of age) with at least three cardiovascular risk factors (among smoke, dyslipidemia, hypertension and family history for cardiovascular disease), received a solid dark chocolate bar (40 g/day) containing 10% EVO and a solid dark chocolate bar containing 2.5% dry apples in random order over 28 days. Urine and blood samples were collected at baseline and after the intervention. Urine samples were analyzed by proton nuclear magnetic resonance (1H-NMR) spectroscopy for endogenous metabolites. Circulating EPCs (CD133+/KDR+/CD34+) levels by flow cytometry. Age, sex, smoking status, body mass index (BMI), blood pressure (BP), glycemia and lipid profile were monitored in all subjects.
Results: 26 volunteers (M/F 14/12) completed the study. Comparison of pre-post intervention revealed: a positive trend in HDL levels and a moderate decrease of blood pressure associated with EVO-dark chocolate consumption, whereas apple-dark chocolate decreased triglyceride levels, although not significantly. Interestingly, EVO-dark chocolate consumption induced a significant increase of circulating EPC levels compared to apples-dark chocolate consumption (174±99 vs 125±96, $P<0.05$). NMR data revealed a decrease of 2 metabolites involved in cardiovascular risk, linked with carnitine metabolism and hyppurate.
Conclusion(s): Consumption of enriched dark chocolate resulted in modification of metabolism with potential long-term consequences on cardiovascular health within 4 weeks. However, only EVO-dark chocolate consumption results in improvement of endothelial function, associated with the increase of EPC circulating levels, probably due to the additive effect of EVO polyphenols.
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P5320 | BEDSIDE
Trimethylamine-N-oxide (TMAO) Predicts Total Mortality, but not Recurrent Venous Thromboembolism in Elderly Patients with Acute Venous Thromboembolism

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Introduction: Trimethylamine-N-oxide (TMAO) is a gut microbial metabolite of phosphatidylcholine and was shown to predict myocardial infarction, stroke and mortality. Experimental data found that TMAO increases atherosclerosis and platelet activation potentially explaining its prothrombotic potential.
Aim
To investigate the association of TMAO with recurrent venous thromboembolism (VTE) and total mortality.
Methods: Baseline plasma TMAO levels were determined by high performance liquid chromatography in 859 patient of The Swiss Cohort of Elderly Patients with VTE (SWITCO65+), a prospective multicenter cohort study of patients aged ≥65 years with acute VTE. We categorized TMAO into low, medium, and high levels based on the 25th and 75th percentile (low, <2.28μmol/L; medium, 2.28–6.57μmol/L; high, >6.57μmol/L). Associations between TMAO and recurrent VTE and mortality at 3 years were assessed by competing risk regression and ordinary Cox-regression, respectively. Recurrent VTE was adjusted for age, gender, overt pulmonary embolism, prior VTE, provoked index VTE and anticoagulation; total mortality was adjusted for age, gender, overt pulmonary embolism, active cancer, immobilization during the last 3 months, chronic or acute heart failure, chronic lung disease and anticoagulation. Relationship between continuous TMAO and total mortality was further assessed by fractional polynomial Cox-proportional hazards modelling.
Results: We found a trend for a higher risk of recurrent VTE in patients with higher TMAO levels. Compared with low TMAO levels, the adjusted subhazard ratio [SHR] of recurrent VTE was 1.38 (95% confidence intervall [CI], 0.81–2.36; p=0.232) in patients with medium and 1.44 (CI, 0.80–2.58; p=0.221) in patients with high TMAO levels. Interestingly, we found a significant U-shaped mortality curve associated with TMAO levels by fractional polynomial Cox-regression, indicating the lowest mortality rate in patients with 4 μmol/L of TMAO. The adjusted hazard ratio [HR] for total mortality was 0.68 (CI, 0.47–0.98, p=0.039) for medium and 1.02 (CI, 0.68–1.52; p=0.922) for high, as compared with low levels of TMAO.
Conclusion: Total mortality occurs significantly less frequently in patients with medium TMAO levels and shows an U-shaped relationship. TMAO plasma concentrations have a non-significant tendency to predict recurrent VTE in elderly patients with previous VTE. A poor nutritional status due to comorbidities may explain the association of low TMAO levels with higher mortality rate.

P5321 | BEDSIDE
Micronutrient intake and adherence to DASH diet are associated with incident major adverse cardiovascular events and all-cause mortality in a bi-ethnic population

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Background: Information on dietary intake can contribute to our understanding of diet-cardiovascular disease (CVD) health associations and ethnic health disparities, but data are lacking for Jews and Arabs in Israel.
Purpose: To evaluate associations between baseline dietary habits and incident major adverse cardiovascular events (MACE) and all-cause mortality in a cohort of Jewish and Arab adults, followed for a mean period of 11 years.
Methods: A prospective cohort study collecting follow-up data on hospital admissions for MACE and morality from any cause for the Hadera District Study (HDS) participants (n=883). The baseline HDS sample was randomly selected from the urban Hadera District population in Israel, stratified equally by ethnicity (Jews/Arabs), sex, and age (range: 25–64 years). Associations between baseline dietary intake (collected from 2002–2007) and the outcome variables were evaluated in multivariable analyses.
Results: Arabs reported higher baseline total energy and carbohydrate intakes and lower intakes of protein, total fat and most micronutrients than Jews, as well as lower adherence to a DASH (Dietary Approaches to Stop Hypertension) dietary pattern. The risk of MACE increased with higher baseline sodium-potassium ratios (HR: 3.82; 95% CI: 1.52–9.56), but decreased with higher baseline intakes of fiber (HR per 1 g increment/1000 kcal: 0.89; 95% CI: 0.81–0.98), and calcium (HR per 100 mg increment/1000 kcal: 0.79; 95% CI: 0.63–0.99). In addition, a higher baseline DASH score was protective against MACE (HR: 0.71; 95% CI: 0.56–0.89), and marginally protective against mortality (HR: 0.79; 95% CI: 0.62–1.01). The baseline sodium-potassium ratio and poly-unsaturated fatty acid and magnesium intakes were associated with mortality risk in models adjusting only for demographic factors. In the fully adjusted mortality models, including also baseline morbidity and socio-economic and lifestyle factors, only baseline magnesium intake remained associated with reduced risk of mortality (HR per 100mg increment/1000 kcal: 0.35; 95% CI: 0.14–0.87). In the fully adjusted models, Arabs were at higher risk than Jews for MACE but not for all-cause mortality.
Conclusions: A healthy long-term macro and micronutrient intake profile, and adherence to healthy dietary patterns (e.g., DASH), can contribute to reducing cardiovascular events and all-cause mortality among Jews and Arabs in Israel.
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P5322 | BEDSIDE
Cardiometabolic risk factors and plasma fatty acids in vegans results of an observational study

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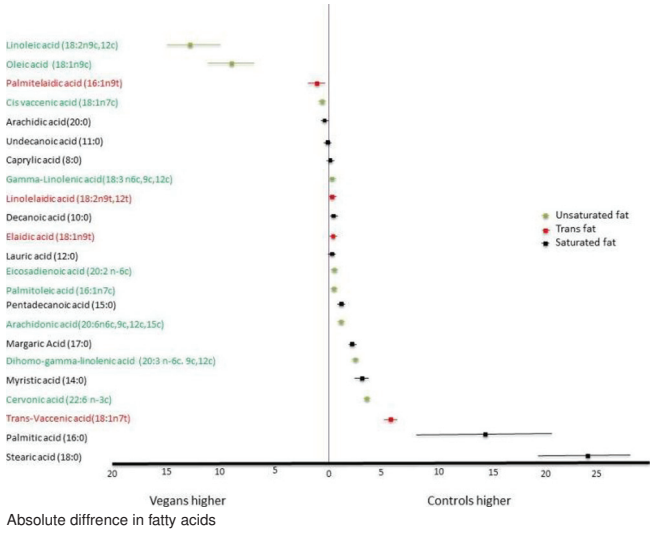
Background: Vegans have lower risk of cardiovascular disease and reasons for this are likely multifactorial.
Objectives: The aim of this study is to describe the cardio-metabolic risk factor and the plasma fatty acid profile in healthy adult vegans compared to controls that eat a normal diet in New Zealand.
Methods: Food frequency questionnaires, cardiometabolic risk factors and fasting plasma fatty acids were analysed in 25 vegans and compared to aged matched controls that ate a normal diet in New Zealand. Fatty acids were measured by gas chromatography– mass spectrometry and levels are reported as percentage total fatty acids.
Results: Participants were vegan for a mean of 36 (interquartile range 24 to 72) months with 83% consuming only unprocessed vegan food. Compared to



Absolute diffrence in fatty acids