



ICDAM 2023 ORAL SESSIONS

Oral Session #1

METHODS DEVELOPMENT AND FEASIBILITY AND VALIDATION RESEARCH – 1

Tuesday 27 June | 14:00-15:00

Location: Concert Hall

Session Chair: Anne Griffin

OS.01.01 COGNITIVE TESTING OF A DIETARY HABITS QUESTIONNAIRE FOR THE NATIONAL NUTRITION SURVEY IN NEW ZEALAND

Berit Follong¹, Caitlin Haliburton¹, Maria Maiquez¹, Jacqui Grey¹, Lisa Te Morenga², Sally Mackay¹, Cliona Ni Mhurchu¹
¹University of Auckland, ²Massey University

Cognitive interviews are a valuable method to design and evaluate questionnaires. A dietary habits questionnaire was developed and updated for the New Zealand Nutrition Survey, and new questions were cognitively tested. Findings informed further improvement of the dietary habits questions ensuring these are interpreted as intended and accurate data is obtained.

OS.01.02 EATING IN SWEDEN 3: DIETARY ACCULTURATION PATTERNS ASSESSED USING RIKSMATENFLEX AMONG SYRIAN, IRAQI AND SOMALI-BORN WOMEN LIVING IN SWEDEN

Marleen Lentjes¹, Zeinab Alsammarraie¹, Sarah Lönnström¹, Karin Lobenius Palmér¹, Anna Karin Lindroos², Jessica Petrelius Sipinen², Robert Brummer¹, Scott Montgomery¹
¹Örebro University, ²Swedish National Food Agency

We extended a web-based 24-hour diet recall (24hDR, Swedish Food Agency) with culture-specific food items. 35 women born in Sweden, 30 born in Syria/Iraq and 26 from Somalia were interviewed 2-3 times. Median energy intake was 7.13, 5.52 and 5.65 MJ/d respectively. The added foods contributed 15% to energy intake (max 75%). Weight consciousness may have contributed to differences in reporting.

OS.01.03 COMPARISON OF A NOVEL MEAL-BASED METHOD OF DIETARY ASSESSMENT AND A 24-HOUR RECALL

Cathal O'Hara¹, Eileen Gibney¹
¹University College Dublin

A novel meal-based dietary assessment was compared with a 24h recall. The meal-based method involved participants choosing, from generic meal images, the meals most like their own intakes. Mean intakes of 33 nutrients were compared, with effect sizes for the differences between methods being small for 24 nutrients, moderate for 3, and large for 6, and P values ranging from <0.001 to 0.965.

OS.01.04 DEVELOPMENT AND VALIDATION OF AN EXPERIENCE SAMPLING DIETARY ASSESSMENT METHOD: A PILOT STUDY

Joke Verbeke¹, Christophe Matthys¹
¹KU Leuven

Experience Sampling Methodology may be the key to lower the burden, improve feasibility and obtain more accurate dietary intake data. A pilot Experience Sampling Dietary Assessment Method (ES-DAM) was developed, validated against a 3-day Food Record and FFQ and evaluated for feasibility. The ES-DAM is promising and shows improved accuracy and feasibility compared to the FFQ.

Oral Session #2

CONTEXTUAL FACTORS (e.g., environmental modifiers)

Tuesday 27 June | 14:00-15:00

Location: Classroom FG-042

Session Chair: Genevieve Healy

OS.02.01 FROM MEAT TO MEATLESS: FACTORS INFLUENCING MEAL CONSUMPTION AND A MARKOV MULTI-STATE MODEL TO ASSESS TRANSITIONS BETWEEN MEALS

Catarina Carvalho¹, Milton Severo¹, Daniela Correia¹, Carla Lopes¹, Duarte Torres¹

¹University of Porto

The factors associated with the consumption of meat vs. meatless meals and transitions between meal categories across lunch and dinner in adults from the Portuguese Food, Nutrition, and Physical Activity Survey were studied. Meat meals were the most common. Women, older, and higher educated people had higher odds of consuming meatless meals and lower hazard of shifting to meat in the next meal.

OS.02.02 CHRONOTYPE: ASSOCIATIONS WITH CIRCADIAN RHYTHM DISRUPTING EATING BEHAVIOURS AND CIRCADIAN MISALIGNMENT IN WOMEN AFTER BREAST CANCER

Kelly D'cunha¹, Yikyung Park², Louise Marquart-Wilson¹, Marina Reeves¹

¹University of Queensland, ²Washington University School of Medicine, St Louis

Breast cancer survivors (n=159; 18-75 years; median 9.5 months post-diagnosis) with late chronotype, compared to early, tended to first eat after 8AM (p=0.02), eat last (≥ 25 kcal) after 8PM (p=0.01), and have greater circadian misalignment (>1.67 ; $>10\%$ difference). Chronotype may be important to consider in nutrition interventions that aim to modify diet to improve survival after breast cancer.

OS.02.03 ARE THERE ETHNIC INEQUITIES IN DIET QUALITY IN CANADA? A NATIONALLY REPRESENTATIVE ANALYSIS OF TRENDS BETWEEN 2004 AND 2015

Dana Lee Olstad¹, Sara Nejatnamini¹, Rosanne Blanchet², Jean-Claude Moubacac², Jane Polsky³, Lana Vanderlee⁴, Seyed Hosseini Pozveh¹

¹University of Calgary, ²Université de Montreal, ³Statistics Canada, ⁴Université Laval

We quantified absolute and relative gaps in diet quality by ethnicity among adults in Canada and trends in these gaps between 2004 and 2015. Mean HEI-2015 scores ranged from 51.9 among Indigenous to 61.9 among South Asian adults. All ethnic minorities had higher HEI-2015 scores than Whites except Indigenous adults. Absolute and relative dietary gaps remained stable over time.

OS.02.04 ASSESSING DIETARY ADEQUACY AND TEMPORAL VARIABILITY IN THE CONTEXT OF COVID 19 AMONG INDIGENOUS AND RURAL COMMUNITIES IN KANUNGU DISTRICT, UGANDA: A MIXED-METHODS STUDY

Giulia Scarpa¹, Lea Berrang Ford¹, Janet Cade¹, Sabastian Twesigomwe², Paul Kakwangire², Elizabeth Ninshaba¹, Maria Galazoula¹

¹University of Leeds, ²HACC

Nutrient and caloric intake of Batwa and Bakiga communities in south-western Uganda varied over the first six months of 2021, although their diet was overall inadequate. During Covid-19, in fact, more than half of the participants reported to have consumed less and less nutritious food.

Oral Session #3

DATABASE DEVELOPMENT AND RESOURCES

Tuesday 27 June | 14:00-15:00

Location: Classroom FB-028

Session Chair: Sarah McNaughton

OS.03.01 MULTI-COUNTRY COMPARISON OF ULTRA-PROCESSED FOOD INTAKE USING DIETARY INTAKE DATA COLLECTED THROUGH THE AUTOMATED SELF-ADMINISTERED 24-HOUR DIETARY ASSESSMENT TOOL

Kamila Gabe¹, Euridice Martinez¹, Priscila Machado², Milena Nardocci³, Christine White⁴, Vicki Rynard⁴, Patricia Jaime¹, David Hammond⁴

¹University of Sao Paulo, ²Deakin University, ³University of Montreal, ⁴University of Waterloo

Data collected through the Automated Self-Administered 24-Hour Dietary Assessment Tool showed that ultra-processed foods made up 39.3% of the energy consumed in Australia, 43.8% in Canada, and, 50.8% in the United States. Using the same dietary intake assessment tool across countries might reduce variability related to data collection, enhancing cross-country comparability of NOVA estimates.

OS.03.02 ADVANCEMENTS IN THE US NATIONAL DIETARY SURVEILLANCE DATABASE TO GENERATE NUTRIENT PROFILES FOR BABY FOODS AND READY-TO-EAT CEREALS

Suzanne Morton¹, Donna Rhodes¹, Alanna Moshfeh¹

¹USDA

Food and Nutrient Database for Dietary Studies 2019-2020, the US national dietary surveillance database, contains updates which represent multiple variations of baby-toddler foods and ready-to-eat cereals. Standardized protocols were developed using food composition data for basic ingredients and 7 single/composite nutrient codes to achieve targeted nutrient levels.

OS.03.03 AN APPROACH TO STANDARDIZED APPLICATION OF THE NOVA FOOD PROCESSING CLASSIFICATION SYSTEM TO US DIETARY SURVEILLANCE DATA

Lauren O'Connor¹, Euridice Martinez-Steele², Filippa Juul³, Neha Khandpur⁴, Larissa Galastri Baraldi⁵, Carlos Monteiro², Niyayi Perekh¹, Kirsten Herrick⁶

¹Agricultural Research Service, ²University of São Paulo, ³New York University, ⁴Harvard T.H. Chan School of Public Health, ⁵University of Campinas, ⁶National Cancer Institute

We present an approach to standardize application of the Nova food processing classification system to US dietary surveillance data to improve comparability, reproducibility, and transparency of research. Our method may help inform application of Nova to other datasets promoting comparability, reproducibility, and transparency of future research and is available upon request.

OS.03.04 THE INTEGRATION OF DIETARY BIOACTIVE INTAKE ANALYSIS TO LIBRO FOOD RECORD APP

Liangzi Zhang¹, Maja Omeljaniuk¹, **Federico Bernuzzi**¹, Karen O'Brien², Daniela Segovia-Lizano¹, Jenny Plumb¹, Jennifer Ann-Jarvis¹, Paul Finglas¹, Maria Traka¹

¹Quadram Institute, ²Nutritics

Collecting accurate and complete dietary data beyond nutrients is becoming increasingly important. We have evaluated population-based bioactive intake in a pilot human cohort, by integrating bioactive content from a comprehensive database into a food record app alongside its nutrient analysis, which have enabled a standardized data processing of bioactive data for future studies.

Oral Session #4

DIETARY ASSESSMENT ACROSS THE LIFESPAN – 1

Wednesday 28 June | 13:45-14:45

Location: Concert Hall

Session Chair: Clare Collins

OS.04.01 VALIDATION OF MINIMUM DIETARY DIVERSITY FOR WOMEN (MDD-W) FOR ADOLESCENT GIRLS AND BOYS (10-19 YEARS): IDENTIFYING A FOOD GROUP CUT-OFF USING FAO/WHO GIFT

Giles Hanley-Cook¹, Juan Pablo Parraguez¹, Simone Gie¹, Sara Hoogerwerf¹, Bridget Holmes¹

¹Food and Agriculture Organization of the United Nations (FAO)

We aimed to define an optimal food group cut-off for MDD-W that predicts adequate micronutrient intakes among adolescents. We performed ROC analysis using 24-HR data from 46,340 boys and 37,585 girls aged 10-19. Overall, a ≥ 5 food group cut-off performed adequately in classifying both girls and boys with a MAR > 0.60 . However, a cut-off of ≥ 4 was more acceptable for girls in low-income countries.

OS.04.02 FOOD PROCESSING, AS CLASSIFIED BY NOVA, AND DIETARY PATTERNS OF US INFANTS AND TODDLERS

Kirsten Herrick¹, Lauren O'Connor¹, Euridice Martinez-Steele², Lu Wang³, Fang Fang Zhang³

¹National Institutes of Health/National Cancer Institute, ²University of Sao Paulo, ³Friedman School of Nutrition Science and Policy

Unprocessed/minimally processed foods, according to the Nova system, contributed most to nutrients and food groups that are under-consumed by US infants and toddlers, but ultra-processed foods contributed meaningfully to iron and zinc, as well as added sugars and sodium. More research is needed on to understand the utility and sensitivity of using Nova for infants and toddlers.

OS.04.03 EVALUATING SIMILARITIES BETWEEN MEASURES OF ULTRAPROCESSED AND HYPERPALATABLE FOOD INTAKE DURING PREGNANCY AND POSTPARTUM

Leah Lipsky¹, Jenna Cummings², Mia Kwan¹, Tonja Nansel¹

¹Eunice Kennedy Shriver National Institute of Child Health and Human Development, ²University of Liverpool

Ultra-Processed (UPF) and hyperpalatable foods (HPF) promote low diet quality. In 365 women who completed 6 24-hour diet recalls from pregnancy through postpartum, UPF & HPF were correlated ($r=0.4$), represented a substantial portion of energy intake (50%-67% in both periods), and were inversely related to diet quality. Inconsistent differential relations do not favor the utility of either measure.

OS.04.04 INTAKES OF MAJOR FOOD GROUPS IN CHINA AND THE UK: RESULTS FROM 100,000 ADULTS PARTICIPATING IN THE CHINA KADOORIE BIOBANK AND THE UK BIOBANK

Keren Papier¹, Maria Kakkoura¹, Huaidong Du¹, Tim Key¹

¹University of Oxford

We compared intakes of major food groups between UK Biobank (UKB) and China Kadoorie Biobank (CKB) study participants. Data from 25,000 CKB and 74,000 UKB participants showed large differences in dietary intakes and their socio-economic correlates between the two cohorts providing insight into the interpretation of potentially different diet-disease associations between CKB and UKB.

Oral Session #5

CONTEXTUAL FACTORS, METHODS DEVELOPMENT AND STATISTICAL ASPECTS OF PHYSICAL ACTIVITY

Wednesday 28 June | 13:45-14:45

Location: Classroom FG-042

Session Chair: Alan Donnelly

OS.05.01 EVALUATION OF A PROTOCOL TO COLLECT ACCELEROMETER DATA IN OLDER CARE HOME (CH) RESIDENTS WITHIN THE CONTEXT OF THE REACH (RESEARCH EXPLORING PHYSICAL ACTIVITY IN CARE HOMES) FEASIBILITY CLUSTER RANDOMISED CONTROL TRIAL (cRCT)

Jennifer Airlie¹, Anne Forster², Karen Birch²

¹Bradford Teaching Hospitals NHS Foundation Trust, ²University of Leeds

An evaluation of an accelerometer data collection protocol, developed specifically for use with care home residents through earlier conceptualisation and optimisation work, was undertaken. Results suggest a tailored data collection protocol is key to maximising participant compliance and ensuring high quality data on physical activity and sedentary behaviour are collected.

OS.05.02 USING MMWAVE TECHNOLOGY TO DETECT POSTURE AND LOCATION OF WORKERS IN OFFICE SETTINGS

Bronwyn Clark¹, Mallika Mukherji¹, Matthew D'Souza¹

¹The University of Queensland

Millimetre-wave (mmWave) monitoring of office behaviour provides a potential method for detecting when and where workers sit to inform interventions to reduce sitting time. This study showed the accuracy of predictions of sitting/standing and location at a desk using artificial intelligence algorithms from mmWave data compared to direct observation was high (all >90%) in test sets.

OS.05.03 INTER-BRAND AND INTER-DYNAMIC RANGE COMPARABILITY OF RAW ACCELEROMETER DATA AS USED IN PHYSICAL BEHAVIOUR RESEARCH

Annelinde Lettink¹, Wessel van Wieringen¹, Teatske Altenburg¹, Mai J Chinapaw¹, Vincent van Hees²

¹Amsterdam UMC, ²Accelting

To compare raw acceleration signals between brands and dynamic ranges we conducted five mechanical shaker experiments. In the frequency domain, signals were more comparable at low shaker frequencies while in the time domain signals were more comparable at high shaker frequencies. Our findings aid understanding and anticipation of differences in behaviour outcomes between brands and dynamic ranges.

OS.05.04 A NATIONAL AUDIT INTO THE DIFFERENT LEVELS OF TYPICAL SCHOOL PROVISION OF PHYSICAL EDUCATION, PHYSICAL ACTIVITY AND SPORTS IN THE REPUBLIC OF IRELAND

Padraic Rocliffe¹, Brendan O'Keeffe¹, Ian Sherwin¹, Patricia Mannix-McNamara¹, Ciaran Donncha¹

¹University of Limerick

Participating schools (n=112) completed the validated physical education, physical activity and sports provision evaluation index. A One-way ANOVA with Tukey Kramer's Post-Hoc test was performed to examine variation in the demographic profile relative to the indicators of provision. A proposed grade for each indicator of provision was established using a standardized, international grading system.

Oral Session #6

PATTERNS (multidimensionality and dynamism)

Wednesday 28 June | 13:45-14:45

Location: Classroom FB-028

Session Chair: Tracy McCaffrey

OS.06.01 PROFILES OF FOODS CONSUMED AT SNACKS VARY BY CONTEXTUAL FACTORS AND DIET QUALITY: ANALYSIS OF THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY 2017-2018

Rebecca Leech¹, Maree Thorpe¹, Sarah McNaughton¹

¹Deakin University

Tailored healthy eating advice may help combat the overconsumption of unhealthy “snack” foods. Adult dietary data from two 24-hour recalls collected in the National Health and Nutrition Examination Survey 2017-18 were analysed. Using latent variable mixture modelling, we revealed distinct profiles of food intakes at snacks and examined how they varied by contextual factors and diet quality.

OS.06.02 HEALTHY FOOD DIVERSITY AND THE RISK OF CARDIOVASCULAR DISEASES IN THE EPIC-POTSDAM STUDY

Daniela Nickel¹, Franziska Jannasch¹, Elif Inan-Eroglu¹, Olga Kuxhaus¹, Matthias Schulze¹

¹German Institute of Human Nutrition Potsdam-Rehbruecke

The Healthy Food Diversity (HFD)-Index was investigated aetiologically in relation to cardiovascular diseases (CVD) and methodologically by investigating its components separately. Our German population was characterised by high diet diversity, but moderate diet quality. The HFD-Index was inconsistently associated with incident CVD, and results were mainly driven by the diet quality component.

OS.06.03 CLUSTERS OF CARBOHYDRATE-RICH FOOD INTAKE AND INCIDENCE OF TYPE 2 DIABETES IN A SWEDISH PROSPECTIVE COHORT

Kjell Olsson¹, Esther González-Padilla¹, Suzanne Janzi¹, Anna Stubbendorff¹, Yan Borné¹, Stina Ramne¹, Ulrika Ericson¹, Emily Sonestedt¹

¹Lund University

We used K-means cluster analysis to identify clusters of carbohydrate-rich food intakes and analyse the associations with incident type 2 diabetes in a Swedish prospective cohort. The analysis resulted in five clusters, of which four were defined by consumption of specific foods. The cluster defined by a high fruit intake was the only cluster associated with a lower incidence of type 2 diabetes.

OS.06.04 OPERATIONALIZING THE DIETARY APPROACHES TO STOP HYPERTENSION (DASH) DIET AMONG SOUTH ASIAN ADULTS IN THE MEDIATORS OF ATHEROSCLEROSIS IN SOUTH ASIANS LIVING IN AMERICA (MASALA) STUDY COHORT (2010-2013)

Niyati Parekh¹, Bridget Hussain¹, Andrea Deierlein¹, Alka Kanaya², Sameera Talegawkar³, Joyce O'Connor¹, Meghana Gadgil²

¹New York University, ²University of California, San Francisco, ³The George Washington University

This analysis applies scoring of the Dietary Approaches to Stop Hypertension (DASH) diet to a cohort of South Asian adults living in the United States (US), which can be used to assess the diet-disease relationship in this growing population group in the US.

Oral Session #7

METHODS DEVELOPMENT AND FEASIBILITY AND VALIDATION RESEARCH – 2

Wednesday 28 June | 16:15-17:15

Location: Concert Hall

Session Chair: Amos Laar

OS.07.01 RELATIVE VALIDITY ACROSS AGE GROUPS OF THE DITEETIK! SMARTPHONE FOOD RECORD APP COMPARED TO 24-H DIETARY RECALL

Ceciel Dinnissen¹, Marga Ocké¹, Coline van den Bogaard-van Oosterhout¹, José Drijvers¹, Eline Nawijn¹, Marja Beukers¹, Steffen Bruns¹, Caroline Van Rossum¹, Ido Toxopeus¹

¹National Institute for Public Health and the Environment (RIVM)

The DitEetik! smartphone app is developed as a potential replacement of 24-h dietary recall assessments. Older adults might experience more difficulty in correctly using the app. Differences in median intakes per food group were assessed across age group by the two methods. In the oldest group, the median intake was underestimated for more food groups than in the younger age groups.

OS.07.02 HOUSEHOLD EXPERIENCE WITH TWO WEARABLE CAMERAS FOR ASSESSMENT OF DIETARY INTAKE IN RURAL AND URBAN LOCATIONS IN GHANA, AFRICA

Megan McCrory¹, Matilda Steiner-Asiedu², Edward Sazonov², Mingui Sun³, Wenyan Jia³, Tom Baranowski⁴, Benny Lo⁵, Gary Frost⁵, Alex Anderson⁶

¹Boston University, ²University of Alabama, Tuscaloosa, ³University of Pittsburgh, ⁴Baylor College of Medicine, ⁵Imperial College London, ⁶University of Georgia

Our group has been studying the feasibility, validity, and acceptance of innovative approaches to assess dietary intake in Ghana with wearable cameras. Acceptance of these devices by wearers is critical to their application. Overall, user acceptance of two wearable cameras by urban and rural households in Ghana was high.

OS.07.03 UK NATIONAL DIET AND NUTRITION SURVEY ROLLING PROGRAMME (NDNS RP): IMPACT OF THE CHANGE IN DIET METHODOLOGY ON MONITORING TRENDS OVER TIME

Caireen Roberts¹, David Collins¹, **Polly Page**¹

¹University of Cambridge

In 2019, the NDNS RP moved from paper diary to online 24hr recall, Intake24. Given the importance of the survey to monitor UK dietary trends over time, Intake24 data from 2019 to 2020 was compared with diary data from 2008 to 2019 by plotting as a time series. Overall intakes were comparable, however step changes were seen for some foods which were likely to be due to the change in methodology.

OS.07.04 DEVELOPMENT OF QUALITY METRICS FOR MONITORING DIETARY ASSESSMENT

Lynne Wilkens¹, Carol Boushey¹, Fengqing Zhu², Edward Sazonov³, Edward Delp², Marie Fialkowski¹, Jennifer Rood⁴, Kirsten Herrick⁵, Yurii Shvetsov¹, Keala Swafford¹, Kevin Cassel¹, Megan McCrory⁶

¹University of Hawaii, ²Purdue University, ³University of Alabama, ⁴Pennington Biomedical Research Center, ⁵National Cancer Institute, ⁶Boston University

A quality monitoring procedure for daily dietary assessments has been developed that includes a list of quality metrics and a preliminary aggregate score for each day. These quality metrics will be evaluated through application to past studies that used different assessment tools in different populations and settings.

Oral Session #8

TECHNOLOGICAL ADVANCES AND COMBINING METHODS IN PHYSICAL ACTIVITY TO ENHANCE MEASUREMENT

Wednesday 28 June | 16:15-17:15

Location: Classroom FG-042

Session Chair: Catherine Norton

OS.08.01 VALIDATION OF A DIGITAL INTERVIEWER-ADMINISTERED 24-H DIETARY RECALL METHOD IN LOW-MIDDLE INCOME SETTINGS: THE SOUTH ASIA BIOBANK

Divya Bhagtani¹ on behalf of NIHR Global Health Research Unit South Asia Biobank investigators and collaborators
¹University of Cambridge

Formulating dietary strategies for chronic disease prevention requires assessment of population dietary intake as a crucial first step. In South Asia there is a high chronic disease burden but a lack of readily available tools for dietary assessment at scale. We adapted and implemented the web-based Intake24 diet recall system and tested its validity in South Asian populations.

OS.08.02 FOOD PROCESSING: COMPARISON OF DIFFERENT FOOD CLASSIFICATION SYSTEMS

Sara Rodrigues¹, Taissa de Araújo¹, Milena de Moraes¹, Cláudia Afonso¹, Cristina Santos¹
¹Porto University

The aim is to compare different classification systems for evaluating highly/ultra-processed food (H/UPF) on overall diet. Data from DAFNE-AnemosSoft and food items classified according to five systems. H/UPF contributions varied from 10.2% (NOVA) to 47.4% (IARC). Highest discrepancies were for alcoholic beverages, milk/milk products, sugar/sugar products, added lipids, and cereal/cereal products.

OS.08.03 USER EXPERIENCES OF THE AUTOMATED SELF-ADMINISTERED DIETARY ASSESSMENT TOOL, INTAKE24, AND AN IMAGE-ASSISTED MOBILE FOOD RECORD 24-HOUR RECALL RELATIVE TO OBSERVED INTAKE

Janelle Healy¹, Christina Pollard¹, Clare Collins², Megan Rollo¹, Carol Boushey³, Barbara Mullan¹, Richard Norman¹, Edward Delp⁴, Fengqing Zhu⁴, Sharon Kirkpatrick⁵, Clare Whitton¹, Amira Hassan¹, Deborah Kerr¹
¹Curtin University, ²Newcastle University, ³University of Hawaii Cancer Center, ⁴Purdue University, ⁵University of Waterloo

In semi structured interviews, adult participants (n=26) reported wanting to complete 24-hour food recalls accurately and on their own. Food identification and portion estimation were perceived obstacles to accuracy when using current food identification and portion estimation tools. Participants felt that taking and viewing their images with the mFRTM app enhanced perceived accuracy.

OS.08.04 COMBINATION OF DEVICE-BASED MOTION SENSORS FOR MONITORING DAILY HABITUAL PHYSICAL ACTIVITY IN MANUAL WHEELCHAIR USERS: A SYSTEMATIC REVIEW

Kati Karinharju¹, Sjaan Gomersall², Kelly Clanchy¹, Sean Tweedy²
¹Satakunta University of Applied Sciences, ²The University of Queensland

This study evaluated the validity of device-based motion sensors for estimating four PA outcomes: energy expenditure, self-propulsion(SP), activities other than SP; and wheelchair kinematics in manual wheelchair users (MWU). Combination of two devices, one on the right wrist and one on the wheelchair wheel, seems to provide the most comprehensive method for measuring daily habitual PA in MWU.

Oral Session #9

CONTEXTUAL FACTORS (e.g., environmental modifiers)

Wednesday 28 June | 16:15-17:15

Location: Classroom FB-028

Session Chair: Benoît Lamarche

OS.09.01 DIETARY QUALITY INDEXES BASED ON SELF-REPORTED INTAKES AND BIOMARKER DATA IN RELATION TO METABOLIC SYNDROME AND GUT MICROBIAL DIVERSITY

Ulrika Ericson¹, Sophie Hellstrand¹, Suzanne Janzi¹, Gustav Smith¹, Gunnar Engström¹, Emily Sonestedt¹, Marju Orho-Melander¹

¹Lund University

We examined adherence to Swedish dietary guidelines, gut microbial diversity and Metabolic syndrome (n=3667) using self-reported data and diet biomarkers. Biomarker indexes were found to be a valuable complement to indexes from self-reports. Combining data types may, depending on outcome, be the most valid instrument, and has potential for further improvement if better biomarkers are identified.

OS.09.02 A REVIEW OF BIOMEDICAL AND ANTHROPOMETRIC MEASURES USED IN NUTRITION SURVEYS IN FIVE COUNTRIES

Berit Follong¹, Caitlin Haliburton¹, Maria Maiquez¹, Jacqui Grey¹, Sally Mackay¹, Cliona Ni Mhurchu¹

¹University of Auckland

Objective measures such as nutritional biomarkers and anthropometric measures are often collected alongside self-reported dietary intake and nutrition-related health in national nutrition surveys. A review of biomedical and anthropometric measures used in national surveys in five countries was undertaken to determine and select the priority measures for the New Zealand Nutrition Survey.

OS.09.03 MEASURING DISCRETIONARY SALT: A TRADE OFF BETWEEN CONVENIENCE AND ACCURACY

Rachael McLean¹, Nan Xin Wang¹, Sheila Skeaff¹, Claire Cameron¹

¹University of Otago

We compared the feasibility and accuracy of two methods of measuring discretionary salt: the gold standard lithium-tagged salt (saltLi) method and 24 hour diet recalls in a convenience sample of New Zealand adults. The saltLi method was more burdensome for participants and researchers than 24 hour diet recall. Researchers must weigh up feasibility of data collection with accuracy when measuring

OS.09.04 METABOLOMIC METHODS IN DIETARY PATTERN FEEDING STUDIES: A SCOPING REVIEW

Jordan Stanford¹, **Clare Collins**¹, Erin Clarke¹, Jessica Ferguson¹

¹University of Newcastle

This review synthesises the methodological components of feeding studies designed to identify the diet-related metabolome in biospecimens, including plasma, serum, and urine in response to various dietary feeding interventions. Findings from this review found substantial variability in the methods used including dietary patterns, sample collection, and analytical techniques.

Oral Session #10

METHODS DEVELOPMENT AND FEASIBILITY AND VALIDATION RESEARCH – 3

Thursday 29 June | 09:45-10:45

Location: Concert Hall

Session Chair: Kevin Dodd

OS.10.01 ASSOCIATION BETWEEN THE SCORE IN THE FOOD PRACTICES BRAZIL SCALE (FPBr) AND SHORT- AND LONG- TERM ACHIEVEMENT OF DIETARY INTAKE RECOMMENDATIONS

Kamila Gabe¹, Caroline dos Santos Costa¹, Francine da Silva Santos¹, Thays de Souza Nascimento¹, Patricia Constante Jaime¹

¹University of São Paulo

Data from the NutriNet-Brasil Cohort showed the Food Practices Brazil Scale (FPBr) predicts the achievement of recommendations of fruits and vegetables, nuts, whole grains, legumes, and ultra-processed foods 1-2 and 6-8 months after the scale completeness. These results endorse its convergent validity and reinforce its usefulness as a simple way to evaluate adherence to the Brazilian Food Guide.

OS.10.02 DEVELOPING AND EVALUATING A SCREENER TO ASSESS ALIGNMENT OF ADULTS' DIETARY INTAKE WITH THE 2019 CANADA'S FOOD GUIDE HEALTHY FOOD CHOICES RECOMMENDATIONS

Joy Hutchinson¹, Tabitha Williams¹, Kevin Dodd², Patricia Guenther³, Benoit Lamarche⁴, Ailish Westaway¹, Alexandra Bédard⁴, Camille Pitre⁴, Simone Lemieux⁴, Angela Wallace⁵, Maude Perreault⁵, Alicia Martin⁵, Jess Haines⁵, Sharon Kirkpatrick¹

¹University of Waterloo, ²National Cancer Institute, ³University of Utah, ⁴Université Laval, ⁵University of Guelph

The Canadian Food Intake Screener assesses alignment with Canada's Food Guide's food choices recommendations. English and French versions were informed by cognitive interviews and face and content validity testing. Moderate construct validity is suggested by the screener's ability to differentiate among groups with known differences and the correlation with Healthy Eating Food Index-2019 scores.

OS.10.03 VALIDATION OF THE RAPID PRIME DIETARY SCREENER (rPDQS), A BRIEF DIETARY ASSESSMENT TOOL WITH SIMPLE TRAFFIC LIGHT SCORING

Selma Kronsteiner Gicevic¹, Monique Tello², Elizabeth Lincoln³, Jordan Kondo³, Uma Naidoo³, Teresa Fung⁴, Walter Willett⁵, Anne Thorndike⁶

¹Medical University of Vienna, ²Agenus Inc., ³Harvard Medical School, ⁴Simmons University, ⁵Harvard TH Chan School of Public Health, ⁶Massachusetts General Hospital

We developed and evaluated Rapid Prime Diet Quality Screener (rPDQS) relative to food group intakes, HEI-2015 scores and nutrient intakes from ASA24. The rPDQS responses significantly correlated with the HEI-2015 scores, food groups and nutrients from ASA24. The rPDQS, a valid screener with a traffic light scoring system, could help non-RDN clinicians provide initial dietary counseling.

OS.10.04 VALIDITY OF MEAL TIMING ASSESSED BY TRADITIONAL DIETARY ASSESSMENT METHODS IN COMPARISON WITH MEAL TIMING BASED ON IMAGE TIME STAMPS USING A WEARABLE CAMERA

Megan McCrory¹, Kimberly Siu¹, Xin Yang², Tonmoy Ghosh², Abul Doulah³, Janine Higgins³, Jason Parton², Lynne Wilkens⁴, Carol Boushey⁴, Fengqing Zhu⁵, Edward Delp⁵, Marie Fialkowski⁴, Edward Sazonov²

¹Boston University, ²University of Alabama, Tuscaloosa, ³University of Colorado Anschutz Medical Campus, ⁴University of Hawaii, Manoa, ⁵Purdue University

Newly developed image-based dietary assessment tools offer more precision to determine meal timing than traditional dietary assessment methods. We compared meal timing from three self-report methods to that captured by image time stamps from a wearable camera (AIM-2). Self-reported methods showed longer meal durations than image time stamps in the natural setting but not the research center.

Oral Session #11

STATISTICAL ASPECTS AND ANALYSIS TOOLKIT

Thursday 29 June | 09:45-10:45

Location: Classroom FG-042

Session Chair: Carolina Batis

OS.11.01 STANDARDIZED FOOD GROUPING TO ENHANCE HARMONIZATION OF DIETARY DATA AND REPORTING

Agnieszka Balcerzak¹, Victoria Padula de Quadros¹, Teresa Bevere¹, Pauline Allemand¹, Elaine Borghi², Luc Ingenbleek², Bridget Holmes¹

¹Food and Agriculture Organization of the United Nations, ²World Health Organization

Standardized dietary data analysis and reporting of survey results requires a high level of data harmonization and consistent grouping of reported foods and drinks. A two-level food grouping system has been developed to support harmonization and dissemination of dietary data collected in diverse contexts and using different methods.

OS.11.02 SALT AND SEASONING USAGE ASSESSED AS COVARIATES IN THE ESTIMATION OF USUAL IODINE INTAKE AND ITS PREVALENCE OF INADEQUACY

Sandra Crispim¹, Débora Silva¹, Sylvia Franceschini², Mariana Macedo², Vanessa Schrubbe¹

¹Federal University of Paraná, ²Federal University of Viçosa

The influence of covariates on the estimates of usual iodine intake and the prevalence of its inadequacy in pregnant women was studied. The adjustment for the remaining salt and seasoning covariates produced higher intake means. The usual iodine intake mean from the best model was 136.6mcg, with 60.9% and 0.1% of them having insufficient and excessive intake, respectively.

OS.11.03 ASSESSMENT OF IRON INADEQUACY PREVALENCE IN PREMENOPAUSAL WOMEN USING EFSAS DIETARY REFERENCE VALUE

Marjolein de Jong¹, Alida Melse-Boonstra², Johanna Geleijnse², Janneke Verkaik-Kloosterman¹

¹Dutch National Institute for Public Health and the Environment, ²Wageningen University

Insufficient information on the entire iron requirement distribution is available to use the PA (probability approach) to assess the prevalence of inadequacy of premenopausal women. Aim of this study was to estimate the iron requirement distribution based on EFSA's requirement value, to enable reliable use of the PA. We advise using the gamma distribution based on the provided percentiles by EFSA.

OS.11.04 SOCIODEMOGRAPHIC FACTORS ASSOCIATED WITH THE NOVA BRAZILIAN DIET QUALITY INDEX (Nova-BDQI)

Thays Souza¹, Maria Laura Louzada¹, Kamila Gabe¹

¹University of Sao Paulo

The present study aimed to analyse the association between sociodemographic factors and the Nova Brazilian Diet Quality Index (Nova-BDQI). The national representative survey Budget Family Survey (BFS) 2017-2018 (n=46,164) was used. We observed that the Nova-BDQI was associated with sociodemographic factors.

Oral Session #12

MACHINE LEARNING AND DATA SCIENCE APPROACHES IN PHYSICAL ACTIVITY AND DIETARY DATA

Thursday 29 June | 09:45-10:45

Location: Classroom FB-028

Session Chair: Brian Carson

OS.12.01 ARTIFICIAL INTELLIGENCE-MEASURED PEDESTRIAN ENVIRONMENT FEATURES FROM GOOGLE STREET VIEW IMAGES AND INTERACTIONS WITH A 12-MONTH INTERVENTION TO INCREASE PHYSICAL ACTIVITY

Mark Adams¹, Akshar Patel¹, Ariane Middel¹, Christine Phillips²

¹Arizona State University, ²Clemson University

This study utilized validated computer vision models for detecting 8 pedestrian environment features (PEFs) (i.e., sidewalks, sidewalk buffers, crosswalks, curb ramps, pedestrian crossing signals) in 512 participant neighborhoods and then evaluated whether PEFs moderated a 1-year intervention with 1-year post-intervention follow-up to increase adults' accelerometer-measured physical activity.

OS.12.02 UNPACKING UNCERTAINTY AND VARIABILITY: HOW STATISTICAL METHODS IMPACT HEALTH IMPACT ESTIMATES IN DIETARY RISK-BENEFIT ASSESSMENT

Daniela Correia¹, Catarina Carvalho¹, Sofia Costa¹, Carla Lopes¹, Duarte Torres¹

¹University of Porto

Dietary risk-benefit assessment (RBA) can estimate the health impacts of changes in food consumption. The accuracy of these estimates depends on the methodology and quality of the parameters used. We evaluated the influence of uncertainty and variability on health impact estimates in RBA models using an example of replacing animal-based foods with plant-based substitutes. Including uncertainty and variability in RBA models.

OS.12.03 THE iDINE STUDY: IMPROVING DIGITAL IMAGING FOR NUTRIENT EVALUATION

Erin Hennessy¹, Eleanor Shonkoff², Shreyas Kamath¹, Srijith Rajeev¹, Sos Agaian³, Kenneth Chui¹, Christina Economos¹, Abigail Stone¹, Karen Panetta¹

¹Tufts University, ²Merrimack College, ³City University of New York

This study sought to develop a system architecture using artificial intelligence and computer vision techniques to identify food items and determine amounts consumed. We employed a phased approach to acquire and process food images; detect and classify objects; create 3-D models; estimate volume and weight, and nutrient/energy consumption. We will report outcomes from this work.

OS.12.04 MONITORING OF DIETARY INTAKE AND PHYSICAL ACTIVITY WITH THE AUTOMATIC INGESTION MONITOR (AIM)

Edward Sazonov¹, Megan McCrory², Janine Higgins³, Billal Hossain¹, Samuel LaMunion⁴, Graham Thomas⁵, Edward Melanson³, Scott Crouter⁶, Carol Boushey⁷, Fengqing Zhu⁸, Edward Delp⁸, Marie Fialkowski⁷, Yurii Shvetsov⁷, Keala Swafford⁷, Lynne Wilkens⁷

¹University of Alabama, ²Boston University, ³University of Colorado Denver, ⁴National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), ⁵The Miriam Hospital, ⁶University of Tennessee Knoxville, ⁷University of Hawaii, ⁸Purdue University

The Automatic Ingestion Monitor (AIM) is a passive device that combines sensors (optical eating detection, accelerometer and still camera) that may be used for monitoring of diet, nutrition and physical activity. The presentation introduces the AIM device and methods of signal processing and machine learning used in data analysis.

Oral Session #13

METHODS DEVELOPMENT AND FEASIBILITY AND VALIDATION RESEARCH – 4

Thursday 29 June | 11:15-12:15

Location: Concert Hall

Session Chair: Ulf Ekelund

OS.13.01 **COMPARING INDICATORS FOR MONITORING AND EVALUATION OF HEALTHY DIETS: MDD-W VERSUS GDR SCORE AND GDQS**

Giles Hanley-Cook¹, Simone Gie¹, Juan Pablo Parraguez¹, Sara Hoogerwerf¹, Lynnette Neufeld¹, Bridget Holmes¹

¹Food and Agriculture Organization of the United Nations (FAO)

We analyzed the relationship between promising metrics for global dietary monitoring using 24-HRs from 75,250 women. Increments in the MDD-W food group diversity score were strongly associated with higher GDQS, but not GDR score. Although MDD-W reflects dietary diversity, results suggest it may be predictive of overall diet quality and might therefore be a proxy for more comprehensive indicators.

OS.13.02 **CHARACTERISING THE REPORTING OF LEFTOVER PORTIONS IN INTAKE24: AN AUTOMATED ONLINE 24-HOUR RECALL**

Anila Farooq¹, Toni Steer¹, Angela Mulligan¹, Kirsty Trigg¹, Suzanna Abraham¹, Polly Page¹

¹University of Cambridge

Intake24, an online 24-hour recall tool, has ability to capture leftover (L/O) portions. However this is not standard across all portion elements and may increase participant burden. L/O reporting was examined in the UK National Diet and Nutrition Survey (2019-2022). Differences were found in sex, age and across recalls. This work will aid future decisions about the leftovers feature in Intake24.

OS.13.03 **WHAT IS THE BEST FORMAT FOR COLLECTING DIETARY DATA FOR RISK ASSESSMENT: CONTINUOUS OR PERIODIC COLLECTION?**

Sandrine Carrillo¹, Jade Assoukpa¹, Morgane Champion¹, Blandine De Lauzon-Guillain², Cecilia Samieri², Carine Dubuisson¹

¹French Agency for Food, Environmental and Occupational Health & Safety, ²INSERM

The French Food Safety Agency conducted a study comparing the collection of food consumption data on a periodic or continuous basis, based on a literature review and consultancy of other countries. Though surveys were mainly periodic, a tendency was to consider continuous collection (funding secured, up-to-date data, in-house expertise), assessed as the best option for risk assessment in France.

OS.13.04 **ASSESSING THE ENVIRONMENTAL IMPACT OF DIETS BASED ON INDIVIDUAL DIETARY DATA: NEW INFOGRAPHICS FOR THE FAO/WHO GIFT PLATFORM**

Victoria Padula de Quadros¹, Jacqueline Tereza da Silva¹, Agnieszka Balcerzak¹, Teresa Bevere¹, Pauline Allemand¹, Valeria Scrilatti¹, Giovanni Luca Abblasio¹, Rita Ferreira de Sousa¹, Catherine Leclercq², Marika Ferrari², Ximena Schmidt Rivera³, Sarah Bridle⁴, Christian Reynolds⁵, Bridget Holmes¹

¹Food and Agriculture Organization of the United Nations (FAO), ²Council for Agricultural Research and Economics,

³Brunel University London, ⁴University of York, ⁵City, University of London

Individual quantitative dietary data can be used to assess the environmental impact of diets. Dietary data from the FAO/WHO GIFT platform were matched to a database containing greenhouse gas emissions, water use and land use of foods. Results will be shown in FAO/WHO GIFT as infographics, offering an understanding of how the composition of the diet influences its environmental impact.

Oral Session #14

DIETARY ASSESSMENT ACROSS THE LIFESPAN – 2

Thursday 29 June | 11:15-12:15

Location: Classroom FG-042

Session Chair: Alexandra Cremona

OS.14.01 EVALUATION OF SMARTAPPETITE, A SMARTPHONE APP FOR IMPROVING ADOLESCENT FOOD LITERACY AND HEALTHY EATING: A QUALITATIVE ANALYSIS

Louise McEachern¹, Holly Schaafsma¹, Heather Jantzi¹, Nicholas Woods¹, Sean Doherty², Colleen O'Connor³, Jamie Seabrook³, Jess Haines⁴, Leia Minaker⁵, Jason Gilliland¹

¹University of Western Ontario, ²Wilfrid Laurier University, ³Brescia University College, ⁴University of Guelph, ⁵University of Waterloo

SmartAPPetite is a messaging app to send personalised messages to nudge users to healthier dietary behaviours. We present the findings of a qualitative study among participants of the SmartAPPetite for Youth study. Analysis showed the app had positive influences on food literacy and awareness of dietary choices. The app has the potential to promote healthier dietary behaviours among teens.

OS.14.02 RELATIVE VALIDITY OF NUTRIENT INTAKE OF THE DITEETIK! FOOD RECORD APP ACROSS EDUCATIONAL LEVELS

Eline Nawijn¹, Ceciel Dinnissen¹, José Drijvers¹, Coline van den Bogaard-van Oosterhout¹, Caroline Van Rossum¹, Ido Toxopeus¹, Marga Ocké¹

¹National Institute for Public Health and the Environment (RIVM)

DitEetk! food record app compared to 24HDR were evaluated across educational levels. Median nutrient intake seems to be underestimated more in the app among lower educated people than among middle and higher educated people.

OS.14.03 DEVELOPMENT OF A WEB-BASED FOOD FREQUENCY QUESTIONNAIRE (FFQ) - EXPERIENCES FROM DEVELOPING A MULTI-LANGUAGE FFQ ADJUSTED FOR THE CULTURALLY DIVERSE SWISS POPULATION

Sarah Pannen¹, Roland Gassmann², Elsa Chevillard³, Robert Vorburger², Pedro Marques-Vidal⁴, Sabine Rohrmann¹, Angeline Chatelan³, Nina Steinemann¹, Janice Sych²

¹University of Zurich, ²ZHAW School of Life Sciences and Facility Management, ³Geneva School of Health Sciences, HES-SO University of Applied Sciences and Arts Western Switzerland, ⁴Lausanne University Hospital and University of Lausanne

Given that Switzerland currently lacks a web-based FFQ, we aimed to develop a multi-language FFQ that allows the semi-automatic collection of dietary intake data in the culturally diverse Swiss population. For the development, we followed a multi-step procedure consisting of three stages including: 1) review, 2) usability test, and 3) improvement of the FFQ for each of the implemented languages.

OS.14.04 DEFINING THE OPTIMAL MDD-W THRESHOLD TO IDENTIFY PREGNANT WOMEN WITH INADEQUATE MICRONUTRIENT INTAKE IN LOW-AND MIDDLE-INCOME COUNTRIES

Eric Verger¹, Sabrina Eymard-Duvernay¹, Dang Bahya-Batinda¹, Loty Diop², Elodie Becquey², Aulo Gelli², Alemayehu Argaw³, Giles Hanley-Cook³, Sunny Kim², Rock Zagre², Phuong Hong Nguyen², Shivani Kachwaha², Helen Harris-Fry⁴, Naomi Saville⁵, Edwige Landais¹, Mathilde Savy¹, Yves Martin-Prével¹, Carl Lachat³

¹IRD, ²IFPRI, ³Ghent University, ⁴LSHTM, ⁵University College London

In 5 dietary surveys on pregnant women from Burkina Faso, India, and Nepal, we evaluated the minimum number of food groups (FG) to be consumed, out of the 10 FG of the MDD-W, to define a population-level indicator to predict a mean probability of adequacy above 0.60 for 11 micronutrients. As already shown for non-pregnant women, the threshold of 5 or more FG performed better overall.

Oral Session #15

FOOD SECURITY, COMBINING ENVIRONMENTAL INDICATORS AND HIERARCHICAL FOOD STRUCTURES

Thursday 29 June | 11:15-12:15

Location: Classroom FB-028

Session Chair: Sharon Kirkpatrick

OS.15.01 ADDING ENVIRONMENTAL INDICATORS TO A DATASET OF HOUSEHOLD PURCHASES OF FOOD AND BEVERAGES IN NEW ZEALAND

Kathryn Bradbury¹, Bruce Kidd¹, Eli Kliejunas¹, Cliona Ni Mhurchu¹

¹*University of Auckland*

We incorporated estimates of greenhouse gas emissions associated with the production, processing and transportation of foods in New Zealand into the NielsenIQ Homescan® panel - a dataset containing information on food purchases from 2,500 New Zealand households. This allowed us to quantify the environmental impact of household food purchases.

OS.15.02 ADDED BENEFITS OF SCREENING FOR NUTRITION SECURITY ALONGSIDE FOOD SECURITY SCREENING

Eric Calloway¹, Amy Yaroch¹, Leah Carpenter¹, Tony Gargano¹

¹*Gretchen Swanson Center for Nutrition*

We aimed to explore the usefulness of adding a newly developed one-item nutrition security screener to the commonly used two-item food security screener. Only those who screened positive for both nutrition and food insecurity had increased odds for poor diet and health outcomes compared to the referent group. The findings demonstrate the advantage of pairing nutrition and food security screening.

OS.15.03 NEW MEASURES TO ASSESS THE "OTHER" THREE PILLARS OF FOOD SECURITY: AVAILABILITY, UTILIZATION, AND STABILITY

Eric Calloway¹, Amy Yaroch¹, Leah Carpenter¹, Tony Gargano¹

¹*Gretchen Swanson Center for Nutrition*

We aimed to develop scales to assess the three pillars of food security not currently assessed. Our systematic process led to the development of new measures and findings support their reliability and validity. These tools can promote a more comprehensive understanding of the food insecurity experience by pairing them with an existing measure of Access to allow assessment of all four pillars.

OS.15.04 LEVERAGING HIERARCHICAL FOOD STRUCTURE TO IMPROVE HEALTH RESPONSE MODELS: NHANES 2007-2018

James Pleuss¹, Samantha Kleinberg¹

¹*Stevens Institute of Technology*

Using food consumption from NHANES 2007-18, we leverage the hierarchical nature of foods to select features at the most impactful level of granularity on two food structures (FNDDS and WWEIA). Compared with traditional feature selection methods, this data-driven approach leads to higher classification accuracy on 8 health responses and reveals novel associations between food and health.