




INTERNATIONAL CONFERENCE on Diet and Activity Methods

**Methodological Challenges
for Measuring the Achievements of International Policies**



ROME 14-17 MAY 2012

HOSTED AND CONVENED BY:



**Food and Agriculture Organization
of the United Nations (FAO)
Rome - Italy**



programme

PROGRAMME



08.30-10.30 Registration and coffee

10.30-12.00

GREEN Room

Opening of Conference

Chair: [Barbara Burlingame](#)

Principal Officer of Nutrition and Consumer Protection Division
Food and Agriculture Organization of the United Nations

Opening address

[Ann Tutwiler](#), Deputy Director-General, Office of the Director General

P-1 Keynote address: Measuring upstream: indicators of action and impacts on food environments

[Boyd Swinburn](#), Professor of Population Nutrition and Global Health
University of Auckland - New Zealand

P-2 Keynote: Research and action to improve diets

[Barrie Margetts](#), Professor of Public Health Nutrition
Faculty of Medicine, University of Southampton - United Kingdom

12.00-14.30

ATRIUM - Poster session

Lunch Break at FAO cafeteria

14.30-16.00

GREEN Room

P-3 Keynote lecture: Social policies to encourage physical activity

[Billie Giles-Corti](#), Director of the McCaughey VicHealth Centre for Mental Health and Community Wellbeing, Melbourne School of Population Health, The University of Melbourne

P-4 Keynote lecture: Measurement error in nutritional epidemiology

In memory of Arthur Schatzkin

[Laurence Freedman](#), Director of Biostatistics Unit, Gertner Institute for Epidemiology and Health Policy Research, Tel Hashomer - Israel

P-5 Keynote lecture: Biomarkers and biomonitoring

In memory of Sheila Bingham

[Tim Key](#), Deputy Director, Cancer Epidemiology Unit, University of Oxford

16.00-16.30

Coffee break

16.30-18.00

IRAN Room

A-1 Assessment of food environments

Chair: [Jill Reedy](#)

Invited Speakers: [Angela Liese](#)

monday, may 14

Oral presentations:

Minaker et al. - Assessing the construct validity of food environment measures: A multi-trait multi-method matrix approach

Kirkpatrick et al. - Assessment of dietary outcomes in food environment research: A barrier to informing policy and programs to support healthy eating?

Miller et al. - Applying a diet quality index to assess the healthfulness of food balance sheets

Snowdon et al. - Assessing the food policy environment: Participatory approaches

Thornton et al. - Food purchasing: How important is the local neighbourhood?

GREEN Room

B-1 Nutrition and food security analyses using household surveys

Chair/co-chair: *John L. Fiedler, Carlo Cafiero*

Invited speakers: *Keith Lividini, Jennifer Coates, Dirce Marchioni*

Oral presentations:

Pereira et al. - The challenging inclusion of the first Brazilian individual dietary survey in the 2008-2009 Household Consumer Expenditures Survey

Moursi et al. - How do household consumption and expenditure surveys compare to 24-hour recalls in terms of nutrient intakes? Evidence from Uganda and Mozambique

Loopstra-Masters & Tarasuk - Assessing change in household food insecurity

MALAYSIA Room

C-1 Evaluating Physical Activity Environments

Chair: *James Sallis*

Invited speaker: *Marc Adams*

Oral presentations:

Bird et al. - Assessment of neighbourhood park characteristics for physical activity among youth

Frank et al. - Objective assessment of obesogenic environments in youth: GIS methods to evaluate physical activity and food environments for the neighborhood impact on kids (NIK) study

Quigg et al. - Natural experiments - an effective method for assessing built environment policy impact

18.00-20.00 Reception at cafeteria and terrace

monday, may 14

09.00-10.30

IRAN Room

A-2 Dietary surveys and indicators for formulating policies

Chair/co-chair: *Aida Turrini, Barrie Margetts*

Invited speaker: *Barrie Margetts*

Oral presentations:

Judd et al. - Dietary patterns associated with demographic and socioeconomic groups in the regards study

Pot et al. - Development of UK eating choices index

Morris et al. - Is a healthy diet the most expensive type of diet? Using dietary data from the UK women's cohort study

Burley et al. - Comparability of dietary patterns derived from food frequency questionnaire and food diary approaches in the UK women's cohort study (UKWCS)

GREEN Room

B-2 International dietary data harmonisation for monitoring and exposure assessment - synergies and challenges

Chair/co-chair: *Liisa Valsta, Marga Ocke*

Invited speakers: *Davide Arcella, Marga Ocke*

Oral presentations:

Huybrechts et al. - Train-the-trainers in conducting standardized 24-h dietary recall interviews in international study settings: Report from a real study experience

Illner et al. - Feasibility of use and performance of a European food propensity questionnaire in the iDAMES project

Bell et al. - Delivering food information and other tools to support food and health professionals

Johnson - Challenges in monitoring biomarkers of folate, vitamin D and sodium over time: the NHANES experience

MALAYSIA Room

C-2 Physical activity assessment in international surveillance systems

Chair: *Andrew Hills*

Invited speaker: *Adrian Bauman*

Oral presentations:

Mcclain et al. - Leveraging distributed sensor networks to develop a scalable system for behavioral health surveillance and health outcomes research

tuesday, may 15

Garriguet et al. - Daily patterns of physical activity participation in Canadians

Troiano et al. - Objective measurement of physical activity, sleep, and strength in the US National Health and Nutrition Examination Survey 2011-2014

Roberts et al. - Evaluation of weight management, diet and physical activity interventions: A standardised approach

10.30-11.00 Coffee break

11.00-12.30 **IRAN Room**

A-3 Assessment of dietary supplement intakes

Chair: *Regan Bailey*

Invited speaker: *Regan Bailey*

Oral presentations:

Crispim et al. - Pitfalls when accounting for supplement use in validation studies: experiences from the European Food Consumption Validation (EFCOVAL) study

Parnell et al. - Assessment of dietary supplement use in New Zealand: Methodology and regulatory challenges

Verkaik-Kloosterman et al. - A three-part, mixed effect model to estimate habitual total nutrient intake distributions from food and dietary supplements in Dutch young children

Buurma et al. - Dietary supplement use in the Netherlands

GREEN Room

B-3 Measurement error in nutritional epidemiology (in Memory of Arthur Schatzkin)

Chair: *Yikyung Park*

Invited speakers: *Victor Kipnis, Donna Spiegelman*

Oral presentations:

Midthune et al. - A bivariate measurement error model for an episodically-consumed dietary component and energy: application to nutritional epidemiology

Börnhorst et al. - Diet-obesity relationships in children: Approaches to handle implausible dietary records

Dekker et al. Improving ethnic-specific Food Frequency Questionnaires by different qualitative approaches

Geelen et al. - Variation of bias in protein and potassium intake collected with 24-h recalls across European populations using multilevel analysis



MALAYSIA Room

C-3 New technologies for objective monitoring of physical activity

Chair: *Stephen Intille*

Invited speaker: *Stephen Intille*

Oral presentations:

Bélanger et al. - Up to half of steps performed is not measured by accelerometers in obese individuals

Cain et al. - Comparison of older and newer generations of ACTIGRAPH accelerometers with and without the low frequency extension

Slinde et al. - Validation of a multisensor armbands' capacity to estimate energy expenditure in overweight and obese lactating women using doubly labeled water

Doherty et al. - Making counts, count more? Using wearable cameras to contextualise accelerometer data

12.30-14.30

ATRIUM - Poster session

Lunch Break at FAO cafeteria

14.30-16.00

GREEN Room

A-4 Dietary patterns: Methodological advances and new research directions

Chair: *P.K. Newby*

Oral presentations:

Reedy et al. - A comparison of four diet quality indexes with all-cause and cause-specific mortality

Lassale et al. - Association between dietary scores and 13-y weight change and obesity risk in a French prospective cohort: Comparison of their predictive value

Tognon et al. - Applications and modifications of the Mediterranean diet index for a more precise estimate of the association with longevity and morbidity

Krebs-Smith et al. - Development and evaluation of the Healthy Eating Index-2010

Miller et al. - Dietary patterns and colorectal cancer incidence: a classification tree analysis

IRAN Room

B-4 Advanced statistical methods for objective monitor data

Chair: *John Staudenmayer*

Invited speaker: *John Staudenmayer*

tuesday, may 15

Oral presentations:

Lyden et al. - Validation of a novel method to estimate METs from free-living accelerometer data: The Sojourn Method

De Vries et al. - Evaluation of neural networks to identify types of activity among children using accelerometers, global positioning systems and heart rate monitors

Butte et al. - How much energy do preschoolers really expend? Application of advance statistical methods to predict energy expenditure and physical activity levels in preschoolers

MALAYSIA Room

C-4 Assessment of physical activity in children and youth

Chair: *Jo Salmon*

Invited speaker: *Jo Salmon*

Oral presentations:

Colley et al. - Step count target to measure adherence to physical activity guidelines in children

Garriguet et al. - Comparing parent-report and directly measured physical activity, sedentary behaviour and sleep in Canadian children and their association with health

Belcher et al. - Self-reported versus objectively measured physical activity&cardiometabolic biomarkers among youth in NHANES

Colley et al. - The pattern and timing of sedentary behaviour are related to body mass index in boys but not girls

16.00-16.30 Coffee break

16.30-18.00

GREEN Room

A-5 Assessment of dietary patterns for health

Chair: *Catherine Champagne*

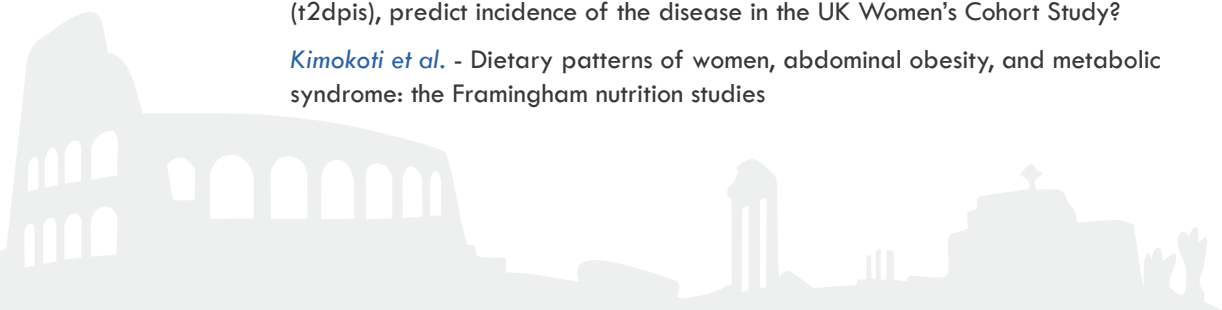
Oral presentations:

Miller et al. - The Dietary Approaches to Stop Hypertension (DASH) diet index scores and colorectal cancer risk: A comparison of four approaches

Möller et al. - Mediterranean diet score and prostate cancer risk in Sweden

Ashton et al. - How well does a type 2 diabetes prevention index score (t2dpis), predict incidence of the disease in the UK Women's Cohort Study?

Kimokoti et al. - Dietary patterns of women, abdominal obesity, and metabolic syndrome: the Framingham nutrition studies



Letenneur et al. - Association between diet and hip fracture risk: Comparison between a priori (medi score) and a posteriori derived dietary patterns in elderly people

IRAN Room

B-5 Measurement and detection of food consumed outside the home

Chair: *Nelia Steyn*

Invited speaker: *Nelia Steyn, Carlos Montiero*

Oral presentations:

Buck et al. - Does environmental food supply influence junk food consumption of preschool and school children? First results of the IDEFICS Study

Gorgulho et al. - Out-of-home eating prevalence in the city of São Paulo, Southeast Brazil

Mak et al. - Assessing eating context: New methods using diet diaries in the UK National Diet and Nutrition Survey (2008-2010).

Naska et al. - The Hector Eating Out Questionnaire: A data collection tool to assess out of home dietary intakes

MALAYSIA Room

C-5 Assessment of Sedentary Behavior

Chair: *Neville Owen*

Invited speaker: *Neville Owen*

Oral presentations:

Chau et al. - Measuring workers' sitting time by domain: The Workforce Sitting Questionnaire (WSQ)

Csizmadi et al. - The Sedentary Time and Activity Reporting Questionnaire (STAR-Q): A comprehensive tool to assess sedentariness and activity energy expenditure

Hamilton et al. - Measuring episodes of sedentary behaviour using SenseCam: A pilot study

Timperio et al. - Agreement between activPAL and ActiGraph for assessing children's sedentary time

Optional banquet outside FAO

A-6 New technologies for dietary assessmentChair: *Amy Subar***Oral presentations:**

Delve et al. - The impact of using calibrated utensils to assess portion sizes in infants aged 4-18 months

Touvier et al. - Comparison between an interactive web-based self-administered 24h dietary record and an interview by dietitian for large-scale epidemiological studies

Timon et al. - Validation of a novel method of dietary assessment in an older adult population: The NANA project

Christensen et al. - The validity of micronutrient intake in a web-based food frequency questionnaire: Meal-Q

Subar et al. - Adapting the US Automated Self-administered 24-hour dietary recall (ASA24) for use in multiple populations

Illner et al. - Evaluation of innovative technologies for measuring diet in epidemiological studies

IRAN Room

B-6 Measuring dietary diversityChair/co-chair: *Marie Claude Dop, Joyce Luma*Invited speakers: *Nelia Steyn, Mary Arimond***Oral presentations:**

Moursi et al. - Association between dietary diversity and child growth in rural Uganda and Mozambique

Mathiassen et al. - Household Food Consumption: looking beyond the score

Büchner et al. - Comparison of Diet Diversity Scores for fruit and vegetables and plasma carotenoids levels in the cross-sectional study of the European Prospective Investigation into Nutrition and Cancer (EPIC)

Burke et al. - U.S. trends in dietary variety and its association with BMI and micronutrient intakes among younger and older age groups

MALAYSIA Room

C-6 Characteristics and impacts of measurement error in physical activity dataChair: *Sarah Nusser*Invited speaker: *Sarah Nusser***Oral presentations:**

Matthews et al. - Evaluation of the performance of a previous day recall and the ActiGraph Monitor for measures of active and sedentary time

Tooze et al. - A measurement error model for physical activity level measured by a questionnaire, with application to the NHANES 1999-2006 questionnaire

Neuhouser et al. - Physical activity assessment: biomarkers and self-report of activity-related energy expenditure in the Women's Health Initiative

10.30-11.00 Coffee break

11.00-12.30

IRAN Room

A-7 Characterizing sustainable diets and biodiversity

Chair/co-chair: *Ruth Charrondiere, Barbara Burlingame*

Invited speaker: *T. Longvah*

Oral presentations:

Burlingame et al. - Improving dietary assessment methodologies for characterizing sustainable diets

Charrondiere et al. - Tools to improve the evidence of the importance of biodiversity for nutrition

Monteiro et al. - Brazilian northern and southeastern food diversity

Ntandou-Bouzitou et al. - Effect of introduced foods on the diversity of traditional foods and its possible implications on diets and nutritional status of rural poor communities in Southern Benin

GREEN Room

B-7 Measurement of physical activity in low and middle income countries

Chair: *Heather Bowles*

Invited speaker: *Olga Lucia Sarmento*

Oral presentations:

Khandpur et al. - Physical activity among adolescents in India: Objective measurement

Anjos et al. - Physical activity pattern and pedometer counts of adults from Niteroi, Rio de Janeiro, Brazil: The Nutrition Physical Activity and Health Survey

Barnes et al. - Adapting a Canadian process for the synthesis and translation of physical activity knowledge in Mexico

MALAYSIA Room

C-7 Measurement Issues in walking and cycling for transportation

Chair: *Andersen Lars Bo*

Invited speaker: *Andersen Lars Bo*

Oral presentations:

Børrestad et al. - Validation of self-reported transport

Cleland et al. - Differential distribution of domain-specific physical activities according to urban-rural area of residence among adults and children

Wood et al. - Accuracy of prediction equations for estimating the oxygen cost of self-paced walking speed in adults

Kelly et al. - Can we use digital life-log images to investigate the error on self-reported journey behaviour in school children? Results from a pilot study

Merom et al. - How well can we monitor the habit and speed of travel-related walking and cycling at the population level?

12.30-14.30

ATRIUM - Poster session

Lunch Break at FAO cafeteria

14.30-16.00

IRAN Room

A-8 Challenges in assessing diets of children and adolescents

Chair/co-chair: *Lauren Lissner, Gianni Barba*

Invited speaker: *Christel Larsson*

Oral presentations:

Caulfield et al. - The use of a harmonized protocol to capture dietary intakes of children from birth to 2 years in 8 countries: the Malnutrition-Enteric Disease MAL-E

Lanfer et al. - FFQ-based indices to reflect children's propensities towards fat and sugar

Burrows et al. - Who is the most accurate reporter of child energy intake - mothers, fathers or the child? - a doubly labelled water validation study of an FFQ

Ambrosini - Tracking an obesogenic dietary pattern from 7 to 13 years of age: the Avon longitudinal study of parents and children (ALSPAC)

MALAYSIA Room

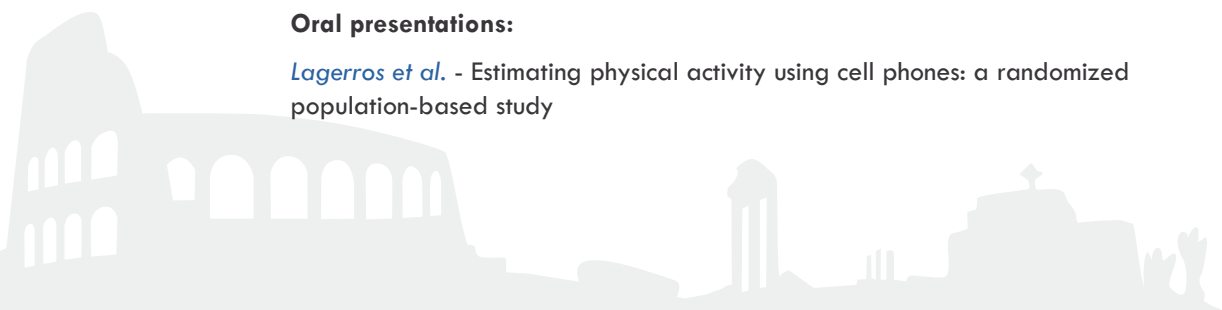
B-8 New technology for self-report measurement of physical activity

Chair: *Charles E. Matthews*

Invited speakers: *Genevieve Fridlund Dunton, Charles E. Matthews*

Oral presentations:

Lagerros et al. - Estimating physical activity using cell phones: a randomized population-based study



Beer-Borst et al. - Development and test of a smartphone application for synchronized real-time dietary assessment and physical activity analyses

Bonn et al. - A doubly labeled water validation of the new web-based physical activity questionnaire "Active-Q"

GREEN Room

C-8 Biomarkers in dietary assessment (in Memory of Sheila Bingham)

Chair/co-chair: *Nancy Potischman, Catherine Champagne*

Oral presentations:

Subar et al. - Checking for completeness of 24-hour urine collection using PABA not necessary in the Observing Protein and Energy Nutrition (OPEN) study

Vandevijvere et al. - Evaluation of food and nutrient intake assessment using concentration biomarkers in European adolescents from the Helena Study

Freedman et al. - Results of joint analysis of four large validation studies of dietary self-report instruments that use recovery biomarkers

Maskarinec et al. - Urinary isoflavonoids as biomarkers of soy intake during a randomized crossover dietary intervention

Wang et al. - Evaluation of plasma c15:0 and c17:0 as biomarkers of dairy fat intake in five European centers studied in the EFCOVAL study

Landberg et al. - Alkylresorcinols and their metabolites in plasma and urine as biomarkers of whole grain wheat and rye: Which one works best?

16.00-16.30 Coffee break

16.30-18.00

GREEN Room

Debate Self-report and objective monitoring: Do they measure the same thing?

Chair: *Rick Troiano*

Invited speakers:

Nuala Byrne (Yes. Self-report and devices measure the same thing.)

Heather Bowles (No. Self-report and devices measure different things.)

Closing session

Barbara Burlingame

Closing message

Modibo Traorè, Assistant Director-General Agriculture Department

wednesday, may 16

08.00-12.30

WORKSHOP 1

Measurement Error 1- Understanding Measurement Error in Diet and Physical Activity

Janet Tooze, Ph.D., Wake Forest U.

Kevin Dodd, Ph.D., National Cancer Institute

Learning Objectives:

Understand that random and systematic measurement errors may occur in dietary and physical activity assessment and that these errors may impact the results of surveillance and epidemiologic studies

- Understand how to design dietary and physical activity studies to be able to adjust for measurement error
- Be aware of statistical methods that can adjust for measurement error in surveillance and epidemiologic studies

Description: This workshop is designed for public health professionals and epidemiologists who focus on diet and/or physical activity. The workshop will address sources of measurement error, discuss aspects of study design that permit the use of statistical methods to correct for measurement error, and provide an overview of these methods for both surveillance and epidemiologic studies. In the discussion of statistical methods, the use of formulae will be kept to a minimum, and the emphasis will be on the need for and the concepts behind these methods, rather than on the specific details of implementation.

WORKSHOP 2

Dietary Patterns: Moving the Science Forward

PK Newby, Boston University School of Medicine

Jill Reedy, National Cancer Institute

This workshop will provide researchers with an opportunity to learn about the current state-of-the-science regarding dietary patterns research and discuss a framework that incorporates additional data layers to extend beyond measuring intake, including such dimensions as time, place, and environmental context. The meeting will identify key methodological questions, reflect on appropriate methods for addressing these questions, and explore novel patterning methods from other disciplines-including engineering, architecture, and systems science-to further advance the utility of these methods in diet and activity research.



13.30-17.30

WORKSHOP 3

Measurement Error 2: Software Solutions for Estimating Usual Intake

Dennis Buckman, Ph.D., Information Management Services, Inc.

Alicia Carriquiry, Ph.D., Iowa State University

Heiner Boeing, Ph.D., DIFE

Arnold L. M. Dekkers, Ph.D., RIVM

Hilko van der Voet, Ph.D., Wageningen UR

Learning Objectives:

Understand that statistical modeling is necessary for estimating characteristics of long-term exposure (e.g., usual dietary intake) using a limited number of replicated short-term assessments.

Be aware of some of the available software implementations that exist for performing the required statistical modeling.

Understand the capabilities and limitations of the various implementations.

Description:

This workshop is designed for public health professionals and epidemiologists who focus on diet. The workshop will present an overview of publicly-available software implementations that estimate distributions of usual dietary intake based on replicated short-term instruments such as 24HR recalls. The primary focus will be on the types of output available from the various implementations, with limited emphasis placed on differences in theoretical underpinnings of the particular models used.