Additional File 1

High Consumption of Ultra-Processed Food Doubles the Risk of Subclinical Coronary Atherosclerosis: The Aragon Workers Health Study (AWHS)

Henry Montero Salazar¹, Carolina Donat-Vargas^{1,2}, Belén Moreno-Franco^{3,4} Helena Sandoval-Insausti^{1,6}, Fernando Civeira^{3,4,5}, Martín Laclaustra^{3,4,5}, Pilar Guallar-Castillón^{1,7,8,9}

- 1. Department of Preventive Medicine and Public Health. School of Medicine. Universidad Autónoma de Madrid. CEI UAM+CSIC, Madrid. Spain.
- 2. Unit of Nutritional and Cardiovascular Epidemiology, Environmental Medicine Institute (IMM), Karolinska Institutet. Estocolm. Sweden.
- 3. IIS Aragón, Hospital Universitario Miguel Servet, Universidad de Zaragoza, Spain
- 4. CIBERCV Instituto de Salud Carlos III. Madrid, Spain
- 5. Agencia Aragonesa para la Investigación y el Desarrollo (ARAID), Zaragoza, Spain
- 6. Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA, USA.
- 7. CIBERESP (CIBER of Epidemiology and Public Health) Instituto de Salud Carlos III. Madrid, Spain
- 8. Instituto de Investigación IdiPaz, Madrid. Spain
- 9. IMDEA-Food Institute. Madrid, Spain

Additional File 1: Table S1.

Food-items in the AWHS food frequency questionnaire classified as ultra-processed foods according to degree of processing (NOVA group 4)

Petit Suisse; custard; flan; pudding; ice cream; ham; lard and derivatives, processed meat (chorizo, salami, mortadella, sausage, hamburger, morcilla (blood pudding); pate; snack; foie-grass; spicy sausage/meatballs; commercial potato chips; breakfast cereals; pizza, including pre-prepared pies; margarine; cookies; whole meal cookies; chocolate cookies; muffins; jam; doughnuts; croissant or other non-handmade pastries; cakes; churros; chocolates and candies; nougat; marzipan; carbonated drinks; artificially sugared beverages; fruit drinks; milkshakes; instant soups and creams; croquettes; mayonnaise; mustard, and alcoholic drinks produced by fermentation followed by distillation such as whisky, gin, and rum

Additional File 1: Table S2.

Association of Coronary Artery Calcium and quartiles of ultra-processed food consumption , in the AWHS cohort study (N=1,876)

	CACS > 0					$CACS \ge 100$				
Cases/N	747/1,876					191/1,876				
Energy-adjusted UPF consumption (g/day)	Q1	Q2	Q3	Q4	P trend	Q1	Q2	Q3	Q4	P trend
Model 1, OR (95%CI)	1 (ref.)	1.10 (0.84, 1.44)	1.18 (0.90, 1.54)	1.15 (0.88, 1.51)	.317	1 (ref.)	1.33 (0.84, 2.09)	1.41 (0.90, 2.23)	1.93 (1.24, 2.99)	.003
Model 2, OR (95%CI)	1 (ref.)	1.10 (0.83, 1.45)	1.18 (0.89, 1.56)	1.14 (0.86, 1.51)	.363	1 (ref.)	1.31 (0.82, 2.10)	1.45 (0.91, 2.32)	1.93 (1.22, 3.03)	.004
Model 3, OR (95%CI)	1 (ref.)	1.11 (0.84, 1.47)	1.18 (0.89, 1.56)	1.15 (0.86, 1.53)	.368	1 (ref.)	1.38 (0.86, 2.23)	1.43 (0.88, 2.30)	1.98 (1.25, 3.15)	.004

Logistic regression was used to estimate the Odds Ratios (95% CI) for CACS>0 (compared with CAC score \leq 0) and for CAC score \geq 100 (compared to CAC score <100).

Model 1: Logistic regression model adjusted for age

Model 2: as in Model 1 and marital status, education, smoking, physical activity, sleep duration during weekdays and during weekend, alcohol consumption, total fiber intake, cholesterol intake, and total energy intake.

Model 3: as in Model 2 and additionally adjusted for total serum cholesterol, HDL serum cholesterol, systolic and diastolic blood pressure, body mass index, and diabetes.

AWHS: Aragon Workers' Health Study, CACS: Coronary Calcium Score; UPF: Ultra-processed Food; OR: Odds Ratio; CI: Confidence Interval.