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## Abstracts

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### OR01: Obesity and Chronic Diseases

#### OR01-1

##### THE DEVELOPMENT OF SELF-CARE MANUAL FOR HEALTHY FAT EATING

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Cardiovascular diseases (CVD) are the leading health problem in Thailand. One of the causes of the disease is inappropriate dietary consumption, especially the dietary fats which fundamentally affect serum cholesterol levels and contribute to coronary heart disease (CHD). Dietary saturated fatty acids (SFA) increase whereas dietary polyunsaturated fatty acids (PUFA) decrease the risk of having CHD. For practical purposes, a modified fat counting technique was developed by setting up points for fats in relation to their ability to raise or lower serum cholesterol. The purpose of this study was to develop and evaluate the applicability of a self-care manual. The study was divided into 3 phases:

The first phase was to survey 120 respondents to identify the appropriate formats and topics needed for developing the dietary manual. Most responses were small size book (47.5%), photograph picture (59.2%), Angsana UPC font (35%) and 16-point letter size (51.7%). The second phase was to develop the self-care manual by using a fat counting technique. The last phase was to evaluate the applicability of the developed manual in 120 adult volunteers by assessing-1) the accuracy of participant's perception and correctness in fat counting; and 2) the participant's satisfaction with the developed manual. Evaluations were stressed on the accuracy of fat intake counting from their 3-day food records and from direct practice on real foods. Furthermore, the data of blood lipids from 32 participants were also evaluated to examine the effectiveness of the manual.

The results revealed that, from 3-day food records, the majority (77.5%) of participants made minimal errors: ( $\pm 15\%$ ) in fat counting. In regard to cholesterol counting, most participants (95%) made minimal errors ( $\pm 15\%$ ): only 5% overestimated ( $>15\%$ ) and no one underestimated fat from foods presented in small portions especially in liquid form real food test. Most participants were satisfied with the developed manuals, the total score of content and format of the healthy fat-eating book was good ( $3.39 \pm 0.61$ ), and the Food photo-book ( $3.52 \pm 0.62$ ). After 8 weeks following this manual there were a significant reduction in body weight, serum cholesterol, triglycerides and LDL-C ( $p < 0.0001$ ,  $0.0001$ ,  $0.035$ ,  $0.003$ , respectively) whereas HDL-C was significantly increased ( $p < 0.0001$ ).

In conclusion, the developed manual for healthy fat intake is an acceptable, applicable and attractive learning tool. Not only is it a practical guidance for controlling blood cholesterol levels but it may also be a tool for controlling body weight.

#### OR01-2

##### SHOULD THE FOCUS BE ON TRANS FAT OR SATURATED FAT?

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**RATIONALE AND OBJECTIVES:** The adverse effects of trans fats on heart disease has received considerable coverage in the media. However attempts to avoid trans fat may shift

consumers away from polyunsaturated fats and increase saturated fat intakes. We recently estimated trans and saturated fat intakes in Australia.

**MATERIALS AND METHODS:** Food composition data from 2007 were combined with the intakes from the 1995 National Nutrition Survey to estimate fat intakes. Intake distributions were corrected for within-person variation.

**RESULTS AND FINDINGS:** Mean intake was 0.6 % energy from trans fat. However 14% energy was derived from trans plus saturated fat. These intakes are below the WHO goal of 1% energy from trans fatty acids but above the national target of 10% energy derived from trans plus saturated fat.

**CONCLUSION:** These results suggest that caution should be applied in the regulatory option chosen. For example, consumer research in the US indicates that including trans fats on the label can lead to consumers choosing foods high in saturates in preference to those high in trans fats. Currently, messages in Australia continue to emphasise the need to reduce saturated fat intake. Transfat intakes will be re-assessed in 2009 using new composition data.

#### OR01-3

##### THE EMERGENCE OF COMBINED STUNTING AND OBESITY AS A NUTRITIONAL THREAT TO CHILD DEVELOPMENT IN INDONESIA

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**RATIONALE AND OBJECTIVES:** In 2007 Indonesia did a nutritional status assessment that included height, so that height for age and weight for height variations could be ascertained. We reviewed the distribution of stunting combined with wasting in various areas of Indonesia, and compare it to risk for wasting and stunting to determine if and where new policies and community nutrition interventions are needed.

**METHODS AND MATERIALS:** A national cross sectional survey in 2007/08 was included 1 million people including the nutritional status of 100,000 pre- school aged children using the 2005 WHO anthropometric standards. Children less than -2 SD height for age (HAZ) were considered stunted, children less than -2 SD weight for height (WHZ) were considered wasted, and greater than 2 SD weight for height were considered obese.

**RESULTS:** Approximately 37.9% of the children measured were stunted. Of these 2.1% were wasted and stunted, 8.0% were obese and stunted, and 27.8% were stunted but neither wasted nor obese. These risks vary by gender, age, and location.

**CONCLUSION:** Indonesia presently has no community nutrition programs focused on either stunting or obesity. Clearly stunting and obesity are major threats to human resource development in Indonesia.

#### OR01-4

##### TEMPORAL TRENDS OF OVERWEIGHT AND OBESITY IN CHILDREN AND ADOLESCENTS FROM 9 PROVINCES IN CHINA FROM 1991 - 2006

Cui, Zhaohui<sup>1</sup>; Dibley, Michael J.; Huxley, Rachel; Li, Qiang

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**RATIONALE AND OBJECTIVES:** Overweight and obesity are increasing rapidly in children throughout the world. The purpose of this study was to describe the temporal trends of overweight and obesity in children from 9 provinces in China.

**MATERIALS AND METHODS:** Consecutive survey data from The China Health and Nutrition Survey (1991, 1993, 1997, 2000, 2004 and 2006) with a multistage random cluster sampling conducted in 9 provinces was analysed. Both Chinese-

recommended and IOTF BMI cutoffs were used to define overweight and obesity.

**RESULTS:** There was a significant increasing trend in obesity in children aged 6-12 and 13-17 year olds in both urban and rural areas from 1991 to 2006. Mean BMI significantly increased during the study period after adjusting for age, gender, urban/rural region and per capita family income. Overweight and obesity was more common in the higher SES group in 2006.

**CONCLUSION:** The burden of overweight and obesity has been increasing progressively among children in China over the past decade.

#### OR01-5

##### DIETARY BEHAVIORS AND OVERWEIGHT/OBESITY IN ADOLESCENTS OF HO CHI MINH CITY, VIETNAM

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**RATIONALE AND OBJECTIVES:** We examined the relationships between dietary behaviors and adolescent overweight/obesity in HCMC.

**MATERIALS AND METHODS:** Data were obtained from three-yearly assessments in a prospective cohort study of 785 high students. BMI was assessed and overweight/obesity defined using IOTF cut-offs. Consuming fruits/vegetables, soft-drinks, and snacks were self-reported. Hierarchical GEE models assessed the longitudinal relationships between overweight/obesity and predictors.

**RESULTS:** After controlling for family factors and child characteristics, frequently consuming snacks and soft-drinks increased the risk of being overweight/obesity (RR: 1.7, 95%CI: 1.3, 2.2 and RR: 2.7, 95%CI: 2.2, 3.8). In contrast frequently consuming fruits/vegetables and having breakfast decreased the risk of overweight/obesity by 30% and 20%, respectively (RR: 0.7, 95%CI:0.5-0.8, and RR:0.8, 95%CI:0.7-0.9).

**CONCLUSION:** Dietary habits of frequently consuming fruits/vegetables protects against overweight/obesity. Promoting fruits/vegetables consumption, having breakfast and reducing snacks and soft-drinks are needed in future obesity prevention programs.

#### OR01-6

##### OBESITY IN RELATION TO SOCIOECONOMIC STATUS AND GENDER IN A LARGE ADULT OPEN UNIVERSITY COHORT IN THAILAND

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**BACKGROUND:** Middle-income countries are undergoing a health-risk transition with obesity increasing in the population. We examine socioeconomic status (SES) in relation to obesity in Thailand. It ascertains if an inverse SES-obesity relationship has appeared yet in Thailand, as noted for many developed countries.

**METHODS:** Data derived from 87,134 adults in a national cohort of adult Open University students living throughout Thailand. Adjusted odds ratios for association of SES and obesity across three age groups by sex, controlling for marital status, age and urbanization were examined.

**RESULTS:** Obesity increased with age and was more prevalent

among males than females (22.7% vs. 9.9%). Females were more underweight (21.8% vs. 6.2%). Annual incomes ranged from two to three thousand US dollars for most participants. High SES associated strongly with obesity - directly for males and inversely for females.

**CONCLUSIONS:** Our national Thai cohort has passed a tipping point and assumed a developed country pattern of inverse socioeconomic-obesity association for females. We expect Thailand overall will follow as education spreads and incomes rise. A new public health problem of underweight females could emerge. These patterns are important for public health programs to combat obesity and for surveillance of underweight.

#### OR02: Nutrition and Cognition

##### OR02-1

##### PRESCHOOL'S COGNITIVE DEVELOPMENT IN A POST-TRANSITIONAL COUNTRY: EARLY NUTRITION OR PSYCHOSOCIAL CONTEXT?\*

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It is known that both child malnutrition as well as poor social stimulation influence cognitive performance at preschool age. However, it is unclear how the relative contribution of these variables changes as the nutritional situation of a country improves. We assessed in a representative sample of 250 Chilean preschool children enrolled in a welfare program the contribution of early nutrition [maternal height (MH), birth weight (BW) and length (BL); weight (BAZ) and height (HAZ) at 5y]; psychosocial variables [screening of maternal depression (MD), social-emotional wellbeing auto-report (SW), home space sufficiency (HS) and birth order (BO)]; and socioeconomic status[SES: medium (MD), low-medium (LM), low (LW)] on intelligence quotient (IQ, WPPSI-R) at 5y; adjusting for age and sex. Stunting was almost inexistent in this sample (1% < 2 SD, 0.07?0.92 HAZ). BW, MH, SW, BO and SES were positively associated to IQ at 5y (p<0.05). The strongest associations were for SES (MD ?=4.6, 95% CI 1.7, 7.5; LM ?=3.0 95% CI 0.5, 5.5 compared with the LW); BW (BW >4000g, ?= 6.0; 95% CI 2.0, 10.0) and SW (SW <pc75, ?= -3.2, 95% CI -5.6,-0.7). Overall, early nutrition explained 7% of IQ variance while psychosocial variables explained 15%. In preschool children of low SES who grow normally psychosocial context has a greater influence on cognitive performance than early nutrition. Countries in advanced stages of the nutrition transition need to strengthen psychosocial support systems and promote care practices in order to maximize potential for mental development.

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##### OR02-2

##### THE HUMAN SIALIC ACID, NEU5AC, IS SELECTIVELY EXPRESSED IN PIGLET BRAIN AND IS ASSOCIATED WITH NEURAL DEVELOPMENT AND COGNITION

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**OBJECTIVE:** The sialic acids (Sia) are a family of 9-carbon acidic sugars comprising N-acetylneuraminic acid (Neu5Ac) and N-glycolylneuraminic acid (Neu5Gc). Dietary uptake of Neu5Gc from red meat and milk products has been implicated

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