SESSION 1: FOOD FOR THE HEART

Chair

Dr Alison Coates
Senior Lecturer, Human Nutrition and Physiology, Deputy Director, Nutritional Physiology Research Centre, The University of South Australia

As a nutritional scientist, Alison is interested in how bioactive compounds from food can reduce risk factors for obesity, cardiovascular disease and metabolic syndrome. During her PhD at CSIRO and whilst working as a postdoctoral research fellow at the University of Colorado, she developed expertise in conducting clinical trials and in assessing biomarkers of cardiometabolic health. Since joining the University of South Australia in 2004, she has been involved in over 20 clinical trials using nutritional supplements (omega 3 fatty acids, polyphenols, isoflavones) and foods (peanuts, omega 3 enriched pork, soy and dairy products) sponsored by industry partnerships and through ARC linkage projects.
Speakers

Professor Alice Lichtenstein
Stanley N. Gershoff Professor of Nutrition Science and Policy, The Friedman School, Director and Senior Scientist, Cardiovascular Nutrition Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA), Tufts University

Alice holds secondary appointments as an Associated Faculty member in the Institute for Clinical Research and Health Policy Studies at Tufts Medical Center and Professor of Medicine at Tufts University School of Medicine. In 2005 she was awarded an honorary doctoral degree from the Faculty of Medicine, University of Kuopio, Finland. Alice completed her undergraduate work at Cornell University, holds a masters degree from the Pennsylvania State University, and masters and doctoral degrees from Harvard University. She received her post-doctoral training in the field of lipid metabolism at the Cardiovascular Institute at Boston University School of Medicine. At the HNRCA her research group focuses on assessing the interplay between diet and heart disease risk factors. Recent and current work includes addressing issues related to trans fatty acids, soy protein and isoflavones, sterol/stanol esters, novel vegetable oils differing in fatty acid profile and glycemic index, in postmenopausal females and older males. Selected issues are investigated in animal models and cell systems with the aim of determining the mechanisms by which dietary factors alter cardiovascular disease risk. Additional work is focused on population basis studies to assess the relationship between cholesterol homeostasis biomarkers and nutrient biomarkers, and cardiovascular disease risk; and on the application of systematic review methods to the field of nutrition.

Controversies in Cardiovascular Nutrition

Dietary factors most closely associated with cardiovascular disease risk remain a topic of intense interest and controversy. During recent decades we have gone through periods where we thought we found simple answers and quick fixes by way of restricting saturated fat consumption, shifting to low fat diets, eating soy protein, drinking alcohol, taking supplemental antioxidant vitamins, focusing on glycemic index, faulting trans fatty acids, condemning carbohydrates, blaming added sugars, and rethinking saturated fat. The etiology of cardiovascular disease is complex. The impact of nutrition on cardiovascular disease is equally complex. There are many dietary factors that can alter disease risk. Rarely do they function independently, making interpretation of the data challenging when translating research findings into public policy.

Dietary saturated fat influences cardiovascular disease risk through changes in lipoprotein profiles and inflammatory factors. However, the magnitude of the effect depends on the macronutrient to which saturated fat is compared. Low fat diets are by their nature high in carbohydrate, causing adverse metabolic effects that include an increase in triglyceride and decrease in high density lipoprotein cholesterol concentrations. Soy protein may lower low density lipoprotein cholesterol concentrations when habitual intake is high, but the effect is modest and may not be independent of other dietary components. The effects of supplemental antioxidant vitamins are difficult to distinguish from other factors that co-vary with their use, and potential issues related to over-consumption have been under assessed. Glycemic index is a complex concept and may be confounded by other components of the diet. Condemning dietary carbohydrate and ‘added sugars’ harkens back to the challenges associated with evaluating the independent effect of any macronutrient in the diet. When formulating dietary guidance aimed at decreasing cardiovascular disease risk, one approach to circumventing the pitfalls previously encountered is to focus on dietary patterns rather than individual dietary components.
Omega-3 Benefits - Gender Dependence

Omega-3 polyunsaturated fatty acids (n-3PUFA) are fats commonly found in marine and plant oils. They are considered essential fatty acids, as they cannot be synthesized by the human body but are vital for normal metabolism. However, the health benefits of n-3PUFA supplementation remain controversial despite numerous meta-analyses, systematic reviews and large cohort as well as clinical intervention studies favouring reduced risk of cardiovascular diseases, inflammatory diseases, obesity, cancer, and certain psychiatric diseases such as depression. A number of experimental and observational studies have consistently shown that factors such as dosage, sample size, follow-up period, and gene polymorphism may contribute to the existing controversies.

Significant relationships between plasma and tissue n-3PUFA levels and circulating sex hormone (testosterone, oestradiol and progesterone) concentrations have been observed. A role of sex hormones in regulating synthesis of the longer chain n-3PUFA, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), from their plant precursor α-linolenic acid has been well established. Recent studies have provided evidence that gender may be an important determinant of the effectiveness of n-3PUFA supplementation on health benefits.

We have demonstrated gender-specific responses in the efficacy of n-3PUFA supplementation on platelet aggregation in human subjects. In vitro, acute and chronic dietary supplementation studies have revealed that inhibition of platelet aggregation and haemostatic markers by EPA is limited to males only while reduction by DHA is limited to only female subjects. These results may explain why previous dietary intervention trials may have generated controversies surrounding anti-aggregatory and anti-thrombotic effects, if they were conducted using EPA rich oil in female subjects or DHA rich supplements in male subjects. No wonder, if the trial included both male and female subjects, the effects of n-3PUFA supplementation may have yielded equivocal results making it difficult to draw firm conclusions about the blood thinning effects of fish oils.

Gender may also be a critical factor when considering the beneficial role of n-3PUFA on body weight/composition. Weight loss studies involving life-style modifications have previously established that it is relatively easier for men to lose body weight compared to age-matched women. Our recent studies have demonstrated significantly higher weight loss on a calorie-restricted diet in women when supplemented with DHA rich fish oil compared to placebo capsules. The reasons for these gender differences remain to be determined and it is likely that n-3PUFA interact with a variety of psychological as well as biochemical factors contributing to these differences.

Gender differences in responses to n-3PUFA supplementation may explain existing controversies and will help the food industry in designing n-3PUFA fortified functional foods with optimum health benefits.
A recognised authority on cardiovascular and metabolic health benefits of bioactive nutrients, in particular omega-3 fatty acids, Peter has built strategic alliances with the food industry to develop functional foods and has contributed to regulatory policy. He established the Smart Foods Centre at Wollongong in 1999 and, on returning to Adelaide in 2002, the Nutritional Physiology Research Centre and ATN Centre for Metabolic Fitness, aimed at optimising physical and mental health through diet and lifestyle. He is a Fellow of the Nutrition Society of Australia and Editor-in-Chief of *Nutrients*.

**Nutrients and circulatory health**

Certain nutrients such as omega-3 fatty acids and various plant polyphenols offer cardiovascular health benefits, including enhanced endothelial vasodilator function, decreased inflammation and reduced platelet aggregation. Although such effects can help to maintain the integrity of blood vessels and may prevent the development of high blood pressure and coronary heart disease, they tend not to be accepted by regulatory authorities as evidence for health claims. However, it may be neither appropriate to apply measures of *therapeutic* efficacy used for cardiovascular drugs, e.g. LDL cholesterol or blood pressure reduction or secondary prevention of cardiovascular morbidity or mortality, to demonstrate primary *preventive* benefits of lifestyle interventions nor feasible without large scale, long term trials.

It is time to consider other biomarkers that reflect more subtle effects of nutrients on mechanisms which help to maintain circulatory health and prevent cardiovascular disease. Flow mediated dilatation and arterial compliance are gaining widespread acceptance as biomarkers of heart health and they may be more appropriate to use as efficacy measures for bioactive nutrients than the traditional risk factors. Moreover, by reflecting the health of the circulation, they may account for a wider range of benefits beyond heart health. Indeed, increasing evidence implicates circulatory deficits in mental disorders and it appears that endothelial dysfunction may be a primary pathogenic link.

We have been exploring the potential benefits of vasoactive nutrients on mood, memory and cognitive function. While numerous nutrients including caffeine and other stimulants may elicit acute effects, there is little evidence for sustained effects with regular consumption. Cocoa flavanols and omega-3 fatty acids have been shown to improve both circulatory function and cognitive performance in chronic intervention trials. Such promising associations appear to exist for other vasoactive nutrients and warrant further exploration.
An expert in cardiovascular nutrition, Penny conducts controlled clinical nutrition studies designed to evaluate the role of diet on risk factors for cardiovascular disease and has published over 250 scientific papers, 30 book chapters and co-authored 4 books. Penny has served on many national committees that have established dietary guidelines and recommendations, including the 2nd Adult Treatment Panel of the National Cholesterol Education Program, the Dietary Reference Intakes for Macronutrients Committee of the National Academies, the HHS/USDA Dietary Guidelines Advisory Committee 2005 and the Nutrition Committee of the American Heart Association. A Fellow of the American Heart Association and the National Lipid Association, she has received many awards including the Kritchevsky Career Achievement Award from the American Society of Nutrition (2012), the Marjorie Hulsizer Copher Award from the American Dietetic Association (2007), the Elaine Monsen Research Award from the American Dietetic Association Foundation (2005), the Foundation Award for Excellence in Research by the American Dietetic Association (1998) and the Lederle Award for Human Nutrition Research from the American Society for Nutritional Sciences (1991). She was President of the National Lipid Association (2011-12) and Chair of the Medical Nutrition Council of The American Society for Nutrition (2010-12).

Nuts and whole grains for cardiometabolic health

Epidemiologic studies have shown consistently that nut consumption decreases risk of cardiovascular disease (CVD) and diabetes in a dose-related manner. Nut consumption ≥ 5 times/week versus < 1/month is associated with an approximate 40% reduction in CVD risk. A pooled analysis of 25 clinical studies with different nuts and peanuts reported a dose-response decrease in LDL-C, LDL/HDL and TG with increasing nut consumption (10%, 12.2% and 20% of energy). The decrease in LDL-C is greater than that predicted from the fatty acid profile of nuts, indicating the presence of other bioactive, cholesterol-lowering compounds in nuts and peanuts. There is preliminary evidence that walnuts enhance cholesterol efflux in an ex vivo model. Nuts also lower blood pressure, improve vascular health, decrease inflammation and decrease many measures of oxidative stress. In addition, nuts and peanuts beneficially affect glucose and insulin, and favourably affect criteria for Metabolic Syndrome.

Whole grain intake consistently has been associated with improved cardiovascular disease outcomes in large observational studies. Whole grains high in viscous fibre (oats, barley) decrease serum low-density lipoprotein cholesterol and blood pressure and improve glucose and insulin responses. Grains high in insoluble fibre (wheat) moderately lower glucose and blood pressure but also have a probiotic effect. Obesity is inversely related to whole grain intake, but intervention studies with whole grains have not produced weight loss. Visceral fat, however, may be affected favourably. A recent review evaluated the effects of whole-grain consumption on markers of subclinical inflammation in 13 epidemiological and 5 intervention studies. Each serving of whole grains was estimated to reduce CRP concentrations by ≈ 7%.

In summary, the evidence is most supportive of dietary recommendations to increase consumption of nuts and whole grains for decreased risk of cardiometabolic diseases.
SESSION 2: FOOD FOR THE MIND

Chair

Professor Andrew Scholey
Director, Centre for Human Psychopharmacology, Swinburne University

Andrew is a leading international researcher into the neurocognitive effects of natural products, supplements and food components, having published over 100 peer-reviewed journal articles and numerous book chapters. He is Professor of Brain and Behavioural Sciences and co-director of the NICM Collaborative Centre for the Study of Natural Medicines and Neurocognition. In 1998, he established the Human Cognitive Neuroscience Unit at Northumbria University, UK and was the Unit’s director until joining the then Brain Sciences Institute at Swinburne University in 2007.
Speakers

Professor Louise Dye
Professor of Nutrition and Behaviour, Human Appetite Research Unit, Institute of Psychological Sciences, University of Leeds

Louise has held MRC and Royal Society Postdoctoral Fellowships in the UK and Europe including a Marie Curie Professorial Fellowship in Jena, Germany. Professor Dye is a Chartered Health Psychologist and member of the British Psychological Society. She began her career in Human Psychopharmacology and has over 20 years experience in the assessment of cognitive function following nutritional and pharmacological intervention. She has supervised over 20 doctoral students to completion within the standard period of study. Her research interests include functional foods for cognitive performance and wellbeing as well as hormone-food interactions and appetite/weight control. She has received more than £2m in research funding from international industrial partners and UK research councils in the last five years. She is associate editor of Nutritional Neuroscience and a member of the Editorial Board of Human Psychopharmacology. Professor Dye is a longstanding panel member of Panel A Diet and Health for BBSRC and reviews grants for many national and international research funding organisations. Currently, Professor Dye sits on three expert groups for the International Life Sciences Institute (ILSI). These are Postprandial Carbohydrate Metabolism, Benefits of Satiety and Biomarkers for Cognitive Function for which she also represents the cognitive expert panel on the interdisciplinary biomarkers scientific committee.

Foods for Cognitive Performance

Cognitive function or “mental performance” is a broad overarching term and there is no single test or measure which captures cognitive function. Our cognitive functions are however, essential for healthy living and for maintaining our independence as we age. Studies of the effects of foods on cognitive function (and product claims) need to be focussed and we need to identify cognitive domains which are specific and measurable in an accurate and valid manner.

There is growing evidence for the effects of our diet on our mental performance. This presentation will cover data, published and unpublished, from my own and others research, which demonstrates the capacity for specific food components to impact on performance in the short and longer term. For example, evidence that polyphenols can attenuate cognitive decline is growing from animal and human epidemiological studies. This is complemented by data suggesting benefits of consumption operating on cerebrovascular blood flow and neuronal signalling.

There are also apparent benefits for mental performance following the ingestion of certain meals such as breakfasts. Breakfast appears to be beneficial for mental performance in the late morning and particularly so, in children. The rising levels of obesity, impaired glucose tolerance and the development of type 2 diabetes may impact on the effects of food on cognition and also suggest populations who could benefit from the development of functional foods.

The importance of establishing the mechanism of action of observed effects and the gaps in our current evidence base will be considered. All of these purported effects of food components on cognitive function will be examined in the light of the new standards which are being applied to claims throughout Europe by EFSA in order to protect the consumer and establish the scientific basis for claims and health recommendations.
Dr Talitha Best  
Research Fellow, Nutritional Physiology Research Centre, The University of South Australia

Talitha is currently working as a Researcher in Business funded through an initiative of the Department of Innovation, Industry, Science and Research to facilitate knowledge transfer between the research and industry sectors. With a PhD in clinical psychology, Talitha’s research and clinical interests focus on the effects of nutrition and bioactive food components to improve mood and neurocognitive function. In particular, Talitha has been lead investigator in a series of publications investigating the effects of plant polysaccharides (plant sugars) on everyday cognitive abilities and well-being in middle-aged adults. Her contribution to cognition and nutrition research has been recognised by early career research travel awards and invited presentations.

Saccharides and Cognition

Polysaccharides, such as glucomannan and arabinogalactan, are an important group of complex carbohydrates which have both structural and functional capabilities. This talk will discuss the potential for polysaccharides to improve cognitive outcomes.

Over the last two decades, several plant-derived polysaccharides have been shown to possess properties that modulate biological processes underpinning health, including immunomodulatory activity, gastrointestinal and prebiotic activity, as well as anti-inflammatory and anti-oxidant activity. These mechanisms as well as central activity in the brain could underpin their potential effect on cognitive function.

This talk will consider the evidence for effects of polysaccharides on systems that could underpin cognitive function and evidence from double-blind placebo-controlled interventions which suggest the types of polysaccharides that, have to date, been demonstrated to have such effects in middle-aged adults. These exciting developments indicate a potential role for dietary polysaccharide interventions to support cognitive function into older adulthood and new opportunities to explore the impact of polysaccharides on the health of Australians.
Felice is responsible for the majority of the published studies worldwide concerning the association between diet quality and depression and anxiety in adolescents and adults. This is a very new area of research, which is transforming the way the CMDs are conceptualised. The aim of her research program is to continue to develop the evidence base for diet quality, and other aspects of lifestyle, as modifiable risk factors for these disorders, as well as developing and evaluating interventions at both the clinical and community level to improve dietary and other lifestyle practices, with the ultimate aim of improving the mental health status of the population.

**Diet quality and depression in children, adolescents and adults: new evidence supporting a preventative approach to mental illness**

The 20th century has seen major shifts in dietary intakes globally, with a marked increase in the consumption of sugars, snack foods, take-away foods and high-energy foods. At the same time, the consumption of nutrient-dense foods, such as high-nutrient vegetables and raw fruits, is diminishing. Physical activity levels are also suboptimal for a substantial proportion of the population. Chronic, lifestyle-driven diseases are now the largest contributor to early mortality across the globe.

Although not classified as one of the non-communicable diseases, uni-polar depression now accounts for the largest burden of disability in the developed world, reducing functional capacity and increasing the risk for early mortality across causes of death. In many medical disorders, from infections, to cancer and cardiovascular disorders, the greatest contribution to health has been through prevention rather than treatment. However, prevention at a public health level in psychiatric disorders has received less attention than individualised treatment efforts. Thus, there is a need for the development of effective universal preventive approaches to the common mental disorders at a population level.

In 2010 we published the first study to report a relationship between habitual diet quality and the clinical depressive and anxiety disorders. Since then, in addition to publishing further cross-sectional studies of this topic in Norwegian and Australian adults and adolescents, we have also published the first study to demonstrate prospective relationships between diet quality and mental health in adolescents. Our newest research implicates both childhood and prenatal diet quality in the risk for mental health problems in children. Given that 75% of psychiatric illnesses begin before age 25, these findings have significant implications for public health. This presentation will discuss the new evidence for diet quality as an important modifiable risk factor for the common mental disorders and address the potential for universal prevention strategies for depression and anxiety in the community.
The Relationship Between BMI and cognitive decline and dementia

The relationship between bodyweight and cognitive decline is complex and varies over the adult life course. The World Health Organisation has defined underweight as a BMI of < 18.5, normal weight as BMI between 18.5 and 24.99, overweight as a BMI between 25 and 29.99 and an obese BMI of 30+. Recent research has shown that adults who are overweight or obese in mid-life have an increased risk of dementia in late-life. Similarly, adults who are underweight in mid-life appear to have an increased risk of dementia in late life. However, losing weight is not necessarily associated with improving cognition in the short term.

Recent studies have also shown that weight loss in middle-aged adults is associated with cognitive decline in mid-life. Among older adults (aged over 60) the patterns are different. It appears that being slightly overweight is beneficial for a number of health outcomes, such as reduced fracture risk, better recovery from disability and possibly, longevity. These data are complicated by the fact that diseases leading to mortality and morbidity cause weight loss. In late life however, it does not seem that being overweight increases the risk of dementia.

The association between BMI and cognitive decline needs to be considered in the context of co varying risk factors such as dietary patterns and physical activity. It is possible that the effect of BMI on cognition is due to dietary patterns that involve high levels of fat, or other health changes such as insulin resistance. Similarly, sedentary behaviour increases the risk of cognitive decline and may also be associated with BMI. Mechanisms that may underlie a direct association between bodyweight and cognitive decline largely involve inflammatory processes. This presentation will provide an update of the findings on BMI, cognitive decline and dementia, and review current explanations of the associations.
SESSION 3: NUTRITION POLICY - WHERE GOVERNMENT, SCIENCE AND INDUSTRY INTERSECT

Chair

Professor Manny Noakes
Research Program Leader, CSIRO Animal, Food and Health Sciences

Manny graduated from Adelaide University in 1973 with a BSc, obtained her qualifications as a dietitian at Flinders University in 1977 and PhD in 2000. Manny is currently responsible for capability management for the Food Nutrition and Health Science Program. Manny has over 30 years experience in nutrition and published over 100 scientific papers. She has a strong interest in dietary patterns for weight management including the role of protein and other dietary factors in appetite regulation. Manny is co-author of the CSIRO Total Wellbeing Diet which has sold over 1 million copies in Australia and has received several awards in recognition of her research excellence including 2 CSIRO medals and an Outstanding Achievement Alumni Award by Flinders University. She is currently a member of the Australian Government’s Food and Health Dialogue.
Dr Geoffrey Annison
Australian Food and Grocery Council

Geoffrey has wide experience in food regulation and innovation, having held a number of senior technical and management roles in industry in Australia and overseas, in academia, and in public policy. His career has spanned a number of sectors including the FMCG sector with Goodman Fielder and the AFGC, the rural sector with organisations such as Australian Pork Ltd and AWB Ltd. and research providers such as Massey University in New Zealand and the CSIRO, providing him with an extensive knowledge of current industry issues, particularly in the technical arena. Dr Annison has a Bachelor of Science in Food Technology and a PhD in Microbiology from the University of New South Wales.

Public Private Partnership in Preventive Health

Diet-related non-communicable diseases are set to challenge health policy makers for the foreseeable future. While over consumption of calories leading to obesity and associated diseases is the current focus it does not stop there. More evidence is coming to light that portions of the population may be deficient in essential nutrients such as Vitamin D, iodine, iron, calcium and zinc. The public policy debate on appropriate interventions has been pronounced and often polarized, with calls for regulatory restrictions on food products regarding their formulation, their sale, and their promotion.

Evidence is sparse, however, that regulation is effective in the food, nutrition and health space. Indeed there are good reasons why it is not an appropriate policy instrument. Notwithstanding this, the food industry is well aware of the role it has to play in helping to address these nutritional challenges. Opportunities have always existed for individual companies to reformulate products and promote them appropriately through label claims and in advertisements, particularly in the context of an overall diet.

More recently, the industry has been responding collectively to achieve specific objectives all around the world. In Australia, the Australian Food and Grocery Council (AFGC) has been at the forefront of bringing the food industry together to work with government and other stakeholders to improve the nutrition and health status of Australians.

The 2007 Children’s Nutrition and Physical Activity Survey was a successful public private partnership where industry and government together sought evidence regarding the nutritional and health status of younger Australians. The Food and Health Dialogue, a partnership between government, AFGC, retailers, government and the public health sector is another initiative which has been successful, particularly in food reformulation. AFGC has also been developing further collaborative programs within its membership with specific community and workplace based initiatives.
A journalist by trade, Rohan was appointed as the Heart Foundation’s National Government Relations Director in 2006. He cut his teeth as Director of Public Affairs with the Australian Medical Association from 1992 to 2000. He has also worked as a Media Advisor to a Senator, Chief-of-Staff to an ACT Health Minister, Senior Advisor to an ACT Chief Minister and an Advisor to a Federal Cabinet Minister. Rohan has also worked as Director of Public Affairs at the Australian Local Government Association (ALGA), attending Council Of Australian Governments meetings as part of the ALGA delegation and has served on the boards of the ACT Cancer Council, the ACT Health Promotion Fund and Focus ACT. He attends meetings of the National Food and Health Dialogue and is a member of the national front-of-pack labelling project committee as well as its implementation working party.

Stuck on first base: How does Australia move from the mediocre to the magnificent in food policy?

Australia is a world leader in tobacco control, but falls well behind international best practice when it comes to nutrition. The tobacco control story is compelling. Strong political leadership, vigorous advocacy, and the implementation of comprehensive and complementary public health interventions have seen smoking rates plummet over the past few decades. Today, around 15 per cent of Australians are daily smokers, a far cry from the end of WW2 when 72 per cent of men smoked tobacco. Smoking rates have fallen by more than 30 per cent over the past two decades alone.

By contrast, the nutrition story is confounding. While smoking rates are going down, rates of obesity and diet-related illness have been rising. About 8 per cent of the burden of disease and injury in Australia in 2003 was attributed to high body mass, almost on a par with the burden cause by smoking. With 3 million obese Australians and rates rising over the past few decades, governments claim this to be a public health priority.

Hypertension alone is responsible for 7.6 per cent of this disease burden while overweight and obesity accounts for 7.5% and elevated cholesterol 6.2 per cent of the burden. These risk factors are all strongly associated with diet.

Inadequate fruit and vegetable consumption is a related concern, accounting for a further 2 per cent of the total burden of disease and injury among women and 3 per cent among men. Excessive salt consumption also cries out for attention, with Australians estimated to consume around 9 grams of salt a day, well in excess of recommended limits.

While high levels of obesity and chronic disease within our community present a massive threat to both public health and the public purse, when compared to our efforts on tobacco, our approach to nutrition is half-hearted. Relying on personal responsibility and niche projects has not been enough to arrest the growth in diet-related disease.

Other countries are showing the way with cost-effective initiatives including regulation, tax initiatives, robust food reformulation strategies and well-targeted social marketing. This presentation considers how Australia can become a world leader in nutrition, as it is a world leader in tobacco control, drawing from global experience and building on our own fledgling initiatives and programs.
Evidence Based Policy—springboard or anchor?

In an ever changing environment, the development of any policy around food and nutrition must be supported by, and based on, the best quality and most up to date evidence. Who wouldn’t agree with this? But in the real world, and real (political?) time, practicing this is harder. The scope of considerations for public health nutrition and associated policy is broad and should integrate knowledge from local, national, regional and international levels with the aim of informing coherent, effective steps to improved public health.

Although there are many determinants that affect policy development such as social, economic, political, producer/manufacturer, consumer, retailer and trade factors, scientific evidence and consensus should underpin and anchor the policy by enabling a clear enunciation of the problem and possible solutions. Consideration of the other determinants follows.

However, there is often a lack of consensus between parties involved in developing nutrition-related policies. The evidence base is therefore a springboard for action and the amount and quality of the available research will determine the amount of spring by which a policy action can be launched.

This presentation will consider some current examples from the work of the Australian National Preventive Health Agency including:

- The Measure Up social marketing campaign; and
- The marketing of unhealthy food to children

The complexity, and in some cases ambiguity, of the evidence that is used, and needed, for these measures provides real-time examples of the limitation and options offered by the anchor and springboard. The quality, timeliness and translation of evidence are also critical to this process.
Ingrid joined CSIRO in 2006 within the Food and Nutritional Sciences division as a group leader in food materials science. She became theme leader for Designed Food and Biomaterials research program which focuses on developing all natural manufactured food (clean label); healthier foods (low sugar, salt, fat and high fibre, protein); the relationship of food structures with humans and how that controls delivery of nutrition and sensory perception. She is currently seconded to the Department of Health and Ageing in Australia as a consultant to define the targets of salt, sugar and fat reduction in manufactured food categories. She also leads the secretariat for the National Food and Nutrition Leaders Science Forum for the development of the National food and nutrition R&D strategy and leads the Australian international knowledge based bio economy stream on food and health.

**Changing the food supply – technical constraints and solutions**

National policy plans are taking centre stage in Australia where a raft of key governmental policy and strategy initiatives for the food industry are being developed. The National Food Plan currently out for consultation and the national food and nutrition R&D and TT strategy in development are just a few examples.

As a result of these national strategies the food industry will need to respond to their recommendations and this will include changing the food supply. One aspect of the food supply that has received scrutiny is the reformulation of manufactured foods, so that they are healthier for consumers and provide additional functionality to promote well being.

The challenge for the food industry is that changing one component in a product often impacts on the food structure and functional performance and quality of the food. This in turn impacts on the consumer acceptance of these products based on their sensory perception.

Development of healthier foods without loss of sensory attributes and new functional properties to promote healthy ageing is an active R&D science area both in Australia and globally. There have been a number of new approaches based on materials and sensory science and new designs to innovative ingredients to replace the function of some food components that have been targeted to be lowered or replaced. Examples of technical approaches are the pulsed delivery of tastants through food structure design and optimising cross-modal interaction to enhance taste perception.

This talk discusses the trend for changing the food supply and highlights some of the technical and consumer acceptability constraints and finally will show some of the R&D approaches being taken to support the delivery of healthier processed food.
An expert in cardiovascular nutrition, Penny conducts controlled clinical nutrition studies designed to evaluate the role of diet on risk factors for cardiovascular disease and has published over 250 scientific papers, 30 book chapters and co-authored 4 books. Penny has served on many national committees that have established dietary guidelines and recommendations, including the 2nd Adult Treatment Panel of the National Cholesterol Education Program, the Dietary Reference Intakes for Macronutrients Committee of the National Academies, the HHS/USDA Dietary Guidelines Advisory Committee 2005 and the Nutrition Committee of the American Heart Association. A Fellow of the American Heart Association and the National Lipid Association, she has received many awards including the Kritchevsky Career Achievement Award from the American Society of Nutrition (2012), the Marjorie Hulsizer Copher Award from the American Dietetic Association (2007), the Elaine Monsen Research Award from the American Dietetic Association Foundation (2005), the Foundation Award for Excellence in Research by the American Dietetic Association (1998) and the Lederle Award for Human Nutrition Research from the American Society for Nutritional Sciences (1991). She was President of the National Lipid Association (2011-2012) and Chair of the Medical Nutrition Council of The American Society for Nutrition (2010-2012).


The U.S. Federal Government has a long history of issuing Dietary Guidelines for Americans for health promotion and disease prevention. As the result of Federal Legislation, Dietary Guidelines for Americans are issued every five years; the first Guidelines were released in 1980. Many interested parties, including the food industry, play an active role in communicating nutrition science information to the Dietary Guidelines Advisory Committee (DGAC - that is empowered to author each Report which forms the basis for the official Dietary Guidelines that are issued by the U.S. Departments of Agriculture and Health and Human Services). Some of the research reviewed by DGAC originates from industry sponsored research. The food industry also plays a role in issuing statements and “white papers” during the public comment period.

There are occasions where the Federal Agencies partner with industry groups to fund nutrition-related research. Industry supports nutrition research in various ways by providing funding, foods and food components, as well as food supplements. The value and importance of such relations is underscored by the existence of the National Institutes of Health Clinical Translation Science Awards (CTSA) consortium that has as one of its specific goals “to stimulate alliances in medical research and research training by identifying opportunities for collaboration among the CTSA members and private-sector organizations”. As can be appreciated, research partnerships between the food industry and scientists at universities and medical schools must be managed in a manner that avoids conflicts of interest.

Other venues where government, science and the food industry intersect include programs at the Food and Drug Administration (FDA) that have the legal authority to approve Health Claims and other information (the Nutrition Facts Panel) that is on food packages. The food industry provides input to important decisions that are made with respect to the issuance of FDA-approved nutrition information.
Chair/Adjudicator

Professor Caroline McMillen
Vice-Chancellor and President, The University of Newcastle

Caroline joined the University of Newcastle as Vice-Chancellor and President in 2011. She holds a BA and Doctor of Philosophy from Oxford University, and completed her medical training at the University of Cambridge. She has held senior appointments at Monash University, the University of Adelaide and the University of South Australia. She has served on national and state government groups focused on: building innovation, climate change, manufacturing and the resources industry. She has an international reputation for her research on the early origins of adult health and has served on national and international research review groups.

Speakers FOR

Associate Professor Jon Buckley
Director, Nutritional Physiology Research Centre, The University of South Australia

Jon is an authority on the health effects of diet and physical activity and his research addresses the effects of nutrition and exercise on cardiovascular, metabolic, mental and physical function in populations ranging from patients with chronic disease to elite athletes. His research findings have contributed to the development of patents for a number of new nutritional products, influenced nutrition policy in Australia and overseas and contributed to changes in the way athletes are trained.

Dr Leisa Ridges
Scientific Affairs Manager, Nestle Oceania

Leisa has worked for the past three years in the Regulatory and Scientific Affairs team for Nestle Oceania. In that role Leisa systematically reviews and quality assesses scientific literature as part of scientific substantiation to support claims and communication about the role of foods or food ingredients in the body. In doing so, Leisa works closely with colleagues in Corporate Nutrition, Consumer Insights and the Product Application Teams. Leisa has a PhD in nutritional physiology and prior to her position at Nestle worked at the University of Wollongong as Commercial Research Manager and earlier as Regulatory Affairs Analyst for the National Centre of Excellence in Functional Foods.
Speakers AGAINST

Mr Bill Shrapnel
Deputy Chairman, Sydney University Nutrition Research Foundation

Bill has over 30 years experience as a nutritionist. He has been Dietician-in-Charge at two health services in NSW and helped develop community nutrition at Gosford in the 1980s. In the early 90s he spent four years as the National Nutrition Manager with the Heart Foundation, where he managed the Tick Program and developed his interest in diet and coronary heart disease. For the past 17 years Bill has run a nutrition consultancy based in Sydney. His current clients include Goodman Fielder and Kellogg. He is a published author and is currently the Deputy Chairman of the Sydney University Nutrition Research Foundation.

Dr Malcolm Riley
Nutrition Epidemiologist, CSIRO Animal, Food and Health Sciences

Malcolm Riley is a dietitian with a PhD in epidemiology. At CSIRO Animal, Food and Health Sciences he is developing a program of population nutrition and physical activity monitoring. He has experience in public health, policy development and analysis, monitoring and surveillance (injury and dietary), micronutrient deficiency, and Aboriginal health. He has worked for academic institutions, research centres, government and the Australian dairy industry.
FORUM CO-HOSTS

The Nutritional Physiology Research Centre has an international reputation for human research on the roles of nutrition and physical activity in attaining and maintaining optimal physical and mental health and in counteracting obesity and the diseases of affluence. The Centre recognises the economic and social importance of addressing both diet and lifestyle in order to optimise health development and counteract risk factors for chronic disease across the lifespan. Our research addresses cardiovascular, metabolic, anti-inflammatory and mental health benefits of diet and physical activity and the underlying mechanisms in populations ranging from patients with chronic disease to elite athletes. Physiological effects of whole foods (e.g. dairy, pork), bioactive nutrients (e.g. omega-3, phytoestrogens, antioxidants) and other dietary factors are evaluated, alone or in combination with regular exercise, in human trials. The Centre's research programmes are supported by Category One Funding (ARC, NHMRC and NHF), other Government funding and partnerships with food the industry. Research outcomes are expected to benefit food industry partners and consumers by supporting the development of healthier food products and substantiating associated health claims, and informing public health recommendations for nutrient intakes and physical activity requirements.

www.unisa.edu.au/nutritional.physiology

Clinical Nutrition Research Centre

The Clinical Nutrition Research Centre is a new collaborative initiative based at the University of Newcastle’s School of Biomedical Science & Pharmacy and the Hunter Medical Research Institute. It is affiliated with UniSA’s Nutritional Physiology Research Centre and the Centre for Human Psychopharmacology at Swinburne University. Headed by Professor Peter Howe, it will bring existing expertise in nutraceuticals into new research partnerships aimed at:

- Expanding knowledge of physiological functions of bioactive nutrients and functional foods;
- Evaluating human health benefits and determining the therapeutic potential of bioactive nutrients, used alone or as adjuncts to drug therapy;
- Obtaining evidence to substantiate health claims for foods and nutraceuticals;
- Fostering a national framework of collaboration in nutraceutical research;
- Promoting translation of nutraceutical research into community practice.


Animal, Food and Health Sciences -

CSIRO Animal, Food and Health Sciences conducts food and nutrition research to support the health and wellbeing of the Australian community and the sustainability and viability of the Australian food industry. Our science outcomes are delivered through four key research areas:

Health: As part of a national approach, benefit the health and wellbeing of the Australian population and assist the food industry bring foods with substantiated health and functional benefits to market.

Consumer Behaviour: Improved health and wellbeing outcomes in the Australian population through sustained changes in eating behaviours.

Sustainable Agri-food Processing: Development of innovative approaches for the efficient transformation of agri-food materials that enable validated through-chain sustainability in a resource constrained world.

Food Safety and Stability: Assuring the safety and quality of Australian foods within an integrated national biosecurity system.
Newcastle Innovation is a rapidly growing not-for-profit organisation linking business and government to the knowledge and expertise at the University of Newcastle, Australia. Since its creation in 1969, Newcastle Innovation has facilitated the transfer of knowledge, technology and scientific research from the University to commercial partners. This is achieved by linking the University’s consulting and contracted research to industry and securing investment dollars to commercialise innovative technology developed within the institution. Visit www.newcastleinnovation.com.au or call 02 4921 8777.