

Joint Programming Initiative
A HEALTHY DIET FOR A HEALTHY LIFE

The vision for 2030

Vision Document

September 2010

Joint Programme Initiative

A healthy diet for a healthy life, 2010-2030

FOREWORD

The promotion of healthy lifestyles with better diets and increased physical activity is of utmost importance for future public health, well-being and prosperity in Europe. This Joint Programming Initiative (JPI) provides a roadmap for harmonised and structured research activities with defined priorities to achieve these goals in the area of food, nutrition and health.

Food production and human nutrition are embedded into rapidly changing scientific, economic and societal environments. These are characterised by an increasing demand for high quality foods for an ageing and growing world population and an increasing competition for resources such as land, water and crops for production of feed, food and raw materials used for fuels and industrial biotechnology. It can be expected - although with incomplete certainty - that this will result across the EU in major changes in the availability of foods, and will lead to cost increases that will, secondarily also affect nutrition and health. Furthermore, the food and drink industry will need to comply with agreements on emissions reduction and biodiversity targets that promote a more resource-efficient, greener and more competitive European economy¹.

Notwithstanding the likelihood of higher food prices over the next two decades, obesity and diet-related chronic diseases as well as an insufficient nutrient supply in subgroups of the populations and special demands in ageing societies, will remain challenges and require immediate measures for improvement. The aim of this Joint Programming Initiative on 'A healthy diet for a healthy life' is to better understand the factors that determine diet and physical activity behaviours and subsequently how to change these patterns into more healthy choices. The JPI will investigate the role of food, diet and physical activity in health and incidence, treatment and prevention of chronic diseases and subsequently act on this knowledge.

This document describes the vision for 2030 and beyond and provides a basis for further discussions leading to a Strategic Research Agenda and Implementation Plan.

This Joint Programming Initiative (JPI) aims to provide a holistic approach to develop and implement a research programme to understand the interplay of factors known to directly affect diet related diseases, discover new relevant factors, mechanisms and strategies, as well as to contribute to the development of actions, policies, innovative products and diets, with the aim of drastically reducing the burden of diet-related diseases.

The following countries were involved in writing this vision document: Austria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

We look forward to the challenges ahead of us and are confident that by working together we will be able to establish a fully operational European Research Area on the prevention of diet-related diseases and to increase knowledge of and deliver innovative, novel and improved nutrition and health.

September 2010,

Prof. Dr Wim H.M. Saris, Chairman Management Board

¹ EC. Europe 2020: A strategy for smart and inclusive growth. http://ec.europa.eu/eu2020/index_en.htm.

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EXECUTIVE SUMMARY

To address major societal challenges, the European Commission has suggested an enhanced cooperation in the R&D area in Europe. This 'joint programming' is a process by which Member States engage in defining, developing and implementing a common strategic research agenda, based on a common vision of how to address major societal challenges that no Member State is capable of resolving independently.

European public health policies and research are focusing on healthy ageing, not only on increasing the chance of living for more years but also preventing and postponing the onset of diet-related diseases. Emphasis should be placed on preventing rather than curing these diseases by delaying the initiation process. Poor diet, lifestyle choices and obesity are implicated as key determinants for many chronic diseases. A nutrition and physical activity strategy, therefore, aims to promote health and prevent nutrition deficiencies, inactivity and chronic diseases, such as cardiovascular diseases, type 2 diabetes and cancer. It works to ensure optimal health and awareness, especially in population groups with a lower socio-economic status (including immigrant communities and ethnic minorities) and during critical periods throughout life, such as pregnancy, lactation, infancy, childhood and older age.

Joint programming of research in the field of nutrition, food and health would provide for coordination of research on the impact of diet and lifestyles on health, contributing significantly to the construction of a fully operational European Research Area on prevention of diet-related diseases and strengthening leadership and competitiveness of the research activities in this field.

The vision of the JPI on 'A healthy diet for a healthy life' is that in 2030 all Europeans will have the motivation, ability and opportunity to consume a healthy diet from a variety of foods, have healthy levels of physical activity and the incidence of diet-related diseases will have decreased significantly.

The following three key interacting research areas are proposed.

- Determinants of diet and physical activity: ensuring the healthy choice is the easy choice for consumers. The challenge is to understand the most effective ways of improving public health through interventions targeting dietary and physical activity behaviours.
- Diet and food production: developing high-quality, healthy, safe and sustainable food products. The challenge is to stimulate the European consumers to select foods that fit into a healthy diet and to stimulate the food industry to produce healthier foods in a sustainable way.
- Diet-related chronic diseases: preventing diet-related, chronic diseases and increasing the quality of life. The challenge is to prevent or delay the onset of diet-related chronic diseases by gaining a better understanding of the impact of nutrition and lifestyle across Europe on human health and diseases.

These areas will be supported by effective strategies for research, development and innovation activities and proposals for research infrastructures and underpinned by effective communication and dissemination to all stakeholders. Research in the areas of food, nutrition and health requires a coherent and structured approach. Individual European countries cannot do this individually because of the scale of the problem and the limited national resources to tackle these problems. For research on the relationship between diet and health in particular, large population studies and controlled trials are needed to have sufficient statistical power to demonstrate the influence of factors such as individual differences in genetic makeup and variable dietary patterns on health parameters.

Joint programming of this kind of research by the Member States has a high potential to deliver results that significantly improve public health and quality of life of consumers, and eventually to increase the innovation and competitiveness of the European Union.

INTRODUCTION

Diet and health

Health is the key driver for Europe's growth and prosperity². European governments are struggling with the growing social and economic consequences of the alarming increase in obesity and diet-related diseases, including malnutrition³ and micronutrient deficiencies. Diet and health are now key priorities for most EU Member States seeking to deal with increases in obesity and diet-related chronic diseases amongst their populations, including as part of the agenda to cope with an ageing population. Increased affluence and urbanisation is also linked to a lifestyle where our daily routine requires less physical activity and there is greater access to foods with higher energy densities. In 2008, across the 27 countries of the European Union, 59% of adult men and 48% of adult women were either overweight or obese⁴. There is growing evidence that, once established in the young, obesity continues into adult life with associated health-related problems, such as type 2 diabetes, cardiovascular diseases, hypertension, and a range of cancers. The increased prevalence of obesity, especially among children and low-income groups, may be indicative of a worsening trend of poor diet and low physical activity across the EU population. The prevalence of lifestyle-related diseases will have a negative impact on life expectancy, reduce the quality of life and lead to increased health costs⁵ unless approaches to alleviate such consequences are adopted by the EU population.

Better diets and increased physical activity will contribute to preventing or reducing the risk of illnesses and to reducing the high costs of health services. There are also many other health benefits associated with improving diets, including better development of bone and brain function, better intestinal health, less micronutrient deficiencies and improved dental health.

The European population and their food

Attempts to increase public awareness of the best way to eat more healthily have not led to major changes in patterns of food purchase and consumption. The environment we live in and food choices may be driving forces behind many less healthy eating habits and lack of physical activity. More attention must be given to finding ways to increase people's motivation, abilities and opportunities to make healthy choices⁶. To do this effectively, research is needed to discover why consumers make certain choices; what they understand about food; what type of information is lacking; how this information can best be presented; what factors prevent populations from choosing or accessing a healthy lifestyle; and what changes in the food and nutrition environment can 'nudge'⁷ us towards more healthy choices. Research has shown that knowledge is often not a direct determinant of eating behaviour: some nutrition knowledge appears to be necessary but an insufficient prerequisite for health behaviour changes⁹.

Food and drink industry

The food and drink⁸ industry is the largest manufacturing sector in Europe and is essential to Europe's wider economic development. It has a share of 1.9% in the total value added of the economy and 2.2% of the employment in 2003, often in rural areas⁹. Key assets of the EU food industry - including plant-, animal (meat and milk)- and marine (fish, shellfish and seaweed) production - are its cultural diversity, regional specialisation and long-standing tradition. The food and drink industry covers a market of more than 450 million people in the EU. The sector offers scope for economic growth, especially in the new EU Member States. A highly diverse range of foodstuffs is produced but these often involve methods based on craft techniques rather than industrial scale technology. To remain

² <http://www.kondratieffzyklen.de>

³ Stratton RJ. Malnutrition: another health inequality? Pennington lecture. Proc Nutr Soc 2007;66:522-529.

⁴ International Association for the study of Obesity (IASO). Overweight and obesity in the EU. <http://iof.org/database/documents/v2PDFforwebsiteEU27.pdf>

⁵ Commission recommendation of 28 April 2010 on the research Joint Programming Initiative 'A healthy diet for a healthy life'. Brussels, 28.04.2010. C(2010)2587 final and J European Union 1.5.2010 (2010/250/EU).

⁶ Brug J. Determinants of healthy eating: motivation, abilities and environmental opportunities. Family Practice 2008;25:i50-i55.

⁷ To nudge is to push into action gently.

⁸ In this document when food industry is mentioned, this refers to the food and drink industry, including plant-, animal- and fish production.

⁹ Wijnands JHM, van der Meulen BMJ, Poppe KJ (eds.) Competitiveness of the European food industry. An economic and legal assessment. Luxembourg: EC, 28 November 2007.

competitive, innovation is essential and the European food and drink industry, which is increasingly unable to compete on raw material costs alone, needs to add value to foods and create healthier, more convenient and sustainable products in a more resource-efficient way.

Consumers are also demanding assurance from food producers that ethical and ecological concerns are reflected in the food products they purchase and consume. While these factors exert pressure for change, another group of consumers demands affordable foods. This poses a great challenge to governments and the food and drink industry. New technologies and novel products need to be introduced while establishing and maintaining consumer acceptance and confidence. In addition, the health effects and promotion of key natural foods such as fruit and vegetables, whole grains, meat, dairy and marine, including fermented foods in the diet should also receive proper attention.

The European food industry recognises its role in contributing to reducing the prevalence of food-related diseases and reducing negative environmental impact. Research efforts in the food industry, however, have been rather fragmented and relatively small-scale, partly due to the atypical composition of the sector with its very many small and medium-sized enterprises (SMEs). There has also been to date a lack of co-ordination between research efforts in the primary production sectors and food-related research. Adopting a 'farm to fork' approach is an essential step in optimising the nutritional quality of foods. Neither the primary production sectors nor small SME food companies can invest in long-term or large-scale research and development (R&D). In particular, individual food companies are unable to take on the innovation challenge: therefore a joint and coordinated initiative is required. Effective partnerships built on public and private collaborations and funding are necessary to identify the most important research needs and to pool resources. Due consideration should also be given to laws and regulations and the protection of intellectual property arising from this research to ensure the small SMEs can derive benefits from its outputs thus fostering a strong culture of investment in R&D in this sector. This is addressed in the European Technology Platform Food for Life¹⁰.

Investing in research and a uniform European research community

If Europe is to achieve balanced and sustainable development, and economic growth, it not only needs to invest more in research, but also it must invest in better coordinated and harmonised research activities that identify gaps and overlaps in Member States and Associated and Candidate Countries and which improve the efficacy of the funds spent on research.

Table 1. Comparison of R&D indicators between EU, USA and Japan

| | EU-25 | USA | Japan |
|--|--------------|------------|--------------|
| Total R&D¹ | | | |
| Total R&D intensity (% of GDP), 2004 | 1.86 | 2.66 | 3.18 |
| Share of R&D financed by industry (%) ^(a) | 54.8 | 63.7 | 74.8 |
| Researchers (FTE) per thousand labour force ^(b) | 5.5 | 9.1 | 10.1 |
| Share of world scientific publications (%), 2003 | 38.3 | 31.1 | 9.6 |
| Food and drink industry^{2,3,4} | | | |
| No. of enterprises in food and drink industry, 2003 ^(c) | 282,087 | 27,897 | |
| Production value, M€ ^(c) | 785,244 | 482,977 | |
| No. of employees, million ^(c) | >4 | 1.5 | |
| R&D expenditure as % of production value ^(d) | 0.30 | 0.39 | 0.78 |
| R&D intensity food producers ³ | 1.9 | 0.7 | 2.3 |

Notes:

(a) EU-25: 2003; USA, JP: 2004. (b) EU-25: 2004; USA: 2002; JP: 2003. (c) EU-25: 2003; USA: 2002; EU-27 in 2008: 310,000 companies with turnover of € 965 billion. (d) OECD countries 2001; 1.89% for whole manufacturing sector; USA: 2002. 1 - Data: Eurostat, OECD. Source: DG Research. 2. Wijnands JHM, van der Meulen BMJ, Poppe KJ (eds.) Competitiveness of the European food industry. An economic and legal assessment. Luxembourg: EC, 28 November 2007. 2 - EC. Joint Research Centre, Directorate General Research. Monitoring industrial research. The EC industrial R&D investment Scoreboard. Luxembourg, December 2009. 3 - CIAA. Data and trends of the European food and drink industry 2009. Brussels: CIAA, March 2010.

¹⁰ www.etp.ciaa.eu

Our non-European partners – both traditional (US, Japan) and emerging (China, India, Brazil, etc.) – are launching large-scale targeted research programmes and actively collaborate with one another (see Table 1). Europe and its Member States need to develop a stronger and more coordinated and coherent response to these challenges and, where appropriate, to collaborate with international partners.

The way forward: Joint Programming Initiative

Joint Programming is working together to tackle common challenges more effectively, to achieve major breakthroughs in the areas of food, nutrition, diet and physical activity and to achieve tangible societal and health impact.

Europe's research landscape is still deeply compartmentalized. Today, 85% of public R&D is programmed, financed, monitored and evaluated at national level, with too little trans-national collaboration or coordination. Less than 6% of total R&D investment and only 15% of European publicly-funded civil R&D (of which 10% is accounted for by intergovernmental organisations and schemes, and 5% by the Framework Programme) is financed in a cross-border collaborative manner¹¹. Thus, one of the most obvious causes of sub-optimal returns from R&D has been insufficiently addressed, namely the lack of collaboration and coordination between national public R&D programmes.

Joint Programming is the process by which Member States engage on a variable-geometry basis in defining, developing and implementing a common strategic research agenda based on a common vision, of how to address major societal challenges that no individual Member State is capable of resolving independently.

By enhancing cooperation among those that develop and manage research programmes, Joint Programming (JP) aims to:

- increase the efficiency and impact of national public research funding in strategic areas;
- reinforce the capacity to transform research results into societal and economic benefits, notably through the innovative capacity of European industry as well as through educating consumers to better understand novel, healthier food products;
- contribute to the creation of the 'fifth freedom' by removing barriers to the free movement of knowledge.

The aim of JP is not that all research programming should be carried out in a collaborative manner and that purely national programming should be discontinued. National programming has its place in the European research landscape, especially where it addresses national needs and priorities, and where cooperation at the European level would not create advantages of significant scale and scope. The issue is rather that, in areas of strategic importance for the whole or a part of Europe, the fragmentation of public research programming leads to sub-optimal returns. This prevents Europe from realising its societal objectives:

- national research programmes may unnecessarily duplicate one another from a pan-European perspective and lack the required programme scope and depth;
- the multitude of national procedures complicates cross-border programmes and discourages internationally-oriented research actors from accessing research funding across borders;
- the lack of cross-border programme collaboration makes it difficult to address common challenges jointly, complicates the pooling of data and expertise scattered across Europe, prevents the building up of joint databases related to food, nutrition and health, hinders cross-border researcher mobility and training, and slows down the international dissemination of research results;

¹¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the committee of the Regions. Towards Joint Programming in research: Working together to tackle common challenges more effectively. Brussels, COM(2008) 468.

- crucially, it also hampers pan-European strategic research agenda-setting and horizontal policy coordination.

Joint Programming may involve strategic collaboration between existing national programmes or jointly planning and setting up entirely new ones. In both cases, it entails commitment from Member States and putting resources together, selecting or developing the most appropriate instrument(s), implementing, and collectively monitoring and reviewing progress. There is no need for all Member States to be involved in a specific initiative, but the partners must be able between them to provide the required critical mass of resources. Policies in many sectors – ranging from agriculture, food processing, manufacturing, retailing, catering and advertising to local, regional and national public health policies – shape the availability, accessibility and eventual consumption of food, and contribute to the motivation and ability of consumers to choose a healthy diet from a variety of sustainably produced foods. The challenge for policy-makers is to coordinate and integrate the various policies so that public health is given the proper priority by all sectors¹².

Within CREST (the EU Committee for Scientific and Technical Research), the High-Level Group on Joint Programming (GPC) identified and substantiated various themes for Joint Programming Initiatives (JPIs), one of which was 'Health, food and prevention of diet-related diseases', later named 'A healthy diet for a healthy life'. Making advances in food, nutrition and public health research will require close interactions between nutritional-, food, physical-, biomedical-, consumer- and social sciences. Research in sectors across the food and health care chains will require support from funding sources at national and international levels, and from the European Commission. Close cooperation is needed to ensure resources are targeted effectively and efficiently to societal and scientific challenges, without unnecessary duplication of effort or leaving gaps that would reduce opportunities for innovation. Where necessary, experience and best practices from outside Europe must be captured and, if necessary, adapted before being exploited across the continent.

¹² World Health Organization (WHO). Food and health in Europe: a new basis for action. WHO Regional Publications, European Series, No. 96. Denmark: WHO, 2004.

THE VISION

Vision

The vision of the JPI on 'A healthy diet for a healthy life' is that in 2030 all Europeans will have the motivation, ability and opportunity to consume a healthy diet from a variety of foods, have healthy levels of physical activity and the incidence of diet-related diseases will have decreased significantly.

Strategy

Joint programming will contribute significantly to the construction of a fully operational European Research Area on the prevention of diet-related diseases and strengthen leadership and competitiveness of the food industry by effectively integrating research in the food-, nutritional-, social- and health sciences to increase knowledge and deliver innovative, novel and improved concepts.

Strategic goal

To change dietary patterns based on developments in food-, nutritional-, social- and health sciences and to develop science-based recommendations and innovative product formats, that will, together with concomitant changes in physical activity, have a major impact on improving public health, increasing the quality of life and prolonging productive life.

Balanced diets and physical activity

A balanced diet and appropriate levels of physical activity are both key requirements for optimal mental and physical development and performance as well as for a reduction in the risk of chronic, non-communicable diseases. Moreover, their impact is exerted at all stages of human life, from the prenatal to the elderly.

The population of Europe is ageing - within EU Member States, the number of people over 80 years is estimated to increase by about 30% over the next 50 years. As the baby-boom generation retires, the EU's active population will start to shrink from 2013/2014 onwards. The number of people aged over 60 is now increasing twice as fast as it did before 2007 - by about two million every year compared to one million previously¹³. The combination of a smaller working population and a higher share of retired people will place additional strains on our health and welfare systems. For a variety of reasons, older adults are considered to be at increased risk of nutritional problems, either as a result of impaired food intake and physiological and behavioural changes, or reduced nutrient utilisation. It is expected that lifestyle-related diseases, including cardiovascular diseases, type 2 diabetes, high blood pressure, stroke and specific types of cancers, will increase rapidly in the next decades together with the costs related with such diseases. Diet-related diseases are unequally distributed throughout European populations, with higher prevalence in people from lower socio-economic positions.

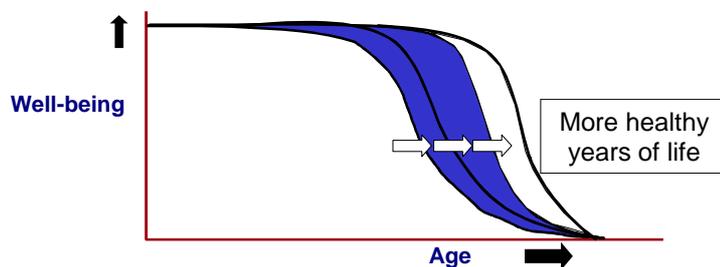


Figure 1. Healthy ageing: preventing or prolonging the onset of diseases will contribute to more healthy years and quality of life

¹³ Communication from the Commission. Europe 2020. A European strategy for smart, sustainable and inclusive growth. Brussels, 3.3.2010. COM(2010)2020.

European public health policies and research are focusing on healthy ageing, not only on increasing the chance of living for more years but also in delaying deterioration in health status¹⁴. The long-term challenge is to provide foods and promote diets to assist people to live a healthy and active life, thus preventing and postponing the onset of diet-related diseases, thereby increasing the number of healthy life years - adding 'life to years' (Figure 1). Proportionately very little money is spent on the prevention of these diseases. Emphasis should be placed on preventing these diseases by delaying the initiation process; that is, preventing rather than treating.

In order to effectively reduce the incidence of these chronic diseases it is imperative that we begin to understand how an imbalance of key factors and para-mechanisms results in the development of a chronic disease within an individual (Figure 2). Only through this process will we begin to understand, for example, how diseases such as cardiovascular diseases (CVD) and type 2 diabetes develop as a result of poor nutrition and lifestyle choices and identify which para-mechanisms (metabolic, genetic, immune) propagate the disease state. A nutrition and physical activity strategy, therefore, aims to promote health and prevent nutrition deficiencies, inactivity and chronic diseases, such as cardiovascular diseases and cancer. It works to ensure optimal health and cognition, especially in population groups with a lower socio-economic status (including immigrant communities and ethnic minorities) and during critical periods throughout life, such as pregnancy, lactation, infancy, childhood and older age.

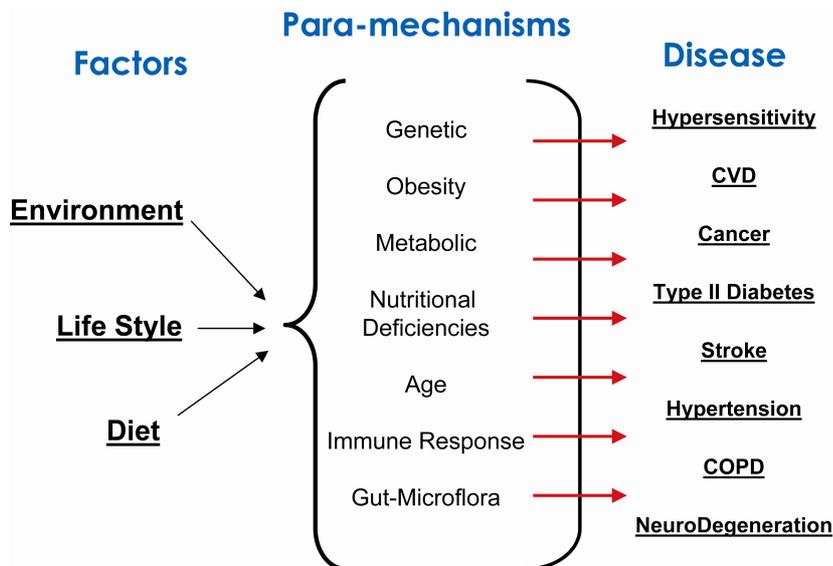


Figure 2. Factors and para-mechanisms involved in the development of chronic diseases

Inputs are also required from the consumer sciences and humanities, particularly in relation to changing food habits, healthier eating and increasing physical activity. More insight in how to shape the physical and social-cultural food environment can facilitate people in making healthy food choices. Often choices are automatic responses to environmental cues. Socio-economic status can be a factor in determining behaviour¹⁵, but more work is needed to understand this interrelationship. Work is also needed to understand the development of food preferences and food habits from birth and during childhood. Scientists, in collaboration with public health organisations, food and nutrition experts and

¹⁴ For example, DIOGENES, <http://www.diogenes-eu.org>; GUTIMPACT, <http://www.gutimpact.net/everyone>; NUTRIDENT, <http://www.ucl.ac.uk/eastman/nutrient/index.php>; LIPGENE, www.ucd.ie/lipgene; Seahealth, <http://www.sea-health.org>.

¹⁵ Thaler RH, Sunstein CR. Nudge. Improving decisions about health, wealth and happiness. Yale University Press, 24 March 2008. 304 p.

the food industry will have to find new ways of influencing dietary and physical activity habits and introducing tasty, convenient, readily available, culturally-appropriate and affordable foods that contribute to a healthy lifestyle.

There is a major opportunity to develop foods that meet the needs of specific population groups but vital research is needed to gain greater insight and understanding of the mechanisms underlying the effects of food intake on health. Better insights into such mechanisms will be provided with the application of new and advanced technologies now available. Improved understanding of such mechanisms is also required to substantiate health claims and protect consumers from false claims.

Consumers want clear and trustworthy messages and, in turn, the media and politicians are expected to convey complex issues in a simple and direct way. Improved communication is needed and an environment of trust and mutual confidence must be established. While efforts continue to make food as safe as possible, consumers should understand that their food, like all human activity, poses a balance between benefit and risk.

The burden of disease and the importance of diet and physical activity

Poor diet, lifestyle choices and obesity are implicated as key determinants for many chronic diseases including metabolic disorders, heart disease, stroke, some cancers, chronic respiratory diseases and diabetes. This group of non-communicable diseases alone accounts for almost 60% of all the deaths worldwide on an annual basis. If no positive action is taken it is expected that diet- and lifestyle-related diseases will increase rapidly in the next decade having a negative social and economic impact for many Member States. Health care costs are set to increase dramatically, absenteeism from work due to illness set to increase and the life expectancy of many individuals and their time in the work place much reduced. In addition to the medical and economic impact of diet-related chronic diseases there are heavy psychological burdens associated with obesity. The social stigma of obesity often causes those who are obese to become reclusive leading to social alienation, dangerous levels of anxiety and chronic depression.

For example, a diet high in saturated- and trans fats and energy-dense foods and low in fruit and vegetables, along with a sedentary lifestyle and smoking, are the major cause of cardiovascular diseases (CVD), cancer and obesity. CVD and cancer are the top two causes of death in Europe and obesity is the second main cause, after smoking, of developing cancer. The cost of CVD to the EU economy is estimated at €192 billion per year. This figure is all the more staggering when compared to the 2008 EU budget of €129.1 billion. Of the total cost of CVD in the EU, 57% is due to direct health care cost, 21% to productivity losses and 22% to the informal care of people with CVD¹⁶. It has been projected that by 2020 chronic diet-related diseases will account for almost three-quarters of all deaths worldwide¹⁷. There is evidence that improved lifestyles can reduce the risk of type 2 diabetes by 58% over four years. Population studies have shown that up to 80% of cases of coronary heart disease and up to 90% of cases of type 2 diabetes, could potentially be avoided through changing lifestyle factors, and that about one-third of cancers could be avoided by eating healthily, maintaining normal weight and regularly exercising¹⁴.

The incidence of childhood obesity globally is of epidemic proportions with the prevalence continuing to increase at an alarming rate. Globally, in 2010 the number of overweight children under the age of five is estimated to be over 42 million with some 35 million of these living in developing countries. What is more worrying is that evidence is now being presented that overweight and obese children are likely to stay obese into adulthood and more likely to develop diet-related chronic diseases at a much younger age. Cost-effective measures to improve citizens' state of health will deliver social and economic benefits for society and improvements in future productivity and competitiveness.

Physical activity is seen as an equally important key modifiable factor, which contributes to risk of obesity and associated diseases. The well-known anecdote that we now do far less physical activity than our agrarian ancestors has recently been demonstrated to be correct, using Amish and other non-

¹⁶ Allender S, Scarborough P, Peto V, Rayner M, Leal J, Luengo-Fernandez R, Gray A. European Cardiovascular Disease Statistics 2008 edition. European Heart Network, 2008.

¹⁷ WHO/FAO. WHO/FAO Expert Consultation on Diet, nutrition and the prevention of chronic diseases. WHO Technical report Series, No. 916. Geneva: WHO, 2003.

mechanised populations to demonstrate a substantial deficit in physical activity levels in developed society¹⁸. This work was made possible by the development of technology to objectively record energy expenditure over periods of days and weeks. A wealth of new technology is available to accurately quantify physical activity, including accelerometry, combined sensor systems, portable gas analysis systems and doubly labelled water measurement using isotope-ratio mass spectroscopy. Initial powerful studies employing such technology have shown that US population physical activity levels are significantly lower than was shown by previous qualitative research¹⁹, and it is likely that this is also true across Europe. Furthermore, sedentary behaviour is beginning to be seen as a separate important risk factor; it appears that being sedentary for large periods of the day may carry a separate risk that is not prevented by short periods of activity²⁰. There is a need to quantify physical activity and sedentary behaviour with research on dietary intake to gain full insight into energy balance and obesity in European populations.

JPI in the field of nutrition and health

Joint programming of research in the field of nutrition, food and health would provide for coordination of research on the impact of diet and lifestyles on health, contributing significantly to the construction of a fully operational European Research Area on prevention of diet-related diseases and strengthening leadership and competitiveness of the research activities in this field²¹. Most of the Member States already require elements of their respective health agencies to promote health through a well-balanced diet, the avoidance of nutritional deficiencies, the control of food-borne diseases and the promotion of physical activity. However, an integrated multisectoral approach, embracing education, health care, agriculture, the environment, the food and drink industry, transport, advertising and commerce is essential to position food, nutrition and related public health policy and evidence from research sufficiently high on the political agenda to ensure the combined effort translates into real health improvements.

Figure 3 shows the activities and research areas required to reach the vision of the JPI 'A healthy diet for a healthy life'. The individual plays a central role and we should, therefore, understand more fully how the healthy choice could be translated into the easy choice.

On 4 March 2010, the JPI Management Board met in The Hague, the Netherlands, to discuss the JPI on 'A healthy diet for a healthy life'. The following three key interacting research areas were proposed.

Determinants of diet and physical activity: ensuring the healthy choice is the easy choice for consumers

This research is to understand the most effective ways of improving public health through interventions targeting diet and physical health. Research would include studies, which aim to improve understanding of, and effectively modify the impact of, individual, social, economic, cultural, biological and other factors, which affect dietary and physical activity behaviour.

Diet and food production: developing high-quality, healthy, safe and sustainable food products

The food industry is faced with the challenge of producing tasty foods that are consistent with health status and lifestyle, and which meet consumer preferences and thus ensuring repeated purchase. This requires research to develop new food products and to improve production processing, packaging and proper food chain management. New food products have to comply with nutritional, energetic and safety needs of the consumer. This requires research to identify key bioactive components in foods and mechanisms to optimise the level of such bioactive components. Therefore, it is essential to obtain in-depth knowledge of the nutritional and functional characteristics of foods and diets. This knowledge is also important for improved risk assessments.

¹⁸ Eslinger DW, Tremblay MS, Copeland JL, Barnes JD, Huntington GE, Bassett DR Jr. Physical activity profile of Old Order Amish, Mennonite and contemporary children. *Med Sci Sports Exerc* 2010;42:296-303.

¹⁹ Troiano RP, Berrigan D, Dodd KW, Mâsse LC, Tilert T, McDowell M. Physical activity in the United States measured by accelerometer. *Med Sci Sports Exerc* 2008;40:181-188.

²⁰ Owen N, Healy GN, Matthews CE, Dunstan DW. Too much sitting: the population health science of sedentary behavior. *Exerc Sport Sci Rev* 2010;38:105-113.

²¹ Commission staff working document. Research Joint Programming Initiative on 'A healthy diet for a healthy life': motivations and state of play of research at European level. Brussels, 28.4.2010. SEC(2010)480 final.

An additional challenge is to develop innovative products and processes in a cost-effective and sustainable way. Foods must originate from systems that produce, process, store, package, supply foods in a sustainable way²².

JPI - A healthy diet for a healthy life

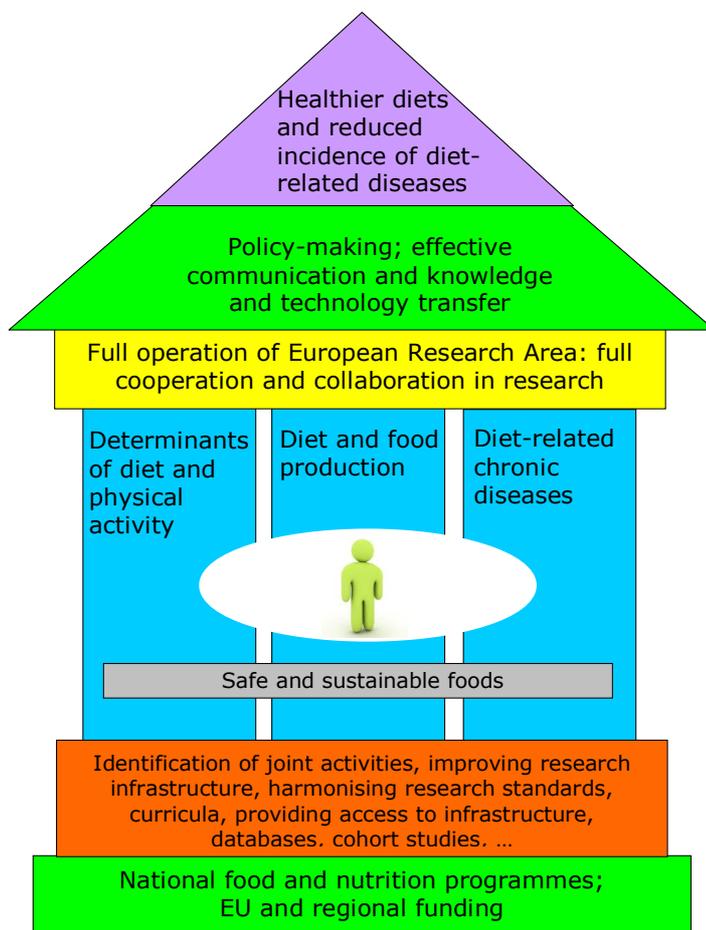


Figure 3. Schematic presentation of the activities and research areas required to reach the vision of the JPI 'A healthy diet for a healthy life'

Diet-related chronic diseases: preventing diet-related chronic diseases and increasing the quality of life - delivering a healthier diet

Effective nutrition and lifestyle-based strategies are needed to optimise human health and to reduce the risk, or delay the onset, of diet-related diseases. These strategies require, for example, research efforts in the following areas: diet and metabolic function (obesity and associated metabolic disorders); mechanisms of obesity and associated diseases; maternal and infant nutrition; neuroscience and obesity; osteoporosis and malnutrition in the older population; allergies; micronutrient deficiencies and cognitive development and decline. The gastro-intestinal tract is the key interface between food and the body and the impact of food on the gastro-intestinal activity and its indigenous microbiota and related health status needs to be fully elucidated.

²² A call for an ERA-NET on Sustainable food production and consumption will be launched by the EC begin 2011.

These areas will be supported by effective strategies for research activities and proposals for research infrastructures. Research in the areas of food, nutrition and health requires a coherent and structured approach. Individual European countries cannot do this individually because of the scale of the problem and the limited national resources to tackle these problems. For research on the relationship between diet and health in particular, large population studies and controlled trials are needed to have sufficient statistical power to demonstrate the influence of factors such as individual differences in genetic makeup and variable dietary patterns on health parameters. Large-scale studies with several participant countries are also needed to get more insight on health policies and their effects. Europe, with its wide variation in diets based on cultural differences, lifestyles and genetic background, is in a much better position than, for instance, USA to disentangle the different factors in the relation between diet, lifestyle and health. However, this will only be possible when large European studies are carried out in a standardised manner.

Finally, in delivering the anticipated benefits in an effective and timely manner, the research must be underpinned by effective communication and dissemination to all stakeholders.

Joint programming of this kind of research by the Member States has a high potential to deliver results that significantly improve public health and quality of life of consumers, and eventually to increase the innovation and competitiveness of the European Union.

The benefits of Joint Programming

Joint Programming will benefit Member States, European Research Programme managers, Europe's scientists, food industry and consumers, because it will:

- make it easier to address common challenges together, to develop common solutions and to speak with one voice in the international arena on food and nutrition policy;
- develop suitable methodologies and research protocols and standards;
- help overcome barriers to entry, such as high start-up and operating costs in certain science and technology fields;
- optimise the scope of research programmes across Europe, to eliminate wasteful cross-European programme duplication and increase programme depth;
- promote scientific excellence through joint calls with common funding;
- support cross-border collaboration and facilitate the pooling of data (preferably collected in a uniform and standardised way) and expertise scattered across several countries or throughout Europe as a whole, so as to enable the rapid dissemination of research results, promote cross-border mobility and training of human resources and increase the scientific, technological and innovative impacts of every euro invested in public research;
- help strengthen coordination with other related policies by virtue of greater programme visibility and enable cross-border policy learning;
- use public resources more efficiently and effectively by reducing programme management costs and improving the accountability and transparency of public research programmes;
- lead to improved and standardised nutrition- and health-related statistics and evidence needed for policy-makers to base their decisions on.

ACHIEVING THE VISION

Determinants of diet and physical activity

The challenge is to understand the most effective ways of improving public health through interventions targeting dietary and physical activity behaviours. In 2030, all European consumers will have the motivation, ability and opportunity to choose a healthy lifestyle.

It is of paramount importance to address people's needs, to understand how the healthy choice could be made the easy choice and to act on this knowledge. To meet this challenge, research is needed to increase the understanding of health-impacting behaviour with respect to making food choices and engaging in physical activity, to create insight in how the social and physical environment influence this behaviour and to raise consumer understanding of healthy foods and healthy diets. The European consumer population embraces diverse ethnic groups and immigrant populations, whose eating habits and diets may vary considerably and are currently only relatively poorly examined. The variety of foods and drinks consumed across Europe provides a major opportunity to study the relationship between food intake and health.

Research could include:

- Studies which aim to improve understanding of how individual, social, economic, cultural, gender and environmental factors affect dietary and physical activity behaviours.
- Evaluating the impact of complex interventions, including individual, community, population, multi- and macro-level interventions.
- Developing innovative research methodologies for designing and evaluating intervention studies.
- Understanding determinants of food consumption and physical activity:
 - Mapping the dietary and physical activity habits and their determinants of population groups, including those with low physical activity as well as groups with a low socio-economic status and ethnic minorities and ageing population groups in Europe; effectively translating this into health enhancing interventions;
 - Understanding of habit formation and change throughout the life cycle and amongst different groups;
 - Understanding the biological basis of nutritional behaviour and food choice;
 - Research into the elucidation of specific taste anosmias and their effect on food choice for specific groups (elderly, young, ethnic groups);
 - Research into non-conscious decision-making and automatism in food choice, dietary and physical activity behaviour;
 - Understanding the influence of the fast-growing food service sector;
 - Understanding the determinants of consumer perceptions, consumer acceptance of food technologies and physical activity strategies, and how this varies between population groups;
 - Understanding the mechanisms underlying taste-memory formation.
- Understanding how food and related physical activity environments, i.e. availability and accessibility of foods, influence food choices and dietary habits.
 - Understanding how socio-cultural determinants influence food choice, dietary habits and physical activity, including parenting and parental influences of food choices in their offspring;
 - Understanding if and how food labelling, packaging and logos can promote healthier food choices¹;
 - Understanding how the promotion of physical activity interacts to modify food choices, influence role models of healthy physical activity in promoting healthy food choices;
 - Investigating how to ensure that commercial provision of food products is aligned with dietary and physical activity guidelines;
 - Analysing the role of economic incentives in promoting healthy dietary choices and physical activity and how this differs between specific target groups (e.g. low income consumers, consumers with low physical activity).
- Research into novel and effective healthy diet and lifestyle promotion interventions and policies.

- Designing, implementing and evaluating new ways to effectively communicate and target information on healthy diets and related physical activity strategies at various population groups with different information needs, including minority ethnic populations and those most at risk. This research should be conducted in controlled settings as well as in real life situations (that does not separate diet and physical activity) where citizens are exposed to conflicting messages;
- Investigating appropriate (social) marketing strategies that contribute to healthier diets and related physical activity strategies;
- Designing, implementing and evaluating interventions and strategies to effectively promote healthy dietary and physical activity habits in early life, including (pre)pregnancy, foetal and infant nutrition;
- Developing, implementing and evaluating more comprehensive pre-school and school nutrition policies and related physical activity strategies; healthy options in canteens; fruit and vegetable distribution schemes, nutrition-friendly school initiatives; training school staff;
- Identifying target groups for community-based interventions, based around consumers with low knowledge of food and nutrition (i.e. beyond the school);
- Developing individually tailored interventions and interactive communication channels to promote healthy dietary and lifestyle habits;
- Controlling portion sizes, eating at home versus eating out.
- Research into transferring effective interventions into sustainable implementation through health promotion strategies; understanding how to integrate findings with non-health policies.

Diet and food production

The challenge is to stimulate the European consumers to select foods that fit into a healthy diet and to stimulate the food industry to produce healthier foods in a sustainable way. In 2030, European consumers will have a good choice of healthy foods to choose from: the healthy choice has become the easy choice.

The concept of food quality has changed over the years. From a strong emphasis on safety, foods nowadays are also expected to taste good, be affordable, easy to prepare and contribute to enjoyment and well-being. Changes in society and demographic trends, such as smaller household sizes, an ageing society, and increases in proportion and integration of ethnic groups in many EU Member States, will have an impact in the choice of foods, the ways in which foods will be prepared and the places of consumption. There is a clear movement away from domestic to out-of-home consumption. Traditionally, nutrition goals have been set at the average population level. However, new research is increasingly showing that the risks, benefits and nutritional requirements may vary between different population groups and even between individuals (nutrigenomics). Better understanding of these requirements is necessary so that dietary advice could be more focused on the needs of particular consumer groups and could even lead to development of specialised food products and services for specific groups of consumers ('personalised nutrition', functional foods, food supplements). These needs, but also special nutritional needs for young age groups, are strong drivers for the food and drink industry to produce innovative products that fulfil these needs.

Research could include:

- Research on eating habits and differences on national and regional levels.
 - Collecting standardised statistics and trends on food intake and food choice behaviour across Europe;
 - Elucidating particular health benefits of regional foods or food ingredients and approaches to make available such benefits to the wider European population.
- Research on how the entire meal, food and food components effect the consumers health.
 - Identifying the effect of novel foods, food supplements, enriched foods and reformulated foods on dietary patterns;
 - Understanding the role of the meal as a whole on health and well-being;
 - Elucidating the mechanism of action of specific health promoting or demoting components in foods in order to support evidence based health claims;
 - Understanding the dynamics of sensory perception from receptor to brain, including cross-modal interactions of the senses, flavour release and structure breakdown;

- Understanding the relationship between sensory properties of food and satiety;
- Understanding the development of dependency for some foods or food components or additives;
- Understanding the physiological effects of each nutrient including its bioavailability and mechanism of action;
- Identifying novel allergens and intolerances in foods that may hamper the selection of healthy diets.
- Research on how the properties of the raw material in the primary food production effect the health status of the final product.
 - Optimising levels of nutritionally beneficial components at primary production level and carrying over these benefits into the final food product;
 - Identifying specific bioactive components in foods and raw materials such as food production waste streams and non-traditional EU food groups such as macroalgae and microalgae.
- Research on how processing has to be performed to maintain healthy properties of raw material.
 - Developing technologies to improve nutritional profiles of food aiming to reduce e.g. high sugar, salt and saturated fat levels and to increase fibre and other positive compounds (functional foods, functional ingredients) in food products that are deficient in the normal diet without compromising sensory properties;
 - Developing technologies to optimise the level of bioactive components in food, in consumer acceptable approaches, during production and processing;
 - Developing technologies to create novel, food product textures based on the concept of dynamic structuring and breakdown;
 - Developing technologies to minimize and utilise by-products and waste production from food processing and preparation;
 - Developing rapid analytical on-line methods to measure required properties of supplied raw materials and products;
 - Sustained attention to competitive high quality and low cost processing hygiene of processing environment, microbial quality and food safety;
 - Improving integrated product and process design;
 - Improving bioprocessing and separation technologies for novel ingredients;
 - Understanding how the methods for preservation, processing and preparation affect the content of nutrients and the functionality of the product;
 - Identifying processing methods that may strengthen or reduce the allergenic potential of some foods.
- Research on how the food has to be packed, stored, distributed and presented to the customers to maintain the healthy properties after the processing step.
 - Developing technologies for flexible packaging process systems and active, intelligent and convenient packaging systems;
 - Developing technologies for convenience foods: easy to handle, time-saving, easy-to-eat and heat-to-eat.
- Research on tailor-made products for specific groups of customers.
 - Developing technologies for new products and meal concepts with attractive sensory characteristics for specific groups such as children and the elderly;
 - Developing technologies for flexible, distributed and miniaturised processing systems to cope with personal demands as well as hygienic and minimal processing systems for optimal quality.
- Research on how consumers select foods and how healthy food is introduced to the market.
 - Analysing the cost make-up of various foods as well as reasons for the higher cost of healthy food is required to enable development of cheaper healthy food options;
 - Research on consumer acceptance of products derived from novel ingredients/processes needs to be considered and the communication strategies to convey the implications of such new technology approaches to the consumer;
 - Research on marketing and introduction of healthy food products.

Diet-related chronic diseases

The challenge is to prevent or delay the onset of diet-related chronic diseases by gaining a better understanding of the impact of nutrition and lifestyle across Europe on human health and diseases. In 2030, the incidence of diet-related diseases will have decreased significantly and will continue to decline thereafter.

Scientific research provides evidence that inexpensive and cost-effective treatments would significantly reduce the number of non-communicable diseases, with strong evidence supporting the proposal that a healthy diet and sufficient physical activity would significantly prevent the development of many of these diseases. Therefore, to maximise the impact of this JPI it is essential that the major non-communicable diseases that account for the majority of the deaths worldwide be the primary targets for strategic prevention, detection and intervention. Much of the research below will be intricately linked with that of the other challenges.

Research could include:

- Actively preventing the development of chronic disorders by implementing programmes that increase the availability of nutritional food products, and promote healthy lifestyles and increased physical activity in those sectors of the European population deemed most at risk.
 - Public health research on behavioural change of populations in the area of diet and physical activity. Evaluating their impact on preventing risk factors and their associated chronic diseases;
 - Reducing birth defects, by promoting maternal health, pregnancy planning and nutritional intake;
 - New and effective strategies in lifestyle and diet to optimise: children's growth and mental development; lean body mass in adults and the older population, healthy gastro-intestinal tract, resistance to diseases and regulation of body weight including appetite;
 - Effects of implementing positive policy in schools and the work place on physical activity and provision of nutritious foods.
 - Revising national marketing and advertising policy within each Member State.
- In order to more effectively intervene it is critical that we can detect the development of the diseases as early as possible through a detailed understanding of how each factor and para-mechanism influence disease development.
 - Elucidating the key signalling pathways and mechanisms that are the underlying factors for propagating the major diet-related chronic diseases, in particular inflammatory responses, hypersensitivity of the immune system;
 - Applying nutrigenomics technologies and other -omics technologies in nutrition and health studies;
 - Validating early biomarkers for chronic diseases.
- As the obese children of today are the obese adults of tomorrow, the prevalence of many chronic diseases may rise dramatically before any noticeable recovery is noted, therefore, there is an absolute need to understand the development of many of these chronic diseases in order to effectively intervene and improve the life expectancy and quality.
 - Analysing physical activity and nutrition on cardiovascular diseases, obesity-related cancers, muscular/skeletal health, immune function and mental health (cognitive performance, mood and vitality, reaction to stress, changes in memory and other mental processing during aging);
 - Studying low-grade inflammation, metabolic and oxidative stressors, as an underlying mechanism for many chronic diseases;
 - Examining the influence of diet on cognition and mood;
 - Understanding the impact of diet and level of physical activity on gut microbiota and relationships between this and health status.

Added value and required infrastructure

To achieve the vision, projects need to be designed for multidisciplinary teams to address the multifaceted problems. Properly designed studies with sufficient power and reproducibility, using validated laboratories can establish both the causes and the solutions to, for example, specific deficiencies. Studies need to be designed to be reproduced in other EU countries with identical protocols and ideally one or two expert laboratories are carrying out all of the analytical work. Multi-centre studies can take into account geographic differences and ethnic and genomic issues.

The EPIC cohort with more than 500,000 participants is a good example of European initiative to study the relationship between diet and cancer. New large cohorts are needed to complement these findings in other areas, or to confirm the findings of this single large European cohort. Also randomly controlled dietary intervention studies and behaviour-change intervention studies are necessary to obtain the

required knowledge to achieve the vision. This will need to be long-term and should be seen as part of an overall European continuous food and nutrition research infrastructure. There is an acute need for well-controlled human intervention studies to assure consumers of the efficacy, and indeed the food industry that wish to make specific health claims, of the health benefits associated with specific foods or food ingredients and how they fit into a healthy diet. Europe should share the costs and the benefits to establish and maintain effective cohorts across Europe to study determinants of and changes in food consumption, dietary habits and physical activity patterns. Behavioural change intervention studies are needed to test in behavioural laboratories and real-life circumstances the immediate and longer-term effects of novel strategies to induce healthier food and dietary choices and physical behaviour.

Horizontal issues: Communication, knowledge and technology transfer

The impact of the JPI 'A healthy diet for a healthy life' will, to a large degree, depend on the effectiveness of the communication strategies developed and the exploitation of the outcomes of research programmes. Best practices in communication and the exploitation of innovative communication techniques will be promoted and supported. Transfer of knowledge and technology is the driver for innovation and is a key focus for improvement.

Effective communication and knowledge and technology transfer are key to the success of the JPI. Within the overall context of this JPI, communication is important among its themes, within the management and administration structures and with and between individual stakeholders communities. Transfer of technology and knowledge to all stakeholders whilst ensuring IP protection, are necessary tools for establishing the link between research results and their application. A relationship of trust and mutual confidence between individuals and organisations is a prerequisite for successful knowledge and technology transfer.

In addition to being a key requirement of effective management and administration, communication is important to optimise interactions between themes, to enable stakeholders to gain the maximum benefit from ongoing activities and to ensure that policymakers, opinion formers and the general public are regularly updated. It is essential to understand that the effective communication of food-related issues depends on designing different patterns of communication aimed at capturing the diverse sensitivities and priorities of stakeholders involved in the knowledge process. Validated strategies will be adopted to ensure optimal impact across the members of the food chain and the general public.

Making the JPI operational

To make the JP operational, the vision needs to be translated into a strategic research agenda (SRA) entailing specific, measurable, achievable, realistic and time-based (SMART) medium- to long-term research needs and objectives in the area of prevention of diet-related diseases. It will identify potential research topics with an increased chance of success for short-term implementation in the JPI. The SRA will also provide an overview of existing programmes and competences across Europe (and beyond). The SRA will contain an implementation plan establishing priorities and timelines and specifying the actions, instruments and resources required for implementation of the SRA. Following the drafting of the SRA, the SRA must be implemented. This entails that all participating public authorities orient their programmes and funding to contribute in a coherent manner to the implementation of the SRA. The full toolbox of public research instruments will be explored and used to implement the individual initiatives.

To make this JPI fully operational, the following actions will be undertaken^{23,24}:

- identifying and exchanging information on relevant national programmes and research activities, in addition to the mapped research activities as mapped by the EU-funded project FAHRE;
- identifying areas or research activities that would benefit from coordination or joint calls for proposals or pooling of resources;

²³ Commission staff working document. Research Joint Programming Initiative on 'A healthy diet for a healthy life': motivations and state of play of research at European level. Brussels, 28.4.2010. SEC(2010)480 final.

²⁴ Council of the European Union, Presidency text. Draft Council conclusions on the launching of joint programming initiatives on 'Agriculture, food security and climate change', 'Cultural heritage and global change: a new challenge for Europe', and 'A healthy diet for a healthy life'. Brussels, 8 June 2010. 10795/10.

- exchanging information, resources, best practices, methods and guidelines, particularly while establishing large cohorts and clinical studies;
- defining the procedure, including criteria for relevance and quality, for research to be undertaken jointly;
- sharing, where appropriate, existing research infrastructure or developing new facilities such as coordinated databases, biobanks or models for data extrapolation to humans;
- exporting and disseminating knowledge, innovation and interdisciplinary approaches and ensuring the effective use of research outputs to enhance European competitiveness and policy making;
- encouraging and supporting closer collaboration between the public and private sectors, together with open innovation between different business sectors;
- creating networks between existing centres specialising particularly in behavioural- and consumer science, nutrition, biological and chemical characterisation of bio-functional food components and processing technologies.

Activities could include the following.

- Defining framework conditions and setting up a common research infrastructure including databases on large existing, and future, European nutrition related cohort studies, biobanks, food tables, food intake surveys, nutrition phenotype databases, and make them publicly available for research purposes.
- Foresight and scenario studies to give realistic targets to policy-makers in the area of food, nutrition and health and to identify indicators for success. For example, in the UK a foresight study on obesity has been carried out.
- Ensuring cooperation and collaboration in Europe where appropriate.
- Developing of networks of nutrition and food technology institutes to improve standardisation and harmonisation of research activities; setting up a competence database.
- Developing and agreeing on a number of shared principles, standard protocols for research and procedures for peer review.
- Making an inventory of existing national and large regional dietary/lifestyle intervention studies and cross-sectional dietary surveys.
- Establishing a European Institute for Food and Nutrition.
- Development of a European academy/network of food entrepreneurship.
- Development of European curricula on nutrition and food technology for all study levels.
- Development of common methodologies for joint evaluation of national or regional programmes or investments in specific areas of research.
- Defining common principles for cross-border funding of research by national or regional authorities.
- Ensuring effective measures for the protection of Intellectual Property Rights.
- Facilitating the dissemination and optimal use of research outputs.
- Establishing databases for communication and knowledge and technology transfer.
- Stimulating/forming networks of nutrition and food technology research institutes for harmonised and effective collaboration;
- Ensuring scientific recognition;
- Facilitating personal exchange between research institutes.

Furthermore, the following activities must be addressed.

- Clustering and networking with other initiatives: platforms, networks, and projects; building networks with the health and technology sectors and optimising clustering in the knowledge and innovation chain.
- Providing a network for informing food-related policy makers in industry and at regional, national and EU level.
- Establishing a horizontal link between thematic areas.
- Developing an effective dialogue with society.
- Disseminating new findings and research results to a broad and interested public.
- Identifying and transferring relevant best practices at all levels.
- Stimulating and promoting entrepreneurial activities.

- Integrating R&D and industrial partners in training and knowledge and technology transfer, thus connecting science to industry and emphasising the importance of all partners in the food innovation chain.
- Strengthening and improving schemes to support trans-sectoral mobility of R&D staff with special attention for mobility involving new Member States.

Other European initiatives on food and health

European initiatives on food and health include:

- The European Commission established an Expert Group on Food and Health Research in 2008 to share current practice on integration or coordination of research programmes on food and health.
- In May 2007, The EC adopted the White Paper 'A strategy on nutrition, overweight and obesity-related health issues' focusing on action that can be taken to reduce the risks associated with poor nutrition and limited physical exercise.
- The EU Platform on Diet, Physical Activity and Health was set up in March 2005 to provide a forum for stakeholders at European level, whereas the High-Level Group on Nutrition and Physical Activity strengthens the role of governments in counteracting overweight and obesity.
- EFSA has proposed the EU Menu project, which was supported by almost all Member States. This project aims at collecting comparable food consumption data in all European countries.
- The European Food Information Council (EUFIC) is a non-profit organisation, which provides science-based information on food safety & quality and health & nutrition to the media, health and nutrition professionals, educators and opinion leaders, in a way that consumers can understand. In response to the public's increasing need for credible, science-based information on the nutritional quality and safety of foods, EUFIC's mission is to enhance the public's understanding of such issues and to raise consumers' awareness of the active role they play in safe food handling and choosing a well-balanced and healthy diet (www.eufic.org).
- In 2005 the ETP Food for Life was launched.
- In the area of food, the ERA-NET SAFEFOODERA has issued two calls for research projects. An ERA-NET SUSFOOD will be launched soon.
- Collaboration with other JPis, including FACCE (Agriculture, food security and climate change), Alzheimer and neurodegenerative diseases.
- Green Paper Promoting Healthy Diets and Physical Activity (2005). The paper recognises that unhealthy diets and lack of physical activity are the leading causes of avoidable illness and premature death in Europe, and that the rising incidence of obesity is a major public health concern for the countries of the European Union. The Council called on the Member States and the Commission to devise and implement initiatives aimed at promoting healthy diets and physical activity. It accordingly called for the development of strategies entailing a multi-stakeholder approach with action being taken at local, regional, national and European levels. The aim is to gather information with a view to giving a European dimension to the battle against obesity, in terms of support for and coordination of the existing national measures.
- WHO European Charter on Counteracting Obesity, 2006. The WHO European Ministerial Conference stated that obesity is a global public health problem and acknowledging the role that European action can play in setting an example and thereby mobilising global efforts. Recommended to continue to be focused on preventing obesity in people who are already overweight and thus at high risk, and on treating the disease of obesity as well as to introduce timely identification and management of overweight and obesity in primary care, provision of training for health professionals in the prevention of obesity issuing clinical guidance for screening and treatment.
- European Parliament Resolution on the Commission's Green Paper, 2007. Through this Resolution the Commission reinforced the messages and intended to trigger debate on initiatives geared towards preventing obesity.
- WHO European Action Plan for Food and Nutrition Policy 2007-2012. The WHO sets out practical steps for governments especially related to progress in reversing overweight and obesity in children and obesity that should be achievable in most countries in the next 4-5 years reversing the trend by 2015 at the latest.
- High Level Group on Nutrition, 2007. High-level national civil servants from Member States share best practices to facilitate effective exchange of policy ideas and practices between Member States and to improve liaison between the EU Platform for Action on Diet, Physical Activity and Health and

representatives of national governments, enabling relevant public-private partnership possibilities to be quickly identified and agreed upon.

- European Parliament Resolution on the Commission's White Paper, 2008. Call on the Commission to promote best medical practices and studies comparing and evaluating the effectiveness of different interventions, including psychosocial research.
- Progress Report on the EU strategy, 2010. The European Commission will assess in 2010 the various measures taken by industry and determine whether other approaches are also required following an internal political evaluation within the Directorate General for Health and Consumer Protection (SANCO).

European programmes and projects on food and health include:

- The EU-funded project FAHRE will map key players in the food and health sector in Europe by the end of 2010. It will also identify gaps in and overlaps between research needs and give advice for achieving better coordination.
- Other relevant, present and former, Framework Programmes including NuGO (European Nutrigenomics Organisation), LIPGENE, DIOGENES, Earnest, Health Grain, EuroPrevall, EFCOVAL and EuroFIR.
- Thematic Area 1 of the EU platform European Technology and Aquaculture platform (Product Quality, Consumer Safety & Health) is devoted to contributing to the development of a healthy diet for consumers. The platform was established in November 2007 and established as a non-profit Trust registered in Belgium in February 2009.

GOVERNANCE STRUCTURE

A proposed organisation of the JPI is outlined below (Figure 4).

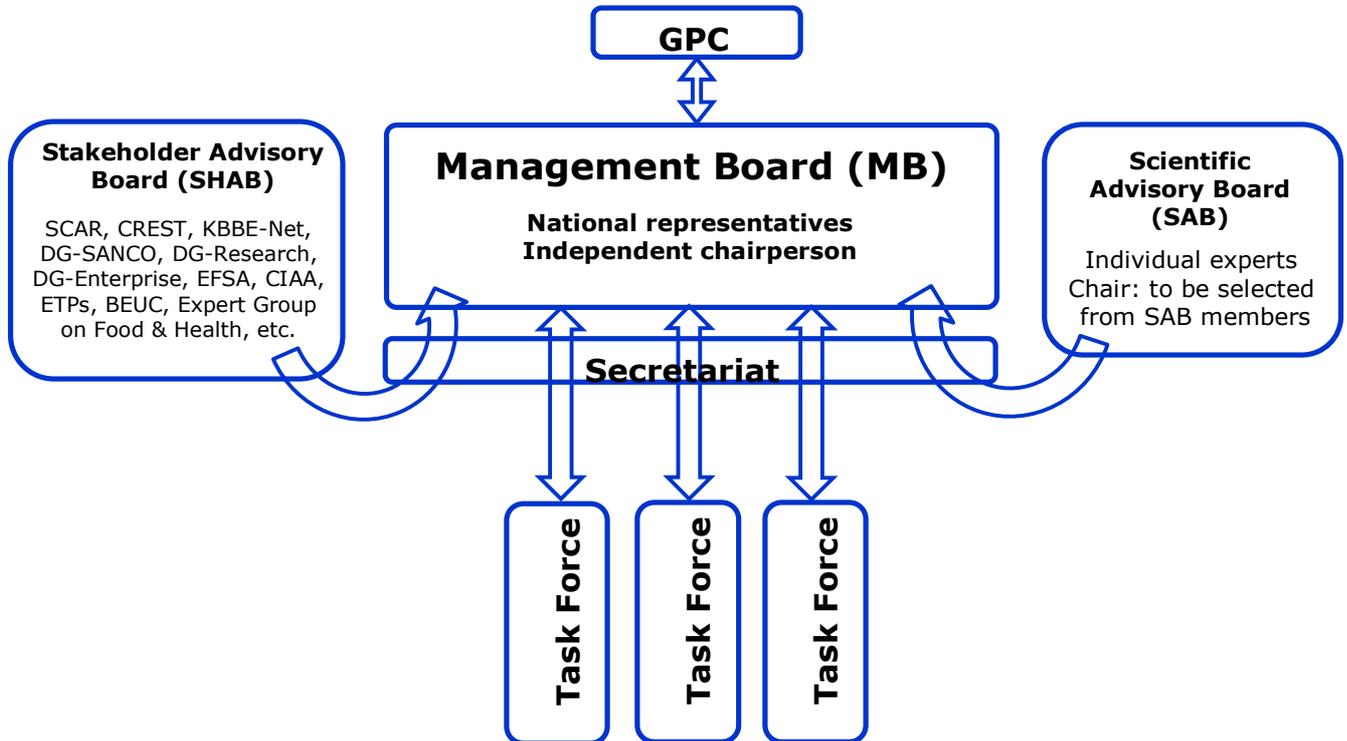


Figure 4. Governance structure of the JPI 'A healthy diet for a healthy life'

The overall aim of the organisational structure is:

- to provide a flat and flexible structure to guarantee an efficient and effective governance;
- to consider all interests and requirements of involved Member States in an appropriate way;
- to set the legal framework of the JPI;
- to set up a strong collaborative network of research funders and programme owners and to facilitate optimal communication and co-operation between the partners; and
- to allow for integration of all relevant stakeholders and to streamline communication of the JPI with relevant stakeholders in the ERA and related activities at regional, national, trans-national, and community level.

The governance structure consists of a decision-making body (Management Board), two advisory boards (Stakeholder Advisory Board and Scientific Advisory Board) and a secretariat. For specific activities, the Management Board will install task forces.

Management Board

Members of the Management Board are national representatives. They are responsible for the dialogue with and coordination of the different national partners, ministries, funding organisations, research organisations and universities. The Management Board ensures the political backing of the initiatives. The Management Board will meet quarterly or on demand.

Responsibilities:

- Approving of SRA and IP.

- Coordinating, supervising, implementing and evaluating the JPI.
- Establishing the Scientific Advisory Board and the Stakeholders Advisory Board.
- Setting up Task Forces with specific tasks.
- Developing a strategy for international co-operation.
- Implementing an overarching concept for the dissemination and communication of results from JPI.
- Reporting to the Council of the European Union, CREST, SCAR, KBBE-NET and other political bodies of the European Commission.

Members:

- National representatives: two representatives from each country with a single common vote. The representatives must ensure that they have a national mandate to make decisions. For each representative an additional person may be nominated to replace the representative, if necessary.
- Chair: the Management Board will be chaired by an acknowledged person with outstanding experience in the field of food, nutrition and health and with excellent contacts to the industrial sector in order to ensure perfect networking of the JPI with all relevant partners. The chair will be independent and has no vote. The chair will represent the JPI and be the spokesperson. The chair shall be nominated and elected by the members of the Management Board for the duration of maximally three years. The Management Board will be chaired during the first term of two years by Prof. Dr Wim Saris from the Netherlands.

Stakeholder Advisory Board (SHAB)

The stakeholder Advisory Board (SHAB) will be installed to advise the JPI and to ensure an adequate exchange of information with all stakeholders in the field of food, nutrition and health. The SHAB will meet annually on invitation of the secretariat. Meetings will be open to all interested parties.

Responsibilities:

- Commenting on drafts of all relevant documents of the JPI.
- Disseminating relevant information from the JPI.
- Monitoring the progress of the JPI.
- Advising on strategic issues.

Members:

Members of the Stakeholder Advisory Board must be from senior policy-making levels and representing important initiatives and bodies, including Standing Committee on Agricultural Research (SCAR), Knowledge-based Bioeconomy Net (KBBE-NET), Comité de la recherche scientifique et technique (CREST), DG SANCO and/or the Executive Agency for Health and Consumers (EAHC), High-Level Group on the Competitiveness of the Agro-Food Industry of DG Enterprise and Industry of the European Commission, Selected Programme Committee Members of the FP7 Health and KBBE Theme, ETP (Food for Life), Confederation of the Food and Drinking Industries in the EU (CIAA), European Food Safety Authority (EFSA), Expert Group on Food & Health of DG RTD, Department of Nutrition for Health and Development (NHD) of the World Health Organization WHO, EU Platform for Action on Diet, Physical Activity and Health implementing the Community Action Programme for Public Health, European Consumers Organisation (BEUC), representatives from the industry.

Scientific Advisory Board (SAB)

The Scientific Advisory Board (SAB) will advise the Joint Programming Initiative in all scientifically and technologically relevant issues. It will support the Management Board on request in all questions with regard to research agenda and implementation plan. The SAB meets annually and on invitation by the secretariat when requested by the Management Board.

Responsibilities:

- Drafting a Strategic Research Agenda and prioritising research topics.
- Advising on scientific issues.

Members:

The SAB is composed of scientific experts based on their scientific reputation with no regard to nationality. For each research area, five experts will be selected by the Management Board.

Task Forces

Task Forces are formed by the Management Board to work on a specific topic (e.g. measuring food consumption, consumer behaviour, obesity research, common calls, etc).

Responsibilities:

- Responding to the terms of reference drafted by the Management Board.
- Reporting to the Management Board.

Secretariat

The secretariat will have a coordinator and will initially be financed by a CSA. The secretariat is responsible for all daily operations.

Responsibilities:

- Administration of JPI, including financial administration and preparing annual reports.
- Responsible for daily operations.
- Providing administrative and scientific support to the SHAB, SAB and Task Forces of the JPI.
- Facilitating communication among all bodies of the JPI.
- Assisting in the execution of specific actions (e.g. the organisation of the evaluation of proposals in joint calls).
- Informing the stakeholders and enabling communication.
- Drafting meeting agendas and minutes.

Members:

The secretariat will be based in the Netherlands. The secretariat Coordinator ensures proper functioning of the secretariat. The Coordinator shall not be entitled to act or to make legally binding declarations on behalf of any other party.