

## Food and Nutrition: Matters of Public Health Coniglio MA

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Food and nutrition are closely related to health. Both food and nutrition are matters of Public Health. In fact, one of the main Public Health concerns includes access to minimal, essential, nutritionally adequate and safe food for everyone.

The term 'food hygiene' refers to production, processing, handling and storage operations which ensure acceptable levels of safety and quality of foods to the final consumer. Nonetheless, various foodborne pathogens are associated with foodborne diseases. Fresh vegetables, in particular, have been recently involved in international outbreaks caused by *E. coli* O104:H4 in Europe and North America and by *Salmonella* and *E. coli* O157 in the USA [1-3]. Ready-to-eat (RTE) salads in particular are associated with foodborne pathogens [4,5] and there is evidence that they may be involved in the vehiculation of antibiotic resistance of clinically relevant bacteria [6]. Anyway, from a Public Health point of view, especially in industrialized countries, where time spent for food preparation is declining [7], people could take advantage from RTE salads thanks to the prevention of some chronic diseases associated with low minerals and fibers uptake [8]. This is a typical example of close relation between food, nutrition and Public Health.

'Good nutrition' is fundamental for a productive life, but at the moment malnutrition is a Public Health problem worldwide. It is estimated that by 2020, chronic non-communicable diseases, most of which associated with malnutrition, will be responsible for two-thirds of the global burden of disease [9].

Malnutrition means 'poor nutrition' and can refer to undernutrition, defined as the outcome of insufficient food and nutrients intake or to overnutrition, defined as the overconsumption of food and/or nutrients such that adverse medical effects can occur.

In industrialized countries, major causes of morbidity and mortality for cardiovascular disease, metabolic disorders-in particular, type-2 diabetes and certain cancers-in particular, colon rectum are associated with overweight and obesity which, in turn, are associated with overnutrition [10]. Moreover, in poor nations, although undernutrition is the most important cause of morbidity and mortality [11], there is also evidence that the prevalence of overweight and obesity is increasing due to the fact that people tend to consume more affordable but highly caloric foods: the so called 'junk foods'. Thus, at the moment, also obesity is considered a marker of poverty in poor nations such as Brazil and Mexico [9].

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Although recommendations for a healthy nutrition are highlighted by various nutrition guidelines, to adopt these guidelines routinely in daily life is not always simple, not only in poor countries, where the financial resources are limited but also in the richest countries, where lack of time in food acquisition may affect food choices [7].

From a Public Health perspective, to decrease the burden of foodborne diseases and malnutrition, apart from fighting poverty and social inequality [12], it is also important to communicate health messages intended to train all the stakeholders, including food producers, sales personnel and consumers. The WHO Five Keys to Safer Food, for example, detail the basic principles on proper food handling and preparation that everybody should know in order to prevent foodborne diseases [13]. On the other hand, the WHO Global Strategy on Diet, Physical Activity and Health suggests how to challenge global overnutrition by promoting health education strategies related to healthy diet and physical activity at individual, community and national levels [14]. Furthermore, the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020 suggests the use of economic tools, such as subsidies, to enhance the access to the right daily intake of nutrients in poor people as well as strategies of health promotion and education to promote a healthy lifestyle in the general population [15]. Finally, ending poverty and malnutrition by 2030 is one of the main purposes of the Sustainable Development Goals adopted by the General Assembly of the United Nations countries in 2015 [16].

Thus, if our health depends mainly on eating habits and choices, we should understand that it is both the quantity of food and the quality of nutrition that influence our health. In fact, nutrition involves giving to body what it needs, not only what we would like to eat. Feeding, in contrast, consists in the choice of foods, so it determines the dietary habits and is strictly linked to lifestyle. Thus, nutrition determines the relationship between food and health.

As already said, both food and nutrition are matters of Public Health. Food production and agriculture, for example, contributes considerably to global greenhouse gas emissions. So, especially in developed countries people should no longer separate the dietary choices from their impact on the health of their own bodies and of the general population. For this reason,

there is a huge need of new ideas and of new healthy foods with a low environmental impact. There is also the need to address inequalities in health based on class, race, gender, geography by adopting Public Health legislation and Public Health strategies based on medical interventions (e.g. screening and individual risk assessment), social protection (e.g. junk food advertising banned from television programs aimed at adolescents) or fiscal measures (e.g. subsidy to producers or consumers). Anyway, regulation is just one way in which policy can support health. There is also the need of health promotion strategies aimed at educating individuals to take responsibility for their own health. It is fundamental to increase knowledge and skills about healthier lifestyles and healthy eating, which include choosing healthy foods, cooking healthy meals and adopting good food hygiene rules to make or sell safe food.

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