



NUTRITION & COOKING
EDUCATION SYMPOSIUM





PRESENTATION ABSTRACT & PRESENTER BIOGRAPHY BOOKLET

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Welcome

It is our pleasure to welcome you to this virtual symposium on Nutrition & Cooking Education coordinated by the Priority Research Centre for Physical Activity and Nutrition (PRCPAN) at the University of Newcastle, Australia. We are delighted that we are still able to host this symposium during the uncertain times of COVID-19, when many international and national conferences and research travel has been cancelled or postponed. We have a very interesting and exciting program lined up including 15 presentations and 13 posters talks. Our delegates come from several countries who are all eager to share their work and ideas.

We were very happy to see a large interest for the symposium by many early career researchers but also senior researchers. The purpose of this symposium is to give Higher Degree Researchers, early career researchers and research assistants an opportunity to present and to exchange their work. Dr Emma Beckett and Prof Clare Collins were invited to lead two discussion sessions. Together with the contribution of all of our symposium attendees, we can create an informative and fun virtual symposium. The two main sessions held during this symposium include a cooking education session and a child nutrition education session. Sessions are recorded and will be made available to all registered participants on nutriedu.com.au. Both recordings and poster files will be password protected.

We would like to thank Daphne van der Bend and Nienke de Vlieger for their assistance with organising the event. We highly appreciate all time and effort from our chairpersons.

We hope you enjoy this virtual symposium!

Kind regards,

Nutrition & Cooking Education Symposium Organising Team

Organising team:

Dr Tamara Bucher

Dr Jenna Hollis

Dr Vanessa Shrewsbury

Ms Berit Follong

Ms Roberta Asher

Ms Angeliek Verdonschot

Program outline

Nutrition & Cooking Education Symposium 12th of June 2020

Time (AEST)	Activity	Chair/Speaker
8.00-8.10am	Welcome	Dr Tamara Bucher & Dr Jenna Hollis
8.10-9.00am*	Session 1: Cooking Education	Dr Tamara Bucher
8.10-8.25am	Guidelines for designing age-appropriate children's cooking interventions: the development of evidence-based cooking recommendations for children, a multidisciplinary approach	Prof Moira Dean
8.27-8.43am	The Devil is in the detail: an effective co-creative multidisciplinary strategy to content development for children's cooking interventions	Dr Fiona Lavelle
8.45-9.00am	Measuring success – the need for validated measures in cooking skills and nutrition education	Dr Tony Benson
9.00-9.15am	Morning Tea Break with Energizer	
9.15-10.00am*	Session 1: Cooking Education (continued)	Dr Vanessa Shrewsbury
9.15-9.30am	Development of the Home-Cooking EnviRonment and equipment Inventory Observation Form (Home-CookERI™): an assessment of content validity, face validity and inter-rater agreement	Ms Sonja Schönberg
9.30-9.45am	Preconception, pregnancy and postpartum interventions with a culinary education: A Systematic Review	Dr Rachael Taylor
9.45-10.00am	Cook-Ed™: A model to guide the planning, development and evaluation of domestic cooking education programs	Ms Roberta Asher
10.00-10.30am	Discussion Cooking Education	Dr Emma Beckett
10.30-11.00am	E-Poster Session	Ms Roberta Asher
11.00-1.00pm	Lunch Break - Offline	
1.00-2.00pm*	Session 2: Nutrition Education	Prof Clare Collins
1.00-1.15pm	Taste and Learn™: a new validated education resource for primary schools to increase vegetable enjoyment and other mediating factors of vegetable consumption	Dr Astrid Poelman
1.15-1.30pm	Which components of existing nutrition education programs are most effective? A quasi-experimental study in Dutch primary school children aged 8-12 years old	Ms Angeliek Verdonschot
1.30-1.45pm	A cluster randomised controlled trial of a sugar-sweetened beverage intervention in Australian secondary schools	Ms Jia Ying Ooi

1.45-2.00pm	Development of a nutrition education m-health intervention to improve the nutritional quality of primary school children's lunchboxes	Ms Renee Reynolds
2.00-2.15pm	Afternoon Break with Energizer	
2.15-3.30pm*	Session 2: Nutrition Education (continued)	Dr Jenna Hollis
2.15-2.30pm	Food literacy and numeracy in Australian Secondary schools	Ms Shirin Shakeri
2.30-2.45pm	Integrating nutrition and mathematics into the Australian primary school curriculum: perspectives of teachers and students	Ms Berit Follong
2.45-3.00pm	Incorporating the online Australian Eating Survey® into an Educational Package for the Delivery of Nutrition Education in Secondary Schools	Ms Tammie Jakstas
3.00-3.15pm	Playing a nutritionally focussed serious game: can it improve children's nutrition knowledge?	Ms Nienke de Vlieger
3.15-3.30pm	Social media food marketing and dietary behaviours in adolescence: expert perspectives on key priorities, challenges and strategies	Ms Daphne van der Bend
3.30-4.00pm	Final Discussion, Awards and Closing	Prof Clare Collins & Dr Tamara Bucher

*Presentation times include 2-3 minutes for discussion

Nutrition & Cooking Education Symposium

E-Poster Session

Time (AEST)	Poster	Speaker
10.30-10.33am	A qualitative, multi-stakeholder analysis of needs, wants, and barriers to next generation consumer engagement with food: Findings from WeValueFood, a Pan-European project	Niamh O’Kane
10.33-10.36am	Exploring nutrition knowledge levels of Australian university students: findings from the AUS-R NKQ validation study	Courtney Thompson
10.36-10.39am	Cultivating cooking skills during COVID-19	Dr Sandra Fordyce-Voorham
10.39-10.42am	Food Literacy and Food Numeracy in Australian Secondary Schools: A Review	Shirin Shakeri
10.42-10.45am	The impact of an integrated nutrition and mathematics teaching unit on primary school children’s portion size estimation skills	Berit Follong
10.45-10.48am	Make ‘n’ Take logic model	Anne Hills
10.48-10.51am	Nutrition and Sustainability in Education	Kylie Smith
10.51-10.54am	Developing an experiential vegetable education program for Australian Early Learning Years	Maeva Broch
10.54-10.57am	Cooking autonomy: a multilevel conceptual model on domestic cooking	Mariana Fernandes Brito de Oliveira
10.57-11.00am	Food Education in Victorian Primary Schools*	Godze Aydin
11.00-11.03am	‘CIDIHNA DÁ JEITO’: a series of short videos as a virtual communication strategy to guide and encourage domestic cuisine in Brazil*	Carla Andrio Martins
11.03-11.06am	Adolescents’ awareness and appreciation of social media food marketing strategies*	Tjamke Beunke
11.06-11.09am	Cooking as part of a global sustainable food system – a 6 country pilot survey*	Christian Reynolds

*Pre-recorded presentations

Chairpersons

Dr Tamara Bucher

Dr Bucher is a Senior Lecturer and Consumer Behaviour researcher at the University of Newcastle. She holds a Bachelor's and Masters in Biology and a Masters of Advanced Studies in Human Nutrition and Health from ETH Zurich (ETHZ), Switzerland. During her PhD she developed and validated an innovative method for consumer behaviour research using 'fake foods'. Dr Bucher joined the University of Newcastle (UON) Priority Research Center for Physical Activity and Nutrition (PRCPAN) in 2014 with a Swiss National Science Fellowship, to collaborate with dietitians and engineers and to combine her methods with augmented reality and other smart technologies and develop applications in nutrition education. Dr Bucher's combination of natural science and social science research skills has enabled her to develop and lead a consumer behavior and nutrition education research program at the UON. Dr Bucher and her team are investigating ambient influences on food choice and how we can use this knowledge to facilitate healthy eating.



Full profile: <https://www.newcastle.edu.au/profile/tamara-bucher>

Dr Jenna Hollis

Dr Jenna Hollis is a dietitian and Hunter Medical Research Institute (HMRI) Research Fellow in Public Health at the University of Newcastle and Hunter New England Population Health in Newcastle, Australia. Her research focuses on a lifecourse approach to chronic disease prevention by improving health behaviours (such as smoking, nutrition, alcohol, and physical activity) in women and their children through clinical and community health service delivery. Along with Tamara, Jenna co-leads the Internationalisation Pillar for the Priority Research Centre for Physical Activity and Nutrition (PRCPAN).



Full profile: <https://www.newcastle.edu.au/profile/jenna-hollis>

Dr Vanessa Shrewsbury

Dr Shrewsbury is a dietitian (BHLthSc (Nutr&Diet) (Hons), The University of Newcastle (UON, 2001) and a postdoctoral researcher (PhD, University of Sydney (USyd, 2011). In 2016, she joined the Priority Research Centre for Physical Activity and Nutrition, UON, where she has developed programs of research on childhood obesity, maternal nutrition and cooking skill development. Previously, Dr Shrewsbury was a research dietitian at USyd (2007-16), University College London (2005-06) and The Children's Hospital at Westmead (2002-04) where she researched obesity aetiology, and worked with multidisciplinary teams to develop and evaluate programs for childhood obesity screening, prevention and treatment. Two programs have received Local Health District quality awards and have been translated into practice - Weight4Kids and The Students As LifeStyle Activists (SALSA) program. She supervises PhD and Masters students who are developing innovative tools – The Cook-Ed™ Model and Home-CookERI™ - for cooking research and program development.



Full profile: www.newcastle.edu.au/profile/vanessa-shrewsbury

Dr Emma Beckett

Dr Emma Beckett is a food and nutrition scientist and lecturer at the University of Newcastle Central Coast. She researches why we all respond differently to foods. Emma is also a passionate science communicator, focusing on empowering the public to interpret nutrition research. She appears regularly in print, online, on radio and television. She aims to empower people to make more informed choices about food, without fear or judgement. She collects food themed dresses and earrings, and loves football, cats, and Agatha Christie.



Full profile: <https://www.newcastle.edu.au/profile/emma-beckett>

Prof Clare Collins

Professor Collins is an NHMRC Senior Research Fellow, Director of Research for the School of Health Sciences, Faculty of Health and Medicine at the University of Newcastle. She leads the largest team of research dietitians internationally in developing food and nutrition eHealth tools, programs and evaluating the impact on eating patterns and diet-related health across key life stages and chronic disease conditions. Professor Collins has published over 350 manuscripts and supervised 28 Higher Degree Research candidates to completion. Professor Clare Collins is a Fellow of the Australian Academy of Health and Medical Sciences, Fellow Nutrition Society of Australia and Fellow of the Dietitians Association of Australia (DAA). In 2018 she was awarded the DAA President's Award for Innovation in Honour of the Memory of Josephine Rogers and in 2017 the Hunter Medical Research Institute, Researcher of the Year.



Prof Collins is a sought after media commentator. She is a regular guest of Dr Karl on TripleJ Science Hour and has presented for ABC Catalyst. She co-created the Massive Open Online Course (MOOC), The Science of Weight Loss - Dispelling Diet Myths, has been completed by over 57,000 people across 180 countries. Professor Collins is the most read Australian author for The Conversation with over 80 articles and 9.5 million readers.

Full profile: <https://www.newcastle.edu.au/profile/clare-collins>

Session 1: Cooking Education

This first session includes six presentations on a variety of cooking-related topics.

Presentation overview

- » Guidelines for designing age-appropriate children’s cooking interventions: the development of evidence-based cooking recommendations for children, a multidisciplinary approach, *Dr Moira Dean*
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- » The Devil is in the detail: an effective co-creative multidisciplinary strategy to content development for children’s cooking interventions, *Dr Fiona Lavelle*
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- » Measuring success – the need for validated measures in cooking skills and nutrition education, *Dr Tony Benson*
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- » Development of the Home-Cooking EnviRonment and equipment Inventory Observation Form (Home-CookERI™): an assessment of content validity, face validity and inter-rater agreement, *Ms Sonja Schönberg*
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- » Preconception, pregnancy and postpartum interventions with a culinary education: A Systematic Review, *Dr Rachael Taylor*
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- » Cook-Ed™: A model to guide the planning, development and evaluation of domestic cooking education programs, *Ms Roberta Asher*
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Guidelines for designing age-appropriate children’s cooking interventions: the development of evidence-based cooking recommendations for children, a multidisciplinary approach

MOIRA DEAN^{1,2}, CHLOE O’KANE¹, JOHANN ISSARTEL³, AMANDA MCCLOAT⁴, ELAINE MOONEY⁴, JULIA WOLFSON^{5,6}, DAVID GAUL⁷, FIONA LAVELLE¹

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Biography

Moira Dean is a Professor in Consumer Psychology and Food Security. Moira’s research focuses on studying the ‘head, heart and hands’ (perceptions, attitudes, and behaviours) of actors along the food supply chain to explore food security challenges in three main areas: (1) global food integrity, (2) nutrition and health, (3) how we’ll feed the world’s growing population in a sustainable, cost-effective and environmentally friendly way. Applying a holistic, integrated and experiential approach, Moira’s research aims to understand actors from ‘farm to fork’ (e.g. farmers, manufacturers, policy-makers, and consumers), using both qualitative and quantitative research methods, to provide implications for policy, practice, and subsequent research. Research in the group has explored, for example: food traceability; food quality (including safety); food fraud, competitiveness, resilience and trust in food supply chains; food marketing; food portion sizes; food shopping; and cooking/food skills.



Abstract

Purpose: Childhood obesity is a global epidemic. One of the key recommended strategies for its prevention is increasing children’s cooking skills to enable children to make healthier food choices through involvement. However, a decline in domestic cooking is reported in adults and thus, opportunities for children to learn cooking skills. To address this a number of online sources have published age-related cooking skills recommendations for children to be using. Yet, the rationale and/or evidence for assigning skills to the specific ages is unclear. Thus, this study aimed to critically analyse the appropriateness of age-related publically available children’s cooking skills recommendations to provide evidence based cooking skills recommendations.

Methods: Available online resources recommending age-related cooking skills were critically sourced and the cooking skills were deconstructed into their basic mechanical and cognitive components. These components were then mapped onto age-related fine motor skill, numeracy and literacy recommendations. Finally, a two-stage multidisciplinary international expert review, critique and refinement to establish face validity of the proposed recommendations was undertaken.

Results: New evidenced-based and expert reviewed age appropriate cooking skill recommendations are proposed.

Conclusions: The new age-related cooking skill recommendations can provide guidance for parents and guardians in relation to different cooking tasks that they can do with their children in the home

environment. Additionally, the recommendations can be used within the Cook-Ed framework when designing and targeting cooking interventions to children of specific ages in schools and in the community.

The Devil is in the detail: an effective co-creative multidisciplinary strategy to content development for children's cooking interventions

MOIRA DEAN¹, AMANDA MCCLOAT², ELAINE MOONEY², JOHANN ISSARTEL³, FIONA LAVELLE¹

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Biography

Dr Fiona Lavelle, BSc (Hons), MSc, PhD, is a research fellow at the Institute for Global Food Security within the School of Biological Sciences at Queen's University Belfast. Her background in Sport Science and Health (Dublin City University) and Preventive Cardiology (Imperial College London), gives her a wide perspective on a number of health-related issues. She obtained her PhD in 2017, investigating the impact of cooking and food skills on the healthiness of diets in adults as well as barriers and facilitators to cooking from basic ingredients. She was first author on a number of high impact publications in relation to adults cooking behaviours as well innovative research into the impact of age of learning cooking skills on skill retention and dietary outcomes and on the transference of domestic cooking skills from parent to child. She has been involved in and led on developing and implementing engaging age appropriate food education materials for primary school children in a multi-stakeholder, whole-school approach complex intervention. She is currently leading novel interdisciplinary research on interlinking motor skills development and cooking skills in children.



Abstract

Learning cooking skills (CS) at younger ages is associated with positive dietary outcomes and skill retention in later life. Learning CS in the home is in decline leaving the next generation without these life skills. To counteract this, there has been an increase in interventions targeting children, however, they have had weak results. Although new models, e.g. the CookEd model, are strengthening the design of these interventions, little consideration has been given to the rationale and development of the content of the interventions. Thus, this research aimed to develop an effective approach for content development for a children's cooking intervention.

The intervention content was co-created in an iterative process with Home Economists, a chef and human movement scientist and insights from the participants. Each proposed recipe was deconstructed for cooking skills and mapped to motor skills to ensure age appropriateness. This content development approach was then tested in a controlled, short duration, high intensity cooking camp intervention with children. Sixteen children took part in week one of the camp with pre and post measurements including perceived cooking competence and enjoyment. The control group (delayed intervention) did the same measurements in week one, receiving the intervention in week 2.

Preliminary results indicate that there was a significant improvement in the intervention groups perceived cooking competence ($P < 0.001$) when compared to the control group.

The novel multidisciplinary approach to developing content may be an effective method to design successful cooking interventions and should be considered as a useful strategy in future intervention design.

Measuring success – the need for validated measures in cooking skills and nutrition education

MOIRA DEAN¹, JOHANN ISSARTEL², TONY BENSON¹, AMANDA MCCLOAT³, ELAINE MOONEY³, FIONA LAVELLE¹

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Biography

Dr. Tony Benson is a Research Fellow at Queen's University Belfast and a Lecturer in Health Psychology at the University of Derby. Tony holds a BSc Psychology degree, which was followed by an MSc and PhD in Health Psychology. During this time, he also worked as a Research Consultant, contributing to now over 10 years' research experience in both academia and commercial settings. He has a range of research interests including diet, food, and nutrition and their links with health, as well as risk perceptions/behaviours and behaviour change. Tony will present on the development and use of validated and reliable research measures in cooking research.



Abstract

Purpose: Interventions relating to cooking and nutrition are vital to improve education, knowledge, and behaviour. However, research in this area has been criticised for a lack of adequately developed and validated measurement tools. Using the development of a children's perceived cooking competence measure as an example, this talk will discuss the importance and use of established measures in this area of research.

Methods: To create an age appropriate children's cooking skill scale, available cooking recommendations were reviewed and deconstructed for numeracy and literacy skills and motor skills. In total, 14 frequently occurring skills were identified. Following this, an expert panel (educational researcher, primary school teacher, early year's educator, movement scientist and home economists) reviewed the skills for age appropriateness and level of difficulty. A graphic designer then created child-friendly character scales for each skill. These were piloted for usability and feedback. Following feedback, in total two measures were developed, one for younger children and one for older children.

Results: Initial results indicate average to good internal reliability with good levels of variance explained. Positive feedback was gained from both educators and children. Further results will be presented.

Conclusions: We believe the current measure is the first child-report measure in children's perceived cooking competence. The tool has the potential for multiple applications in both survey and intervention research. Initial positive results indicate that this is a valid and reliable measure for use in future research.

Development of the Home-Cooking EnviRonment and equipment Inventory Observation Form (Home-CookERI™): an assessment of content validity, face validity and inter-rater agreement

SONJA SCHÖNBERG¹, ROBERTA ASHER^{2,3}, SAMANTHA STEWART², MATTHEW J. FENWICK^{2,3}, LEE ASHTON^{2,3}, TAMARA BUCHER^{2,5}, KLAZINE VAN DER HORST¹, CHRISTOPHER OLDMEADOW^{3,4}, CLARE E. COLLINS^{2,3}, AND VANESSA SHREWSBURY^{2,3}

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⁵School of Environmental and Life Sciences, Faculty of Science, The University of Newcastle, Australia

Biography

Born and raised in Berlin (Germany), I completed my BSc in Nutrition and Dietetics at the Bern University of Applied Sciences (Switzerland) from 2008-2013. Afterwards I worked as a dietitian in my own consulting practice and at the same time took a position as a research assistant at the Bern University of Applied Sciences, Department Nutrition and Dietetics. In 2018 I decided to start my MSc at the School of Agricultural, Forest and Food Sciences HAFL, Switzerland. The studies enabled me to travel to Newcastle, Australia in 2019 and work on my Master's project together with the researchers at PRCPAN: Development of the Home-Cooking EnviRonment and equipment Inventory Observation Form (Home-CookERI™): an assessment of content validity, face validity and inter-rater agreement. I will finish my Master of Life Sciences - Food Nutrition and Health this summer and am very much looking forward to things to come.



Abstract

Quantifying home cooking environments has applications in nutrition epidemiology, health promotion and evaluation of nutrition interventions. This study aimed to develop a tool to quantify household cooking environments and establish its content validity, face validity and inter-rater agreement.

A 91-item Home-Cooking EnviRonment and equipment Inventory Observation Form (Home-CookERI™) was developed as an online survey. Items included domestic spaces and resources for storage, disposal, preparation and cooking of food or non-alcoholic beverages. Home-CookERI™ was piloted to assess face and content validity, and usability with 6 Australian experts (i.e. dietitians, nutrition researchers, chefs, a food technology teacher, a kitchen designer) and 13 lay persons. Accordingly, Home-CookERI™ was modified to a 89-item survey. Inter-rater agreement was examined between two trained raters in 33 unique households in Newcastle, NSW, Australia. Raters were blinded to each other's responses. Inter-rater agreement was calculated by Cohen's Kappa coefficient [κ] for 81 kitchen items.

Home-CookERI™ had excellent face and content validity with participants responding, that all 33 of the questions, i.e. content definitions per section were both clear and relevant (X2 1, $n=19$; 19.0 , $p=0.392$). Inter-rater agreement for the modified 81-item Home-CookERI™ was almost perfect to perfect for 46% of kitchen items [$n=37$ $\kappa=0.81-1$], moderate to substantial for 28% [$n=23$, raters=2, $\kappa = 0.51-0.8$], slight to fair for 15% [$n=12$, $\kappa=0.01-0.5$] and chance or worse for 11% of kitchen items assessed [$n=9$, raters=2, $\kappa \leq 0.0$]. Home-CookERI™ was optimised by reduction to a 77-item version, which is now available to researchers.

Home-CookERI™ is a comprehensive tool for quantifying Australian household cooking environments with excellent face and content validity, and moderate to perfect inter-rater agreement for almost three-quarters of its kitchen items. To expand Home-CookERI™ applications, a home occupant self-completion version is planned for validation.

Preconception, pregnancy and postpartum interventions with a culinary education: A Systematic Review

RACHAEL M. TAYLOR¹, JULIA A. WOLFSON², FIONA LAVELLE³, MOIRA DEAN^{1,3}, MELINDA J. HUTCHESON¹, CLARE E. COLLINS¹, VANESSA A. SHREWSBURY¹.

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Biography

Dr Rachael Taylor is a postdoctoral researcher at the Priority Research Centre for Physical Activity and Nutrition (PRCPAN), University of Newcastle. She has experience in project management related to the delivery of a web-based healthy lifestyle program for women with a history of pre-eclampsia. Dr Taylor completed her PhD (Behavioural Sciences) which included a systematic review and meta-analysis, which evaluated the impact of maternal nutrition interventions on child cognitive outcomes. Dr Taylor has published a total of 13 publications (including 8 first author publications) and has secured \$20,000 in grant funding.



Abstract

The purpose of this review was to systematically synthesise current literature on the impact of interventions with a culinary education component for women with or without their partners during pre-conception, pregnancy or post-partum (PPP), on parental cooking skills, nutrition knowledge, parent/child diet quality or health outcomes. Eleven electronic databases were searched for experimental studies published from 2000 to October 2019. Eligible studies included standalone culinary education interventions or the same delivered as part of a multicomponent intervention during preconception (≤ 2 years prior to conception), pregnancy or the postpartum period (≤ 5 years after childbirth) on parental cooking skills, nutrition knowledge, parent/child diet quality or health outcomes. Of 7022 articles identified from the search, 30 studies (12 randomised controlled trials [RCTs]) were included. The recruited population samples included pregnant women ($n=6$ studies), post-partum women ($n=11$ studies) and post-partum parents/caregivers ($n=13$ studies). There were no studies conducted during the pre-conception period. Twelve studies were standalone culinary education interventions. There is some evidence to suggest that interventions with a culinary education component are beneficial for improving child nutrient intake (3 of 5 studies measuring this outcome), maternal (3 of 5 studies) and child (4 of 9 studies) diet quality and food group consumption, maternal food and nutrition knowledge (3 of 7 studies) and child anthropometry (6 of 10 studies). More evidence is needed from RCTs that include culinary education as the primary intervention focus, and with long-term follow-up to draw more definitive conclusions.

Cook-Ed™: A model to guide the planning, development and evaluation of domestic cooking education programs

ROBERTA C. ASHER¹, TAMMIE JAKSTAS¹, TAMARA BUCHER¹, ANNA ROSE¹, JULIA WOLFSON³, FIONA LAVELLE², MOIRA DEAN^{1,2}, KERITH DUNCANSON¹, TRACY BURROWS¹, CLARE E. COLLINS¹ VANESSA A. SHREWSBURY¹

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³Department of Health Management and Policy and Department of Nutritional Sciences, School of Public Health, University of Michigan, US

Biography

Roberta Asher completed a Bachelor of Nutrition and Dietetics in 2010 after a 10-year career as a trade qualified chef working in restaurant and international hotel kitchens in Australia and overseas. Since completing her degree Roberta has worked as a clinical dietitian providing medical nutrition therapy to a variety of health conditions in an acute care setting. Combining her skills and knowledge of cooking and nutrition Roberta has also worked on a number of healthy domestic cooking education projects involving program development, delivery and evaluation. Roberta has a lifelong love of food and strong desire to provide others with practical cooking and nutrition information to help them achieve their health goals and enjoy preparing and cooking delicious food. In 2019 Roberta commenced her PhD at the University of Newcastle researching cooking and nutrition education for young adults with intellectual disability.



Abstract

Domestic cooking education is typically designed to improve individual food and cooking skills, although not always to improve diet quality. Currently there are no comprehensive models available to guide the planning, development and evaluation of domestic cooking education programs that focus on nutrition. The proposed Cooking Education (“Cook-Ed”) model aims to address this gap in the literature. The evidence-base on food and cooking skill education guided development of an initial model. The PRECEDE-PROCEED model informed the underlying Cook-Ed framework. Cook-Ed was then critiqued by experts in food skills, cooking skills and nutrition education research and education until consensus on the model content and format was reached. Cook-Ed guides cooking program developers through the stages required to identify the health program need, contributing factors and required resources and support development of program content that is tailored to the needs, preferences, skills and resources of participants; and to inform program design, delivery and evaluation. Cook-Ed is designed to be flexibly applied to domestic cooking education programs delivered in clinical, community, school or research settings and can be adapted by cooking program developer to specific audiences, health and dietary outcomes. Further research is required to establish the Cook-Ed model’s effectiveness in enhancing program development and in improving food and cooking skills, dietary patterns and health outcomes. One scenario describes the application of Cook-Ed to a cooking program for adults with intellectual disability.

Session 2: Child Nutrition Education

This second session includes nine presentations on a variety of nutrition education topics.

Presentation overview

- » Taste and Learn™: a new validated education resource for primary schools to increase vegetable enjoyment and other mediating factors of vegetable consumption, *Dr Astrid Poelman*
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- » Which components of existing nutrition education programs are most effective? A quasi-experimental study in Dutch primary school children aged 8-12 years old, *Ms Angeliek Verdonschot*
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Taste and Learn™: a new validated education resource for primary schools to increase vegetable enjoyment and other mediating factors of vegetable consumption

AAM POELMAN¹, M BROCH¹, B WIGGINS², R MCCREA³, J. HEFFERNAN¹, J BEELEN¹, DN COX²

¹CSIRO Agriculture and Food, North Ryde, Australia

²CSIRO Health and Biosecurity, Adelaide, Australia

³CSIRO Land & Water, Brisbane, Australia

Biography

Dr Astrid Poelman is Team Leader Sensory and Consumer Science at CSIRO in North Ryde, Sydney. She holds an MSc in Human Nutrition and a PhD in Sensory Science from Wageningen University (the Netherlands) and is a Registered Nutritionist with the Nutrition Society of Australia. Astrid has been with CSIRO since 2006. She leads a team of sensory and consumer scientists that conducts research for the food industry to increase acceptance for healthy foods, and to reformulate food for health without affecting palatability. A large focus of her research evolves around increasing children's acceptance and intake of vegetables, including through sensory-led interventions.



Abstract

Children's consumption of vegetables is too low. Schools provide a relevant and equitable environment to influence students towards increased vegetable consumption. A new teacher-led classroom-based program for Australia primary schools, Taste and Learn™, was developed to positively predispose children towards increased vegetable consumption. The program is curriculum aligned and based on a framework of food preference development and sensory experiential learning. The efficacy of this program was evaluated in a cluster-RCT amongst schools with three conditions was conducted: 1= Taste and Learn™ preceded by online teacher training; 2=as per 1 with additional face-to-face teacher training; 3=Control. Pre-test, post-test and 3-month follow up measures (knowledge, verbalization ability, vegetable acceptance, behavioural intentions, willing to taste, new vegetables consumed) were collected from students (n = 1639 from 25 schools in NSW/SA, Australia). Data were analyzed using mixed model analysis. No difference in intervention effectiveness was found between the two training methods. Compared to the Control, Taste and Learn™ positively affected all outcome measures after intervention ($p < 0.01$) with knowledge sustained at 3-month follow up ($p < 0.001$). In conclusion, Taste and Learn™ was effective in achieving change amongst students in mediating factors known to be positively associated with vegetable consumption. The program is being prepared for national roll out.

This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government, with CSIRO co-investment. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Which components of existing nutrition education programs are most effective? A quasi-experimental study in Dutch primary school children aged 8-12 years old

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Biography

Angeliek earned her master's degree in Health & Society at Wageningen University & Research in the Netherlands. Currently, she is enjoying a Dual Award Doctoral Degree PhD in the field of nutrition education in primary schools. This position gives her the opportunity to learn from different environments in both countries, which she experiences as highly valuable. Aside from theoretical elements, her project includes real-life nutrition education experience within the classroom. Angeliek is highly committed and expects her project to provide more insight in the effectiveness of school-based nutrition education, resulting in the improvement of children's health.



Abstract

Background: A healthy diet is essential for optimal child growth and development. Therefore, opportunities to encourage and support children to adopt healthy eating behaviour need to be explored. The objective of this study was to examine the effectiveness of individual components of current Dutch nutrition education programs targeting primary school children.

Methods: A quasi-experimental design with 37 schools (n=1441 children, aged 8-12 years) compared three arms : (1) schools that implemented EU-Schoolfruit (EUS) (n=12), (2) schools that implement EUS and Taste Lessons (TL) (n=15) and (3) schools that do not implement nutrition education (n=10). Primary outcomes were child nutrition knowledge, food literacy and fruit and vegetable (FV) consumption and were assessed with a questionnaire pre-intervention (T0), during the intervention (T1), and 6 months post-intervention (T2).

Results: Preliminary results indicated a significant increase in nutrition knowledge only for children in schools that participated in both programs (EUS and TL), compared to the control group ($p < 0.01$), but no significant increase in FV intake (fruits $p = 0.19$ and vegetables $p = 0.20$). The change in food literacy scores did not significantly differ between the three groups ($p = 0.99$). Full results of the three measurements (T0, T1 and T2) will be presented.

Conclusion: The two existing nutrition education programs (EUS and TL) have some impact on children's nutrition knowledge and FV intake, but specific effects of individual components needs to be evaluated in the future.

A cluster randomised controlled trial of a sugar-sweetened beverage intervention in Australian secondary schools

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Biography

Ms Jia Ying Ooi is a PhD candidate from the School of Medicine and Public Health at the University of Newcastle. She graduated with a Bachelor of Nutrition and Dietetics (Honours) from said university, and have been involved in the field of child health and nutrition since. Prior to beginning her postgraduate studies, she worked as a research assistant and project officer on a randomized controlled trial on modifying consumer behaviour to improve healthy food purchases in online school canteens. She was also involved in the dissemination of the results of a multi-strategic intervention to improve the implementation of a healthy canteen policy in Australian primary schools, as well as Good Sports, a web-based intervention for sustaining alcohol management practices in community sports clubs. Currently, her thesis comprises of the investigation and improvement of adolescent nutrition in Australia. Mainly, it looks at the effectiveness, feasibility and acceptability of a school-base nutrition intervention in improving the sugar-sweetened beverage intake of secondary school students in New South Wales.



Abstract

Reducing the prevalence of overweight and obesity, particularly in adolescents is a public-health priority. A significant source of excess sugar and energy in adolescents' diets comes from sugar-sweetened beverages (SSBs), with those aged 14 to 18 years having the highest intake of all age groups. This study assessed the effectiveness of a school-based SSBs intervention in reducing daily SSBs consumption and daily percentage energy from SSBs of secondary-school students. As secondary outcomes, we also assessed the impact of the intervention on SSBs consumption in school, average daily energy intake, and BMI z-scores.

A randomised controlled trial (RCT) (the *switchURsip* program) was designed using the Behaviour Change Wheel and the Health Promoting Schools framework. Six secondary schools (three intervention; three control) located in New South Wales, Australia were recruited to participate in a six-month trial. The intervention included components that targeted the school nutrition environment, curricula, and communication with students and parents. Trial data was collected through online surveys, school observations and anthropometric measurements at baseline, midpoint and follow-up.

At six months follow-up, there were no statistically significant differences between students in intervention and control schools for the primary outcomes of overall daily intake of SSBs and percentage energy from SSBs. Similarly, for secondary outcomes, the trial found no statistically significant differences. Acceptability of intervention strategies were generally high.

Future iterations of the study should consider integrating more effective school implementation strategies to increase intervention fidelity, and to ensure that the recruitment of schools is representative.

Development of a nutrition education m-health intervention to improve the nutritional quality of primary school children's lunchboxes

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Biography



Alison Brown: Alison is an Accredited Practising Dietitian and PhD Candidate at the University of Newcastle and Hunter New England Population Health. Her PhD focusses on the prevention of childhood obesity through the implementation and evaluation of an m-health healthy lunchbox program for primary school children. Alison is passionate about public health nutrition and the prevention of chronic disease. Her interests lie in implementation science and knowledge translation, particularly in the area of public health nutrition.

Renee Reynolds: Renee graduated from the University of Newcastle with a Bachelor of Nutrition & Dietetics in 2012. She has a passion for public health and has worked with Hunter New England Population Health since graduating. Her work has primarily focused on the prevention of childhood obesity through the implementation of the NSW Healthy School Canteen Strategy and the implementation and evaluation of an m-health healthy lunchbox program for primary school children.



Abstract

Background: Most Australian children bring a packed lunch to school. The inclusion of discretionary foods in lunchboxes is common, impacting on health and educational outcomes. Scalable interventions that improve the nutritional quality of lunchboxes are required.

Aims: To describe the development and effectiveness of an m-health lunchbox intervention implemented at the child, parental and school level to improve nutrition education in an effort to improve the nutritional quality of school lunchboxes.

Methods: A four-step program of work has been undertaken to improve nutrition knowledge in parents and children including: 1) formative research to identify parental barriers to packing healthy lunchboxes; 2) a pilot randomised controlled trial (RCT) to evaluate acceptability, feasibility and potential efficacy of an m-health lunchbox intervention which included school nutrition guidelines, nutrition-based curriculum lessons, healthy lunchbox messages sent to parents and physical resources; 3) optimisation of the intervention and; 4) a hybrid effectiveness-implementation RCT.

Results: Five common parental barriers to packing healthy lunchboxes were identified: time, cost, convenience, child preference and knowledge. The pilot RCT (n=1200) found an increase in mean lunchbox energy from core foods (79.21 kJ, p=0.04), a decrease in mean lunchbox energy from

discretionary foods (-211.6 kJ, $p=0.05$) and was acceptable to 95% of parents. Following this, optimized lunchbox messages were incorporated into the hybrid effectiveness-implementation trial conducted in schools ($n=36$) across NSW, Australia. Results from the hybrid RCT (completed in 2019) will be presented.

Conclusion: This scalable m-health intervention has the potential for population-wide effects on the nutritional quality of school lunchboxes.

Food literacy and numeracy in Australian Secondary schools

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Biography

Shirin Shakeri completed a Bachelor of Medical Science and a Master in Nutrition and Dietetics at the University of Sydney. She also holds a Graduate Diploma in Teaching and Learning from the University of Southern Queensland. Shirin is a current PhD candidate with the School of Education, at the University of Newcastle and is conducting research in food literacy and numeracy in Australian secondary schools. She has been a clinical dietitian (APD) and a community nutritionist for the past 22 years and a secondary school teacher for the past 9 years. Shirin has affiliations with Dietitian Association of Australia, Nutrition Society of Australia, NSW education and Standards Authority and Australian Breastfeeding Association. She has worked with several NGOs for design and implementation of nutrition education programs for target populations aged 0-18.



Abstract

Background: The rising rate of obesity among Australian children and adolescents and the consequential health concerns associated with this epidemic is a well-established fact. Schools have been recognised by WHO as primary centres for acquiring life skills. Consequently, research-based nutrition education in schools are necessary and have the potential to enhance students' food literacy and numeracy (FL&N) and their dietary behaviours with the aim of reducing the rate of obesity.

Aims:

1. To introduce two new innovative terms, *food numeracy and integration capacity*, to facilitate integration of FL&N across the entire school curricula
2. To explore the potential for an integrative nutrition intervention in schools to enhance both FL&N and students' behavioural nutrition competencies

Methods: A thematic analysis of qualitative and quantitative, primary and grey literature, inclusive of government education policies and curriculum documents, retrieved from computerized databases has been performed.

Results: The following research outcome will be presented; 1) Latest data on Australian (NSW) students weight status, 2) WHO model of Health Promoting Schools Framework (HPSF), 3) Definitions and contribution of FL&N to students' behavioural nutrition, 4) Definition of new terms *food numeracy and integration capacity*, 5) Barriers and enablers of FL&N enhancement in a model resembling WHO-HPSF, and 6) Potential for FL&N integration in school.

Conclusion: This research has employed an innovative approach in analysing both primary literature and grey literature by defining two new terms and adapting the WHO-HPSF model. This study aims to stimulate further dialogue among main stakeholders and has the potential to foster a greater collaboration between tertiary institutions and schools.

Integrating nutrition and mathematics into the Australian primary school curriculum: perspectives of teachers and students

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Biography

Ms Berit Follong is a PhD researcher in Nutrition Education with a background in Nutrition and Health (BSc 2014, MSc 2016) and Health Sciences (MSc 2017) and was awarded her degrees from the University of Wageningen (WUR) and the Vrije Universiteit Amsterdam (VU) respectively. She currently holds a Higher Degree Research Scholarship within the School of Health Sciences, Faculty of Health and Medicine at The University of Newcastle (UoN) (2017-2020). In her PhD, she explores the potential for nutrition integration within the primary school curriculum. She has successfully developed and tested a teaching unit on portion size and volume measurement for Australian primary school children (CUPS: Cross-curricular Unit on Portion Size). She strives to improve nutrition education for both students and teachers using innovative strategies.



Abstract

Background: Research shows that teachers struggle to implement nutrition education due to limited time available in an already overcrowded curriculum. Integrating nutrition with core academic subjects could potentially address this time constraint. The CUPS intervention evaluates teacher' and student' perspectives on a curricular program that integrates nutrition within mathematics.

Methods: Four primary schools (n=72 students in Year 3/4) were randomly assigned to an intervention or control condition. Students in the intervention arm (n=46) received six lessons on portion size, food groups, volume and capacity across four weeks. Lessons involved experiential learning using food models and mathematics cubes. The control arm continued their usual mathematics lessons. Semi-structured interviews (n=3 teachers) and focus groups (n=15 students) were conducted post-intervention and analysed using a thematic approach.

Results: Interview and focus group responses could be divided into practical and content themes. Both themes were further subdivided into food models, nutrition, mathematics cubes, time and integration. Most students liked the lessons, cubes and food models. Teachers indicated most students were engaged and became more aware of serve sizes. Although teachers enjoyed teaching the lessons, they suggested that, in order to address the time barrier for teaching nutrition, integration of volume and capacity should be further improved.

Conclusion: Using an integrative approach, primary school students could improve their portion size estimation skills while simultaneously learning about mathematics curricular standards. Based on teacher and student feedback, lessons could be refined to enhance integration of mathematics content, with complementary resources expanded.

Incorporating the online Australian Eating Survey® into an Educational Package for the Delivery of Nutrition Education in Secondary Schools

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Biography

Ms Tammie Jakstas (MNutrDiet, BSc:HumBiol, BEd:Secondary) is a qualified Accredited Practising Dietitian working in Private Practice. In 2006 she completed her Bachelor of Secondary Education at The University of Sydney and began her career as a teacher in Food Science and Home Economics before perusing a Masters of Nutrition and Dietetics from The University of Sydney in 2016. She has also previously worked in public health on the SALSA (Students As LifeStyle Activists) and Triple A projects that focus on the importance of students as change agents within their schools, homes and communities. Her significant love of cooking and involvement in the Home Economic institute of Australia for over 14 years at a state and national level, has reinforced the importance of cookery skills and basic nutrition education for everyone to encourage good dietary choices. Nutrition education has been at the core of all her work including individual patient care in private practice and within the classroom, to her work in public health. The Australian Eating Survey project highlights the importance of providing valuable tools for educators in the delivery of nutrition education to enrich the student learning experience.



Abstract

There is an opportunity to strengthen the relevance and quality of nutrition centered lessons in secondary schools by linking teachers and students with Accredited Practising Dietitians (APDs) with the use of online tools. This study aims to develop and assess the feasibility of an educational package, incorporating the use of the online Australian Eating Survey® (AES), for secondary teachers to facilitate delivery of nutrition and food related curriculum content together with APDs.

The study design includes three stages. 1) Initial investigation of the national Australian and NSW state-specific Science, Health and Physical Education and Design and Technology curriculum for Stage 4 and 5 secondary students (i.e. Years 7 to 10). 2) Investigation results to guide development of a nutrition educational package, incorporating the AES, with sample lesson plans and delivery materials, programming templates and assessments to teach relevant curriculum content. 3) A feasibility study using the educational package to provide nutrition education to a class of secondary students. This involves students independently completing the AES followed by a whole-class virtual debrief session with an APD to discuss the aggregated class results in the context of nutrition requirements for adolescents.

The educational package is hypothesised to be a feasible tool for teachers within secondary schools to collaboratively work with APDs to enhance students' nutrition knowledge and behavior change towards healthier eating patterns.

Playing a nutritionally focussed serious game: can it improve children's nutrition knowledge?

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Biography

Born and raised in the Netherlands, Nienke de Vlieger started university at the Roosevelt University College in Middelburg, the Netherlands. Here, she pursued multiple interests and majored in Psychology, while minoring in Ecology and Anthropology. Even though she had opportunities to continue her education in any of these fields, it was nutrition that had grabbed her attention throughout her Bachelor years. Nutrition and diet had developed from a merely personal interest to a longing for a deeper nutritional understanding and ambition to commit herself to the fight against overweight and obesity. She therefore completed the 2-year Master Nutrition & Health at the highly regarded Wageningen University in the Netherlands. A 4-month internship at the University of Newcastle in Australia introduced her to the world of research and particularly education as a way of health interventions. It was not long until she returned to Newcastle to start a PhD focussed on nutrition education for children. She has since published three first-author papers and has co-authored several other papers in the field of nutrition. Her PhD aims to explore the status of nutrition education in primary schools, how teachers and students feel about it and what we can do to improve it. She collaborated in a multidisciplinary team to develop a novel educational game that can be used to teach children about nutrition. The game could be used in primary school classrooms as an easy and accessible tool for teachers.



Abstract

Insufficient nutrition knowledge has been linked to poor dietary patterns. School children are an important population for early nutrition education. The use of computer games for the intent of nutrition education has previously been successful in teaching nutrition concepts to children. This study investigates the development and effects of a tablet-based educational game for improvement of nutrition knowledge. 'VitaVillage' is a farming-style game, where the user converts a virtual village to a health-promoting village by completing quests posed by villagers in need of healthy foods. The user then grows the foods by correctly answering questions about healthy food and its nutritional value. Seventy-two year 5/6 primary school students completed a nutrition knowledge survey, then played the game for 20 minutes. One week later, they played again for 20 minutes and immediately completed the same nutrition knowledge survey. Preliminary results indicated there was a significant increase in nutrition knowledge compared to baseline scores. With regard to feasibility, children reported via a survey that they liked the game, with mean score of 77 (SD 24.6), on a scale of 0-100. Preliminary VitaVillage results are promising. Further development and testing will inform utility within school-based nutrition education for children in the future.

Social media food marketing and dietary behaviours in adolescence: expert perspectives on key priorities, challenges and strategies

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Biography

Daphne's interest for nutrition science developed during the Master Nutrition & Health (specialisation: Epidemiology & Public Health) at Wageningen University. She did her Master Thesis at the University of Newcastle (UoN), analysing trends in Australian children's portion sizes under supervision of Prof. Clare Collins and was involved in Dr. Tamara Bucher's consumer behaviour research. In the 1.5 years following her Master, Daphne was Trainee at the Dutch consultancy Schuttelaar & Partners, where she studied the influence of the Dutch Healthy Choices front-of-pack logo on product reformulation and was involved in projects advising food industry in the area of nutrition and health. However, she realised that research was more her thing, and found a job as research assistant and junior researcher at the Longitudinal Aging Study Amsterdam (Vrije Universiteit, Amsterdam). During this period, she continued working for the International Choices program as freelancer, and published an article on European front-of-pack labels. In February 2019 she started a Dual Award Doctoral Degree PhD at the UoN, with Dr. Tamara Bucher (School of Health Sciences, UoN) and Dr. Ellen van Kleef (Marketing & Consumer Behaviour Group, Wageningen University & Research) being her main supervisors.



Abstract

Traditional food marketing, mostly promoting energy-dense, nutrient-poor (EDNP) foods, stimulates increased intake of these foods amongst adolescents, which increases their risk of developing diet-related chronic diseases. While the use of social media in adolescents has proliferated, little is known about the content of social media food marketing (SMFM) viewed by adolescents, and how it impacts their food-related attitudes and dietary behaviours. The aim of this research was to canvass the perspectives of experts in a range of relevant disciplines regarding the potential factors specific to SMFM that influence adolescents' food-related attitudes and dietary behaviours, and to develop a comprehensive research agenda addressing key priorities for research on SMFM. One-on-one 45-minute semi-structured interviews (n=15) were conducted on Zoom, with experts in the areas of digital marketing, social marketing, adolescent medicine, (clinical) psychology, behavioural sciences, public health (policy), food industry, communication sciences, and from a youth organization. The interviews were recorded and transcribed. We present preliminary results on the range of individual-, message- and process factors that experts believe have a relevant role in adolescents' response to SMFM messages. The key challenges and strategies for SMFM-related policies and directions for future SMFM research that experts identified will be discussed.