

P140-T | Plasma branched-chain/aromatic amino acids and risk of type-2 diabetes after a Mediterranean diet intervention: a case-cohort study within the PREDIMED trial

M. Ruiz-Canela^{*†‡§}; M. Guasch-Ferré[§]; E. Toledo^{*†‡}; C.B. Clish[¶]; C. Razquin^{*†‡}; L. Liang^{**}; Dong.D. Wang[§]; D. Corella^{†††}; R. Estruch^{†††}; Á. Hernáez^{‡§§}; E. Yu[§]; E. Gómez-Gracia^{‡¶¶}; Y. Zheng[§]; F. Arós^{‡***}; D. Romaguera^{‡†††}; C. Dennis[¶]; E. Ros^{‡††}; J. Lapetra^{‡†††}; L. Serra-Majem^{‡§§§}; C. Papandreou^{‡¶¶¶}; O. Portoles^{‡††}; M. Fitó^{‡§§}; J. Salas-Salvadó^{‡¶¶¶}; F.B. Hu^{§*****††††}; Miguel.A. Martínez-González^{*†‡§}

^{*}University Of Navarra, Pamplona, Spain; [†]IdiSNA, Navarra Institute for Health Research, Spain; [‡]CIBER Fisiopatología de la Obesidad y Nutrición (CIBER Obn), Instituto de Salud Carlos III, Madrid, Spain; [§]Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, USA; [¶]Broad Institute of MIT and Harvard University, Cambridge, USA; ^{**}Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, USA; ^{††}Department of Preventive Medicine, University of Valencia, Valencia, Spain; ^{‡‡}Hospital Clinic, University of Barcelona, Spain; ^{‡‡‡}Cardiovascular and Nutrition Research Group, Institut de Recerca Hospital del Mar, Barcelona, Spain; ^{¶¶}Department of Preventive Medicine, University of Malaga, Málaga, Spain; ^{***}Department of Cardiology, University Hospital of Alava, Vitoria, Spain; ^{†††}IdISBa, Balearic Islands Health Research Institute, Palma de Mallorca, Spain; ^{‡‡‡}Department of Family Medicine, Primary Care Division of Sevilla, San Pablo Health Center, Sevilla, Spain; ^{§§§}Research Institute of Biomedical and Health Sciences and Medical School University of Las Palmas de Gran Canarias, Las Palmas de Gran Canarias, Spain; ^{¶¶¶}Human Nutrition Department, IISPV, Universitat Rovira I Virgili, Reus, Spain; ^{*****}Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, USA; ^{††††}Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, USA

Background: Branched-chain (BCAAs) and aromatic amino-acids (AAs) are associated with type 2 diabetes. However, interactions of BCAA/AA with dietary interventions have not been evaluated. We assessed the associations between baseline and 1-year changes of BCAA/AA and incident type-2 diabetes in the “PREvención con DIeta MEDiterránea” (PREDIMED) study, a trial examining health effects of Mediterranean diet (MedDiet).

Material and methods: We included 251 incident cases of diabetes and a random sample of 694 participants (641 non-cases and 53 overlapping cases) in a case-cohort study nested within the PREDIMED trial. Participants were allocated to a MedDiet+extra-virgin olive oil (n = 273), a MedDiet+nuts (n = 324) or a control diet (n = 295). We used LC-MS/MS to measure plasma levels of amino acids.

Results: Elevated plasma levels of individual BCAA/AA were associated with higher diabetes risk after a median follow-up of 3.8 years: the multivariable hazard ratios (HRs) for the highest vs lowest quartile ranged from 1.32 for phenylalanine (95% confidence interval (CI): 0.90–1.92, *P*-trend = 0.015) to 3.29 for leucine (95% CI: 2.03–5.34, *P*-trend<0.001). One-year increases in a BCAA score were

associated with higher diabetes risk in the control group, with HR per SD = 1.61 (95% CI: 1.02–2.54), but not in the MedDiet groups (*P*-interaction <0.001). The MedDiet+extra-virgin olive oil was associated with reduced BCAAs levels after 1-yr of intervention (*P* = 0.005).

Conclusions: Higher baseline BCAAs and their 1-year increases were associated with higher diabetes risk. A Med-Diet rich in extra-virgin olive oil significantly reduced BCAA levels and attenuated the positive association between plasma BCAA and incident diabetes.

P141-T | Public open spaces and weather as modulators factors on physical activity objectively measured in older adults

A.C. Fernández^{*†}; M. Fiol^{*†}; J. Wärnberg[‡]; J.C.B. Marín[‡]; M. Compa[§]; M. Ruiz[¶]; M.D. Sanmartín^{**}; M. Morey[†]; M.Á. Martín[†]; A. Galmés[†]; V. Pereira^{*†}; D. Romaguera^{*†}

^{*}CIBER Fisiopatología de la Obesidad y Nutrición (CIBER-OBN), Palma de Mallorca, Spain; [†]Institut de Investigació Sanitària Illes Balears (IDISBA), Palma de Mallorca, Spain; [‡]School of Health Sciences, University of Málaga-IBIMA, Málaga, Spain; [§]Instituto Español de Oceanografía (IEO), Palma de Mallorca, Spain; [¶]Universitat de les Illes Balears (UIB), Palma de Mallorca, Spain; ^{**}Servicio de Salud de las Islas Baleares (Ib-Salut), Palma de Mallorca, Spain

Background: Access to public open spaces (POS) and weather conditions are important determinants on the practice of physical activity and sedentary behaviors, however, little is known about their effect among elderly populations in the Mediterranean basin. Here we assess the cross-sectional association of access to POS and accelerometer measured physical activity and sedentary behaviors, and the influence of weather conditions in older adults participants from the PREDIMED-PUS-Baleares.

Method: There were a total of 220 participants in the PREDIMEDPLUS-Baleares living within the city limits of Palma de Mallorca who wore an accelerometer. Exposure to POS was determined as distance to the closest park from the participants' home location. Physical activity and sedentary behaviors were measured as daily accumulative practice minutes using an accelerometer. Exposure to weather conditions was determined of each near station as the mean daily cumulative precipitation (mm) and mean temperature (°C) during the time period each participant was wearing the accelerometer.

Results: Evaluations were made on 218 participants (51.4% women, aged 65.19 ± 4.7 years). The average distance to the closest park was 281.6 (±396.3) meters and weather condition was 1.0 (±2.2) (mm) for precipitation and 20.0 (±5.4) (°C) for temperature. The average physical