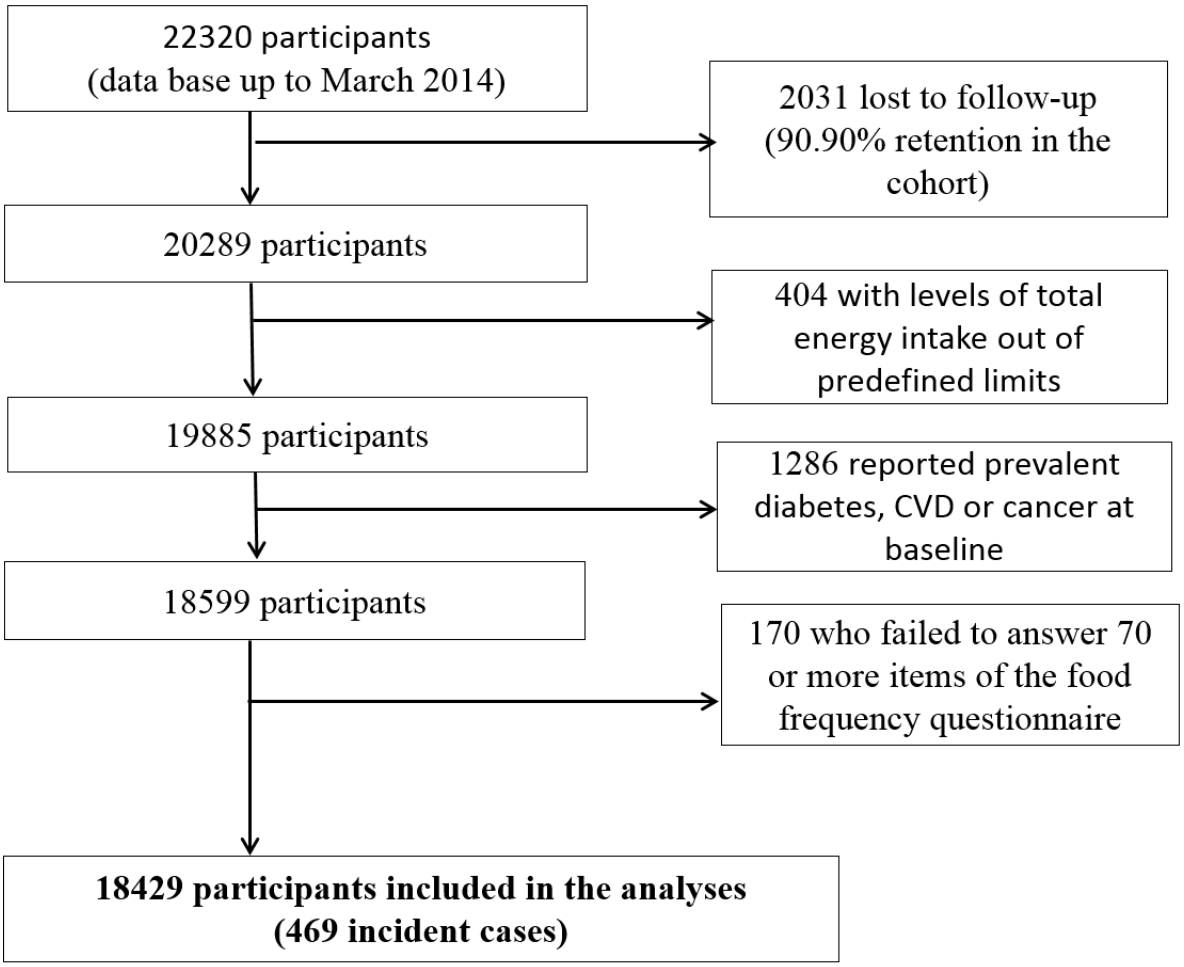
Supplemental Figure 1. Flow chart of the study participants in the Seguimiento Universidad de Navarra (SUN) Project 1999–2016.



CVD: cardiovascular disease

Supplemental Table 1. Principal Component Analysis loadings >0.3 for Western dietary pattern.

Food products	Loading factors
Fast food	0.5172
Fatty dairy products	0.4871
Red meat	0.4841
Potatoes	0.4538
Industrial bakery	0.4535
Processed meat	0.4477
Sauces	0.4385
Precooked food	0.3954
Caloric soft drinks	0.3862

Supplemental Table 2. Rates (cases/frequency; percentage) assessing total mortality, non-fatal cardiovascular disease, non-fatal breast cancer and incidence of type 2 diabetes, according to quartiles of Western, Mediterranean and Provegetarian dietary patterns adherence.

	Western diet			
	Q1	**Q2**	**Q3**	**Q4**
Cases/N (frequency)[a]	72/4608	49/4607	52/4607	44/4607
%[a]	1.56	1.06	1.13	0.96
Cases/N (frequency)[b]	41/4608	31/4607	24/4607	19/4607
%[b]	0.89	0.67	0.52	0.41
Cases/N (frequency)[c]	16/4608	11/4607	17/4607	19/4607
%[c]	0.35	0.24	0.37	0.41
Cases/N (frequency)[d]	40/4608	38/4607	22/4607	24/4607
%[d]	0.87	0.82	0.48	0.52
	Mediterranean diet			
	Q1	**Q2**	**Q3**	**Q4**
Cases/N (frequency)[a]	62/6802	56/3796	44/3400	55/4431
%[a]	0.91	1.48	1.29	1.24
Cases/N (frequency)[b]	47/6802	20/3796	25/3400	23/4431
%[b]	0.69	0.53	0.74	0.52
Cases/N (frequency)[c]	27/6802	9/3796	16/3400	11/4431
%[c]	0.40	0.24	0.47	0.25
Cases/N (frequency)[d]	35/6802	23/3796	25/3400	41/4431
%[d]	0.51	0.61	0.74	0.93
	Provegetarian diet			
	Q1	**Q2**	**Q3**	**Q4**
Cases/N (frequency)[a]	43/4672	64/5450	44/3957	66/4350
%[a]	0.92	1.17	1.11	1.52
Cases/N (frequency)[b]	29/4672	35/5450	27/3957	24/4350
%[b]	0.62	0.64	0.68	0.55
Cases/N (frequency)[c]	21/4672	12/5450	11/3957	19/4350
%[c]	0.45	0.22	0.28	0.44
Cases/N (frequency)[d]	26/4672	35/5450	23/3957	40/4350
%[d]	0.56	0.64	0.58	0.92

Adjusted for age, sex and total energy intake. Qn= nth quartile of diet adherence

[a]The endpoint is total mortality

[b]The endpoint is non-fatal cardiovascular disease

[c]The endpoint is non-fatal breast cancer

[a]The endpoint is type 2 diabetes

Supplemental table 3. Main environmental footprint information sources for items´ production and processing phases

LAND USE:

- Food and Agriculture Organization of the United Nations: data base 2009 FAOSTAT [http://faostat.fao.org/]
- Cederberg C, Mattsson B: Lifecycle assessment of milk production – a comparison of conventional and organic farming. *Journal of Cleaner Production* 2000, 8:49-60.
- LCA food data base [www.lcafood.dk]

WATER CONSUMPTION:

- Hoekstra A.Y. "The hidden water resource use behind meat and dairy" Twente Water Centre, University of Twente, PO Box 217, 7522AE Enschede, the Netherlands
- Ministerio de Medio Ambiente y Medio Rural y Marino: (Ministry of environment, rural and marine, Spain). Guía de Mejores Técnicas Disponibles en España del sector de Productos del mar (Best Available Techniques Guide of Sea products sector in Spain). Spain; 2006.
- Herldbo J. "Recirculated aquaculture systems. Advantages and disadvantages." Good Practice Workshop, 2014, Copenhagen, Denmark. https://circabc.europa.eu/sd/a/6112e063-d8aa-4533-9fbb-2abd47cce769/Presentation%204%20Jesper%20Heldbo%20EU_Baltic_Recirculated%20Aquaculture_JH.pdf
- Mekonnen MM, Hoekstra AY: "The green, blue and grey water footprint of crops and derived crop products". Hydrology and Earth System Sciences. *Hydrol Earth Syst Sci* 2011, 15:1577–1600. [http://www.waterfootprint.org/?page=files/WaterStat-ProductWaterFootprints].
- Hoekstra A.Y. "Water footprint of food" http://waterfootprint.org/media/downloads/Hoekstra-2008-WaterfootprintFood.pdf Twente Water Centre, University of Twente, the Netherlands. 2008

ENERGY CONSUMPTION:

- International Dairy Federation. "Environmental/Ecological Impact of the dairy sector: Literature review on dairy products for an inventory of key issues. List of environmental initiatives and influences on the dairy sector". Bulletin of the IDF 2009; Nº 436.
- Foster C, Green K, Bleda M, Dewick P, Evans B, Flynn A, Mylan J. "Environmental Impacts of food production and consumption. A report to the Department for environment, food and rural affair." London: Manchester Business School and DEFRA; 2006.
- Hornborg S. and Ziegler F. "Aquaculture and energy use: a desk-top study". 2014.
- State of the Art on Energy Efficiency in Agriculture "Country data on energy consumption in different agroproduction sectors in the European countries" 2012.
- Garrido A, Bardají I, De Blas C, García R, Hernández Díaz-Ambrona C, Linares P: Indicadores de sostenibilidad de la agricultura y ganadería españolas (Spanish agriculture and livestock indicators of sustainability). Plataforma Tecnológica de Agricultura Sostenible

(Sustainable Agriculture Technology Platform). Escuela técnica superior de ingenieros agrónomos (Higher Technical School of Agricultural Engineers). Madrid: Universidad Politécnica de Madrid (Polytechnic University of Madrid); 2011.

- Masanet E., Therkelsen P. and Worrell E. "Energy Efficiency Improvement and Cost Saving Opportunities for the Baking Industry. An ENERGY STAR® Guide for Plant and Energy Managers" Ernest Orlando Lawrence Berkeley National Laboratory, 2012.
- Carlsson-Kanyama A. and Faist M., "Energy use in the food sector: a data survey" http://citeseerx.ist.psu.edu/viewdoc/download?rep=rep1&type=pdf&doi=10.1.1.205.8375

GHG EMISSION:

- LCA food data base [www.lcafood.dk].
- Food Carbon emission calculator http://www.foodemissions.com/foodemissions/Calculator.aspx

Supplemental Table 4. Adjusted mean values and 95% Confidence Intervals of Overall sustainable diet index, Rate advancement period, Environmental footprints index and Monetary cost according to quartiles of Western, Mediterranean and Provegetarian dietary patterns adherence.

	Western dietary pattern			
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	4608	4607	4607	4607
Cases/person-years	151/43804	117/45688	104/46749	97/49219
Overall sustainable diet index (0-9 points)[a]	6.39 (6.37, 6.41)	6.21 (6.20, 6.23)	5.99 (5.97, 6.01)	5.75 (5.72, 5.77)
Rate advancement period (years)[a]	-1.11 (-2.78, 0.59)	-0.40 (-2.07, 1.27)	0.19 (-1.48, 1.86)	1.33 (-0.34, 3.00)
Environmental footprints index (4-16 points)[a]	9.20 (9.13, 9.27)	9.68 (9.61, 9.75)	10.32 (10.25, 10.39)	10.80 (10.72, 10.87)
Monetary cost (€/day)[a]	7.55 (7.51, 7.60)	6.91 (6.87, 6.96)	6.54 (6.49, 6.58)	5.87 (5.82, 5.93)
	Mediterranean dietary pattern			
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	6802	3796	3400	4431
Cases/person-years	149/70310	100/38942	99/33695	121/42512
Overall sustainable diet index (0-9 points)[a]	5.67 (5.66, 5.69)	6.03 (6.01, 6.05)	6.26 (6.24, 6.28)	6.64 (6.62, 6.66)

Rate advancement period (years)[a]	2.45 (1.21, 3.70)	0.21 (-1.04, 1.45)	-1.10 (-2.34, 0.15)	-3.10 (-4.35, -1.85)
Environmental footprints index (4-16 points)[a]	10.32 (10.26, 10.38)	10.12 (10.04, 10.19)	9.90 (9.83, 9.98)	9.48 (9.41, 9.55)
Monetary cost (€/day)[a]	6.10 (6.06, 6.14)	6.63 (6.58, 6.68)	7.02 (6.97, 7.07)	7.52 (7.47, 7.56)
		Provegetarian dietary pattern		
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	4672	5450	3957	4350
Cases/person-years	108/47626	129/55222	92/39808	140/42802
Overall sustainable diet index (0-9 points)[a]	5.65 (5.64, 5.67)	6.00 (5.98, 6.01)	6.23 (6.21, 6.25)	6.53 (6.52, 6.55)
Rate advancement period (years)[a]	0.93 (-0.33, 2.19)	0.28 (-0.98, 1.54)	-0.37 (-1.62, 0.89)	-1.02 (-2.27, 0.24)
Environmental footprints index (4-16 points)[a]	11.15 (11.09, 11.21)	10.21 (10.15, 10.27)	9.65 (9.58, 9.72)	8.82 (8.75, 8.88)
Monetary cost (€/day)[a]	6.70 (6.66, 6.75)	6.65 (6.60, 6.69)	6.73 (6.68, 6.78)	6.82 (6.77, 6.86)

Adjusted for age, sex and total energy intake. [a]p for trend<0.001. Qn= nth quartile of diet adherence.

Supplemental Table 5. Adjusted relative differences of mean values and 95% Confidence Intervals of Overall sustainable diet index, Rate advancement period, Environmental footprints index and Monetary cost according to quartiles of Western, Mediterranean and Provegetarian dietary patterns adherence.

	Western dietary pattern			
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	4608	4607	4607	4607
Cases/person-years	151/43804	117/45688	104/46749	97/49219
Overall sustainable diet index (0-9 points)[a]	0 (Ref)	-0.18 (-0.21, -0.15)	-0.40 (-0.43, -0.38)	-0.65 (-0.68, -0.62)
Rate advancement period (years)[a]	0 (Ref)	0.71 (-0.96, 2.38)	1.30 (-0.37, 2.97)	2.44 (0.77, 4.11)
Environmental footprints index (4-16 points)[a]	0 (Ref)	0.48 (0.38, 0.57)	1.12 (1.02, 1.22)	1.60 (1.48, 1.71)
Monetary cost (€/day)[a]	0 (Ref)	-0.64 (-0.71, -0.58)	-1.02 (-1.09, -0.95)	-1.68 (-1.76, -1.60)
	Mediterranean dietary pattern			
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	6802	3796	3400	4431
Cases/person-years	149/70310	100/38942	99/33695	121/42512

Overall sustainable diet index (0-9 points)[a]	0 (Ref)	0.36 (0.34, 0.39)	0.59 (0.56, 0.61)	0.97 (0.94, 0.99)
Rate advancement period (years)[a]	0 (Ref)	-2.24 (-3.49, -0.99)	-3.55 (-4.80, -2.30)	-5.55 (-6.80, -4.30)
Environmental footprints index (4-16 points)[a]	0 (Ref)	-0.20 (-0.30, -0.11)	-0.42 (-0.51, -0.32)	-0.84 (-0.93, -0.75)
Monetary cost (€/day)[a]	0 (Ref)	0.54 (0.47, 0.60)	0.92 (0.86, 0.99)	1.42 (1.36, 1.48)
		Provegetarian dietary pattern		
	Q1	**Q2**	**Q3**	**Q4**
N (frequency)	4672	5450	3957	4350
Cases/person-years	108/47626	129/55222	92/39808	140/42802
Overall sustainable diet index (0-9 points)[a]	0 (Ref)	0.34 (0.32, 0.37)	0.58 (0.55, 0.60)	0.88 (0.86, 0.91)
Rate advancement period (years)[a]	0 (Ref)	-0.65 (-1.91, 0.61)	-1.30 (-2.56, -0.44)	-1.95 (-3.21 -0.69)
Environmental footprints index (4-16 points)[a]	0 (Ref)	-0.94 (-1.03, -0.86)	-1.50 (-1.60, -1.41)	-2.33 (-2.42, -2.24)
Monetary cost (€/day)[a]	0 (Ref)	-0.05 (-0.12, 0.01)	0.03 (-0.04, 0.10)	0.11 (0.04, 0.18)

Adjusted for age, sex and total energy intake. [a]p for trend<0.001. Qn= nth quartile of diet adherence.

Supplemental Table 6. Sensitivity analyses. Adjusted mean values and 95% Confidence Intervals of first and fourth quartile of adherence to Western, Mediterranean and Provegetarian dietary patterns.

	Western dietary pattern		Mediterranean dietary pattern		Provegetarian dietary pattern	
	Q1	**Q4**	**Q1**	**Q4**	**Q1**	**Q4**
Overall						
N (frequency)	4608	4607	6802	4431	4672	4350
Cases/person-years	151/43804	97/49219	149/70310	121/42512	108/47626	140/42802
Overall sustainable diet index (0-9 points)[a]	6.39 (6.37, 6.41)	5.75 (5.72, 5.77)	5.67 (5.66, 5.69)	6.64 (6.62, 6.66)	5.65 (5.64, 5.67)	6.53 (6.52, 6.55)
Rate advancement period (years)[a]	-1.11 (-2.78, 0.59)	1.33 (-0.34, 3.00)	2.45 (1.21, 3.70)	-3.10 (-4.35, -1.85)	0.93 (-0.33, 2.19)	-1.02 (-2.27, 0.24)
Environmental footprints index (4-16 points)[a]	9.20 (9.13, 9.27)	10.80 (10.72, 10.87)	10.32 (10.26, 10.38)	9.48 (9.41, 9.55)	11.15 (11.09, 11.21)	8.82 (8.75, 8.88)
Monetary cost (€/day)[a]	7.55 (7.51, 7.60)	5.87 (5.82, 5.93)	6.10 (6.06, 6.14)	7.52 (7.47, 7.56)	6.70 (6.66, 6.75)	6.82 (6.77, 6.86)
Excluding participants who had the health composite end-point[1] in the first 2 years						
N (frequency)	4560	4568	6732	4396	4625	4310
Cases/person-years	130/43734	85/49157	126/70200	106/42458	96/47553	123/42743
Overall sustainable diet index (0-9 points)[a]	6.28 (6.26, 6.30)	5.65 (5.63, 5.67)	5.52 (5.51, 5.54)	6.59 (6.57, 6.61)	5.55 (5.53, 5.57)	6.43 (6.41, 6.45)
Rate advancement period (years)[a]	-0.94 (-2.76, 0.88)	1.12 (-0.70, 2.94)	2.42 (1.06, 3.78)	-3.06 (-4.42, -1.70)	0.83 (0.54, 2.20)	-0.91 (-2.28 0.47)
Environmental footprints index (4-16 points)[a]	9.20 (9.13, 9.28)	10.80 (10.72, 10.88)	10.32 (10.26, 10.38)	9.48 (9.41, 9.55)	11.15 (11.09, 11.21)	8.82 (8.75, 8.89)
Monetary cost (€/day)[a]	7.56 (7.51, 7.61)	5.88 (5.82, 5.93)	6.10 (6.06, 6.14)	7.52 (7.47, 7.57)	6.71 (6.66, 6.76)	6.82 (6.77, 6.87)
Including people with prevalent CVD, cancer and T2DM[b]						
N (frequency)	4920	4919	7140	4844	5276	3963
Cases/person-years	189/46513	121/52449	177/73585	173/46176	115/53972	132/38890

Overall sustainable diet index (0-9 points)[a]	6.77 (6.75, 6.79)	6.06 (6.04, 6.08)	6.13 (6.12, 6.15)	6.83 (6.81, 6.85)	6.08 (6.06, 6.09)	6.84 (6.82, 6.86)
Rate advancement period (years)[a]	-1.42 (-2.87, 0.03)	1.69 (0.24, 3.14)	1.86 (0.73, 2.99)	-2.30 (-3.43, -1.17)	0.71 (-0.41, 1.84)	-0.84 (-1.96, 0.29)
Environmental footprints index (4-16 points)[a]	9.21 (9.14, 9.28)	10.80 (10.72, 10.87)	10.33 (10.28, 10.39)	9.47 (9.41, 9.54)	11.02 (10.97, 11.08)	8.81 (8.75, 8.88)
Monetary cost (€/day)[a]	7.57 (7.53, 7.62)	5.89 (5.84, 5.94)	6.11 (6.07, 6.14)	7.52 (7.47, 7.56)	6.69 (6.65, 6.73)	6.82 (6.77, 6.87)
Excluding participants with total energy intake beyond predefined limits (<800 Kcal/day and <500 Kcal/day or >4000 Kcal/day and >3500 Kcal/day in men and women, respectively)						
N (frequency)	4241	4241	6469	3938	6117	4703
Cases/person-years	135/40016	87/45713	147/66733	113/37707	153/62305	182/46046
Overall sustainable diet index (0-9 points)[a]	5.57 (5.55, 5.59)	4.98 (4.96, 5.00)	4.71 (4.70, 4.73)	6.13 (6.11, 6.15)	4.92 (4.90, 4.94)	5.77 (5.75, 5.79)
Rate advancement period (years)[a]	-1.23 (-2.72, 0.26)	1.33 (1.59, 2.83)	2.44 (1.15, 3.72)	-3.22 (-4.5, -1.94)	0.53 (-0.76, 1.81)	-0.62 (-1.91, 0.66)
Environmental footprints index (4-16 points)[a]	9.62 (9.54, 9.69)	10.54 (10.62)	10.42 (10.37, 10.48)	9.32 (9.24, 9.39)	11.11 (11.05, 11.16)	8.71 (8.64, 8.77)
Monetary cost (€/day)[a]	7.34 (7.29, 7.38)	5.51 (5.47, 5.56)	5.80 (5.76, 5.83)	7.17 (7.13, 7.22)	6.33 (6.29, 6.37)	6.47 (6.43, 6.52)

Adjusted for age, sex and total energy intake. [a]p for trend<0.001.[1]Composite end-point: all-cause mortality, non-fatal cardiovascular disease, non-fatal breast cancer or type 2 diabetes. [b]Additionally adjusted for prevalent CVD, cancer and T2DM. CVD: Cardiovascular Disease. Qn= nth quartile of diet adherence. T2DM: Type 2 Diabetes Mellitus.

Supplemental Table 7. Sensitivity analyses. Relative differences and 95% Confidence Intervals of the fourth compared to the first quartile of adherence to Western, Mediterranean and Provegetarian dietary patterns.

	Western dietary pattern		Mediterranean dietary pattern		Provegetarian dietary pattern	
	Q1	**Q4**	**Q1**	**Q4**	**Q1**	**Q4**
Overall						
N (frequency)	4608	4607	6802	4431	4672	4350
Cases/person-years	151/43804	97/49219	149/70310	121/42512	108/47626	140/42802
Overall sustainable diet index (0-9 points)[a]	0 (Ref)	-0.65 (-0.68, -0.62)	0 (Ref)	0.97 (0.94, 0.99)	0 (Ref)	0.88 (0.86, 0.91)
Rate advancement period (years)[a]	0 (Ref)	2.44 (0.77, 4.11)	0 (Ref)	-5.55 (-6.80, -4.30)	0 (Ref)	-1.95 (-3.21, -0.69)
Environmental footprints index (4-16 points)[a]	0 (Ref)	1.60 (1.48, 1.71)	0 (Ref)	-0.84 (-0.93, -0.75)	0 (Ref)	-2.33 (-2.42, -2.24)
Monetary cost (€/day)[a]	0 (Ref)	-1.68 (-1.76, -1.60)	0 (Ref)	1.42 (1.36, 1.48)	0 (Ref)	0.11 (0.04, 0.18)
Excluding participants who have the health composite end-point[1] in the first 2 years						
N (frequency)	4560	4568	6732	4396	4625	4310
Cases/person-years	130/43734	85/49157	126/70200	106/42458	96/47553	123/42743
Overall sustainable diet index (0-9 points)[a]	0 (Ref)	-0.63 (-0.66, -0.60)	0 (Ref)	1.06 (1.04, 1.09)	0 (Ref)	0.88 (0.85, 0.90)
Rate advancement period (years)[a]	0 (Ref)	2.06 (0.24, 3.88)	0 (Ref)	-5.48 (-6.84, -4.12)	0 (Ref)	-1.73 (-3.10, -0.36)
Environmental footprints index (4-16 points)[a]	0 (Ref)	1.60 (1.48, 1.71)	0 (Ref)	-0.84 (-0.93, -0.75)	0 (Ref)	-2.33 (-2.42, -2.24)
Monetary cost (€/day)[a]	0 (Ref)	-1.69 (-1.77, -1.61)	0 (Ref)	1.42 (1.36, 1.48)	0 (Ref)	0.11 (0.04, 0.18)
Including people with prevalent CVD, cancer and T2DM[b]						
N (frequency)	4920	4919	7140	4844	5276	3963
Cases/person-years	189/46513	121/52449	177/73585	173/46176	115/53972	132/38890

Overall sustainable diet index (0-9 points)[a]	0 (Ref)	-0.71 (-0.74, -0.68)	0 (Ref)	0.70 (0.68, 0.72)	0 (Ref)	0.76 (0.74, 0.79)
Rate advancement period (years)[a]	0 (Ref)	3.11 (1.66, 4.56)	0 (Ref)	-4.17 (-5.30, -3.04)	0 (Ref)	-1.55 (-2.67, -0.43)
Environmental footprints index (4-16 points)[a]	0 (Ref)	1.59 (1.47, 1.70)	0 (Ref)	-0.86 (-0.95, -0.77)	0 (Ref)	-2.21 (-2.30, -2.13)
Monetary cost (€/day)[a]	0 (Ref)	-1.68 (-1.76, -1.61)	0 (Ref)	1.41 (1.35, 1.47)	0 (Ref)	0.13 (0.06, 0.19)
Excluding participants with total energy intake beyond predefined limits ((<800 Kcal/day and <500 Kcal/day or >4000 Kcal/day and >3500 Kcal/day in men and women, respectively)						
N (frequency)	4241	4241	6469	3938	6117	4703
Cases/person-years	135/40016	87/45713	147/66733	113/37707	153/62305	182/46046
Overall sustainable diet index (0-9 points)[a]	0 (Ref)	-0.59 (-0.63, -0.56)	0 (Ref)	1.41 (1.39, 1.44)	0 (Ref)	0.85 (0.82, 0.88)
Rate advancement period (years)[a]	0 (Ref)	2.57 (1.08, 4.06)	0 (Ref)	-5.65 (-6.93, -4.37)	0 (Ref)	-1.15 (-2.43, 0.13)
Environmental footprints index (4-16 points)[a]	0 (Ref)	0.92 (0.81, 1.03)	0 (Ref)	-1.11 (-1.20, -1.01)	0 (Ref)	-2.40 (-2.49, -2.31)
Monetary cost (€/day)[a]	0 (Ref)	-1.82 (-1.89, -1.76)	0 (Ref)	1.37 (1.31, 1.43)	0 (Ref)	0.14 (0.08, 0.21)

Adjusted for age, sex and total energy intake. [a]p for trend<0.001. [1]Composite end-point: all-cause mortality, non-fatal cardiovascular disease, non-fatal breast cancer or type 2 diabetes. [b]Additionally adjusted for prevalent CVD, cancer and T2DM. CVD: Cardiovascular Disease. Qn= nth quartile of diet adherence. T2DM: Type 2 Diabetes Mellitus.