

**MEAL SPECIFIC FOOD PATTERNS AND THE INCIDENCE OF HYPERGLYCEMIA IN A CHINESE ADULT POPULATION**

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**Background/Aims:** Energy and nutrient intake timing may be an important determinant of diabetes. This study aimed to prospectively examine the association between meal specific food patterns and incident hyperglycemia in a Chinese adult population.

**Methods:** A total of 1056 healthy adults aged 20 years and older were followed from 2002 to 2007. Dietary data were collected during home visits using a 3-day food record. Meal specific (breakfast, lunch and dinner) food patterns were independently described by factor analysis. Fasting blood samples were collected at baseline and follow up. Hyperglycemia was defined as fasting plasma glucose > 5.6 mmol/l.

**Results:** During the follow-up 125 new cases of hyperglycemia were identified. Traditional (wheat) breakfast was inversely related but traditional (rice, vegetable and pork) lunch and dinner were positively associated with the risk of incident hyperglycemia, even after adjustment for a number of covariates. The prevalence of incident hyperglycemia was 5.3%, 9.1%, 15.9%, 17.1% across quartiles of traditional lunch pattern; 15.9%, 13.6%, 11.7%, 6.1% across quartiles of traditional breakfast. The adjusted odds ratio (OR) for hyperglycemia was 0.67 (95%CI 0.48-0.92), 1.83 (1.32-2.53) and 1.39 (1.04-1.86) for one unit increase of traditional breakfast, lunch and dinner pattern factor score, respectively. There was no association between modern breakfast (egg, cake, and milk), lunch (meat and alcohol) and dinner patterns and incident hyperglycemia.

**Conclusions:** A rice based traditional lunch and dinner is associated with an increased risk of hyperglycemia in Chinese adults. A traditional wheat based breakfast is associated with a decreased risk of hyperglycemia.

**Funding source(s):** N/A.

**DIETARY PATTERNS ARE ASSOCIATED WITH PUBERTAL DEVELOPMENT AMONG ADOLESCENTS IN XI'AN CITY, CHINA**

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**Background/Aims:** To assess dietary patterns and its association with pubertal development among adolescents in Xi'an city in China.

**Methods:** A total of 1741 adolescents aged 11-17 years from 30 junior high schools across 6 districts from Xi'an City were included in the study. Dietary patterns were generated with principal component analysis from food intake collected using 24-hour recall method. Pubertal information was collected separately for boys and girls using a confidential questionnaire. Age of menarche or voice change, and pubertal development were compared by socio-demographic characteristics and dietary patterns. The association between pubertal development and dietary patterns were assessed using generalized estimating equation (GEE) model adjusted for cluster sampling methods, socio-demographic factors and overweight/obesity.

**Results:** Mean menarche age was 12.5 years (95%CI 12.4-12.6), and mean voice change age was 13.1 years (95%CI 13.0-13.2). Overweight/obese adolescents or those from wealthier families living in urban areas had earlier menarche or voice change. 38.4% adolescents, mostly boys (74.0% vs. 2.1% girls) were at the stage of pre-pubertal stage. "Urban pattern" (higher in rice, meat and vegetables) and "Snacking pattern" (higher in desserts and chickens, sweets and beverages) were associated with significantly earlier attainment of voice change, and advanced pubertal development in boys, but not in girls with any pubertal indicators.

**Conclusions:** Diets higher in snacks and meat with oil and rice were associated with advanced pubertal stage in boys but not in girls. Adolescents from wealthier households in urban districts had earlier pubertal attainment indicated by menarche or voice change.

**Funding source(s):** Wellcome Trust.

**CONCURRENT SESSION 12: AGING.****EFFECTS OF STANDARD AND FORTIFIED 'MEALS-ON-WHEELS' MEALS ON CLINICAL OUTCOMES OF NUTRITIONALLY AT RISK ELDERLY**

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**Background/Aims:** The aim of the study was to determine the effect of standard vs protein and energy fortified Meals-on-Wheels (MOW) meals on nutritional and functional status, quality of life and hospital admissions (both number and length of stay/LOS) of community-dwelling nutritionally-at risk elderly.

**Methods:** Forty-one nutritionally at-risk elderly were randomly assigned to one of three groups: Group 1 – energy and protein fortified meals on ≥ 3 days/week + dietetics counselling; Group 2 – standard meals on ≥ 3 days/week + dietetics counselling; and, Group 3 – 1 session of dietetics counselling only. Measurements of outcomes were conducted at baseline and 12 weeks.

**Results:** Twenty-nine participants aged 83 ± 5.8 years completed the entire 12-weeks study (Group 1: n = 12, Group 2: n = 7, Group 3: n = 10). Although not statistically significant, MNA score was increased by 4 points in Group 1 compared to 2.8 points for Group 2 and 2.4 points for Group 3. Furthermore, LOS in Group 1 and 2 was reduced by -5.4 ± 2.8 days and -5 ± 3.2 days, whereas LOS for Group 3 was not reduced. However, weight gain for Group 3 was comparable to Group 1 and 2 (mean ± SEM: Group 1, 0.67 ± 1.23 kg and Group 2, 1.56 ± 0.75 kg vs. Group 3: 0.58 ± 0.79 kg, respectively) and improvement in all other outcomes were also comparable for the three groups.

**Conclusions:** For the community-dwelling nutritionally at risk elderly, the provision of protein and energy fortified, compared with the standard, MOW meals, resulted in comparable improvements in nutritional and functional status, quality of life, and hospital admissions (including LOS).

**Funding source(s):** Meals on Wheels (SA) Inc.

**THE EFFECT OF SUPPLEMENTING WHEY PROTEIN ON DIETARY INTAKES IN OLDER ADULTS OVER AN 11-WEEK EXERCISE INTERVENTION**

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**Background/Aims:** Previous studies have shown that whey protein (WP) can improve outcomes related to risk of chronic diseases and benefit older adults by reducing age-related sarcopenia. The aim of this study was to investigate dietary intakes, meal patterns and satiety in older adults participating in a larger trial on the effects of resistance training and WP supplementation on health and physical function.

**Methods:** A 30 g WP beverage was consumed on three training days per week over 11-weeks by 36 older adults (mean ± SD; BMI 26.2 ± 3.6 kg/m<sup>2</sup>; age 71.6 ± 5.1 yr). Subjects completed a 3-day weighed food record at baseline and 11-weeks to examine nutrient intake and food groups. Meal patterns were measured using 2-day meal event sheets and satiety was assessed using visual analogue scales at weeks 1–3, 6–8 and 11.

**Results:** At week 11 compared to baseline, consumption of fruit (p = 0.019) and discretionary foods (p = 0.027) decreased; meat and meat alternatives increased (p < 0.0001); sodium intake increased (p = 0.022), and protein, percentage energy (%En) derived from protein, and %En from saturated fat increased (all p < 0.0001). Meal events increased at week 11 in comparison to week 1–3 (p = 0.009) and 6–8 (p = 0.001). At week 11 participants felt hungrier (p = 0.033) and fullness increased (p = 0.022).

**Conclusions:** The benefits of WP supplementation included increased