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### Abstracts

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**Methods:** The study sample consisted of 1482 subjects, aged 67 years and over, enrolled in the Three-City study in 2001-2002. The outcome of interest was incidence of self-reported hip, vertebral and wrist fractures. Over 8 years of follow-up, 155 individuals reported a fracture at any of the three sites. Adherence to a Mediterranean-type diet was assessed at baseline by the MeDi score, a 10-point Mediterranean-diet scale, based on food frequency questionnaire and a 24 h recall. Multivariate Cox regression were performed to estimate risk of fractures according to MeDi adherence.

**Results:** In analyses adjusted for age, gender, physical activity, energy intake, education, marital status, BMI, self-reported osteoporosis, osteoporosis treatment and calcium and/or vitamin D supplements, each additional unit of MeDi score was associated with a non-significant increased risk of fracture (HR=1.10, IC95% 0.-,99-1.-,21). Among MeDi components, a high consumption of fruits (>2 servings/day) and a low consumption of yoghurts (<1 serving/day) were significantly associated with a doubled risk of fracture of the hip (HR=1.95, IC95% 1.04-3.-,66) and the wrist (HR=1.98, IC95% 1.-,22-3.-,21), respectively. An inverse U-shaped association between alcohol intake and risk of fracture at any site was observed (HR high vs moderate=0.61, p for trend 0.03).

**Conclusions:** A diet closer to the MeDi is not associated with a decreased risk of fractures. This dietary pattern, characterized by a low consumption of dairy products and a high consumption of fruits, may not be considered as universal healthy dietary pattern.

**Key words:** Mediterranean diet, fracture, aging.

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#### PO1052

##### ADEQUACY OF FOLATE INTAKE DURING PREGNANCY: THE ROLE OF FLOUR FORTIFICATION AND DIETARY SUPPLEMENT

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**Background and objectives:** The folate during pregnancy plays a relevant role in preventing some adverse effects on maternal and fetal health. The aim of the present study was estimate the adequacy of folate intake contained naturally in foods, and the role of the flour fortification on the adequacy of the nutrient among pregnant women. Additionally, the dose of folic acid supplement recommended internationally was simulated to evaluate if the nutritional requirements during pregnancy would be achieved.

**Methods:** Prospective study conducted among 82 adult pregnant in Ribeirao Preto, Brazil. Food intake was assessed by 3 dietary recalls during pregnancy and the adequacy of the

nutrient was evaluated by the Estimated Average Requirement (EAR) as the cutoff point. The planning approach for the homogenous groups was used to simulate the effect of the dose of folic acid supplement.

**Results:** It was found that 100% and 94% of pregnant women reported inadequate dietary intakes of dietetic folate and folic acid, from fortification, respectively (EAR < 520 µg). Considering a dose of 0.4 mg/day of the folic acid supplement, it was observed that 99% of pregnant women had their nutritional requirements achieved.

**Conclusions:** High proportion of pregnant women had diets with inadequate folate content, and the fortification of wheat and corn flour had little impact in improving the availability of this vitamin. The dose of folic acid supplement recommended by international organizations, added to the content of dietary folate, was adequate for the pregnant women evaluated. Funding: FAPESP (2011/03781-8), FAEPA.

**Key words:** pregnancy, food intake, folic acid, dietary supplements.

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#### PO1053

##### DIET QUALITY DIFFERENCES IN URBAN AND RURAL ADOLESCENTS AND SOCIOECONOMIC ASSOCIATED FACTORS. A TUNISIAN STUDY

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**Background and objectives:** Diet quality (DQ) is an important determinant of adolescent's health and should be assessed regularly in order to identify nutritional problems. The aim of this study is to assess DQ of Tunisian adolescents in urban and rural areas and identify socioeconomic associated factors.

**Methods:** Cross-sectional study (2005) concerned a clustered random sample (1019 adolescents, 15-19 y). Dietary intake assessed by a validated semi-quantitative frequency questionnaire (134 items). DQ estimated by Diet Quality Index International (DQI-I) global (/100) and component scores. Socioeconomic characteristics of the parents, lifestyle behaviour and

anthropometric measurements (weight, height) were recorded. The DQ scores examined according to socioeconomic factors. Adjusted relationships performed using logistic regression (good DQI-I (>60/100) vs poor).

**Results:** DQI-I was higher among urban (58.2(0.4)) vs rural adolescents (56.6(0.5),  $p = 0.014$ ) but not different by gender in both areas. The variety, adequacy and balance sub-scores were higher in urban area. Inversely, the moderation sub-score was higher in rural area ( $p = 0.0002$ ). The frequency of good DQ was higher in urban (40.7%) vs rural area (31.5%;  $p = 0.049$ ). Contrarily to urban area, in rural area, the DQI-I was higher when the education level of the mother was secondary or more: 59.1(1.3) vs 56.4(0.5),  $p = 0.039$ ; among adolescents of middle economic level households: 58.8(0.7) vs 57.3(1.7) for higher and 55.9(0.6) for lower,  $p = 0.0004$ ; adolescents were at school (57.3(0.6)) vs others: (55.7(0.6),  $p = 0.019$ ). After adjustment on BMI, perceived stress, low physical activity and sport's practice, DQI-I was higher for those having a working mother in urban area (OR:1.8(1.0-3.2),  $p = 0.045$ ) and adolescents of middle economic level households vs low level in rural area (OR:2.0(1.2-3.3),  $p = 0.006$ ).

**Conclusion:** Tunisian adolescents had a moderate DQ but higher in urban vs rural area. Dietary strategy for improving DQ should consider the socioeconomic context in urban and rural areas.

**Key words:** diet quality, socioeconomic factors, adolescents, Tunisia.

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#### PO1054

### METABOLOMIC STUDY OF THE EFFECT OF ANTIMETHANOGENIC TREATMENT ON RUMEN METABOLISM AT EARLY LIFE OF GOAT KIDS

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**Background and objectives:** The aim of this work was to study whether intervention with an antimethanogenesis compound (bromochloromethane, BCM) in early life of kids has an impact on rumen metabolism later in life.

**Methods:** Eighteen doe goats giving birth to two kids were used. Nine does were treated with BCM (D+) from birth of kids to 8 weeks. The other 9 does were not treated (D-). One kid per mother in both groups was treated with BCM (k+) while the other was untreated (k-), resulting in four experimental groups: D+/k+, D+/k-, D-/k+ and D-/k-. Rumen samples were collected from kids at weaning (8 weeks), a month after (when the treatment ceased) and 3 months later. Extracted samples were split for analysis on GC/MS and LC/MS/MS platforms.

**Results:** Valerate and acetate increased with time in all k- after weaning. In contrast, the time-dependent increase in valerate was less steep in k+ group after weaning. Treatment of does had an effect on phospholipase activity in kids after weaning. The most apparent effects of the maternal treatment of pre-wean kid rumen content was observed in medium chain fatty acids (MCFA C6-C14), which were greatly elevated in D+ kids. This effect for C9 and C11 MCFA, was mainly driven by the large increase in MCFA levels in kids from D+/k- group. Although MCFA would be mainly derived from maternal milk before weaning, many of these MCFA differences persisted 4 months after wean. Most of the differences did not match between D+ and D-, possibly suggesting additive effects of the doe and kid treatment on the global metabolic profile of ruminal content.

**Conclusions:** Our results suggest that a modulation of the rumen microbial colonization at early life, including the influence of the mother, caused differential metabolic profile that persisted after weaning, regardless of the post-wean treatment.

**Key words:** bromochloromethane, early life, metabolism, offspring, rumen.

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#### PO1055

### EFFECT OF ANTIMETHANOGENESIS TREATMENT ON RUMEN METABOLIC PROFILE OF LACTATING GOATS.

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**Background and objectives:** Bromochloromethane (BCM) is one of the most effective methanogenesis inhibitors when fed to ruminants as reduces methane production by interfering with the cobamide-dependent methyl transferase step of methanogenesis. Our group has recently reported the effectiveness of using BCM in dairy goats on rumen fermentation and methane emissions. However, the effects on the rumen metabolism as a whole have not been investigated yet. The aim of this study was to study the effect of treating goats with an antimethanogenic compound (BCM) on changes on rumen metabolism.

**Methods:** Eighteen goats giving birth to two kids were used. Nine goats were treated with BCM (G+) after kids were born and over 8 weeks. The other 9 goats were not treated (G-). Rumen samples were collected at weaning. The extracted samples were split for analysis on GC/MS and LC/MS/MS platforms.

**Results:** Rumen content was a very metabolite-rich sample (473 named biochemical). The experimental treatment affected