Diet and physical activity – interactions for health; public health nutrition in the European perspective

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Abstract
For the majority of European adults, who neither smoke nor drink excessively, the most significant controllable risk factors affecting their long-term health are what they eat, and how physically active they are.

Scientists are supposed to clarify to policy makers and health professionals the usefulness of their health messages. However, to be able to do that, a more detailed understanding is needed of the basic mechanisms behind the effects on health of diet and physical activity and, especially, the two in combination. Further, better methods for assessment of nutrition and physical activity in the population have to be developed, and more and better baseline data have to be collected. Increased and more efficient interventions are then needed. People trained and competent in the new discipline of Public Health Nutrition are required.

Through the stimulating support that the European Commission, as well as other national and international partners, are presently giving to the development of Public Health Nutrition across Europe, we can hope for an increased mobility, networking and understanding between European nutrition and physical activity professionals. This will most likely result in greater and better policy making, strategy development, implementation and evaluation. We now have a great possibility to develop the integrated field of preventive nutrition and health enhancing physical activity.

Keywords
Diet
Nutrition
Physical activity
Health promotion
Disease prevention
Assessment
Policy making
Interventions
Evaluation
Training

Key messages
- Today’s structure considers nutrition and physical activity as two different specialties as a result of history rather than of logic.
- For the majority of adults in Europe, what they eat, and how physically active they are, are the most significant controllable risk factors.
- WHO, EU, national authorities, networks, etc. are on the right track.
- A problem is insufficient understanding amongst scientists and health professionals of the dialectic role of both communication and control and how messages and the efficient communication of these messages fit within these dialogues.
- A number of pan-European projects stimulate the development towards more effective implementation.
- European Master’s Programmes increase networking and understanding between nutrition and physical activity professionals.
- Never before has the potential to develop the integrated field of public health nutrition been so great.
- Be active; read the information on internet and talk to your country representatives in the Health Promotion Committee

Introduction
Historically, the science of medicine has differentiated into various specialties based on disease categories, organs in the human body, age, gender, special techniques or medical setting. Current health care systems, international organisations, medical education, research and patient organisations are still deeply embedded in this structure and remain to be served reasonably well by it.

However, this organisational structure, which may convey the impression of territorialism, also represents a major barrier to collaborative efforts between the different disciplines. Yet it is the very interdisciplinary approach that may be critical for the success of research and developmental work, as well as for securing funding, especially in health promotion and disease prevention. Primary prevention directed at risk factors for cardiovascular disease often depends on
Diet and physical activity and their interactions for health

- **Diet** is a combination of food choice and meal patterns depending on availability, affordability and cultural factors. Food is essential for sustenance, growth and development, but also for health, and well being. Nutritional (dietary) factors contribute substantially to the burden of preventable illness and premature death and hence to the economic burden of countries. Protecting agents in different foods, e.g. vegetables and fruits, are of substantial importance for health. The adoption and maintenance of a healthy diet is essential for a healthy life.

- **Physical activity** is any bodily movement produced by skeletal muscles that results in energy expenditure. Physical activity is closely related to, but distinct from, exercise and physical fitness. It depends on factors like availability, affordability and cultural factors, as well as safety and environmental factors. Physical activity has protective effects for several chronic diseases such as cardiovascular diseases including hypertension, obesity, non-insulin dependent diabetes mellitus, osteoporosis, some types of cancer, as well as depression and anxiety. The adoption and maintenance of a physically active lifestyle is essential for a healthy life.

Diet and physical activity, while possessing opposite qualities, as far as energy metabolism is concerned, work together to produce health. However, our insight into the underlying mechanisms for this combined effect is relatively meagre. We need a much better understanding of the basic biological and pathophysiological processes, and as well as more relevant baseline data describing present food and, especially, physical activity habits amongst the general population (Table 1). We also need to find better systems for identifying supporting and limiting factors for change, from a policy as well as a consumer point of view.

Such an understanding is of the utmost importance as there is an urgent need for a solid basis for clear and useful messages to be handed over from the basic scientists and epidemiologists to the policy makers and public health professionals working in the field of health promotion.

**Who does what?**

A number of international organisations, governmental and non-governmental organisations and networks are actively supporting or directly involved in the research and the development of the applied promotive/preventive work.


**WHO**

Nutrition and physical activity are listed under the same Target 11 (Healthier Living) in the WHO Health for All Policy Framework for the European Region (Health 21)\(^1\). Suggested areas for formulation of indicators include:

- National statistics on food consumption and body mass index.
- Data on estimates of physical activity and sexual behaviour.

Although both disciplines are combined under the same target in Health21, nutrition has long been under the domain of Lifestyles and Health, whilst physical activity was placed under Health Promotion. A more integrated structure in the organisation would increase awareness of the need for a combined approach amongst researchers and policy makers. Visibility of these two disciplines has not been optimal but there are positive signals.

At the World Health Organisation’s Executive Board meeting in Geneva, January 1999, the new Director-General, Dr Gro Harlem Brundtland, highlighted some areas, which will receive particular attention. Above all she said: “We need to step up our ability to deal with the rising toll of non-communicable diseases and to develop and test preventive strategies. Special attention will be given to cancer and cardiovascular disease.” Much may remain undone until WHO Euro have enough funding to support their units working with nutrition and physical activity, so they can adequately match the many expectations. The statement is, however, a positive “Be active!” signal to all in the field of Public Health Nutrition, but also to the Member States as well as many national, regional and local health authorities.

The obesity epidemic, to take another example, is considered by WHO to be so serious that public health action is required urgently\(^3\). Obesity should be regarded as today’s most neglected public health problem and future action can not only concentrate on those already overweight, but societal changes in both areas of nutrition and physical activity are definitely needed. To accomplish that, skilled public health staff have to be trained, and useful methods for monitoring of obesity, physical activity and nutrition have to be further developed for use on population level. Effective methods for interventions need to be refined and evaluated, and most importantly, decision makers have to become aware that obesity is and will be an even bigger problem if long-term funding is not provided for action.

**EU**

The European Union is a partner with great potential. It was not until 1993, when the Maastricht Treaty on the EU came into force, that the Community gained a specific mandate in public health.

The responsibility of public health programmes for the period 1996–2000, falls under Directorate-General V (DG V). Directorate DG V/F covers public health, and Unit 3 within it is responsible for Health Promotion, Health Monitoring and Injury Prevention. In the intervening years, this Unit (DG V/F/3) has become an important factor in the development of the field of public health in general, and in public health nutrition in particular. This was accomplished by setting up networks, applied research, evaluation and training, etc. Some examples are given in Table 2. Diet, physical activity, body weight and cardiovascular disease are all priority issues in the Health Promotion Programme.

A Health Promotion Committee, consisting of two representatives from each of all the Member States and the European Economic Area (EEA) countries meet
twice a year to discuss the Work Programme and give their opinion on projects selected for funding.

In the new framework for public health, some important areas have been highlighted for the period 2000–2005. These include:

1. improving information for the development of public health;
2. reacting rapidly to health threats;
3. tackling health determinants through health promotion and disease prevention.

Numbers 1 and 3 especially seem to relate to nutrition and physical activity. However, a word of caution, reorganisation of the work within the Commission could introduce an element of insecurity to the future development of public health matters in the European Union. Public Health, which essentially means DG V/F/3, may be moved to DG XXIV, the consumer directorate.

In the very near future, the first of the Accession Candidates to the EU, i.e. Czech Republic, Estonia, Hungary, Poland, Cyprus and Slovenia, will enter the Union. Concerted efforts to decrease life-style related diseases, especially cardiovascular disease and mortality, will be of high importance. CVD is the main cause for the existing gap in total life expectancy between all the candidate countries and the EU.\(^1\)2 Demographic changes, especially ageing of the population, will put substantial pressure on health care provision in the near future. Introducing these countries into public health work within our remits is also of importance to strengthen already ongoing collaboration.

Directorate-General XII (DGXII) is responsible for research. The Fifth Framework Programme for Research, technological development and demonstration activities for the period 1998–2002 (call for proposals released March 6th 1999) has Food, Nutrition and Health as the first of its Key Action points. One area of interest in this Action is “Role of food in promoting and sustaining health with respect to diet and nutrition, toxicology, epidemiology, environmental interaction, consumer choice and public health” (Table 3), which coincides very well with the areas for action in Public Health Nutrition.

There are also other Key Actions to enhance the understanding of shared cellular and molecular mechanisms of diseases (Key Action 7), and Public Health (Key Action 10). The amount of funds available for research projects is huge. We now have a unique possibility “to improve our understanding and awareness of the role of nutrition, diet and lifestyle in promoting and sustaining health and preventing disease, to support consumer choices for healthy and wholesome foods, and to facilitate the development and understanding of health promotion products and diets” (from the Work Programme).

Unfortunately, physical activity is not mentioned
The action plan includes recommendations on how to encourage children and youth to adopt heart healthy lifestyles, improve their personal health, and reduce psychological and social risk factors of diseases. It also aims to increase the population's physical activity level and decrease the population's smoking prevalence. The action plan is designed to alter Finnish nutrition in a positive direction, provide opportunities for the public and consumers to participate in nutrition and physical activity, and improve the basic physiological processes.

The Norwegian National Council on Nutrition and Physical Activity was just recently inaugurated. The Council is a permanent professional and administrative body under the auspices of the Ministry of Health and Social Affairs and is responsible for matters regarding nutrition, physical activity and health. It is organised into two departments, one each for nutrition and physical activity, each comprising of twelve national experts. Their primary objective is to provide advice to and evaluate a wide range of governmental and non-governmental organisations, industry, media and the public/consumers. Substantial funding for the work has been secured.

In Finland an alternative model was chosen, namely a temporary Consensus Commission, for stimulating, supporting and evaluating the promotive work. A statement entitled Action Plan for Promoting Finnish Heart Health was launched recently (1998). The panel behind the statement consisted of representatives from health care, public health, consumer organisations, as well as scientists and government employees. The action plan includes recommendations on how to:

- alter Finnish nutrition in a positive direction,
- increase the population's physical activity level,
- decrease the population's smoking prevalence,
- reduce psychological and social risk factors of diseases,
- increase people's personal responsibility for improving their personal health,
- encourage children and youth to adopt heart healthy lifestyles.

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It remains to be seen which of these Nordic alternatives will stimulate development in the most constructive and fruitful way.

A series of European networks in the field of health Promotion have been established during recent years (Table 2). At a meeting in Las Palmas in February 1999, agreement was reached among representatives from academic centres across Europe to establish a European Network for Public Health Nutrition. A first step was to form an academic consortium. This was initiated through a Declaration of Interest, signed by representatives of those departments (Fig. 1). The network is co-ordinated from the Karolinska Institutet, since the Network stems from the same group that initiated and implements the European Master's Programme in Public Health Nutrition (see below). The network will, when established and consolidated, become open to any other interested centre, department or University.

To conclude so far: The important international organisations are on the right track, whilst funding for research and development is available. We have common and (generally) well-defined recommendations both in the field of nutrition and physical activity to share with the public. In spite of this, health development in Europe is, as previously discussed, not optimal. Why? Why do people not do as we advise them to? The problem is not only the insufficient understanding amongst scientists of the basic physiological processes, but also insufficient knowledge amongst health professionals about how to efficiently communicate needs for action to policy makers as well as messages to the public.

Dr Matti Rajala, Head of DGV/F/3, adds one dimension to the complexity of promotion, by saying: “Behaviours like alcohol consumption, smoking, eating, and physical activity are embedded in a larger social structure that makes changing those behaviours difficult, sometimes impossible, without addressing the social context in which those behaviours occur and making the necessary changes in infrastructures and policies.”
Health promotion

Health promotion takes place in a broad context. It is defined as any process that enables individuals or communities to increase control over the determinants of their health. It differs from Health education, which refers to any learning activity that aims to improve individual's skills, knowledge and attitudes relevant to their health. Health promotion initiatives, therefore, vary widely in their scope and aims.

Traditionally health promotion interventions tended to be characterised by a focus on one-off individualistic, health education interventions with little representation of broader health promotion approaches. Today a need for more a integrated, comprehensive and multi-disciplinary approach has been identified, involving a complementary range of actions that will work at the individual, community, environmental and policy levels. This should be complemented by a multi-disciplinary approach to evaluation that gives as much weight to process activities, (e.g. planning, implementation/delivery, acceptance) as to outcomes (e.g. changes in behaviour) and takes into account the context and practice in which this is set.

Thus far a number of pan-European projects have been initiated to stimulate the development towards more effective implementation (a few examples are shown in Table 2) of an integrated program, but much remains to be done. The pan-European surveys on people's attitudes towards food, nutrition and health, and physical activity, body weight and health are good examples. Policies, recommendations and strategies for implementation have to be developed, especially in the field of physical activity. Only a few countries and regions within these countries have, as mentioned earlier, initiated such a process.

The Commission (DGV/F/3) has, to support such work in the different Member States, funded a project, Nutrition & Diet for Healthy Lifestyle in Europe. The aims of the project are to enable a co-ordinated EU and Member State health promotion program on nutrition, diet and healthy lifestyles, which will provide a framework for the development of national food-based dietary targets. This will be accomplished by establishing a network, strategy and action plan for the development of the European dietary guidelines. The work plan has entailed the formation of Working Parties composed of prominent experts from the Member States to prepare consensus documents on the state of the art in Europe and the added value of European guidelines. A conference, to be held in Crete (May 2000), is the culmination of the project. The final report and recommendations will be presented to the European Commission, the Council of Ministers and the European Parliament.

Training

The implementation of effective and combined strategies then requires people trained and competent in the discipline of Public Health Nutrition (PHN). These individuals must be able to be involved in:

- The derivation of scientifically based information about diet that may reduce illness and promote good health, and in promoting an understanding of the potential causal relationships between diet, physical activity and disease.
- The design, the execution, and the assessment of the effectiveness of the modes of delivery of this information appropriate to the population group or subgroup.
The formulation of policy and programmes leading on from an analysis of the results of studies looking at the effectiveness of programmes.

This calls for proper training across Europe, leading to the development of comparably skilled and competent individuals. In order to achieve this, common standards of training should be set and monitored. Through the support that the European Commission is giving to postgraduate training (Master’s Programme) in PHN across Europe, we can hope for an increased mobility, networking and understanding between European nutrition and physical activity professionals. The Master’s Programme may lead to an accreditation and registration system for European Public Health Nutritionists, similar to the system operated by the Nutrition Society.

We can look forward to a new brand of professionals, who are truly European in their training, but who also have an integrated view of nutrition and physical activity interrelations, possibilities for intervention etc.

**Good timing**

The workshop *Diet and Physical Activity – Interactions for Health*, Chamonix, March 1999, discussed and evaluated the science base of effects of diet and physical activity, and interactions between these two on health. It also put, at the end, the results into a broader context, i.e. the promotion of healthy food habits and a physically active life using effective population based strategies. It was an interesting challenge and with good timing. We have never before had so great an opportunity to develop the integrated field of preventive nutrition and health enhancing physical activity.

However, with those possibilities follow increased demands for cost efficiency and positive results (Table 4). This can only be reached through increased specialisation, hard work and collaboration with other professionals as well as with consumers.

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