

Obesity in the European region: social aspects, epidemiology and preventive strategies

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Abstract. – Obesity related to metabolic syndrome is gaining an increasing importance as the main risk factor for diseases and disability in the European region. We herein review the increasing trend of obesity and overweight in males and females from Europe, preventive programs addressed to children, youngsters, adult population and subjects with particular diseases which can profit from healthy nutrition. The main feature is that some European countries have implemented programs on World Health Organization (WHO) proposals, while some others have focused attention only on some aspects. Based on the reported obesity increase over the last twenty years, prevention programs seem to have been ineffective. Most likely, the effects will be observed later on. In this concern, it will be fundamental to continue and finance the countries of the European region, where those programs have been extensively applied, to obtain even better results in terms of obesity prevention.

Key Words:

Obesity, Europe, Preventive strategies, Epidemiology.

Introduction

Obesity has been recognized as a population-wide problem and represents a main risk factor for diseases and disability. It has already reached epidemic proportions in many countries, and its incidence is increasing in children and adults. In a study evaluating the prevalence of overweight and obesity (years 1980-2015), researchers¹ reported that in 2015, a total of 107.7 million children and 603.7 million adults were

obese, and that since 1980, the prevalence of obesity has doubled in more than 70 countries, continuously increasing in most other countries. Of the 56.4 million global deaths in 2015, 39.5 million (70%), were due to noncommunicable diseases (NCDs)². In 2017, World Health Organization (WHO) declared that cardiovascular diseases (CVDs) take the lives of 17.7 million people every year, 31% of all global deaths. Triggering these diseases – primarily manifested as heart attacks and strokes – are incorrect lifestyles, tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol³⁻⁶. These, in turn, show up in people as raised blood pressure, elevated blood glucose and overweight and obesity, risks detrimental to good heart health⁷. These factors, in particular overweight and obesity, are indicated as linked to metabolic syndrome (MetS) that, in fact, is known as dangerous risk factor for cardiovascular disease and diabetes mellitus. MetS has also been found to be a risk factor for dementia, mild cognitive impairment, and its associated states⁸. MetS is also responsible for social costs: direct (from medical and non-medical care, like prevention, diagnosis and therapy), indirect (lack of wealth production due to illness and the time relatives and caregivers devote to health care), and intangible (linked to pain, anxiety, physical, and psychological suffering of the patient and its relatives)⁹⁻¹². It has been shown that simply by acting on prevention, in particular on weight reduction, it could be possible to contain the social costs of MetS and diseases related to it¹³. Furthermore, patients who have been identified as having obesity without MetS, in a condition referred to metabolically healthy obesity (MHO),

display a relatively favorable metabolic profile compared with patients that have already developed the health consequences of obesity referred to as metabolically unhealthy obesity (MUO)¹⁴. Some researchers¹⁵ affirmed that, despite the remarkably high level of public awareness of the noxious influence of overweight and obesity on human health, the prevalence of these risk factors has reached an alarming level, concluding that in Europe obesity has reached epidemic proportions. This paper takes into consideration preventive programs with the aim to analyze the adopted strategies in the various countries to fight overweight and obesity, and to identify the best strategies useful for reducing the risks linked to MetS. For this purpose, we report an overview of global situation, with a particular focus on the WHO European Region.

Epidemiological Data

As affirmed by WHO, the European Region is the most severely affected by NCDs, which are the leading cause of disability and death. NCDs together account for 77% of the burden of disease and almost 86% of premature mortality¹⁶. Rising rates of overweight and obesity have been reported in many countries in Europe during the past few decades. In 46 countries (accounting for 87% of the European region), more than 50% of adults are overweight or obese, and in several of those countries the rate is close to 70% of the adult population¹⁶. Table I shows the prevalence of obesity among adults in the European region, from 1995 to 2016¹⁷. The rate of increase has been calculated and the situation shows an upward trend of obesity in all countries, reaching high percentages in countries where many years ago obesity did not represent a real social problem (i.e. Uzbekistan, Kirgizistan, Tajikistan). Countries, where obesity was already a social warning, have, anyway, increased its prevalence (i.e. Malta, Turkey, Czech Republic). Finally, countries with a previous low/middle value of prevalence, showed an important increase (i.e. Norway, France, Italy). As shown in Table I, obesity represents a pandemic condition, especially for the female gender and in those countries where it has always been higher, becoming even higher in 2016. Instead, with the passing of the years, males showed the highest percentage increase in obesity respect to female (Table I). This result is indicative of the fact that the trend of obesity is increasing in the male gender. Overweight and obesity are estimated in the deaths of about 320 000 men and women in

20 countries of Western Europe every year. The situation in countries of the Eastern part of the Region is particularly worrying, given the speed at which the prevalence rates are catching up with those in the Western part of the Region and the fact that rates of overweight and obesity in some parts of Eastern Europe have risen more than threefold since 1980¹⁶.

Preventive Programs

In line with the objectives of the WHO-Europe Action Plan 2012-2016 and in continuity with the previous National Prevention Plans (PNP), in order to reduce the morbidity, mortality and premature disabilities that NCDs involve, as well as limiting inequalities caused by social and economic conditions affecting health, an approach including population (community) and individual strategies¹⁸⁻²² is needed. Promotion of the enhancement of protective factors (life skills, empowerment) and the adoption of healthy behaviors (nutrition, physical activity, smoking and alcohol cessation, etc.) in the juvenile and adult population are examples of preventive strategies programs. Furthermore, programs²³ have been launched to promote and spread exercise practice, through prescription, in people with chronic conditions. Vienna Declaration on Nutrition and Noncommunicable Diseases in the Context of Health 2020 called for decisive and concerted action for the prevention of obesity and diet-related noncommunicable diseases, suggesting priority areas such as: a) the creation of healthy food and drink environments and encourage physical activity for all population groups; b) the promotion of the health gains concerning a healthy diet throughout the life-course, especially for the most vulnerable subjects; c) the reinforcement of health systems to promote health and to provide services for NCDs; d) the support of surveillance, monitoring, evaluation and research of the population nutritional status and behaviours; e) the strengthening of governance, alliances and networks and the empowerment of communities to engage in health promotion and prevention efforts²⁴. Considering the role of obesity, many programs with regards the prevention of this issue have been developed in Europe, particularly among children, e.g. JANPA (Joint Action on Nutrition and Physical Activity). The main objective of the JANPA is indeed to stop, by 2020, the increasing spread of overweight and obesity among children and adolescents, focusing on specific out-

Table I. Prevalence of obesity among adults, ages 18+, 1995-2016.

	1995			2005			2016			% increase 1995-2016		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Turkey	11.9	26.2	19.4	17.1	32.2	25.1	24.4	39.2	32.1	105.0	49.6	65.5
Malta	18.9	23.5	21.3	23.7	26.2	25	29.2	28.5	28.9	54.5	21.3	35.7
United Kingdom	14.5	17.7	16.2	19.9	22.7	21.4	26.9	28.6	27.8	85.5	61.6	71.6
Hungary	17.1	19.1	18.2	21.5	21	21.3	28.2	24.6	26.4	64.9	28.8	45.1
Lithuania	15.4	24.4	20.5	19.2	25.8	22.9	24.2	27.8	26.3	57.1	13.9	28.3
Israel	16.8	21.9	19.5	21	24.2	22.7	25.9	26.2	26.1	54.2	19.6	33.8
Czech Republic	17.6	21.7	19.8	21.4	23.1	22.3	26.4	25.4	26	50.0	17.1	31.3
Andorra	18.8	23	21	22.3	24.4	23.4	25.9	25.3	25.6	37.8	10.0	21.9
Ireland	12.9	14	13.5	18.2	19.2	18.7	25.1	25.5	25.3	94.6	82.1	87.4
Bulgaria	15	18.7	17	19.5	21	20.4	25.5	24.3	25	70.0	29.9	47.1
Greece	13.9	19.3	16.7	18.4	22.3	20.4	24.2	25.4	24.9	74.1	31.6	49.1
Belarus	12.2	21.2	17.2	16.6	23.6	20.5	22.1	26.3	24.5	81.1	24.1	42.4
Croatia	13.6	17.7	15.9	18	20.5	19.4	24.1	24.5	24.4	77.2	38.4	53.5
Ukraine	13	21.8	17.9	16.8	23.4	20.5	22	25.7	24.1	69.2	17.9	34.6
Spain	15.2	17.8	16.6	19.5	20.3	20	24.6	22.8	23.8	61.8	28.1	43.4
Latvia	13.4	22.1	18.3	16.9	23.3	20.5	21.6	25.1	23.6	61.2	13.6	29.0
Montenegro	11.7	15.5	13.7	17.4	19.6	18.6	23.3	23.1	23.3	99.1	49.0	70.1
Russian Federation	10.5	24.1	18.1	13.7	25.2	19	18.1	26.9	23.1	72.4	11.6	27.6
Norway	12.6	14.9	13.8	17.6	18.6	18.2	23.6	22.5	23.1	87.3	51.0	67.4
Poland	14.1	17.8	16.2	18.2	19.6	19.1	23.7	22.2	23.1	68.1	24.7	42.6
Luxembourg	13.6	14.1	13.9	18.5	17.3	17.9	24.5	20.7	22.6	80.1	46.8	62.6
Romania	13	16.2	14.7	17.2	18.3	17.8	23.4	21.6	22.5	80.0	33.3	53.1
Republic of Macedonia	13.8	17.3	15.6	17.6	19.3	18.5	22.6	22.1	22.4	63.8	27.7	43.6
Germany	14.4	14.4	14.5	18.7	17.2	18	24.2	20.4	22.3	68.1	41.7	53.8
Finland	14.1	14.5	14.4	18.6	17.6	18.2	23.7	20.6	22.2	68.1	42.1	54.2
Belgium	14.4	16.4	15.5	18.3	18.7	18.5	23.1	21	22.1	60.4	28.0	42.6
Iceland	14.1	14.4	14.3	18.7	16.9	17.8	24.2	19.4	21.9	71.6	34.7	53.1
Cyprus	12.9	16.2	14.6	17.2	19.1	18.2	21.9	21.6	21.8	69.8	33.3	49.3
Georgia	9.6	14.3	12.2	13	17.8	15.7	19.2	23.8	21.7	100.0	66.4	77.9
Albania	9.6	13.1	11.3	14.3	16.6	15.4	21.6	21.8	21.7	125.0	66.4	92.0
France	12.8	15.3	14.1	16.9	18.1	17.6	22	21.1	21.6	71.9	37.9	53.2
Serbia	11.7	15.8	13.9	15.9	18.5	17.3	21.1	21.8	21.5	80.3	38.0	54.7
Estonia	12.8	19.3	16.5	16	20.2	18.4	20.3	21.8	21.2	58.6	13.0	28.5
Kazakhstan	10	14.1	12.3	13.6	17.6	15.9	18.9	22.7	21	89.0	61.0	70.7
Portugal	9.7	13.1	11.6	14.4	17.1	15.9	20.3	21.2	20.8	109.3	61.8	79.3
Sweden	13	12.6	12.9	17.5	15.1	16.3	23.1	18.1	20.6	77.7	43.7	59.7
Slovakia	12.6	15.5	14.2	16.3	17.3	16.9	21	19.9	20.5	66.7	28.4	44.4
Netherlands	9.7	12	10.9	14.6	16	15.4	20.8	20	20.4	114.4	66.7	87.2
Armenia	9.5	15.4	12.8	12.5	18.4	15.7	17.1	23	20.2	80.0	49.4	57.8
Slovenia	11.3	15.9	13.7	14.8	18.1	16.5	19.4	21	20.2	71.7	32.1	47.4
Austria	12.3	12.1	12.3	16.5	15	15.8	21.9	18.3	20.1	78.0	51.2	63.4
Azerbaijan	7.7	14	11.1	10.6	17.6	14.3	15.8	23.6	19.9	105.2	68.6	79.3
Italy	12.2	14.6	13.5	15.9	17.1	16.5	20.1	19.5	19.9	64.8	33.6	47.4
Denmark	12.8	12.1	12.5	16.9	14.3	15.7	22.3	17	19.7	74.2	40.5	57.6
Switzerland	12.7	11.5	12.2	16.9	14.1	15.5	22.2	16.9	19.5	74.8	47.0	59.8
Republic of Moldova	8.9	16.6	13.2	11.9	18.4	15.5	16.2	21.1	18.9	82.0	27.1	43.2
Turkmenistan	7.2	11.2	9.4	10.5	15.1	12.9	15.9	20.9	18.6	120.8	86.6	97.9
Bosnia-Herzegovina	9.2	13	11.3	12.6	15.2	14	17.1	18.4	17.9	85.9	41.5	58.4
Uzbekistan	6.5	10.2	8.5	9.1	13.5	11.4	13.8	19	16.6	112.3	86.3	95.3
Kyrgyzstan	6.4	9.9	8.3	9.2	13.1	11.3	14	18.6	16.6	118.8	87.9	100.0
Tajikistan	5.3	8.6	7	7.4	11.4	9.4	11.6	16.7	14.2	118.9	94.2	102.9

(Countries are listed in descending order of the prevalence values for the year 2016). Data were obtained from global health observatory (GHO).

comes that can contribute effectively to nutritional and physical activity policies dedicated to childhood²⁵. Following the WHO's Health Promoting Schools (HPS) framework, many researches have been conducted in Europe. The HPS framework recognizes the inherent, reciprocal link between health and education: healthy children achieve better educational outcomes which, in turn, are associated with better health later in life²⁶⁻²⁸. In particular, HPS interventions involved, for example, lessons over preparing fruit/vegetables based meals and snacks, lessons for teachers, implementation of nutritional education by teachers, implementation of knowledge, awareness and skills using worksheets, promotion of physical activity, reduction of sugary drinks linked to increase of physical activity, introduction of nutrition education into the curriculum²⁹⁻³⁸. In order to stop the increase of obesity in Europe for all the people, in March 2005 the EU platform on diet, physical activity and health was launched. This is a program for all actors interested in the fight against obesity and the promotion of physical activity and healthy eating, with the aim of creating a European common space for discussion and updating. The WHO and European Food Safety Authority (EFSA) also take part in the platform, which is acting under the authority of the European Commission³⁹. The publication in 2013 of

“Country profiles on nutrition, physical activity and obesity in the 53 WHO European Region Member States” gives an overview of information on policies and actions in the areas of nutrition, salt and trans fatty acids (TFA) reduction, and physical activity promotion. From these data, it can be possible to compare the actions in different countries, chosen considering different levels of obesity (very high, high, medium, low). In particular, the initiatives proposed were addressed in monitoring and evaluation of salt intake, stakeholder approach, population approach, legislation, price policies, physical activity (Table II). It can be observed⁴⁰ that many countries have implemented programs on WHO proposals, while some countries have focused attention on some aspects only (Table II). Almost in all considered countries – also in countries where obesity is low – monitoring and evaluation, stakeholder approach and physical activity, are the most considered choices to prevent obesity and overweight (Table II). Regarding population approach, labeling is used by almost all considered countries, except from Malta, Turkey, Spain and Russian Federation. The prevention program was implemented using other population approaches (TV, Websites, etc.), but Russian Federation seems not carry out any intervention except from physical activity. Physical activity is considered by almost all countries indicated

Table II. WHO Country profiles on nutrition, physical activity and obesity (selection of some countries divided by % of obesity).

Country	Salt reduction initiatives									Trans fatty acids (TFA) policies (Legislation)	Price policies (Taxes)	Physical activity (PA)
	Monitoring and evaluation	Stakeholder approach	Population approach						Reporting			
			Labeling	Brochure print	TV radio	Website Software	Education	Conferences				
Turkey	xx	xx		xxx			xxx	xxx			v	v
Malta		xx		xxx	xx	xxx	xx					v
United Kingdom	xxx	xx	xxx	xxx	xxx	xxx	xxx	xxx			v	v
Israel	xx	xx	xxx								v	v
Czech Republic		xxx	xx				xxx					v
Spain	xx	xx		xxx			xxx	xxx			v	v
Russian Federation												v
Luxembourg	xx	xx	xxx	xxx				xxx	xx	xx		v
Norway	xx	xx	xxx	xxx				xxx	xxx		v	v
Finland	xxx	xxx	xxx	xxx				xxx			v	v
Belgium	xxx	xxx		xxx			xxx	xxx		xx		v
France	xx	xxx	xxx		xxx	xxx	xxx	xxx			v	v
Portugal	xx	xxx	xxx	xxx	xxx		xxx	xxx				v
Sweden	xxx	xxx	xxx				xxx				v	v
Netherlands	xxx	xxx	xxx				xx	xx		xx		v
Italy	xxx	xxx		xxx	xxx			xx		xx		
Switzerland	xx	xx		xx			xx	xx	xx		v	v
Uzbekistan	xx											v
Kyrgyzstan												
Tajikistan												

Abbreviation: xx: partially implemented; xxx: fully implemented; v: existence.

in Table II. Finally, legislation, as strategy to fight TFA, and price policy are low considered (Table II). Following the activities proposed by WHO and European Commission, several countries have implemented research and activities to challenge obesity, and subsequently MetS. For example, in France, the policy makers have decided to adopt the Nutri-score system categorizing food products and drinks under five categories of nutritional quality, with the aim to increase the pace of activities and to supplement other actions to establish a healthy food environment. This simplified system employs color-coding principle to assist people in understanding the nutritional value of different food products by just a glance⁴¹. The Five-Color Nutrition Label (5-CNL) has been proposed for the French market to guide consumer food choices. It is based on the United Kingdom Food Standards Agency (FSA) nutrient profiling system⁴². The label is represented by a scale of five colors (from green – highest quality, to red – lowest quality) with corresponding letters (from A to E). Depending on the FSA score of each food item, the 5-CNL was “Green” (–15 to –2 points); “Yellow” (–1 to 3 points); “Orange” (4 to 11 points); “Pink” (12 to 16 points); and “Red” (\geq 17 points)⁴³. Ducrot et al⁴⁴, with the aim to evaluate the effectiveness of this activity, simulated among over 10,000 people, a shopping situation with front-of-pack nutrition labels affixed on food products, founding that the Five-Color Nutrition Label based on a color-coded and graded scale indicating overall nutritional quality is effective in promoting overall healthier food choices in all population subgroups. In Italy, the attention has been pointed not only on monitoring, but also on the population approach, using media, brochures, and education in schools and in health care facilities. These actions are part of the Italian Health Plan on Prevention where one of the objectives is to reduce the preventable and avoidable burden of morbidity, mortality, and disability of non-communicable diseases⁴⁵. Another initiative adopted in Italy is the program named “OKKIO alla Salute” (a glance to the health), launched on 2007. This program is part of the WHO initiative “Childhood Obesity Surveillance Initiative”⁴⁶, and its aim is the surveillance of overweight and obesity and their related risk factors among children of 6-10 years⁴⁷. In the PreveDi study, a pilot before/after preventive trial aimed at the evaluation of the impact of a brief lifestyle intervention on changes in MetS

risk factors, conducted in the centre of Italy, the participants received a booklet illustrating general recommendations for MetS. During the 6-months follow-up period, participants were invited (by brochures and text messaging on cellular phones) to attend five conferences, five cooking classes, and twelve physical activity sessions. The results showed that at baseline, MetS was observed approximately in 52.2% of the PreveDi population, the MetS prevalence decreased, suggesting that MetS can be prevented and/or treated by simple and sustainable methods⁴⁸. Another Italian research, with the aim to prevent obesity and METs, has acted on risk factors promoting the adoption of healthy lifestyles. A motivational path was proposed using weekly meetings with doctors, psychologists, dietitian, sport physician, to increase knowledge and awareness of the problem, and to modify behaviors useful to reach a healthy lifestyle. The follow-up conducted after three months demonstrated the reduction of BMI, and of abdominal obesity in a large part of the sample. There was observed also an improvement of physical activity, and a reduction of blood pressure and glycemia⁴⁹. In Portugal, since 2008 the Portuguese Weight Control Registry (PWCR) has been established containing data on adults who have been successful at losing at least 5 Kg and have kept it off for 1 year or more. This registry leads to determine associations between behaviors and weight loss maintainance, possibly through the adoption of nutritionally balanced diet and regular participation in physical activity⁵⁰. In Spain, a great number of guidelines have been proposed, thus to have a homogeneous preventive program results difficult. Indeed, a comparative study of the content of 18 Spanish dietary guidelines was performed using the WHO Countrywide Integrated Noncommunicable Disease Intervention (CINDI) programme’s dietary guide as the gold standard. The results showed that not all dietary guidelines include the CINDI 12 steps to healthy eating and 72% ignore the recommendation for a “varied diet based mainly on plant foods”, 73% do not mention which foods should be included in a balanced diet, and 61% do not define fatty foods. The study concluded that these differences might lead individuals to develop a mistaken concept of what healthy eating is⁵¹. In Israel, the Ministry of Health has set up a Regulatory Committee to propose and enact nutrition policy legislation, in order to achieve a better food en-

vironment. Over 1,000 people were asked, via a dedicated website, to express their view on what the Ministry should do to improve the nutrition environment. Nine key areas of action were identified, and some legislative steps were initiated, like front-of-pack labeling (labeling of packaged foods, with easily identifiable icons, to clearly indicate foods with high levels of sodium, sugar and saturated fats), economic measures, price controls, restrictions on marketing and advertising of harmful foods to children, formal nutrition education in all school years, nutrition promotion in all health settings, nutrition education for the public, reformulation of processed foods, more nutritious foods offered at workplaces, schools, and changes in food store layouts⁵². Media campaigns are recognized as useful instruments to widespread population based-prevention programmes. For example, in 1987 in Norway a mass-media based health education campaign was launched using the only TV channel covering the whole country. Interviewed people declared changes in health knowledge and behaviour. The results of this initiative indicated that this campaign has reached segments of the population usually difficult to reach, both due to the extensive coverage of the show, and to the emotional appeals in addition to factual information⁵³. In Netherlands, in 1998, a survey on National food consumption showed that the diet was not in accordance with the Dutch recommendations for a healthy nutrition. For this reason, a National campaign was launched, which involved the cooperation of governmental, industrial and retail organisations, to disseminate nutrition information on the population⁵⁴. In the same period, in Britain, BBC implemented the campaign "Fighting Fat, Fighting Fit", using national radio and TV with the aim to spread messages of maintaining healthy diet and increasing physical activity. This initiative has been evaluated by some researchers, who recognized the effectiveness of the campaign in publicizing the issue of increasing prevalence of obesity and the need for lifestyle change. They also suggested that different approaches might be needed to maximize participation from groups most in need of lifestyle change⁵⁵. Finally, in 2010, in Turkey, the Ministry of Health, considering that the individuals should be aware of their health, has developed the Obesity Prevention and Control Program. In particular, a 5-year action plan covering the years 2010-2014 was produced. Based on this program, the "Fighting Obesity Campaign" (FOC) was launched,

adopting programs to raise awareness through health care organisation and the national media⁵⁶. Some researchers⁵⁷ have evaluated the efficacy of this media campaign on 2,038 selected people living in urban and rural areas, and found that about 30% of the participants adopted desired behavioral changes after exposure to the campaign, demonstrating that media campaigns are useful to increase motivation to prevent obesity.

Conclusions

Based on the presented Table I on obesity increase over the last twenty years, prevention programs seem to have been ineffective. Most likely, the effects will be observed later on. In this concern, it will be fundamental to continue and finance the countries of the European region, where those programs have been extensively applied, to obtain even better results in terms of obesity prevention. From the comparison of the data on obesity over the years, a trend of increased prevalence has been observed in all countries, although many of these countries have adopted prevention programs and specific strategies to fight obesity¹. A possible explanation of the increase in the prevalence of obesity could be the poor efficacy of the proposed prevention activities (i.e. monitoring, stakeholder and population approach, taxes, legislation, physical activity, etc), identified in the WHO Country profiles on Nutrition, Physical Activity and Obesity. Some of these prevention activities seem valid for countries like France, where labeling, monitoring and physical activity have been identified as successful strategies in the control of obesity. It is important to consider that many changes have taken place in the last years, mainly in food behavior. In fact food composition have changed towards processed foods, characterized by low nutritional quality and high caloric density (sweet and salty snacks, beverages rich on sugar and gas, fast foods). In addition, these processed foods are poor in their nutritional value, fiber, vitamins and minerals. People eating in this way will be at risk for health because of the big intake of saturated fats and calories. It can be observed that the harmful substances in food are sometimes already present at the origin of the product due to changes in the production of raw materials (preservatives, additives, intensive farms, use of drugs on farms etc.)^{12,57,58}. Another observation is that unhealthy diet and physical inactivity represent important

risk factors for chronic diseases, like cardiovascular diseases and MetS⁵⁹⁻⁶¹. For this reason, it is very important to promote physical activity, not only in young people, but in all ages, because prevention is the only way to avoid such illnesses that entail a heavy burden on public health systems. Nonetheless, it has to be acknowledged that all the strategies adopted in the various countries to fight obesity have shown results in the short-term. This consideration highlights the need for these strategies to be implemented at length, and repeated to produce permanent effects on the individual. Only in this way the strategy can be successful in all the countries of the European region. In fact, the analysis made on countries in Europe has revealed that obesity represents a big problem for almost all populations, both those with high prevalence of obesity and for those with low prevalence. Obesity, in fact, is rising during years in all countries¹. Furthermore, it is also important to consider that the efforts made with the prevention plans have involved intervention costs which, not having been effective, could lead in the future to the increase of the social costs and medico-legal consequences of this pathology (e.g. disability, work problems, relationship life problems, medical expenses, etc.). In conclusion, from the previous considerations and from the good results obtained in some countries, some winning strategies could be proposed. In particular it seems important to support and implement information, labeling, physical activity, healthy diet, collaboration with food industry. These programs should become life plans in all countries for a concrete and effective fight against obesity and all related diseases.

Authors' Contributions

All authors made substantial contributions to conception and design of the manuscript; G.R. and I.G. performed the literature search. All the authors have been involved in drafting the manuscript and revising it critically for important intellectual content and all of them have given final approval to the version to be published.

Acknowledgements

The present study was supported by a grant of the University of Camerino: University Research Projects – Fondo di Ateneo per la Ricerca (FAR) 2014-2015.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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