FEEDING THE FUTURE
Over the past 100 years, the Rowett has helped to shape nutrition research and policy agendas and is therefore already recognised as a global leader in nutrition research. As the Institute looks forward to its second century it is setting out a bold and ambitious vision to build on its established reputation. With the Rowett Institute now part of the University of Aberdeen, there are new opportunities that will help the Institute develop and continue to thrive as a global leader in nutrition research.

The current frontiers of nutrition research fall into two main areas each associated with major societal challenges.

The first is how nutrition can keep people healthy throughout their lives from conception to old age, namely improving nutrition for lifelong health.

The second is how to feed ourselves without exhausting all our natural resources, which is a problem of improving food security and sustainability.

“We aim to become the foremost international research institute in nutrition.”
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“Our energetic community conducts cutting-edge research, solving the global nutrition challenges of our time.”
A NEW WORLD OF NUTRITION STUDIES

The Rowett Institute of Nutrition and Health has been a world leader in nutrition research for over 100 years. Our new, state-of-the-art facility is characterised by a flourishing research culture that provides unparalleled support to the global challenges of obesity, ageing and food security.

At present, our research portfolio covers molecular studies on the impact of diet and health, social science and behaviour change, and population-based studies. As well as offering specialist support to industry, the Institute contributes to public policy and supports education at school, university and community levels.

The long-term vision for the Rowett Institute is to develop a more precise understanding of how diet affects human health. Ultimately, this will lead to predictive nutrition, where research outcomes will provide a blueprint for dietary advice and practice across the life-course of an individual.

A PROUD HISTORY

We have a long and proud history of achievements that have benefited both human health and agriculture. The Institute has shown itself to be a flexible organisation, capable of responding to the needs of Scotland and the UK throughout its 100 years of operation. Now, as part of the University of Aberdeen, we are looking to the future.
Over the next decade, the Rowett will be concerned with several separate, yet inter-related research areas of human health such as obesity and metabolism; lifelong wellbeing; effective gut function; the role of natural bioactives within foods; and the social science of food consumption.

**Obesity and metabolic health**

Obesity and the associated metabolic stress remains a globally important health issue. While there has been considerable work on the underlying causes of obesity, finding solutions to the obesity problem has proved far more difficult. Rowett research is looking to identify both nutritional as well as therapeutic approaches to manage food intake and hunger as well as body composition, leading to practical solutions for healthy weight management.

**Lifelong health**

There is a growing awareness of the importance of diet and early life events in programming lifelong health. Work at the Rowett hopes to understand the connection between nutrition, epigenetics, cognition and the diseases of ageing. Studies in progress include the study of nutrition in large cohort and case-control studies involving hundreds of individuals.
Maintaining gut health

The Rowett has had a long-standing interest in gut microbiology and has been at the forefront of new developments with regard to the relationship between bacteria, metabolism and the immune system. At present, a range of molecular techniques are being used to unravel the effects of diet on microbial communities.

The role of bioactives within foods

Bioactives, as components of food, have the potential to influence cell and tissue metabolism. Phytochemicals, vitamins and minerals represent a broad range of bioactives that can have either beneficial or detrimental effects on human health. Rowett research is currently looking to exploit the benefits of natural bioactives through a range of studies that encompasses metabolomic, genomic and proteomic platforms.

The social science of consumption

We are all social animals and we all have to eat, but how do we behave when we choose what to eat? With expert input from the University Health Economics Research Unit and Health Psychology, the Rowett is starting to understand the cognitive processes that affect our dietary behaviour and the economic factors that should be considered for health improvement.
Feeding the Future

Working with Industry

Moving through our second centenary, the Rowett will continue to offer fully integrated support to industry partners. As well as supporting new product formulation, the Institute is proud to host unparalleled access to nutrition intervention studies.

We understand that commercial success in health and nutrition products cannot be achieved on our own. From short-term research or consultancy work through to in-depth clinical investigation, we have the power to improve products and boost business. The following case studies outline our world-class research capabilities.

Provexis PLC

As the result of Rowett research, a spin-out company, Provexis plc was created. Fruitflow – Provexis’ lead product – is the result of findings where biologically active constituents in tomatoes were found to inhibit blood platelet aggregation which is a known cause of heart attack, stroke and venous thrombosis.

Fruitflow is the first product of its kind to benefit from EU-authorised health claims, such as that it improves blood flow and circulation.
Marks & Spencer developed the ‘Fuller Longer’ food range with help from the Rowett’s expertise in nutrition and health. Product development was based on our research into the efficacy of high protein and mixed carbohydrate diets for sustained appetite control and weight loss.

Obesity is a major public health challenge; therefore it is not surprising that ‘Fuller Longer’ has become an established brand for Marks & Spencer’s 20 million customers. This industry-academia partnership was a first for Marks & Spencer, and has led to one of the UK’s most popular retail healthy eating food ranges.

The Rowett is now part of a research consortium led by global bioscience company Chr. Hansen – the world’s leading supplier of natural solutions for the food, nutritional, pharmaceutical and agricultural industries.

From this collaboration, it is hoped that real progress will be made towards a new generation of health-promoting microbial products that can improve human health. In particular, it is hoped that the results of the research will assist in treating and even preventing gastro-intestinal and metabolic diseases, such as Crohn’s disease and colitis.
We are unique in that as a research facility, we are well placed to work with policy. In recent years, we have led cutting-edge nutrition research that has shaped both commercial and government agendas. Much of our research is relevant to key policy areas such as food and drink, food security, and obesity and weight management.

Over the years, we have worked hard to support the Scottish Government’s effort to tackle the country’s poor health record as well as support their ambition to champion Scotland’s food and drink producers.

As part of this, we recently led a workshop that brought together delegates from across the food and drink sector. During the workshop, each delegate presented their research findings in order to stimulate discussion around how to positively affect both consumer and industry behaviour. Following a ‘world café’ discussion, a set of recommendations was then put forward to help achieve the Scottish Government’s vision to become a ‘Good Food Nation’.
THE CHILDBEARING YEARS

Both pre-pregnancy maternal underweight and obesity are associated with a myriad of adverse pregnancy outcomes for both mother and child. Accordingly, the Rowett have recently investigated the relationship between inter-pregnancy BMI change (both weight loss and weight gain) and the risk of experiencing pregnancy complications in the second pregnancy.

Our analysis of 12,640 consecutive pregnancies suggests that remaining a stable weight in the inter-pregnancy period limits the risk of birth weight being outside the normal range at the second delivery.
LIVEWELL

The Rowett was instrumental in a report commissioned by the government that outlined the balance of healthy and sustainable food choices. After all, the food we eat – growing, producing and processing it – has a massive impact on the health of our planet.

The research outlines changes to our diet that could improve national health, reduce the impact of our eating habits on the natural world, and help the UK meet its targets to reduce greenhouse gas emissions.

DIET AND DEPRIVATION

Deprivation results in poor pregnancy outcome and this in turn is associated with lower educational attainment in children and disadvantage throughout life; a vicious cycle.

As part of a Scottish Government initiative, we assessed diet and nutrient status for mothers and newborns in 1,461 pregnancies. The analysis revealed that improving the diet and nutrient intake of disadvantaged women of childbearing age could help to improve the health and wellbeing of their children in the future.
FEEDING THE FUTURE

TAKEING THINGS GLOBAL

We have capacity for studies of all sizes and complexity to explore ingredients, food products and dietary approaches as well as complex drug-nutrition interactives. And since the beginning of our century-old existence, we have worked to solve global nutrition and health challenges.

COORDINATING FULL4HEALTH

Over-eating and obesity is a problem in Western Europe. It has recently been argued that understanding the biological mechanism behind our feelings of hunger and satiety could be key to combating this. At present, the Rowett is coordinating 19 multidisciplinary academic and industry collaborators from across Europe in a project called Full4Health.

The Full4Health project aims to investigate mechanisms of hunger, satiety and feeding behaviour in order to understand how these change in relation to life course, dietary components and food structure. It is hoped that the outcome of the study will reveal ways to tackle obesity, chronic disease and malnutrition.

PREVENTING FATAL DISEASE

Rowett scientists have recently received prestigious funding from the National Cancer Institute of the National Institutes of Health (US).

The research will look to identify the products produced by our gut bacteria from specific foods considered to prevent cancer. It is hoped that this work will facilitate an understanding of the role of microbial metabolites in cancer prevention and aetiology. Several of the plant-based foods studied are important Scottish crops (including strawberries, oats, peas and cabbage) and could demonstrate an important role of consuming these foods in disease prevention.
INTERNATIONAL PERSPECTIVES

Our ‘global expertise’ extends to our student scientists too. This student has recently started studying at the Institute after working in the food manufacturing industry in Brazil:

“My decision to study at the Rowett was driven by my interest in the development and design of functional food. I also wanted to learn more about how food can be used to help prevent disease.

My PhD will focus on the development of functional ingredients from quinoa and buckwheat. These are novel crops of common interest to both the Scottish and Brazilian governments due to their rich nutritional content and significance for food security.”
DESIGNED FOR SCIENCE

Our brand-new, purpose-built facility ensures that the Institute remains at the forefront of world-class research. The 10,000 m² bespoke building complements our comprehensive support to food companies, government policy, educational authorities and communities alike.

The Rowett’s new research centre includes a clinical investigation unit, a metabolic research facility and a body composition suite. The Institute also has an in-house residential suite, which means that dietary and physiological data can be tracked 24 hours a day, 7 days a week.

Our fully-integrated facility offers both unique opportunities for new product formulation as well as the ability to validate health benefits through effective human studies.
SUSTAINABLE PRACTICES

The building itself has achieved prestigious BREEAM outstanding status. BREEAM sets the standard for best practice in sustainable building design, construction and operation in terms of a building’s environmental performance.

The Rowett has qualified after being measured in various aspects including energy and water use, the internal environment (health and wellbeing), pollution, transport, materials, waste, ecology and building management processes. This means that in terms of environmental ingenuity, we are at the forefront of the science of sustainability.
THE NEXT GENERATION OF NUTRITION

The Rowett institute wants to work with you. The next generation of nutrition research depends on us working on a wide range of audiences – from students right through to industry professionals – to ensure that our research is relevant, valuable and achieves maximum impact.

Industry partners

The facilities and expertise within the team allow us to address complex nutritional problems. We cover everything from fundamental and applied research questions at the molecular level, to multi-centred human intervention trials.

The Rowett’s world-class team of nutrition and health research scientists are supported by clinicians, research nurses and nutritionists to provide a comprehensive service. This approach means that we can work with clients on a confidential basis to develop and deliver the most appropriate and effective study design as well as acting as a single-point provider for trials and analysis.

OUR INDUSTRY SERVICES INCLUDE:

- Feasibility and study design
- Ethical approvals
- Recruitment and volunteer management
- Study delivery
- Capture of key physiological and non-physiological outputs
- Sample and statistical analysis
- Reporting and follow-up support
Students
An important function of the Rowett is to provide training for the next generation of nutritionists. This is achieved in a number of ways: as part of the University of Aberdeen we run an MSc in Human Nutrition; another is through the training of PhD students, post-docs and visiting scientists.

Industry professionals
Our dynamic facility offers an exciting career within the bounds of food and nutrition research. Rowett work has the power to affect policy makers, commercial practices and research outcomes across the globe. For more information about current opportunities at the Rowett Institute of Nutrition and Health, visit abdn.ac.uk/rowett