus improving their health levels and wellbeing. Furthermore, educational activities during the program inform students about eating habits that are healthier and more sustainable (more fruit and vegetables than meat products). New learning experiences in waste management (waste created by lunch packs) are achieved while respect for food and social solidarity are reinforced.

#### **More information**

- [DIATROFI Webpage](#)
- [Stavros Niarchos Foundation: “ΔΙΑΤΡΟΦΗ” Program Evaluation.pdf](#)
- Farrer L, Marinetti C. [Advocacy for Health equity: Case studies synthesis report.pdf](#). Report produced as part of the 'DRIVERS for Health Equity' project. EuroHealthNet. Brussels: 2015. Available from: <http://health-gradient.eu/>



**Scientific publications on DIATRFI available at:**  
<http://diatrofi.prolepis.gr/en/what-we-do/scientific-documentation.html>

### **Contact**

Prolepis - Institute of Preventive Medicine Environmental and Occupational Health  
7, Fragoklisias street, 151 25, Marousi, Athens

Tel: 2106255700

2106106810

Email: [diatrofi@prolepis.gr](mailto:diatrofi@prolepis.gr)