

# Accompanying Measure: FINAL REPORT

Increasing the Impact of European Obesity  
Research: preparing for the ERA

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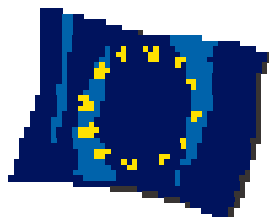
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## **Summary**

Leading obesity researchers from across Europe assembled in Aberdeen, Scotland, in January 2003 to consider how to increase the impact of European obesity research. The workshop was funded by the European Commission and hosted by the Rowett Research Institute, Aberdeen. The delegates identified the need to (i) develop a portfolio of studies that integrate genetics and mechanisms through parallel study of humans and animal models and (ii) establish major intervention studies in weight management and early life nutrition. It was recommended that these goals would be best achieved under the umbrella of a virtual European Obesity Research Institute, or Network of Excellence in Obesity Research under Framework Programme 6, that would facilitate harmonization of methodology, manage centralised, standardised, resources, co-ordinate training initiatives, workshops and working groups, and increase focus.

## **Objectives of Accompanying Measure QLK1-2002-30215**

The Accompanying Measure OBES-WSHP 2002 was originally proposed in order to prepare the European obesity research community for the scale of

research challenge that was envisaged by the European Commission in the planning for Framework Programme 6. The proposal entitled '**Increasing the Impact of European Obesity Research: Preparing for the European Research Area (ERA)**' was for a workshop-style facilitated meeting organised by Rowett Research Institute staff in Aberdeen under the control of a Scientific Steering Committee appointed in consultation with the European Commission in Brussels. The workshop was specifically structured with the intention of encouraging Europe's obesity experts to step back from their specific research interests and consider the nature of the obesity problem from first principals, and how the impact of their research could be maximised.

## **The Workshop Structure and Planning**

As detailed in the Interim Report ([Appendix 1;http://obesity.rowett.ac.uk/obesity/Appendix1.htm](http://obesity.rowett.ac.uk/obesity/Appendix1.htm)) submitted to the Commission on 12DEC02, following the finalisation of the contract with the European Commission, the planning for the workshop began in September 2002. After correspondence with the Commission, Profs Wim Saris (The Netherlands) and Arne Astrup (Denmark) were approached and agreed to be members of the Scientific Steering Committee. Other members were nominated by Profs Saris and Astrup with due regard for scientific expertise, academic/research/industrial experience and geographical representation. Three further Steering Committee members were recruited: Prof Jon Arch (UK), Prof Bert Koletzko (Germany) and Dr Dominique Langin (France). The role of the Scientific Steering Committee was to decide the scientific themes around which the workshop would be organised and the delegates to be invited in order to represent the full diversity of research expertise across Europe. The full list of delegates participating in the workshop and structural information is included in [Appendix 2;http://obesity.rowett.ac.uk/obesity/Appendix2.htm](http://obesity.rowett.ac.uk/obesity/Appendix2.htm).

After taking into account the complementary nature and diversity of European obesity research, the Scientific Steering Committee and Local Organisers decided to divide the delegates into three themed groups of 15-20 delegates, each supported by a Mediator, a Facilitator and a Rapporteur. The themes were as follows: **1. Genomics and Biotechnology**, **2. Improving Health through Diet and Lifestyle**, and **3. Early Nutrition and Programming**. Four plenary speakers were invited to provide an overview of the current status of research in these areas on the first evening of the workshop ([Appendix 3;http://obesity.rowett.ac.uk/obesity/Appendix3.htm](http://obesity.rowett.ac.uk/obesity/Appendix3.htm)). The speakers were Profs Johannes Hebebrand and Hans Joost (Germany) for Genomics and Biotechnology, Prof Arne Astrup (Denmark) for Improving Health through Diet and Lifestyle, and Dr Susan Ozanne (UK) for Early Nutrition and Programming. The speakers and mediators were also asked to provide a short written review to which delegates were invited to respond in writing prior to the meeting for inclusion in the workshop documentation. Five position documents were received and circulated to workshop delegates, and responses were invited to these papers. Responses arriving before 08JAN03 were collated and bound along with the position papers to generate the

meeting documentation and set the scene on the three main areas ([Appendix 2;http://obesity.rowett.ac.uk/obesity/Appendix2.htm](http://obesity.rowett.ac.uk/obesity/Appendix2.htm)).

The workshop convened on 12JAN03 at the Ardoe House Hotel in Aberdeen, Scotland (see [Interim Report; Appendix 1;http://obesity.rowett.ac.uk/obesity/Appendix1.htm](http://obesity.rowett.ac.uk/obesity/Appendix1.htm)) and closed at lunchtime on 14JAN03. The structure of the issues considered during the workshop is detailed in [Figure 1;http://obesity.rowett.ac.uk/obesity/Figure1.pdf](http://obesity.rowett.ac.uk/obesity/Figure1.pdf). The workshop generated considerable interest with the local media, with Prof Peter Morgan (Director of the Rowett Research Institute) and Dr Julian Mercer, Coordinator, being interviewed on evening TV news, and national and local newspaper coverage also featuring interviews with the plenary speakers.

Since the workshop, the issues discussed in the breakout groups, and the results of the feedback sessions and the final round-up have been collated ([Appendix 4;http://obesity.rowett.ac.uk/obesity/Appendix4.htm](http://obesity.rowett.ac.uk/obesity/Appendix4.htm)). The documents so generated were sent to all participants in the workshop so that everyone had the opportunity to comment and judge whether their views were fairly represented. This Final Report was again circulated to all workshop delegates for comment and review.

## **The Workshop**

In the first two sessions (**breakout session 1a and 1b**) of the workshop, all three themed groups independently considered the same strategic questions (see [Figure 1; http://obesity.rowett.ac.uk/obesity/Figure1.pdf](http://obesity.rowett.ac.uk/obesity/Figure1.pdf) and [Appendix 2;http://obesity.rowett.ac.uk/obesity/Appendix2.htm](http://obesity.rowett.ac.uk/obesity/Appendix2.htm)). The consensus responses from each group reflected the interests of the group in question, but many common issues were raised. The questions posed started with the nature of the obesity problem, and progressed onto how European obesity research will address these issues, and what structures and strategies will be required to maximise the impact of future research.

### **Societal Issues (breakout session 1a)**

The **critical societal issues relating to obesity**, in terms of the well-being of the citizens of Europe were identified as (i) health, health services and health care consequences, (ii) the economy, (iii) social aspects of obesity, (iv) science, and (v) education and communication. The following represents a synthesis of these issues:

- 7 Obesity is a core primary problem of other diseases and must be recognised as an independent medical condition.
- 7 Services are failing the patient; many of the physical and psychological consequences of obesity, and effects on quality of life are not addressed effectively
- 7 New multi-disciplinary approaches are required.

- 7 Primary prevention strategies should have special focus on children and adolescents, whereas secondary prevention should target high-risk subgroups in the obese population.
- 7 Obesity has direct and indirect costs and economical consequences, including the healthcare costs of co-morbidities, and lower work productivity.
- 7 There are opportunities for the pharmaceutical and food industries to develop different treatments and healthcare services, including improved food quality and functionality, improved food marketing and surveillance, especially for children, and a systematic approach to the issue of portion size, from home to the supermarket.
- 7 Obesity is resulting in a polarisation of societal values with socio-economic class having a major impact; the prominence of obesity in less privileged social classes requires specific intervention.
- 7 The needs of the population may come into conflict with the interests of industry and commerce.
- 7 Issues of personal freedom versus social control may also be raised by government policy, and environmental and urban planning, especially with respect to exercise.
- 7 Obesity research may produce spin-offs into other related fields and have broad, wide-ranging impacts on behavioural, genetic, metabolic and social levels.
- 7 European research should use integrative multidisciplinary approaches that exploit regional and cultural diversity.
- 7 Educational initiatives should ensure the consistency of dietary advice, food labeling, and information on the content of food products, and their consequences to health, with positive and accurate teaching programmes being developed for primary and secondary schools.

### **Targets for European Obesity Research (breakout session 1b)**

One of the advantages enjoyed by obesity researchers in Europe is the natural experiment that is Europe in terms of its diversity in culture and social issues as well as lifestyles, and political and economic detail. Delegates were asked to consider questions that explored their future vision for a European Research Area in Obesity.

A number of realistic targets were suggested that European obesity research might have accomplished within a 10-year time-frame. The themes that emerged were (i) an explanation of the obesity epidemic, (ii) realistic prevention strategies, (iii) effective treatments, and (iv) an integrated scientific research programme.

Tackling themes (i), (ii) and (iii) requires an expansion and structuring of the obesity research portfolio. A key objective will be to introduce defined sub-structure into the overweight and obese European population. Such structure will have major implications for both prevention and treatment and will involve;

- 7 Defining different kinds of obesity, and the natural history of the disease, individual susceptibility to obesity, its progression and co-morbidities, the reasons why some treatments for obesity are successful and others are not, and the determinants of variability in response to treatment, including the attitudes, motivation and beliefs of consumers.
- 7 Improved knowledge of eating frequency and diet composition.
- 7 Greater understanding of the progress of the obesity epidemic necessitates more detailed knowledge of the molecular and physiological mechanisms of energy balance including the influence of genetic background, ethnicity, environment, psychology, and their interactions, and perinatal programming at nutritional, biochemical, cellular and behavioural levels.
- 7 Enhancing our ability to prevent the development of overweight and the progression from overweight to obesity will require appropriate and effective public health nutrition strategies and evidence-based lifestyle and dietary interventions that take account of genetic variability in identifying individualised therapy. This will provide opportunities for development of innovative products and fitness tools, and place emphasis on more effective social marketing and communication strategies, with dietary behaviour integrated in education.
- 7 The goal of **effective treatments tailored for susceptible groups** also requires diagnostic tools with predictive ability, and systems to measure the impact of treatment strategies.
- 7 **New drug targets and dietary approaches to weight management** are required, taking into account gene-drug and gene-environment interactions. To deliver these objectives, the foundation science should deliver a number of molecular targets through to clinical trials and have defined criteria for measuring the effectiveness of interventions against biomarkers for obesity-related complications, use common methodology for epidemiological surveys, and should contribute to strategies to transform research into action.

The obesity epidemic will be an even greater drain on healthcare budgets in 10 years time if prevalence continues to rise at the rate projected. **What challenges should European obesity research be able to tackle in 10 years time?** The consensus of the assembled obesity researchers was that it was realistic to aspire to halt the trend in obesity prevalence in adults, and to reverse the trend in childhood obesity. Achieving this ambition will require knowledge of the impact of rapid change in lifestyle on prevalence of obesity,

and the integration of emerging knowledge in genomics into primary prevention and treatment of obesity. A number of underlying capabilities will be required, these include; the ability to intervene early before obesity develops, identify clear environmental triggers of obesity and identify and quantify different risk factors. It will be critical that all health care professionals accept obesity as an independent cluster of medical conditions that require treatment, and healthcare services will need to be resourced to provide the support for both prevention and treatment that individuals or defined sub-groups of the population require, including better education for mothers and children, and improved social and educational projects. The optimisation of prevention and treatment strategies to specific susceptible subgroups, as determined by the polygenic nature of most obesity, should encompass dietary and physical activity strategies and drug treatment. The latter will depend upon a greater choice of drugs being available on the market. Science should provide strong evidence-based guidelines for prevention and treatment of obesity for policy makers, thereby providing options for the difficult choices that will need to be made. In practical terms the research community should be able to tackle longitudinal European Union wide studies on the natural history of obesity, apply genotyping knowledge in diagnosis, such as in risk of co-morbidity, integrate existing disciplines in the preparation of the next generation of scientists, and transfer knowledge of obesity to other related research fields.

## **Research Infrastructure for the Future (breakout session 2)**

**To meet these challenges**, the delegates recognised the need for the European obesity research community to undergo strategic evolution. Europe-wide networks for obesity research should be strengthened, ideally through the establishment of a **Centre or Network of Excellence** in research and training that could integrate human and animal studies and also studies at molecular and whole body level, leading to the development of multi-skilled researchers with clinical/research background including behavioural, social and economic scientists. Such a structure would accelerate the adoption of standardised experimental methods for research including clinical trials and good research practice to ensure total objectivity and transparency. National and EU research funding should be rationalised to create a co-ordinated network of integrated research, which is multi-disciplinary, has critical mass, and appropriate infrastructure e.g. in genomics. Rapid response funding should be available for smaller projects. Researchers should have access to a biological resource bank of tissues and DNA. Communication within the obesity community should be improved, but especially between policy makers, academia, and industry, and between medical researchers and clinicians in order to accelerate the drug discovery process.

Increasing the impact of European obesity research over the next 10 years should have benefits to society in terms of (i) alleviating the economic, social and physiological burden of obesity and related health problems on individuals and society, (ii) increasing quality of life and addressing inequalities in health within and between countries, (iii) public policy, including

environmental and ecological changes, (iv) better nutritional education, and (v) improvements at many levels of the food chain.

### **Immediate research challenges:**

Each of the three themed groups then considered the three key research challenges that need to be addressed now if the 10-year vision for European obesity research is to be realized. They were charged to consider the key research areas and questions, the existing areas that should be expanded, as well as the new approaches that should be explored and new technology that should be developed, and how different disciplines should interact in the ERA of Obesity.

The '**Genomics and Biotechnology**' group highlighted 1). Greater knowledge of the causes of obesity and its development, including increased understanding of gene networks, brain and sensory mechanisms, adipose tissue development, metabolism and endocrinology, co-morbidity risk, and gene/nutrient/environment interactions, leading to identification of predictive biomarkers for co-morbidities, 2) What can be learned from 'natural experiments' in the design of long-term clinical and prevention studies? and 3). Technology application in validation of drug targets and functional foods, including tissue banks backed up by standardised phenotyping, global standards for experimental methods, and data mining. The following key research areas were identified:

- 7 Characterisation of a genetic network (including gene expression and proteomics)
  - Co-morbidities linked to obesity and biomarkers of these
  - Interactions between genes, environment and physiology
  - Identify major gene effects in susceptibility to obesity, and the most important genes involved in the regulation of energy balance, food choice and physical activity
  - Generate normal references for all European ethnic groups
  - Establish the effect of co-morbidity treatment on obesity, along with the impact of decreasing obesity on complications, and any overlap between obesity, co-morbidities and genes that predispose to complications
  - Development of biomarkers that detect and/or predict complications
  - Establish the health benefits of weight loss and maintenance achieved through different interventions, and whether complications are reversible

Experimental strategies will have to include genome wide human and animal QTL mapping, association studies, functional genomics, study of random or targeted animal mutants, improved tests for measuring the human phenotype. Animal and human work has to be merged in an integrated approach.

The '**Improving Health through Diet and Lifestyle**' group identified 1). The need to establish a European Obesity Research Institute, 2). Delivery of a multi-centred randomised control trial (RCT) incorporating all elements of weight gain/loss/regain and involving diet, physical activity, genomics, etc., and 3). The need to establish clear objectives for the evaluation and validation of different types of intervention/treatment strategies.

There was broad consensus on the need for a large multi-centre RCT on diet, cultural, lifestyle, behavioural and genomic influences on weight change. Key research questions were identified relating to the key determinants of weight control, the clinical significance of, and optimal time windows for, the intervention, the minimal physical activity to maintain healthy weight, strategies to be used to gain compliance on the intervention, genetic and lifestyle components of the intervention, and the impact of dietary responses on molecular physiology.

The '**Early Nutrition and Programming**' group focused on 1). The molecular basis and mechanisms of perinatal programming in animal models and humans, 2). The childhood obesity epidemic, and 3). The exploitation of the large epidemiological cohorts available in Europe. Key research questions were identified as:

- 7 The need to prove or disprove a perinatal link to obesity, along with the critical time windows and mechanisms of programming
- 7 The impact of environment versus genetics on obesity in childhood, and the previously unchallenged genetic targets that are susceptible to the change in environment
- 7 An assessment of the impact on childhood obesity of improved education, food products, dietary habits, sensory experiences, physical activity, and other mechanisms
- 7 The factors responsible for rebound obesity in childhood, and the time scale of expression of obesity-related complications
- 7 The epidemiology of obesity in the different countries of Europe should be characterised at the level of environmental exposure, yearly changes in BMI, and prevention and therapeutic potential

Having identified overall research priorities for the next decade, delegates were asked to identify the **technologies and research directions that should be developed** in order to achieve these objectives. At the molecular level, application of genomic, proteomic and bioinformatic technology was projected into high throughput functional genomic techniques, reference profiling for functional genomics, and gene expression, molecular imaging, and animal model phenotyping studies. Animal models should be developed to study inter-organ interactions, gene trapping by random mutagenesis, gene validation, and the neural network of metabolism and nutrient partitioning linking animal and human models. The value of long term human

intervention trials should be enhanced by resource-efficient data collection, automatic blood sampling in ambulatory circumstances, real-time long term measurement of metabolism *in vivo*, integration of functional genomics, repeated longitudinal measures of gene expression in muscle/adipose tissue, including biopsy miniaturization, and effective biomarkers of compliance to the intervention strategy, including mis-reporting of food consumption.

Interventions should include better laboratory reference techniques and field techniques for assessing body composition, energy balance, well-being, and food preference and reward systems. Research into the impact of early life nutrition, and metabolic differences between children and the treatment of foetal malnutrition syndrome should be enhanced by the development of non-invasive technologies to measure fat mass, body composition, transfer of nutrients across the placenta, and growth of foetal organs, including stable isotope metabolic tools. Epidemiological studies should examine the effect of changes in food composition on childhood obesity. **Cross-disciplinary linkages** should be made to understand the interaction of obesity with (i) psychiatric and eating disorders (ii) sociology and (iii) exercise physiology, and to develop the linkage between nutrition and genomics. Engineering technologies may provide novel, easy, cheap ways of phenotyping subjects, and tools to assess how the body is composed at different points in time.

### **The Natural Experiment that is Europe (breakout session 3)**

The ethnic, cultural, and social heterogeneity within Europe was an issue that was raised independently on a number of occasions by delegates in each of the three themed groups, and was identified as an advantage that should be exploited by Europe's obesity research community. This formed the focus of a plenary discussion session. Heterogeneity was identified in a wide range of fundamental factors including genetic background, gene expression, food quality and quantity, prevalence of co-morbidities and eating disorders, attitudes to weight control, as well as physical environment, healthcare, education, socio-economic background, demography, work and leisure activity levels, smoking habits, and life expectancy. How should this heterogeneity be exploited to maximum effect in the development of prevention and treatment strategies and with greatest impact on the European obesity problem? The development of these strategies is likely to follow two complementary approaches, one being the definition of optimal interventions in the diet and lifestyle area on a 3-5 year time-scale with long term follow up, and the other consisting of innovative research over the longer term targeted at understanding the causes of obesity. Substantive progress towards these objectives will lead to obesity being recognised as a serious illness by many more healthcare professionals.

The achievement of a large-scale intervention trial involving physical activity/exercise as well as diet (i.e. an intervention that is relevant to/supported by policy makers) will require careful logistics, harmonisation of methods across the disciplines, and optimised study design, and would be best coordinated under the umbrella of a virtual European obesity institute. A

number of innovative smaller related investigations or pilot studies should be conducted alongside, or prior to, the main trial, addressing mechanisms such as the genetic basis of different weight loss responses to an intervention in order to maximise the potential benefit to Europe and its citizens. The design of the intervention should draw upon the lessons that have been learned from other large studies (e.g. the EPIC study), with study populations being well characterised before intervention. Intervention trials are also essential in the context of early life nutrition, but long term follow up studies are difficult under current funding models. In both intervention trials and in research at a molecular and mechanistic level, exploiting the heterogeneity in populations requires heterogeneity in methods to be reduced. This would be a major goal of a virtual European obesity institute, and will be critical in illuminating the relationship between genes and environment across the EU with respect to obesity and susceptibility, and the relationship between fat levels and co-morbidities across Europe. In so doing it will be possible to define the social and economic cost of obesity in Europe, providing hard evidence of that cost to policy makers.

The consensus position of the delegates for developing the **ERA for Obesity** was as follows:

- 7 to seek to establish a European Obesity Research Institute, facilitating harmonisation of methodology, managing centralised standardised resources, coordinating workshops and working groups, and increasing focus
- 7 to establish major intervention studies in weight management and early life nutrition
- 7 encourage development of a portfolio of studies that integrate genetics and mechanisms through parallel study of humans and animal models.

### **Overall Discussion - The Vision and Potential of a European 'Physical' or 'Virtual' Institute/Centre of Excellence for Obesity Research**

The following arguments were presented in support of a 'physical' or 'virtual' obesity institute. Should a physical European Obesity Institute be the long-term goal? Could this be achieved within a realistic time scale given the pressing need for immediate initiatives to stem the growing tide of obesity? A physical institute would accelerate the standardisation of procedures and resources essential for the success of many future studies, and for comparison between studies. This process may be easier in a physical space, but could be initiated much more rapidly through the vehicle of a 'virtual' institute. A virtual European Obesity Institute could be established quickly utilising the multi-disciplinary research platforms that already exist within the European research community (e.g. that established by the Framework 5 NUGENOB consortium), without duplication of existing effort. Future multi-centred trials and projects would be run under the umbrella of the virtual Institute. The mobility and training of participating researchers would ensure

adherence to protocols standardised by expert committees assembled as a critical function of the Institute. The 'virtual' Institute might act as the proof-of-concept for a physical Institute to be developed in the longer term. A Network of Excellence application in Framework Programme 6 should form the first substantive step in constructing a virtual institute.

The major function of the Network of European Excellence in Obesity should be in the co-ordination of research (see [Figure 2;http://obesity.rowett.ac.uk/obesity/Figure2.pdf](http://obesity.rowett.ac.uk/obesity/Figure2.pdf)). The institute should be representative and multidisciplinary in approach, with standardisation of procedures as a major objective, thereby providing continuity between projects, and building on already established expertise. National funders should be involved in the functioning of the institute from an early stage. Harmonisation of funding may be required before all the possible functions of the institute could be centralised. Where functions cannot be centralised, they could at least be standardised. The institute would need to convene regularly in order to centralise organisation and communication, as envisaged in the Network of Excellence concept. The virtual Institute should start from the basis of voluntary participation, but should have an inclusive rather than an exclusive ethos. Decisions about how the Institute would function will need to be resolved prior to the preparation of an application for a Network of Excellence. For example, would members have access to facilities available within the Network, and how would this access be regulated and funded? This might involve potential members entering into contractual arrangements underwritten by local funding.

The workshop delegates identified the following issues related to the virtual Institute or Network of Excellence in Obesity Research:

- 7 It should act as a clearing house, co-ordinating, for example, genomic research through distribution of DNA samples. An equivalent reference centre exists in oncology research.
- 7 It should promote communication, and awareness of the expertise and resources available within the obesity research community.
- 7 It should establish and administer a Biobank, providing a resource of human adipose tissue and muscle biopsies, blood samples and tissues from animal models, a database repository with bioinformatics backup. Such collections have already been initiated but are dispersed around different national banks.
- 7 It should bring together all end users including industry and consumers, and should address a wide audience of policy makers.
- 7 It should have a strong training and career development component, with the twin objectives of standardising the execution of agreed 'gold standard' protocols and of developing individuals with the necessary background to integrate multi-disciplinary research.

- 7 It should protect intellectual property for the benefit of the citizens of Europe.

## **Conclusions**

The major research themes that emerged from the workshop emphasised the increasing integration of molecular approaches with nutritional and lifestyle interventions. Genetic research will help illuminate the importance of environmental factors, susceptibility to weight problems and obesity co-morbidities, and the likelihood of success or failure of interventions. Academic based research will help to establish the role of candidate obesity molecules and convert drug targets into drugs, and define the patient population in which a potential drug would be most useful. In discussing a large intervention study, it was recognised that it was essential to learn from the experience of large trials that have already been run in other research areas, and use the tools these studies have generated. It should be proved or disproved whether early nutritional programming is really influencing obesity. A major co-ordinated study with a long follow-up time is required. The potential impact of such an intervention would be considerable. The prevention of obesity in childhood is a critical challenge. Education has a major role to play in combating the obesity epidemic and initiatives should be targeted at the family.

The major structural themes that emerged from the workshop were the need to standardise protocols, produce multi-skilled individuals who have cross-discipline expertise, and establish projects with the maximum added-value across the major research areas. A Network of Excellence in Obesity was perceived as the best vehicle for pursuing these goals, and 'Increasing the Impact of European Obesity Research'. The workshop organisers, Prof. Peter Morgan (Director, Rowett Research Institute) and Dr. Julian Mercer (Head, Energy Balance and Obesity Division, Rowett Research Institute) are initiating the process of convening a Steering Group to investigate the possibility of constructing a Network of Excellence in Obesity in order to realise this ambition.

## **Support from the Council of the European Union**

The activities, conclusions, proposals and perspectives of the Workshop have been fully on line with a recent decision made by the Council of the European Union in December 2002 (14739/02 SAN 215). The Council emphasised its great concern about the impact of the obesity epidemic in the European Community and invited the Member States to take into account in their national health policies the need to address the issue of obesity. The Council invited the European Commission to reinforce its efforts to prevent and combat obesity, to support the Member States in their efforts and to ensure that prevention of obesity is taken into account in all relevant Community policies. Finally, the Council invited the Commission to continue to strengthen research on obesity.

## **Dissemination**

A separate dissemination document will be produced containing all the meeting documentation, the Powerpoint presentations of the plenary speakers, the feedback documents and the Final Report. Dissemination will be as wide as possible through distribution of documents as electronic files (PDF downloadable files) via the Internet. Hardcopies will also be available upon request. Each of the National Associations (of obesity) in Europe will be contacted directly and asked to disseminate (via a web link) the document via their own membership lists, and national and international societies in related disciplines such as Neuroscience, Endocrinology, Neuroendocrinology, Epidemiology etc. will be contacted and asked to publicise the nature of and availability of the documents and files. Delegates will be encouraged to relay the outcome of the meeting to both national and institutional peer-groups, informing fellow scientists of the priority research targets that emerged from the Workshop and the opportunities to participate in European research networks. It is hoped to publish a modified version of the Final Report in the journal 'Obesity Reviews'.

## **Acknowledgements**

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### **PDF Files**

[EUFinalReport.pdf](#)

[Appendix1.pdf](#)

[Appendix2.pdf](#)

[Appendix3.pdf](#)

[Appendix4.pdf](#)

[Figure1.pdf](#)

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