

Supplementary files

Dietary inflammatory potential and arterial stiffness in a French cohort: Insights from the STANISLAS study

Louis-Désiré AGBO, Nicolas GIRERD, Zohra LAMIRAL, Kevin DUARTE, Erwan BOZEC, Ludovic MERCKLE, Axelle HOGE, Michèle GUILLAUME, Martine LAVILLE, Julie-Anne NAZARE, Patrick ROSSIGNOL, Jean-Marc BOIVIN, Sandra WAGNER

Supplementary Table 1. Dietary components and the methods used for calculation of the Adapted Dietary Inflammatory Index (ADII)

	ADII	ADII
Computation methods in line with	van Woudenberg et al. ¹	van Woudenberg et al. ¹
Energy-adjusted intakes	Yes (residual method ²)	Yes (residual method ²)
Reference population for standardized daily intake	CATHY or YOUNG-THYR study ³	Visit 4 cohort STANISLAS
Inflammatory weights⁴		
Carbohydrate (g/d)	0.097	0.097
Proteins (g/d)	0.021	0.021
Fibers (g/d)	-0.663	-0.663
Saturated fat (g/d)	0.373	0.373
Monounsaturated fat (g/d)	-0.009	-0.009
n-3 fatty acids (g/d)	-0.436	-0.436
n-6 fatty acids (g/d)	-0.159	-0.159
Cholesterol (mg/d)	0.110	0.110
Ethanol (g/d)	-0.278 ⁵	-0.278 ⁵
Vitamin A (µg/d)	-0.401	-0.401
β-carotene (µg/d)	-0.584	-0.584
Thiamin (mg/d)	-0.098	-0.098
Riboflavin (mg/d)	-0.068	-0.068
Vitamin B6 (µg/d)	-0.365	-0.365
Folic acid (µg/d)	-0.190	-0.190
Vitamin B12 (µg/d)	0.106	0.106
Vitamin C (mg/d)	-0.424	-0.424
Vitamin D (µg/d)	-0.446	-0.446
Vitamin E (mg/d)	-0.419	-0.419
Iron (mg/d)	0.032	0.032
Magnesium (mg/d)	-0.484	-0.484
Flavonols (mg/d)	-0.467	x
Isoflavones (mg/d)	-0.593	x
Flavones (mg/d)	-0.616	x
Anthocyanidins (mg/d)	-0.131	x
Flavanones (mg/d)	-0.250	x
Caffeine (g/d)	-0.110	-0.110
Niacin (mg/d)	-0.246	-0.246
Zinc (mg/d)	-0.313	x
Selenium (mg/d)	-0.191	x
Dry tea (g/d)	-0.536	-0.536
Mean (Standard deviation)	0.030 (3.67)	0.049 (3.04)
Median (Min, Max)	0.542 (-23.56, 12.62)	0.45 (-16.63, 8.08)

¹ doi: 10.3945/ajcn.112.056333.

² The dietary intakes of participants were regressed on their total energy intakes.

³ doi: 10.1007/s00394-021-02721-x.

⁴ Positive weights represent a pro-inflammatory effect while negative weights represent an anti-inflammatory effect.

⁵ Ethanol's weight is set to zero when the intake is >40g/day.

Supplementary Table 2. Description of the study population after weighting on IPW.

	Overall	Quartile 1 [-16.62, -1.57]	Quartile 2 [-1.57, 0.45]	Quartile 3 [0.45, 2.04]	Quartile 4 [2.04, 8.08]	Mean ASMD
N	1307	324.6	335.7	330.1	311.7	
Women, n(%)	657.7 (50.6)	165.8 (51.1)	167.2 (51.4)	168.3 (51.4)	156.3 (48.4)	0.032
Age, years	55.0 [34.0, 60.0]	55.0 [35.0, 60.0]	55.0 [36.0, 60.0]	56.0 [34.0, 60.0]	55.0 [33.0, 61.0]	0.013
Generation 2, n(%)	546.3 (42.0)	137.0 (42.2)	133.2 (41.0)	136.7 (41.8)	139.3 (43.1)	0.023
Education level, n(%)						0.028
<High school degree	514.5 (39.6)	125.2 (38.6)	129.0 (39.7)	130.2 (39.8)	130.1 (40.2)	
>2 years after high school	352.5 (27.1)	89.4 (27.5)	90.6 (27.9)	87.5 (26.7)	84.9 (26.3)	
0-2 years after high school	433.3 (33.3)	109.9 (33.9)	105.4 (32.4)	109.6 (33.5)	108.4 (33.5)	
Physical activity (MET/min)	1783.5 [636.0, 4253.4]	1927.6 [794.7, 4254.8]	1655.7 [675.7, 4212.2]	1873.8 [651.6, 4204.7]	1576.3 [455.2, 4279.8]	0.014
BMI (kg/m ²)	25.1 [22.5, 28.4]	25.3 [22.6, 28.7]	24.9 [22.5, 28.0]	24.7 [22.5, 28.4]	25.4 [22.4, 28.5]	0.034
Waist circumference	89.8 (13.7)	89.8 (13.7)	89.5 (13.1)	89.4 (14.0)	90.4 (14.2)	0.042
Smoking status, n(%)						0.019
Current smoker	252.6 (19.4)	60.6 (18.7)	63.4 (19.5)	64.1 (19.6)	64.5 (19.9)	
Never smoker	619.8 (47.7)	157.3 (48.5)	153.8 (47.3)	156.0 (47.7)	152.6 (47.2)	
Past smoker	427.9 (32.9)	106.6 (32.9)	107.8 (33.2)	107.2 (32.8)	106.3 (32.9)	
Use of anti-diabetic drugs, n(%)	44.9 (3.5)	11.1 (3.4)	10.9 (3.3)	11.3 (3.5)	11.6 (3.6)	0.007
Use of antihypertensive drugs, n(%)	250.3 (19.3)	61.6 (19.0)	61.6 (19.0)	60.7 (18.6)	66.4 (20.5)	0.025
Use of lipid-lowering drugs, n(%)	185.7 (14.3)	45.9 (14.1)	47.9 (14.7)	46.8 (14.3)	45.2 (14.0)	0.012
Systolic blood pressure (mmHg)	125.4 (15.1)	125.1 (15.1)	125.6 (14.9)	125.1 (15.4)	125.9 (15.2)	0.033

ADII, adapted dietary inflammatory index; MET, metabolic equivalent minutes; BMI, body mass index, ASMD, absolute standardized mean differences.

Continuous variables are expressed as the mean and standard deviation in the case of normal distribution, and median and quartiles in other cases. Categorical variables are expressed as numbers and percentages.

Supplementary Table 3. Cross-sectional association between continuous ADII score and ADII score quartiles and carotid-femoral pulse-wave velocity

Log (cfPWV) β (95% CI)	Continuous	Quartile 1	Quartile 2	Quartile 3	Quartile 4
		[-16.62, -1.57]	[-1.57, 0.45]	[0.45, 2.04]	[2.04, 8.08]
Model 1	-0.002 (-0.006 ; 0.001) P=0.21	Reference	0.003 (-0.03 ; 0.03) P=0.87	0.0009 (-0.03 ; 0.03) P=0.95	-0.003 (-0.06 ; 0.0008) P=0.06
Model 2	0.004 (0.001 ;0.007) P=0.005	Reference	0.02 (-0.007 ; 0.04) P=0.18	0.03 (0.008 ; 0.05) P=0.01	0.03 (0.008 ;0.05) P=0.009

Model 1: crude model, unadjusted.

Model 2: adjusted on age, sex, education level, smoking status, waist circumference, physical activity, SBP, antihypertensive treatments, antidiabetic treatments, and lipid-lowering treatments.

Acknowledgments

The authors deeply thank the Staff of the Clinical Investigation Center and other personnel involved in the management of the STANISLAS cohort: Biostatisticians: Fay R, Lamiral Z, Machu JL. Computer scientists: Boucenna N, Gallina-Müller C, Maclot PL, Sas T. Co-investigators: Chau K, Di Patrizio P, Dobre D, Gonthier D, Huttin O, Malingrey L, Mauffrey V, Olivier A, Poyeton T, Steyer E, Watfa G. Data managers: Cimon P, Eby E, Merckle L. Data entry operators: Batsh M, Blanger O, Bottelin C, Haskour N, Jacquet V, Przybylski MC, Saribekyan Y, Thomas H, Vallée M. Echocardiographers, echographers: Ben Sassi M, Cario S, Camara Y, Coiro S, Frikha Z, Kearney-Schwartz A, Selton-Suty C, Watfa G. Imaging engineer: Bozec E. Laboratory engineer: Nuée-Capiaumont J; and technicians: Fruminet J, Kuntz M, Ravey J, Rousseau E, Tachet C. Project managers: Bouali S, Hertz C. Quality engineer: Lepage X. Registered nurses: Giansily M, Poinsignon L, Robin N, Schmartz M, Senn M, MicorPatrignani E, Toutlemonde M. Hospital technician: Fleurot MT. Resident physicians: Alvarez-Vasquez R, Amiot M, Angotti M, Babel E, Balland M, Bannay A, Basselin P, Benoit P, Bercand J, Bouazzi M, Boubel E, Boucherab-Brik N, Boyer F, Champagne C, Chenna SA, Clochey J, Czolnowski D, Dal-Pozzolo J, Desse L, Donetti B, Dugelay G, Friang C, Galante M, Garel M, Gellenoncourt A, Guillin A, Hariton ML, Hinsiger M, Haudiquet E, Hubert JM, Hurtaud A, Jabbour J, Jeckel S, Kecha A, Kelche G, Kieffert C, Lauriere E, Legay M, Mansuy A, Millet-Muresan O, Meyer N, Mourton E, Naudé AL, Pikus AC, Poucher M, Prot M, Quartino A, Saintot M, Schiavi A, Schumman R, Serot M, Sert C, Siboescu R, Terrier-de-la-Chaise S, Thiesse A, Thietry L, Vanesson M, Viellard M. Secretaries: De Amarin E, Villemain C, Ziegler N. Study coordinators: Dauchy E, Laurent S; and all those not listed above who helped in the funding, initiation, accrual, management and analysis of the fourth visit of the STANISLAS cohort. The authors also thank the CRB Lorraine BB-0033-00035 of the Nancy CHRU for management of the biobank. They thank Pierre Pothier for the editing of the manuscript. Steering committee: Pierre Mutzenhardt, Mehdy Siaghy, Patrick Lacolley, Marie-Ange Luc, Pierre Yves Marie, Jean Michel Vignaud. Advisory members: Sophie Visvikis Siest, Faiez Zannad. Technical committee: Christiane Bralant, Isabelle Behm-Ansmant, Jean-Michel Vignaud, Christophe Philippe, Jacques Magdalou, Faiez Zannad, Patrick Rossignol. Scientific committee: Laurence Tiret, Denis Wahl, Athanase Benetos, Javier Diez, Maurizio Ferrari, Jean Louis Gueant, Georges Dedoussis, François Alla, François Gueyffier, Pierre-Yves Scarabin, Claire Bonithon Kopp, Xavier Jouven, Jean-Claude Voegel, Jan Staessen. They also thank all of the Stanislas cohort participants, and are grateful to the Department of Public Health of the University of Liège (Belgium) for allowing them to use their food frequency questionnaire (<https://www.dssp-uliege.be/FFQ>) during the fourth visit.