

Association of dietary oxidative balance score, dietary inflammatory potential and fractures among adults aged ≥ 40 years in the United States in 1999-2018

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Manuscript received 19 January 2026. Initial review completed 03 March 2026. Manuscript accepted 02 June 2026.

doi: 10.6133/apjcn.202608_35(4).0011

Supplementary Table 1. DOBS assignment scheme

DOBS components (tertile)	Property	Male			Female		
		0	1	2	0	1	2
Dietary fiber (g/d)	A†	<12.5	12.5-19.7	≥19.7	<10.1	10.1-16.3	≥16.3
Carotene (RE/d)‡	A	<98.8	98.8-306	≥306	<98.0	98.0-383	≥383
Riboflavin (mg/d)	A	<1.79	1.79-2.69	≥2.69	<1.34	1.34-2.02	≥2.02
Niacin (mg/d)	A	<20.6	20.6-29.7	≥29.7	<14.5	14.5-21.8	≥21.8
Vitamin B6 (mg/d)	A	<1.59	1.59-2.40	≥2.40	<1.13	1.13-1.77	≥1.77
Total folate (mcg/d)	A	<316	316-492	≥492	<251	251-388	≥388
Vitamin B12 (mcg/d)	A	<3.36	3.36-6.20	≥6.20	<2.22	2.22-4.22	≥4.22
Vitamin C (mg/d)	A	<42.4	42.4-113	≥113	<38.0	38.0-98.4	≥98.4
Vitamin E (ATE) (mg/d)§	A	<5.82	5.82-9.42	≥9.42	<4.53	4.53-7.52	≥7.52
Calcium (mg/d)	A	<646	646-1072	≥1072	<499	499-849	≥849
Magnesium (mg/d)	A	<257	257-361	≥361	<187	187-283	≥283
Zinc (mg/d)	A	<9.75	9.75-15.1	≥15.1	<6.73	6.73-10.7	≥10.7
Copper (mg/d)	A	<1.12	1.12-1.57	≥1.57	<0.85	0.85-1.28	≥1.28
Selenium (mcg/d)	A	<94.9	94.9-141	≥141	<67.7	67.7-99.5	≥99.5
Total fat (g/d)	P¶	≥69.8	69.8-107	<107	≥50.9	50.9-75.7	<75.7
Iron (mg/d)	P	≥12.8	12.8-19.1	<19.1	≥9.65	9.65-14.3	<14.3

†Antioxidant.

‡Retinol equivalents.

§Alpha-tocopherol equivalent.

¶Pro-oxidant.

Supplementary Table 2. The dietary component parameters used to construct the DII[†]

Dietary composition	Raw inflammatory effect score [‡]	Overall inflammatory effect score [§]	Global daily mean intake (units/d)	Standard deviation of the global daily intake
Alcohol (g)	-0.28	-0.28	13.9	3.72
Vitamin B12 (µg)	0.21	0.11	5.15	2.70
Vitamin B6 (mg)	-0.38	-0.37	1.47	0.74
β-Carotene (µg)	-0.58	-0.58	3718	1720
Caffeine (g)	-0.12	-0.11	8.05	6.67
Carbohydrate (g)	0.11	0.10	272	40.0
Cholesterol (mg)	0.35	0.11	279	51.2
Energy (kcal)	0.18	0.18	2056	338
Total fat (g)	0.30	0.30	71.4	19.4
Fiber (g)	-0.66	-0.66	18.8	4.90
Folic acid (µg)	-0.21	-0.19	273	70.7
Iron (mg)	0.03	0.03	13.3	3.71
Magnesium (mg)	-0.48	-0.48	310	139
MUFA (g)	-0.02	-0.01	27.0	6.10
Niacin (mg)	-1.00	-0.25	25.9	11.7
n-3 Fatty acids (g)	-0.44	-0.44	1.06	1.06
n-6 Fatty acids (g)	-0.16	-0.16	10.8	7.50
Protein (g)	0.05	0.02	79.4	13.9
PUFA (g)	-0.34	-0.34	13.8	3.76
Vitamin B2 (mg)	-0.73	-0.07	1.70	0.79
Saturated fat (g)	0.43	0.37	28.6	8.00
Selenium (µg)	-0.19	-0.19	67.0	25.1
Vitamin B1 (mg)	-0.35	-0.10	1.70	0.66
Vitamin A (RE)	-0.40	-0.40	983	518
Vitamin C (mg)	-0.42	-0.42	118	43.4
Vitamin D (µg)	-0.45	-0.45	6.26	2.21
Vitamin E (mg)	-0.42	-0.42	8.73	1.49
Zinc (mg)	-0.31	-0.31	9.84	2.19

MUFA: Monounsaturated fatty acids; PUFA: Polyunsaturated fatty acids; RF: Retinol equivalents.

[†]DII of a certain dietary component = (Daily intake of the dietary component - Global daily mean intake of the dietary component) / Standard Deviation of the global daily intake for the dietary component * Overall inflammatory effect score of the dietary component. The DII for each participant was obtained by summing the DII of the 28 dietary components selected in this study.

[‡]Dietary composition parameter-specific raw inflammatory effect score, which is per unit amount noted for each food parameter.

[§]Dietary composition parameter-specific overall inflammatory effect score.

Supplementary Table 3. The relationship between wrist fracture and the dietary component parameters used to construct the DOBS

Variable	Total mean or % [95% CI] (n = 22927)	Non-Wrist fracture mean or % [95% CI] (n = 20774)	Wrist fracture mean or % [95% CI] (n = 2153)	<i>p</i>
DOBS	16.4 (16.2, 16.6)	16.3 (16.1, 16.5)	16.6 (16.2, 17.0)	0.150
Dietary fiber (g/d)	16.5 (16.3, 16.8)	16.5 (16.3, 16.8)	16.5 (15.9, 17.0)	0.860
Carotene (RE/d)	252 (242, 262)	254 (244, 264)	235 (216, 255)	0.070
Riboflavin (mg/d)	2.15 (2.12, 2.17)	2.13 (2.10, 2.16)	2.30 (2.23, 2.36)	<0.001
Niacin (mg/d)	23.7 (23.5, 24.0)	23.6 (23.3, 23.9)	24.6 (23.9, 25.2)	0.010
Vitamin B6 (mg/d)	1.96 (1.93, 1.99)	1.96 (1.93, 1.99)	1.99 (1.93, 2.05)	0.230
Total folate (mcg/d)	393 (387, 398)	391 (386, 397)	403 (391, 416)	0.070
Vitamin B12 (mcg/d)	5.19 (5.06, 5.32)	5.13 (5.00, 5.25)	5.67 (5.29, 6.05)	0.010
Vitamin C (mg/d)	86.8 (84.7, 88.9)	86.6 (84.5, 88.7)	88.4 (84.1, 92.7)	0.390
Vitamin E (ATE) (mg/d)	7.79 (7.67, 7.91)	7.72 (7.58, 7.85)	8.39 (8.02, 8.76)	0.001
Calcium (mg/d)	883 (871, 895)	876 (864, 888)	941 (908, 974)	<0.001
Magnesium (mg/d)	292 (289, 295)	291 (288, 295)	299 (291, 308)	0.060
Zinc (mg/d)	11.5 (11.3, 11.7)	11.5 (11.3, 11.6)	12.0 (11.5, 12.5)	0.030
Copper (mg/d)	1.29 (1.28, 1.31)	1.29 (1.27, 1.30)	1.35 (1.30, 1.40)	0.020
Selenium (mcg/d)	107 (106, 108)	107 (106, 108)	110 (108, 113)	0.020
Total fat (g/d)	78.6 (77.8, 79.5)	78.1 (77.2, 79.0)	83.2 (81.0, 85.3)	<0.001
Iron (mg/d)	15.0 (14.9, 15.2)	15.0 (14.8, 15.2)	15.6 (15.1, 16.7)	0.02

Supplementary Table 4. The relationship between wrist fracture and the dietary component parameters used to construct the DII

Variable	Total mean or % (n = 22927)	Non-Wrist fracture mean or % (n = 20774)	Wrist fracture mean or % (n = 2153)	<i>p</i>
DII	1.260 (1.208, 1.312)	1.266 (1.212, 1.319)	1.214 (1.099, 1.329)	0.375
Energy (kcal)	-0.024 (-0.027, -0.021)	-0.026 (-0.029, -0.023)	-0.004 (-0.012, 0.004)	<0.001
Protein (g)	-0.002 (-0.003, -0.002)	-0.002 (-0.003, -0.002)	-0.001 (-0.002, 0.000)	0.009
Carbohydrate (g)	-0.031 (-0.032, -0.029)	-0.032 (-0.033, -0.030)	-0.023 (-0.028, -0.019)	<0.001
Dietary fibre (g)	0.189 (0.176, 0.201)	0.189 (0.177, 0.202)	0.184 (0.156, 0.212)	0.706
Total fat (g)	0.011 (0.007, 0.016)	0.008 (0.003, 0.013)	0.038 (0.028, 0.049)	<0.001
Total saturated fat (g)	-0.095 (-0.101, -0.089)	-0.099 (-0.105, -0.093)	-0.059 (-0.074, -0.045)	<0.001
MUFA (g)	0.000 (0.000, 0.001)	0.001 (0.000, 0.001)	0.000 (-0.001, 0.000)	<0.001
PUFA (g)	-0.052 (-0.057, -0.047)	-0.050 (-0.055, -0.045)	-0.071 (-0.084, -0.059)	0.001
Cholesterol (mg)	-0.019 (-0.021, -0.018)	-0.020 (-0.022, -0.018)	-0.014 (-0.020, -0.009)	0.077
Vitamin A (mcg)	0.173 (0.169, 0.178)	0.175 (0.170, 0.179)	0.162 (0.151, 0.174)	0.040
β carotene (mcg)	0.297 (0.287, 0.308)	0.296 (0.286, 0.307)	0.306 (0.284, 0.329)	0.371
Vitamin B1 (mg)	0.015 (0.014, 0.016)	0.016 (0.014, 0.017)	0.010 (0.006, 0.013)	0.001
Vitamin B2 (mg)	-0.016 (-0.017, -0.015)	-0.015 (-0.016, -0.014)	-0.021 (-0.023, -0.019)	<0.001
Niacin (mg)	0.039 (0.035, 0.042)	0.040 (0.037, 0.043)	0.027 (0.020, 0.034)	0.002
Vitamin B6 (mg)	-0.090 (-0.096, -0.085)	-0.089 (-0.095, -0.083)	-0.102 (-0.114, -0.089)	0.047
Folic acid (mcg)	0.110 (0.107, 0.113)	0.110 (0.107, 0.113)	0.108 (0.100, 0.116)	0.584
Vitamin B12 (mcg)	-0.016 (-0.017, -0.014)	-0.016 (-0.018, -0.015)	-0.009 (-0.013, -0.006)	<0.001
Vitamin C (mg)	0.178 (0.170, 0.185)	0.179 (0.172, 0.186)	0.168 (0.151, 0.185)	0.197
Vitamin D (mcg)	0.192 (0.185, 0.199)	0.193 (0.185, 0.201)	0.183 (0.158, 0.207)	0.436
Vitamin E (mg)	0.146 (0.138, 0.154)	0.150 (0.141, 0.159)	0.115 (0.095, 0.134)	0.002
Magnesium (mg)	0.057 (0.050, 0.064)	0.059 (0.052, 0.066)	0.040 (0.023, 0.057)	0.027
Iron (mg)	0.002 (0.001, 0.002)	0.002 (0.001, 0.002)	0.003 (0.002, 0.004)	0.039
Zinc (mg)	-0.024 (-0.030, -0.018)	-0.023 (-0.029, -0.017)	-0.036 (-0.051, -0.021)	0.068
Selenium (mg)	-0.100 (-0.102, -0.097)	-0.099 (-0.102, -0.097)	-0.104 (-0.109, -0.099)	0.103
Caffeine (mg)	0.084 (0.084, 0.084)	0.084 (0.084, 0.084)	0.083 (0.083, 0.084)	0.003
Alcohol (g)	0.171 (0.166, 0.177)	0.172 (0.167, 0.178)	0.162 (0.150, 0.175)	0.132
n-3 fatty acids (g)	0.263 (0.262, 0.265)	0.263 (0.262, 0.265)	0.263 (0.258, 0.267)	0.773
n-6 fatty acids (g)	-0.056 (-0.058, -0.055)	-0.056 (-0.057, -0.054)	-0.062 (-0.066, -0.058)	0.002

DII: dietary inflammatory index; MUFA: monounsaturated fatty acid; PUFA: polyunsaturated fatty acid.

Supplementary Table 5. The relationship between wrist fracture and the baseline characteristics of the study population

Variable	Total (n = 22927)	Non-Wrist fracture (n = 20774)	Wrist fracture (n = 2153)	<i>p</i>
Age (years)	57.7 (57.4, 58.0)	57.7 (57.4, 58.0)	58.4 (57.7, 59.0)	0.020
Sex (%)				<0.001
Female	11786 (53.3)	10738 (54.1)	1048 (47.2)	
Male	11141 (46.6)	10036 (45.8)	1105 (52.7)	
Poverty	3.22 (3.16, 3.29)	3.23 (3.16, 3.29)	3.20 (3.08, 3.32)	0.630
Race (%)				<0.001
Non-Hispanic White	11777 (75.8)	10348 (74.7)	1429 (84.6)	
Non-Hispanic Black	4567 (9.84)	4302 (10.39)	265 (5.33)	
Mexican American	3839 (5.24)	3584 (5.49)	255 (3.20)	
Other Hispanic	1549 (4.26)	1433 (4.43)	116 (2.85)	
Other Race	1195 (4.83)	1107 (4.94)	88 (3.96)	
Education (%)				0.030
More than high school	10722 (56.6)	9621 (56.2)	1101 (59.9)	
High school or equivalent	5379 (25.3)	4883 (25.5)	496 (23.4)	
Less than high school	6790 (17.8)	6235 (18.0)	555 (16.5)	
Marital (%)				0.130
Married	13485 (64.3)	12276 (64.5)	1209 (62.1)	
Never married	1540 (6.03)	1405 (6.07)	135 (5.77)	
Other marital status	7596 (28.2)	6814 (27.9)	782 (30.6)	
BMI (%)				0.950
<25	5769 (26.6)	5213 (27.0)	556 (27.0)	
25-30	8166 (35.0)	7429 (35.6)	737 (35.2)	
≥30	8505 (36.7)	7700 (37.2)	805 (37.6)	
eGFR (%)				0.080
<60	3136 (10.7)	2826 (11.2)	310 (11.0)	
60-90	9835 (45.6)	8811 (47.2)	1024 (50.3)	
≥90	8828 (39.5)	8093 (41.5)	735 (38.6)	
Smoke (%)				<0.001
Now	4134 (17.9)	3655 (17.5)	479 (21.7)	
Former	7452 (31.7)	6707 (31.4)	745 (33.9)	
Never	11323 (50.2)	10394 (51.0)	929 (44.3)	
Hypertension (%)				0.080
Yes	13042 (50.6)	11769 (50.4)	1273 (52.9)	
No	9878 (49.2)	8998 (49.5)	880 (47.0)	
DM (%)				0.550
Yes	4087 (13.4)	3752 (13.5)	335 (12.9)	
No	18822 (86.4)	17004 (86.4)	1818 (87.0)	
Prednisone or cortisone (%)				<0.001
Yes	937 (4.35)	799 (6.50)	138 (10.03)	
No	13420 (58.7)	12192 (93.5)	1228 (89.9)	
Thyroid problem (%)				0.250
Yes	2377 (11.4)	2116 (14.9)	261 (16.4)	
No	14756 (64.4)	13373 (85.0)	1383 (83.5)	
Liver condition (%)				0.020
Yes	1072 (4.60)	930 (4.46)	142 (5.86)	
No	21796 (95.1)	19789 (95.5)	2007 (94.1)	

BMI: body mass index; eGFR: estimated glomerular filtration rate.

Values are presented as mean values with their 95% confidence intervals for continuous variables and as n (unweighted) (%) (unweighted)) for categorical variables.

Supplementary Table 6. The relationship between hip fracture and the dietary component parameters used to construct the DOBS

Variable	Total mean or % [95% CI] (n = 22927)	Non-Hip fracture mean or % [95% CI] (n = 22502)	Hip fracture mean or % [95% CI] (n = 425)	<i>p</i>
DOBS	16.4 (16.2, 16.6)	16.4 (16.2, 16.6)	14.4 (13.6, 15.1)	<0.001
Dietary fiber (g/d)	16.5 (16.3, 16.8)	16.5 (16.3, 16.8)	14.3 (13.3, 15.3)	<0.001
Carotene (RE/d)	252 (242, 262)	253 (243, 263)	192 (159, 225)	<0.001
Riboflavin (mg/d)	2.15 (2.12, 2.17)	2.15 (2.12, 2.18)	2.09 (1.95, 2.22)	0.380
Niacin (mg/d)	23.7 (23.5, 24.0)	23.7 (23.5, 24.0)	21.9 (20.5, 23.3)	0.010
Vitamin B6 (mg/d)	1.96 (1.93, 1.99)	1.96 (1.93, 1.99)	1.80 (1.66, 1.94)	0.020
Total folate (mcg/d)	393 (387, 398)	393 (388, 399)	365 (337, 392)	0.050
Vitamin B12 (mcg/d)	5.19 (5.06, 5.32)	5.19 (5.05, 5.32)	5.18 (4.39, 5.97)	0.990
Vitamin C (mg/d)	86.8 (84.7, 88.9)	87.0 (84.9, 89.1)	72.6 (64.9, 80.4)	<0.001
Vitamin E (ATE) (mg/d)	7.79 (7.67, 7.91)	7.80 (7.68, 7.93)	6.86 (6.25, 7.46)	0.005
Calcium (mg/d)	883 (871, 895)	884 (872, 896)	831 (768, 894)	0.120
Magnesium (mg/d)	292 (289, 295)	293 (289, 296)	259 (243, 274)	<0.001
Zinc (mg/d)	11.5 (11.3, 11.7)	11.5 (11.4, 11.7)	10.9 (10.1, 11.7)	0.151
Copper (mg/d)	1.29 (1.28, 1.31)	1.30 (1.28, 1.31)	1.16 (1.08, 1.25)	0.003
Selenium (mcg/d)	107 (106, 108)	107 (106, 109)	98.8 (93.0, 104.5)	0.004
Total fat (g/d)	78.6 (77.8, 79.5)	78.8 (77.9, 79.6)	71.8 (67.4, 76.3)	0.004
Iron (mg/d)	15.0 (14.9, 15.2)	15.1 (14.9, 15.2)	14.0 (13.1, 15.0)	0.051

Supplementary Table 7. The relationship between hip fracture and the dietary component parameters used to construct the DII

Variable	Total mean or % [95% CI] (n = 22927)	Non-Hip fracture mean or % [95% CI] (n = 22502)	Hip fracture mean or % [95% CI] (n = 425)	p
DII	1.260 (1.208, 1.312)	1.252 (1.199, 1.304)	1.784 (1.570, 1.998)	<0.001
Energy (kcal)	-0.024 (-0.027, -0.021)	-0.023 (-0.026, -0.021)	-0.055 (-0.074, -0.036)	0.002
Protein (g)	-0.002 (-0.003, -0.002)	-0.002 (-0.003, -0.002)	-0.006 (-0.008, -0.004)	<0.001
Carbohydrate (g)	-0.031 (-0.032, -0.029)	-0.031 (-0.032, -0.029)	-0.044 (-0.054, -0.033)	0.018
Dietary fibre (g)	0.189 (0.176, 0.201)	0.187 (0.174, 0.200)	0.308 (0.256, 0.359)	<0.001
Total fat (g)	0.011 (0.007, 0.016)	0.012 (0.007, 0.016)	-0.024 (-0.053, 0.006)	0.021
Total saturated fat (g)	-0.095 (-0.101, -0.089)	-0.095 (-0.100, -0.089)	-0.118 (-0.152, -0.084)	0.191
MUFA (g)	0.000 (0.000, 0.001)	0.000 (0.000, 0.001)	0.002 (0.001, 0.002)	0.017
PUFA (g)	-0.052 (-0.057, -0.047)	-0.053 (-0.058, -0.048)	0.010 (-0.024, 0.043)	<0.001
Cholesterol (mg)	-0.019 (-0.021, -0.018)	-0.019 (-0.021, -0.017)	-0.026 (-0.037, -0.016)	0.206
Vitamin A (mcg)	0.173 (0.169, 0.178)	0.173 (0.169, 0.177)	0.196 (0.171, 0.221)	0.072
β carotene (mcg)	0.297 (0.287, 0.308)	0.297 (0.286, 0.307)	0.348 (0.301, 0.395)	0.031
Vitamin B1 (mg)	0.015 (0.014, 0.016)	0.015 (0.013, 0.016)	0.022 (0.015, 0.030)	0.061
Vitamin B2 (mg)	-0.016 (-0.017, -0.015)	-0.016 (-0.017, -0.015)	-0.012 (-0.016, -0.007)	0.116
Niacin (mg)	0.039 (0.035, 0.042)	0.038 (0.035, 0.041)	0.063 (0.046, 0.079)	0.004
Vitamin B6 (mg)	-0.090 (-0.096, -0.085)	-0.091 (-0.097, -0.085)	-0.046 (-0.073, -0.020)	0.001
Folic acid (mcg)	0.110 (0.107, 0.113)	0.110 (0.107, 0.113)	0.119 (0.104, 0.134)	0.227
Vitamin B12 (mcg)	-0.016 (-0.017, -0.014)	-0.016 (-0.017, -0.014)	-0.020 (-0.028, -0.013)	0.225
Vitamin C (mg)	0.178 (0.170, 0.185)	0.177 (0.170, 0.184)	0.225 (0.193, 0.258)	0.006
Vitamin D (mcg)	0.192 (0.185, 0.199)	0.192 (0.185, 0.200)	0.192 (0.123, 0.260)	0.986
Vitamin E (mg)	0.146 (0.138, 0.154)	0.145 (0.137, 0.153)	0.218 (0.182, 0.253)	<0.001
Magnesium (mg)	0.057 (0.050, 0.064)	0.056 (0.048, 0.063)	0.129 (0.098, 0.161)	<0.001
Iron (mg)	0.002 (0.001, 0.002)	0.002 (0.001, 0.002)	-0.002 (-0.005, 0.001)	0.013
Zinc (mg)	-0.024 (-0.030, -0.018)	-0.025 (-0.031, -0.019)	0.023 (-0.005, 0.050)	0.001
Selenium (mg)	-0.100 (-0.102, -0.097)	-0.100 (-0.102, -0.098)	-0.081 (-0.095, -0.067)	0.012
Caffeine (mg)	0.084 (0.084, 0.084)	0.084 (0.084, 0.084)	0.084 (0.083, 0.084)	0.862
Alcohol (g)	0.171 (0.166, 0.177)	0.171 (0.166, 0.177)	0.171 (0.142, 0.200)	0.997
n-3 fatty acids (g)	0.263 (0.262, 0.265)	0.263 (0.261, 0.265)	0.275 (0.268, 0.282)	<0.001
n-6 fatty acids (g)	-0.056 (-0.058, -0.055)	-0.057 (-0.058, -0.055)	-0.037 (-0.048, -0.026)	<0.001

DII: dietary inflammatory index; MUFA: monounsaturated fatty acid; PUFA: polyunsaturated fatty acid.

Supplementary Table 8. The relationship between hip fracture and the baseline characteristics of the study population

Variable	Total (n = 22927)	Non-Hip fracture (n = 22502)	Hip fracture (n = 425)	p
Age (years)	57.7 (57.4, 58.0)	57.6 (57.3, 57.9)	66.1 (64.4, 67.7)	<0.001
Sex (%)				0.522
Female	11786 (53.3)	11566 (53.3)	220 (55.2)	
Male	11141 (46.6)	10936 (46.6)	205 (44.7)	
Poverty	3.22 (3.16, 3.29)	3.23 (3.17, 3.30)	2.71 (2.46, 2.95)	<0.001
Race (%)				0.474
Non-Hispanic White	11777 (75.8)	11515 (75.8)	262 (78.6)	
Non-Hispanic Black	4567 (9.84)	4507 (9.87)	60 (8.24)	
Mexican American	3839 (5.24)	3777 (5.24)	62 (5.01)	
Other Hispanic	1549 (4.26)	1529 (4.29)	20 (2.76)	
Other race	1195 (4.83)	1174 (4.83)	21 (5.33)	
Education (%)				<0.001
More than high school	10722 (56.6)	10554 (56.8)	168 (46.9)	
High school or equivalent	5379 (25.3)	5281 (25.3)	98 (24.3)	
Less than high school	6790 (17.8)	6632 (17.7)	158 (28.6)	
Marital (%)				<0.001
Married	13485 (64.3)	13291 (64.5)	194 (47.0)	
Never married	1540 (6.03)	1512 (6.03)	28 (6.50)	
Other marital status	7596 (28.2)	7397 (27.9)	199 (45.7)	
BMI (%)				0.026
<25	5769 (26.6)	5627 (26.9)	142 (34.4)	
25-30	8166 (35.0)	8026 (35.6)	140 (35.1)	
≥30	8505 (36.7)	8392 (37.4)	113 (30.4)	
eGFR (%)				<0.001
<60	3136 (10.7)	3035 (11.0)	101 (21.1)	
60-90	9835 (45.6)	9651 (47.5)	184 (49.3)	
≥90	8828 (39.5)	8714 (41.4)	114 (29.5)	
Smoke (%)				0.027
Now	4134 (17.9)	4044 (17.9)	90 (22.4)	
Former	7452 (31.7)	7297 (31.6)	155 (36.1)	
Never	11323 (50.2)	11143 (50.4)	180 (41.3)	
Hypertension (%)				0.001
Yes	13042 (50.6)	12778 (50.5)	264 (60.9)	
No	9878 (49.2)	9719 (49.4)	159 (39.0)	
DM (%)				0.443
Yes	4087 (13.4)	4008 (13.4)	79 (14.9)	
No	18822 (86.4)	18476 (86.5)	346 (85.0)	
Prednisone or cortisone (%)				0.004
Yes	937 (4.35)	906 (6.79)	31 (13.28)	
No	13420 (58.7)	13192 (93.2)	228 (86.7)	
Thyroid problem (%)				0.045
Yes	2377 (11.4)	2313 (15.0)	64 (20.9)	
No	14756 (64.4)	14498 (85.0)	258 (79.0)	
Liver condition (%)				0.013
Yes	1072 (4.60)	1045 (4.54)	27 (8.85)	
No	21796 (95.1)	21399 (95.4)	397 (91.1)	

BMI: body mass index; eGFR: estimated glomerular filtration rate.

Data are presented as mean values with their 95% confidence intervals for continuous variables and as n (unweighted) (%) (unweighted) for categorical variables.

Supplementary Table 9. The relationship between spine fracture and the dietary component parameters used to construct the DOBS

Variable	Total mean or % [95% CI] (n = 22927)	Non-Spine fracture mean or % [95% CI] (n = 22291)	Spine fracture mean or % [95% CI] (n = 636)	p
DOBS	16.4 (16.2, 16.6)	16.4 (16.2, 16.6)	15.4 (14.8, 16.8)	0.003
Dietary fiber (g/d)	16.5 (16.3, 16.8)	16.5 (16.3, 16.8)	15.9 (15.0, 16.8)	0.164
Carotene (RE/d)	252 (242, 262)	253 (243, 263)	207 (181, 233)	<0.001
Riboflavin (mg/d)	2.15 (2.12, 2.17)	2.15 (2.12, 2.17)	2.17 (2.08, 2.27)	0.610
Niacin (mg/d)	23.7 (23.5, 24.0)	23.7 (23.5, 24.0)	22.8 (21.7, 23.9)	0.163
Vitamin B6 (mg/d)	1.96 (1.93, 1.99)	1.96 (1.93, 1.99)	1.86 (1.76, 1.96)	0.051
Total folate (mcg/d)	393 (387, 398)	393 (388, 399)	371 (354, 388)	0.015
Vitamin B12 (mcg/d)	5.19 (5.06, 5.32)	5.18 (5.05, 5.30)	5.49 (4.85, 6.13)	0.315
Vitamin C (mg/d)	86.8 (84.7, 88.9)	86.9 (84.8, 89.0)	82.9 (75.1, 90.8)	0.331
Vitamin E (ATE) (mg/d)	7.79 (7.67, 7.91)	7.80 (7.67, 7.92)	7.56 (7.07, 8.05)	0.363
Calcium (mg/d)	883 (871, 895)	883 (871, 894)	900 (850, 951)	0.492
Magnesium (mg/d)	292 (289, 295)	292 (289, 296)	285 (272, 297)	0.262
Zinc (mg/d)	11.5 (11.3, 11.7)	11.5 (11.3, 11.7)	11.9 (10.8, 13.1)	0.463
Copper (mg/d)	1.29 (1.28, 1.31)	1.29 (1.28, 1.31)	1.29 (1.21, 1.37)	0.954
Selenium (mcg/d)	107 (106, 108)	107 (106, 109)	103 (98.5, 108)	0.131
Total fat (g/d)	78.6 (77.8, 79.5)	78.6 (77.8, 79.5)	79.8 (76.3, 83.2)	0.510
Iron (mg/d)	15.0 (14.9, 15.2)	15.0 (14.9, 15.2)	14.6 (14.0, 15.3)	0.221

Supplementary Table 10. The relationship between spine fracture and the dietary component parameters used to construct the DII

Variable	Total mean or % [95% CI] (n = 22927)	Non-Spine fracture mean or % [95% CI] (n = 22291)	Spine fracture mean or % [95% CI] (n = 636)	p
DII	1.260 (1.208, 1.312)	1.253 (1.200, 1.306)	1.463 (1.283, 1.643)	0.033
Energy (kcal)	-0.024 (-0.027, -0.021)	-0.024 (-0.027, -0.021)	-0.020 (-0.032, -0.007)	0.519
Protein (g)	-0.002 (-0.003, -0.002)	-0.002 (-0.003, -0.002)	-0.002 (-0.004, -0.001)	0.952
Carbohydrate (g)	-0.031 (-0.032, -0.029)	-0.031 (-0.032, -0.029)	-0.031 (-0.038, -0.023)	0.978
Dietary fibre (g)	0.189 (0.176, 0.201)	0.188 (0.175, 0.201)	0.213 (0.169, 0.258)	0.263
Total fat (g)	0.011 (0.007, 0.016)	0.011 (0.007, 0.016)	0.015 (-0.004, 0.033)	0.727
Total saturated fat (g)	-0.095 (-0.101, -0.089)	-0.096 (-0.102, -0.090)	-0.073 (-0.094, -0.051)	0.046
MUFA (g)	0.000 (0.000, 0.001)	0.000 (0.000, 0.001)	0.000 (0.000, 0.001)	0.925
PUFA (g)	-0.052 (-0.057, -0.047)	-0.052 (-0.057, -0.047)	-0.045 (-0.070, -0.020)	0.549
Cholesterol (mg)	-0.019 (-0.021, -0.018)	-0.019 (-0.021, -0.017)	-0.024 (-0.032, -0.016)	0.256
Vitamin A (mcg)	0.173 (0.169, 0.178)	0.173 (0.168, 0.178)	0.186 (0.168, 0.203)	0.167
β carotene (mcg)	0.297 (0.287, 0.308)	0.296 (0.286, 0.306)	0.337 (0.301, 0.374)	0.031
Vitamin B1 (mg)	0.015 (0.014, 0.016)	0.015 (0.013, 0.016)	0.017 (0.012, 0.022)	0.403
Vitamin B2 (mg)	-0.016 (-0.017, -0.015)	-0.015 (-0.017, -0.014)	-0.016 (-0.020, -0.013)	0.741
Niacin (mg)	0.039 (0.035, 0.042)	0.038 (0.035, 0.041)	0.046 (0.034, 0.059)	0.227
Vitamin B6 (mg)	-0.090 (-0.096, -0.085)	-0.091 (-0.097, -0.085)	-0.075 (-0.096, -0.053)	0.143
Folic acid (mcg)	0.110 (0.107, 0.113)	0.109 (0.106, 0.112)	0.129 (0.119, 0.138)	<0.001
Vitamin B12 (mcg)	-0.016 (-0.017, -0.014)	-0.016 (-0.017, -0.014)	-0.016 (-0.022, -0.009)	0.975
Vitamin C (mg)	0.178 (0.170, 0.185)	0.177 (0.170, 0.184)	0.202 (0.174, 0.229)	0.087
Vitamin D (mcg)	0.192 (0.185, 0.199)	0.192 (0.184, 0.199)	0.212 (0.174, 0.250)	0.321
Vitamin E (mg)	0.146 (0.138, 0.154)	0.146 (0.138, 0.154)	0.148 (0.112, 0.184)	0.931
Magnesium (mg)	0.057 (0.050, 0.064)	0.057 (0.049, 0.064)	0.066 (0.042, 0.091)	0.449
Iron (mg)	0.002 (0.001, 0.002)	0.002 (0.001, 0.002)	0.001 (-0.001, 0.003)	0.399
Zinc (mg)	-0.024 (-0.030, -0.018)	-0.024 (-0.030, -0.018)	-0.019 (-0.044, 0.006)	0.686
Selenium (mg)	-0.100 (-0.102, -0.097)	-0.100 (-0.102, -0.098)	-0.088 (-0.099, -0.077)	0.049
Caffeine (mg)	0.084 (0.084, 0.084)	0.084 (0.084, 0.084)	0.083 (0.083, 0.084)	<0.001
Alcohol (g)	0.171 (0.166, 0.177)	0.172 (0.166, 0.177)	0.149 (0.125, 0.172)	0.057
n-3 Fatty acids (g)	0.263 (0.262, 0.265)	0.263 (0.261, 0.265)	0.268 (0.261, 0.275)	0.164
n-6 Fatty acids (g)	-0.056 (-0.058, -0.055)	-0.056 (-0.058, -0.055)	-0.053 (-0.061, -0.045)	0.354

DII: dietary inflammatory index; MUFA: monounsaturated fatty acid; PUFA: polyunsaturated fatty acid.

Supplementary Table 11. The relationship between spine fracture and the baseline characteristics of the study population

Variable	Total (n = 22927)	Non-Spine fracture (n = 22291)	Spine fracture (n = 636)	p
Age (years)	57.7 (57.4, 58.0)	57.7 (57.44 58.0)	59.2 (58.1, 60.3)	0.013
Sex (%)				<0.001
Female	11786 (53.3)	11518 (53.7)	268 (42.4)	
Male	11141 (46.6)	10773 (46.2)	368 (57.5)	
Poverty	3.22 (3.16, 3.29)	3.23 (3.17, 3.30)	3.00 (2.80, 3.19)	0.024
Race (%)				<0.001
Non-Hispanic White	11777 (75.8)	11357 (75.6)	420 (82.3)	
Non-Hispanic Black	4567 (9.84)	4508 (10.03)	59 (3.91)	
Mexican American	3839 (5.24)	3756 (5.29)	83 (3.50)	
Other Hispanic	1549 (4.26)	1515 (4.30)	34 (3.18)	
Other race	1195 (4.83)	1155 (4.76)	40 (7.11)	
Education (%)				0.201
More than high school	10722 (56.6)	10408 (56.5)	314 (60.0)	
High school or equivalent	5379 (25.3)	5220 (25.3)	159 (24.8)	
Less than high school	6790 (17.8)	6628 (17.9)	162 (15.0)	
Marital (%)				0.010
Married	13485 (64.3)	13134 (64.4)	351 (59.4)	
Never married	1540 (6.03)	1510 (6.08)	30 (4.64)	
Other marital status	7596 (28.2)	7349 (27.9)	247 (34.8)	
BMI (%)				0.034
<25	5769 (26.6)	5622 (27.2)	147 (21.8)	
25-30	8166 (35.0)	7958 (35.6)	208 (34.9)	
≥30	8505 (36.7)	8250 (37.1)	255 (43.1)	
eGFR (%)				0.240
<60	3136 (10.7)	3034 (11.0)	102 (13.8)	
60-90	9835 (45.6)	9554 (47.6)	281 (46.3)	
≥90	8828 (39.5)	8606 (41.3)	222 (39.8)	
Smoke (%)				<0.001
Now	4134 (17.9)	3976 (17.8)	158 (23.6)	
Former	7452 (31.7)	7215 (31.6)	237 (35.7)	
Never	11323 (50.2)	11082 (50.5)	241 (40.6)	
Hypertension (%)				0.081
Yes	13042 (50.6)	12669 (50.5)	373 (55.5)	
No	9878 (49.2)	9615 (49.4)	263 (44.4)	
DM (%)				0.181
Yes	4087 (13.4)	3960 (13.3)	127 (15.8)	
No	18822 (86.4)	18313 (86.6)	509 (84.1)	
Prednisone or cortisone (%)				<0.001
Yes	937 (4.35)	869 (6.57)	68 (16.2)	
No	13420 (58.7)	13078 (93.4)	342 (83.7)	
Thyroid problem (%)				0.112
Yes	2377 (11.4)	2289 (14.9)	88 (18.2)	
No	14756 (64.4)	14360 (85.0)	396 (81.7)	
Liver condition (%)				<0.001
Yes	1072 (4.60)	1012 (4.46)	60 (9.36)	
No	21796 (95.1)	21222 (95.5)	574 (90.6)	

BMI: body mass index; eGFR: estimated glomerular filtration rate.

Data are presented as mean values with their 95% confidence intervals for continuous variables and as n (unweighted) (%) (unweighted)) for categorical variables.

Supplementary Table 12. The epidemiological characteristics of DOBS and DII from 1999 to 2018

	total	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2013-2014	2017-2018	<i>p</i>
DOBS	16.4 (16.2, 16.6)	15.3 (14.7, 16.0)	15.0 (14.4, 15.6)	15.8 (15.2, 16.5)	16.9 (16.5, 17.3)	16.8 (16.1, 17.5)	17.4 (17.1, 17.7)	17.1 (16.7, 17.5)	16.3 (15.5, 17.0)	<0.001
Sex										
Male	16.2 (16.0, 16.4)	15.6 (14.9, 16.3)	14.9 (14.3, 15.6)	15.7 (15.1, 16.3)	16.8 (16.3, 17.4)	16.5 (15.9, 17.1)	17.2 (16.7, 17.6)	16.7 (16.3, 17.1)	16.0 (15.1, 16.9)	<0.001
Female	16.5 (16.3, 16.8)	15.1 (14.3, 16.0)	15.1 (14.4, 15.7)	16.0 (15.2, 16.8)	17.0 (16.6, 17.4)	17.1 (16.3, 17.9)	17.6 (17.2, 17.9)	17.4 (16.9, 17.9)	16.5 (15.6, 17.5)	<0.001
DII	1.26 (1.21, 1.31)	0.99 (0.82, 1.16)	1.51 (1.37, 1.65)	1.39 (1.23, 1.54)	1.18 (1.07, 1.28)	1.37 (1.18, 1.56)	1.13 (1.04, 1.21)	1.14 (1.03, 1.26)	1.39 (1.20, 1.58)	<0.001
Sex										
Male	0.87 (0.81, 0.93)	0.56 (0.38, 0.74)	1.17 (0.99, 1.36)	1.02 (0.86, 1.17)	0.79 (0.65, 0.93)	0.97 (0.79, 1.15)	0.70 (0.55, 0.84)	0.71 (0.60, 0.82)	1.02 (0.78, 1.26)	<0.001
Female	1.60 (1.55, 1.66)	1.37 (1.18, 1.55)	1.82 (1.69, 1.96)	1.71 (1.51, 1.91)	1.52 (1.42, 1.61)	1.71 (1.50, 1.92)	1.50 (1.41, 1.58)	1.51 (1.37, 1.65)	1.72 (1.49, 1.94)	<0.001

Supplementary Table 13. The epidemiological characteristics of DOBS tertiles, DII tertiles, and different combinations of DII and DOBS from 1999 to 2018

Variable	total	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2013-2014	2017-2018	p
Dietary oxidative balance score (DOBS)										<0.001
Q1	7643 (27.8)	1239 (38.5)	1301 (39.0)	937 (29.3)	726 (24.1)	1003 (24.3)	897 (20.4)	791 (22.7)	749 (25.8)	
Q2	7642 (33.3)	807 (29.4)	910 (31.6)	1019 (37.8)	954 (36.7)	1091 (32.6)	1155 (32.9)	943 (31.0)	763 (34.1)	
Q3	7642 (38.8)	714 (32.0)	789 (29.3)	757 (32.8)	864 (39.0)	1145 (42.9)	1335 (46.6)	1262 (46.1)	776 (40.0)	
Dietary inflammatory index (DII)										<0.001
Q1	7643 (36.6)	1015 (40.9)	896 (30.6)	785 (32.0)	884 (37.6)	1005 (36.4)	1160 (39.7)	1130 (40.0)	768 (35.5)	
Q2	7642 (33.6)	1051 (37.2)	969 (33.9)	994 (36.5)	921 (34.9)	974 (29.6)	1090 (31.7)	957 (33.3)	686 (31.8)	
Q3	7642 (29.6)	694 (21.8)	1135 (35.3)	934 (31.3)	739 (27.3)	1260 (33.9)	1137 (28.4)	909 (26.5)	834 (32.6)	
Different combinations of DII and DOBS										<0.001
Pro-inflammatory and pro-oxidative diet	5773 (21.0)	661 (20.4)	971 (29.1)	698 (22.1)	531 (18.6)	877 (21.3)	749 (17.3)	653 (18.1)	633 (22.2)	
Composite diet category	11255 (49.3)	1467 (51.6)	1397 (48.3)	1441 (52.7)	1342 (51.1)	1524 (46.8)	1656 (47.9)	1381 (47.5)	1047 (48.3)	
Anti-inflammatory and antioxidant diet	5899 (29.6)	632 (27.9)	632 (22.5)	574 (25.0)	671 (30.2)	838 (31.7)	982 (34.7)	962 (34.3)	608 (29.4)	

Supplementary Table 14. The epidemiological characteristics of each component of DOBS among U.S. adults aged 40 and above during the NHANES survey cycles from 1999 to 2018

Variable	Total	1999-2000	2001-2002	2003-2004	2005-2006
Dietary fiber (g/d)	16.6 (16.3, 16.8)	16.2 (15.3, 17.1)	16.2 (15.4, 17.0)	15.9 (15.3, 16.6)	16.1 (15.5, 16.7)
Carotene (RE/d)	253 (243, 263)	538 (480, 597)	202 (180, 224)	203 (190, 216)	211 (196, 226)
Riboflavin (mg/d)	2.15 (2.12, 2.17)	1.92 (1.85, 2.00)	2.16 (2.08, 2.23)	2.24 (2.16, 2.32)	2.25 (2.18, 2.32)
Niacin (mg/d)	23.8 (23.5, 24.0)	22.4 (21.6, 23.3)	21.5 (20.8, 22.3)	23.2 (22.5, 23.9)	24.4 (23.8, 25.1)
Vitamin B6 (mg/d)	1.96 (1.93, 1.99)	1.82 (1.73, 1.90)	1.83 (1.75, 1.90)	1.84 (1.78, 1.90)	1.98 (1.91, 2.05)
Total folate (mcg/d)	393 (388, 399)	368 (348, 387)	401 (386, 416)	397 (383, 412)	402 (389, 415)
Vitamin B12 (mcg/d)	5.19 (5.06, 5.32)	4.86 (4.22, 5.49)	5.31 (5.02, 5.61)	5.31 (4.92, 5.70)	5.76 (5.44, 6.09)
Vitamin C (mg/d)	86.8 (84.8, 88.9)	100 (90.6, 110)	91.0 (85.0, 97.1)	86.6 (80.0, 93.2)	86.9 (81.3, 92.5)
Vitamin E (ATE) (mg/d)	7.79 (7.67, 7.91)	7.02 (6.73, 7.31)	7.04 (6.69, 7.40)	7.01 (6.72, 7.30)	7.40 (7.18, 7.62)
Calcium (mg/d)	884 (872, 895)	800 (764, 836)	805 (773, 836)	835 (801, 870)	898 (872, 924)
Magnesium (mg/d)	292 (289, 295)	289 (278, 300)	277 (268, 287)	277(268, 285)	299 (291, 306)
Zinc (mg/d)	11.5 (11.3, 11.7)	11.4 (10.9, 11.9)	11.5(11.1, 11.9)	11.7 (11.1, 12.2)	12.5 (11.8, 13.1)

Variable	2007-2008	2009-2010	2013-2014	2017-2018	p
Dietary fiber (g/d)	16.5 (15.6, 17.3)	17.6 (17.1, 18.1)	17.3 (17.0, 17.7)	16.5 (15.7, 17.3)	<0.001
Carotene (RE/d)	207 (185, 230)	229 (214, 243)	225(205, 246)	228 (204, 253)	<0.001
Riboflavin (mg/d)	2.23 (2.15, 2.30)	2.18 (2.12, 2.25)	2.14 (2.10, 2.17)	2.03 (1.96, 2.10)	<0.001
Niacin (mg/d)	24.2 (23.6, 24.9)	24.9 (24.3, 25.5)	25.0 (24.5, 25.4)	24.0 (23.1, 24.9)	<0.001
Vitamin B6 (mg/d)	2.00 (1.92, 2.07)	2.07 (2.02, 2.12)	2.11 (2.07, 2.16)	2.01 (1.87, 2.16)	<0.001
Total folate (mcg/d)	403 (381, 425)	415 (405, 425)	392 (382, 402)	356 (344, 368)	<0.001
Vitamin B12 (mcg/d)	5.52 (5.12, 5.91)	5.28 (5.05, 5.51)	4.75 (4.62, 4.87)	4.59 (4.32, 4.87)	<0.001
Vitamin C (mg/d)	83.4 (77.0, 89.8)	88.5 (85.1, 91.9)	81.6(78.1, 85.2)	76.06 (71.5, 80.5)	<0.001
Vitamin E (ATE) (mg/d)	7.72 (7.42, 8.01)	8.04 (7.80, 8.27)	9.12 (8.77, 9.46)	8.95 (8.50, 9.41)	<0.001
Calcium (mg/d)	902(860, 945)	982 (956, 1008)	928 (913, 943)	902 (863, 940)	<0.001
Magnesium (mg/d)	291 (280, 303)	306 (299, 313)	302 (294, 309)	293 (280, 306)	<0.001
Zinc (mg/d)	12.0 (11.3, 12.6)	11.8 (11.4, 12.3)	10.8 (10.6, 11.0)	10.4 (10.1, 10.8)	<0.001

Supplementary Table 14. The epidemiological characteristics of each component of DOBS among U.S. adults aged 40 and above during the NHANES survey cycles from 1999 to 2018 (cont.)

Variable	Total	1999-2000	2001-2002	2003-2004	2005-2006
Selenium (mcg/d)	107 (106, 108)	106 (103, 109)	103 (99.2, 106)	106 (102, 109)	106 (103, 108)
Total fat (g/d)	78.6 (77.8, 79.5)	76.3 (74.1, 78.6)	79.6 (77.8, 81.4)	79.1 (77.0, 81.1)	77.8 (75.3, 80.3)
Iron (mg/d)	15.0 (14.9, 15.2)	15.2 (14.5, 15.9)	14.9 (14.3, 15.4)	15.5 (15.0, 16.1)	15.7 (15.2, 16.2)

Variable	2007-2008	2009-2010	2013-2014	2017-2018	p
Selenium (mcg/d)	106 (103, 109)	109 (106, 112)	114 (111, 116)	109 (105, 113)	<0.001
Total fat (g/d)	77.6 (75.1, 80.2)	77.5 (75.0, 80.0)	78.5 (76.4, 80.5)	83.3 (80.3, 86.3)	0.031
Iron (mg/d)	15.4 (14.8, 16.1)	15.3 (15.0, 15.7)	14.4 (14.2, 14.6)	13.7 (13.3, 14.0)	<0.001

Supplementary Table 15. The epidemiological characteristics of each component of DII among U.S. adults aged 40 and above during the NHANES survey cycles from 1999 to 2018

Variable	Total	1999-2000	2001-2002	2003-2004	2005-2006
Energy	-0.02 (-0.03, -0.02)	-0.02 (-0.03, -0.02)	-0.02 (-0.03, -0.01)	-0.02 (-0.03, -0.01)	-0.02 (-0.03, -0.02)
Protein	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
Carbohydrates	-0.03 (-0.03, -0.03)	-0.02 (-0.03, -0.02)	-0.03 (-0.03, -0.02)	-0.03 (-0.03, -0.02)	-0.03 (-0.04, -0.03)
Fibre	0.19 (0.18, 0.20)	0.22 (0.18, 0.26)	0.21 (0.18, 0.25)	0.23 (0.19, 0.26)	0.20 (0.17, 0.24)
Total fat	0.01 (0.01, 0.02)	-0.01 (-0.02, 0.00)	0.00 (-0.01, 0.01)	0.02 (0.01, 0.03)	0.01 (0.00, 0.02)
Saturated fat	-0.10 (-0.10, -0.09)	-0.10 (-0.12, -0.09)	-0.11 (-0.12, -0.10)	-0.08 (-0.10, -0.07)	-0.09 (-0.11, -0.07)
MUFA	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
PUFA	-0.05 (-0.06, -0.05)	0.00 (-0.01, 0.02)	-0.01 (-0.02, 0.00)	-0.05 (-0.06, -0.04)	-0.04 (-0.06, -0.03)
Cholesterol	-0.02 (-0.02, -0.02)	-0.03 (-0.03, -0.02)	-0.03 (-0.03, -0.02)	-0.02 (-0.02, -0.01)	-0.02 (-0.02, -0.01)
Vitamin A	0.17 (0.17, 0.18)	0.18 (0.16, 0.20)	0.19 (0.18, 0.20)	0.18 (0.17, 0.19)	0.17 (0.16, 0.18)
β-carotene	0.30 (0.29, 0.31)		0.34 (0.31, 0.36)	0.31 (0.29, 0.33)	0.30 (0.28, 0.32)
Thiamin	0.02 (0.01, 0.02)	0.02 (0.01, 0.02)	0.02 (0.01, 0.02)	0.01 (0.01, 0.02)	0.01 (0.01, 0.02)
Riboflavin	-0.02 (-0.02, -0.01)	0.00 (-0.01, 0.00)	-0.01 (-0.02, -0.01)	-0.02 (-0.02, -0.02)	-0.02 (-0.02, -0.02)
Niacin	0.04 (0.04, 0.04)	0.05 (0.05, 0.06)	0.07 (0.06, 0.07)	0.04 (0.03, 0.05)	0.03 (0.02, 0.04)
VB6	-0.09 (-0.10, -0.08)	-0.05 (-0.07, -0.03)	-0.05 (-0.07, -0.04)	-0.07 (-0.09, -0.06)	-0.10 (-0.12, -0.08)
Folic acid	0.11 (0.11, 0.11)		0.11 (0.10, 0.12)	0.11 (0.10, 0.11)	0.11 (0.10, 0.11)

Variable	2007-2008	2009-2010	2013-2014	2017-2018	p
Energy	-0.03 (-0.04, -0.02)	-0.02 (-0.03, -0.02)	-0.02 (-0.03, -0.02)	-0.03 (-0.03, -0.02)	0.88
Protein	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.06
Carbohydrates	-0.03 (-0.04, -0.03)	-0.03 (-0.03, -0.03)	-0.03 (-0.04, -0.03)	-0.04 (-0.04, -0.03)	<0.001
Fibre	0.19 (0.14, 0.24)	0.13 (0.11, 0.16)	0.15 (0.13, 0.17)	0.19 (0.15, 0.23)	<0.001
Total fat	0.01 (-0.01, 0.02)	0.00 (-0.01, 0.02)	0.02 (0.01, 0.03)	0.04 (0.03, 0.05)	<0.001
Saturated fat	-0.10 (-0.12, -0.08)	-0.11 (-0.12, -0.09)	-0.10 (-0.11, -0.09)	-0.06 (-0.08, -0.04)	0.01
MUFA	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.02
PUFA	-0.05 (-0.06, -0.04)	-0.06 (-0.07, -0.05)	-0.10 (-0.11, -0.08)	-0.11 (-0.13, -0.10)	<0.001
Cholesterol	-0.02 (-0.02, -0.02)	-0.02 (-0.03, -0.02)	-0.01 (-0.02, -0.01)	-0.01 (-0.01, 0.00)	<0.001
Vitamin A	0.17 (0.15, 0.18)	0.16 (0.15, 0.17)	0.17 (0.16, 0.18)	0.17 (0.16, 0.19)	0.01
β-carotene	0.30 (0.27, 0.33)	0.28 (0.26, 0.30)	0.29 (0.26, 0.32)	0.27 (0.23, 0.31)	0.02
Thiamin	0.01 (0.01, 0.02)	0.01 (0.01, 0.01)	0.02 (0.01, 0.02)	0.02 (0.01, 0.02)	0.02
Riboflavin	-0.02 (-0.02, -0.02)	-0.02 (-0.02, -0.01)	-0.02 (-0.02, -0.01)	-0.01 (-0.01, -0.01)	<0.001
Niacin	0.03 (0.02, 0.04)	0.03 (0.02, 0.03)	0.02 (0.02, 0.03)	0.04 (0.03, 0.05)	<0.001
VB6	-0.10 (-0.12, -0.09)	-0.12 (-0.13, -0.11)	-0.12 (-0.13, -0.11)	-0.09 (-0.11, -0.08)	<0.001
Folic acid	0.10 (0.09, 0.11)	0.10 (0.10, 0.11)	0.12 (0.11, 0.12)	0.13 (0.12, 0.14)	<0.001

Supplementary Table 15. The epidemiological characteristics of each component of DII among U.S. adults aged 40 and above during the NHANES survey cycles from 1999 to 2018 (cont.)

Variable	Total	1999-2000	2001-2002	2003-2004	2005-2006
VB12	-0.02 (-0.02, -0.01)	-0.03 (-0.03, -0.02)	-0.02 (-0.02, -0.01)	-0.01 (-0.02, -0.01)	-0.01 (-0.01, 0.00)
Vitamin C	0.18 (0.17, 0.18)	0.13 (0.10, 0.16)	0.17 (0.15, 0.19)	0.17 (0.15, 0.20)	0.18 (0.16, 0.20)
Vitamin D	0.19 (0.19, 0.20)				
Vitamin E	0.15 (0.14, 0.15)	0.20 (0.18, 0.21)	0.20 (0.18, 0.22)	0.21 (0.19, 0.22)	0.17 (0.16, 0.18)
Mg	0.06 (0.05, 0.06)	0.06 (0.04, 0.09)	0.09 (0.07, 0.11)	0.09 (0.07, 0.11)	0.04 (0.03, 0.06)
Fe	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.00 (0.00, 0.01)
Zinc	-0.02 (-0.03, -0.02)	0.00 (-0.02, 0.02)	0.00 (-0.02, 0.01)	-0.04 (-0.06, -0.02)	-0.05 (-0.06, -0.04)
Selenium	-0.10 (-0.10, -0.10)	-0.08 (-0.09, -0.07)	-0.08 (-0.09, -0.07)	-0.10 (-0.11, -0.09)	-0.10 (-0.11, -0.10)
Caffeine	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)
Alcohol	0.17 (0.17, 0.18)	0.18 (0.16, 0.19)	0.17 (0.16, 0.19)	0.17 (0.16, 0.19)	0.16 (0.15, 0.17)
n-3 fatty acids	0.26 (0.26, 0.27)	0.26 (0.26, 0.27)	0.26 (0.26, 0.27)	0.26 (0.26, 0.27)	0.26 (0.25, 0.26)
n-6 fatty acids	-0.06 (-0.06, -0.05)	-0.04 (-0.04, -0.03)	-0.04 (-0.05, -0.04)	-0.05 (-0.06, -0.05)	-0.05 (-0.06, -0.05)

Variable	2007-2008	2009-2010	2013-2014	2017-2018	p
VB12	-0.01 (-0.01, 0.00)	-0.01 (-0.01, -0.01)	-0.02 (-0.02, -0.02)	-0.02 (-0.03, -0.02)	<0.001
Vitamin C	0.19 (0.17, 0.21)	0.17 (0.16, 0.18)	0.19 (0.18, 0.21)	0.22 (0.20, 0.24)	<0.001
Vitamin D	0.20 (0.19, 0.22)	0.16 (0.14, 0.17)	0.19 (0.18, 0.20)	0.22 (0.20, 0.24)	<0.001
Vitamin E	0.15 (0.12, 0.17)	0.13 (0.12, 0.15)	0.06 (0.03, 0.08)	0.07 (0.04, 0.09)	<0.001
Mg	0.06 (0.03, 0.08)	0.03 (0.01, 0.04)	0.04 (0.02, 0.05)	0.05 (0.02, 0.08)	<0.001
Fe	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	<0.001
Zinc	-0.04 (-0.06, -0.02)	-0.04 (-0.05, -0.02)	-0.02 (-0.03, 0.00)	0.00 (-0.01, 0.02)	<0.001
Selenium	-0.10 (-0.11, -0.09)	-0.11 (-0.12, -0.11)	-0.12 (-0.12, -0.11)	-0.10 (-0.11, -0.10)	<0.001
Caffeine	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	0.08 (0.08, 0.08)	<0.001
Alcohol	0.18 (0.17, 0.20)	0.16 (0.15, 0.18)	0.16 (0.15, 0.18)	0.18 (0.17, 0.20)	0.2
n-3 fatty acids	0.26 (0.25, 0.27)	0.27 (0.26, 0.27)	0.27 (0.26, 0.27)	0.27 (0.26, 0.27)	0.09
n-6 fatty acids	-0.06 (-0.06, -0.05)	-0.06 (-0.06, -0.06)	-0.07 (-0.08, -0.07)	-0.08 (-0.08, -0.07)	<0.001

Supplementary Table 16. Trends in weighted prevalence of wrist fracture among NHANES study participants from 1999 to 2018

Characters	1999-2000 (n=2760)	2001-2002 (n=3000)	2003-2004 (n=2713)	2005-2006 (n=2544)
Total	9.25 (7.62, 10.8)	10.8 (9.91, 11.7)	11.15(9.56, 12.7)	12.0 (10.8, 13.2)
Dietary oxidative balance score (DOBS)				
Q1	7.29 (5.36, 9.21)	11.2 (9.94, 12.5)	11.4 (7.87, 15.0)	12.4 (10.7, 14.2)
Q2	11.0 (7.77, 14.3)	10.2 (8.24, 12.2)	10.8 (8.77, 12.8)	10.2 (7.90, 12.5)
Q3	9.96 (5.82, 14.1)	10.9 (9.30, 12.5)	11.2 (8.51, 13.9)	13.5 (10.6, 16.3)
Dietary inflammatory index (DII)				
Q1	10.5 (6.67, 14.4)	11.0 (9.48, 12.6)	12.7 (8.89, 16.5)	13.5 (10.9, 16.1)
Q2	9.19 (6.87, 11.5)	10.0 (8.07, 11.9)	10.1 (8.35, 11.9)	10.8 (8.80, 12.8)
Q3	6.92 (4.94, 8.89)	11.4 (9.37, 13.4)	10.7 (7.66, 13.7)	11.5 (9.33, 13.8)

Characters	2007-2008 (n=3239)	2009-2010 (n=3387)	2013-2014 (n=2996)	2017-2018 (n=2288)	<i>p</i> -trend
Total	11.2 (9.71, 12.8)	8.93 (7.56, 10.3)	10.0 (8.50, 11.6)	13.8 (11.8, 15.8)	0.10
Dietary oxidative balance score (DOBS)					
Q1	10.0 (7.15, 12.9)	9.15 (6.46, 11.8)	10.2 (6.42, 13.9)	13.0 (9.81, 16.1)	0.12
Q2	10.0 (7.48, 12.5)	8.65 (7.22, 10.0)	11.1 (8.30, 13.9)	14.3 (9.20, 19.5)	0.39
Q3	12.9 (9.74, 16.1)	9.04 (7.33, 10.7)	9.32 (7.49, 11.1)	13.9 (9.60, 18.2)	0.88
Dietary inflammatory index (DII)					
Q1	13.6 (10.9, 16.3)	7.32 (6.05, 8.59)	10.2 (8.00, 12.5)	15.3 (11.1, 19.4)	0.79
Q2	10.3 (8.05, 12.7)	10.5 (8.66, 12.5)	9.21 (6.76, 11.6)	11.0 (5.92, 16.1)	0.67
Q3	9.55 (7.16, 11.9)	9.33 (6.32, 12.3)	10.8 (8.09, 13.6)	14.9 (10.6, 19.2)	0.05

Supplementary Table 17. Trends in weighted prevalence of hip fracture among NHANES study participants from 1999 to 2018

Characters	1999-2000 (n=2760)	2001-2002 (n=3000)	2003-2004 (n=2713)	2005-2006 (n=2544)
Total	1.23 (0.79, 1.67)	1.31 (0.90, 1.72)	1.52 (1.05, 1.99)	1.63 (0.97, 2.30)
Dietary oxidative balance score (DOBS)				
Q1	1.75 (0.81, 2.69)	1.51 (0.85, 2.16)	2.25 (0.98, 3.52)	2.64 (1.49, 3.80)
Q2	1.11 (0.62, 1.61)	1.28 (0.65, 1.91)	1.97 (1.29, 2.65)	1.81 (0.86, 2.76)
Q3	0.71 (0.48, 0.94)	1.09 (0.53, 1.65)	0.35 (0.21, 0.49)	0.84 (0.32, 1.36)
Dietary inflammatory index (DII)				
Q1	1.06 (0.67, 1.44)	1.31 (0.56, 2.05)	0.79 (0.31, 1.26)	1.08 (0.28, 1.87)
Q2	1.15 (0.35, 1.94)	0.89 (0.39, 1.40)	1.75 (1.01, 2.49)	1.08 (0.49, 1.66)
Q3	1.70 (0.24, 3.16)	1.72 (0.73, 2.71)	2.01 (0.79, 3.23)	3.11 (1.37, 4.85)

Characters	2007-2008 (n=3239)	2009-2010 (n=3387)	2013-2014 (n=2996)	2017-2018 (n=2288)	<i>p</i> -trend
Total	1.36 (0.84, 1.89)	1.80 (1.37, 2.22)	1.47 (0.90, 2.04)	2.23 (1.37, 3.09)	0.04
Dietary oxidative balance score (DOBS)					
Q1	1.50 (0.84, 2.17)	3.09 (1.61, 4.58)	2.47 (1.17, 3.76)	2.80 (1.83, 3.78)	0.04
Q2	1.31 (0.31, 2.32)	1.08 (0.32, 1.84)	1.39 (0.66, 2.13)	1.43 (0.29, 2.56)	0.81
Q3	1.32 (0.63, 2.02)	1.73 (0.66, 2.80)	1.03 (0.36, 1.70)	2.54 (0.57, 4.51)	0.01
Dietary inflammatory index (DII)					
Q1	0.77 (0.18, 1.36)	1.70 (0.44, 2.97)	0.74 (0.33, 1.15)	2.32 (0.44, 4.20)	0.25
Q2	1.26 (0.52, 2.01)	1.35 (0.47, 2.22)	1.38 (0.42, 2.33)	1.47 (0.40, 2.54)	0.53
Q3	2.09 (1.13, 3.04)	2.42 (1.34, 3.51)	2.69 (1.46, 3.92)	2.86 (1.95, 3.78)	0.09

Supplementary Table 17. Trends in weighted prevalence of spine fracture among NHANES study participants from 1999 to 2018

Characters	1999-2000 (n=2760)	2001-2002 (n=3000)	2003-2004 (n=2713)	2005-2006 (n=2544)
Total	2.82 (1.79, 3.84)	2.86 (2.05, 3.68)	2.64 (1.89, 3.40)	3.61 (2.61, 4.62)
Dietary oxidative balance score (DOBS)				
Q1	2.72 (1.26, 4.18)	2.69 (1.28, 4.11)	3.14 (1.80, 4.48)	5.18 (3.49, 6.86)
Q2	2.78 (1.54, 4.03)	3.34 (2.27, 4.41)	1.52 (0.67, 2.38)	3.90 (2.31, 5.49)
Q3	2.97 (0.84, 5.09)	2.58 (1.18, 3.97)	3.48 (2.19, 4.78)	2.38 (1.14, 3.61)
Dietary inflammatory index (DII)				
Q1	3.55 (1.77, 5.32)	2.97 (1.54, 4.41)	4.10 (2.38, 5.83)	2.70 (1.21, 4.20)
Q2	1.86 (0.89, 2.83)	2.57 (1.36, 3.77)	1.30 (0.78, 1.82)	2.99 (2.13, 3.85)
Q3	3.07 (0.99, 5.15)	3.06 (1.66, 4.45)	2.71 (1.30, 4.12)	5.67 (4.09, 7.25)

Characters	2007-2008 (n=3239)	2009-2010 (n=3387)	2013-2014 (n=2996)	2017-2018 (n=2288)	<i>p</i> -trend
Total	3.21 (2.14, 4.29)	2.55 (1.80, 3.30)	2.48 (1.71, 3.25)	5.11 (3.64, 6.58)	0.10
Dietary oxidative balance score (DOBS)					
Q1	2.95 (1.46, 4.45)	1.48 (0.40, 2.56)	2.99 (1.44, 4.54)	5.36 (2.30, 8.43)	0.29
Q2	4.53 (2.83, 6.23)	3.47 (1.88, 5.07)	2.86 (1.02, 4.70)	6.99 (4.30, 9.68)	<0.01
Q3	2.36 (1.41, 3.30)	2.36 (1.36, 3.36)	1.97 (0.89, 3.05)	3.34 (1.16, 5.52)	0.64
Dietary inflammatory index (DII)					
Q1	2.63 (1.36, 3.90)	2.12 (0.97, 3.26)	2.16 (0.93, 3.38)	4.46 (1.84, 7.08)	0.57
Q2	3.80 (2.40, 5.21)	1.85 (1.07, 2.62)	2.57 (1.36, 3.79)	3.93 (1.35, 6.52)	0.10
Q3	3.32 (1.51, 5.13)	3.93 (2.03, 5.83)	2.84 (1.94, 3.74)	6.97 (3.72, 10.21)	0.05

Supplementary Table 19. The associations between DOBS and fractures

	Model 1		Model 2		Model 3	
	OR (95 % CI)	p	OR (95 % CI)	p	OR (95 % CI)	p
Wrist fracture						
DOBS (continuous)	1.01 (0.99, 1.02)	0.36	1.00 (0.99, 1.02)	0.82	0.98 (0.97, 1.00)	0.07
DOBS (quartile)						
Q1	Ref		Ref		Ref	
Q2	1.03 (0.89, 1.18)	0.73	1.02 (0.86, 1.14)	0.99	1.04 (0.88, 1.13)	0.09
Q3	1.08 (0.93, 1.25)	0.30	1.09 (0.88, 1.19)	1.02	1.16 (0.80, 1.35)	0.03
p for trend	0.299		0.764		0.071	
Hip fracture						
DOBS (continuous)	0.94 (0.92, 0.96)	<0.001	0.94 (0.92, 0.96)	<0.001	0.92 (0.89, 0.96)	<0.001
DOBS (quartile)						
Q1	Ref		Ref		Ref	
Q2	0.68 (0.43, 0.81)	<0.001	0.69 (0.43, 0.83)	<0.001	0.60 (0.34, 0.89)	<0.001
Q3	0.59 (0.38, 0.74)	<0.001	0.51 (0.39, 0.78)	<0.001	0.57 (0.32, 0.72)	<0.001
p for trend	<0.001		<0.001		<0.001	
Spine fracture						
DOBS (continuous)	0.97 (0.95, 0.98)	<0.001	0.96 (0.94, 0.98)	<0.001	0.95 (0.92, 0.99)	0.01
DOBS (quartile)						
Q1	Ref		Ref		Ref	
Q2	0.80 (0.62, 1.30)	0.58	0.88 (0.61, 1.27)	0.48	0.87 (0.66, 1.41)	0.86
Q3	0.74 (0.47, 0.98)	0.01	0.71 (0.44, 0.95)	0.004	0.79 (0.48, 1.00)	0.05
p for trend	0.005		0.003		0.041	

DOBS: dietary oxidative balance score; Q: quartile; BMI, body mass index; eGFR: estimated glomerular filtration rate

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

Supplementary Table 20. The associations between DII and fractures

	Model 1		Model 2		Model 3	
	OR (95 %CI)	p	OR (95 %CI)	p	OR (95 %CI)	p
Wrist fracture						
DII (continuous)	0.99 (0.94, 1.04)	0.59	1.01 (0.97, 1.07)	0.57	1.04 (0.97, 1.10)	0.27
DII (quartile)						
Q1	Ref		Ref		Ref	
Q2	0.88 (0.73, 1.07)	0.21	0.93 (0.77, 1.13)	0.48	1.03 (0.82, 1.29)	0.81
Q3	0.93 (0.76, 1.14)	0.49	1.04 (0.84, 1.29)	0.68	1.12 (0.87, 1.45)	0.38
p for trend	0.46		0.743		0.376	
Hip fracture						
DII (continuous)	1.26 (1.14, 1.39)	<0.001	1.26 (1.14, 1.39)	<0.001	1.24 (1.09, 1.42)	0.002
DII (quartile)						
Q1	Ref		Ref		Ref	
Q2	1.42 (0.91, 2.22)	0.12	1.45 (0.93, 2.27)	0.10	1.28 (0.74, 2.22)	0.37
Q3	1.97 (1.67, 2.86)	<0.001	1.87 (1.66, 2.66)	<0.001	1.85 (1.49, 2.72)	<0.001
p for trend	<0.001		<0.001		<0.001	
Spine fracture						
DII (continuous)	1.10 (1.01, 1.19)	0.03	1.15 (1.05, 1.26)	0.002	1.15 (1.01, 1.31)	0.04
DII (quartile)						
Q1	Ref		Ref		Ref	
Q2	0.92 (0.66, 1.30)	0.64	1.03 (0.74, 1.43)	0.85	0.93 (0.65, 1.33)	0.67
Q3	1.52 (1.08, 2.13)	0.02	1.86 (1.32, 2.62)	(0.001	1.75 (1.18, 2.58)	0.01
p for trend	0.02		<0.001		0.004	

DII: dietary Inflammatory Index; Q: quartile; BMI, body mass index; eGFR: estimated glomerular filtration rate

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

Supplementary Table 21. The associations between different combinations of DOBS and DII with fractures

	Model 1		Model 2	
	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>
Wrist fracture				
Pro-inflammatory and pro-oxidative diet	Ref		Ref	
Composite diet category	1.04 (0.87, 1.25)	0.67	0.98 (0.81, 1.18)	0.81
Anti-inflammatory and antioxidant diet	1.04 (0.83, 1.32)	0.73	0.93 (0.74, 1.18)	0.57
p for trend	0.751		0.564	
Hip fracture				
Pro-inflammatory and pro-oxidative diet	Ref		Ref	
Composite diet category	0.53 (0.35, 0.80)	0.003	0.55 (0.36, 0.83)	0.01
Anti-inflammatory and antioxidant diet	0.39 (0.26, 0.61)	<0.001	0.41 (0.27, 0.64)	<0.001
p for trend	<0.001		<0.001	
Spine fracture				
Pro-inflammatory and pro-oxidative diet	Ref		Ref	
Composite diet category	0.79 (0.55, 1.13)	0.19	0.74 (0.51, 1.06)	0.10
Anti-inflammatory and antioxidant diet	0.68 (0.47, 0.98)	0.04	0.59 (0.41, 0.86)	0.01
p for trend	0.041		0.008	
	Model 3			
	OR (95%CI)	<i>p</i>		
Wrist fracture				
Pro-inflammatory and pro-oxidative diet	Ref			
Composite diet category	0.96 (0.74, 1.23)	0.74		
Anti-inflammatory and antioxidant diet	0.88 (0.59, 1.07)	0.13		
p for trend	0.098			
Hip fracture				
Pro-inflammatory and pro-oxidative diet	Ref			
Composite diet category	0.52 (0.29, 0.93)	0.03		
Anti-inflammatory and antioxidant diet	0.45 (0.24, 0.85)	0.01		
p for trend	0.017			
Spine fracture				
Pro-inflammatory and pro-oxidative diet	Ref			
Composite diet category	0.78 (0.53, 1.13)	0.18		
Anti-inflammatory and antioxidant diet	0.66 (0.44, 0.84)	0.05		
p for trend	0.04			

BMI: body mass index; eGFR: estimated glomerular filtration rate

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

Supplementary Table 22. Sensitivity analysis adjusting for physical activity and calcium/vitamin D supplementation

	OR (95%CI)	<i>p</i>
Wrist fracture		
DOBS (continuous)	0.99 (0.96, 1.03)	0.18
DOBS (quartile)		
Q1	Ref	
Q2	1.02 (0.79, 1.28)	0.13
Q3	1.07 (0.63, 1.35)	0.60
p for trend	0.122	
DII (continuous)	1.03 (0.98, 1.06)	0.42
DII (quartile)		
Q1	Ref	
Q2	0.98 (0.85, 1.16)	0.89
Q3	1.05 (0.87, 1.26)	1.12
p for trend	0.457	
Pro-inflammatory and pro-oxidative diet	Ref	
Composite diet category	0.94 (0.66, 1.13)	0.79
Anti-inflammatory and antioxidant diet	1.04 (0.70, 1.28)	0.43
<i>p</i> for trend	0.271	
Hip fracture		
DOBS (continuous)	0.93 (0.90, 0.97)	<0.001
DOBS (quartile)		
Q1	Ref	
Q2	0.63 (0.37, 0.78)	<0.001
Q3	0.56 (0.26, 0.77)	<0.001
p for trend	<0.001	
DII (continuous)	1.27 (1.12, 1.49)	<0.001
DII (quartile)		
Q1	Ref	
Q2	1.39 (0.83, 2.33)	0.26
Q3	1.91 (1.29, 2.98)	<0.001
p for trend	<0.001	
Pro-inflammatory and pro-oxidative diet	Ref	
Composite diet category	0.59 (0.24, 0.64)	0.04
Anti-inflammatory and antioxidant diet	0.47 (0.32, 0.72)	<0.001
<i>p</i> for trend	<0.001	
Spine fracture		
DOBS (continuous)	0.96 (0.93, 0.98)	<0.001
DOBS (quartile)		
Q1	Ref	
Q2	0.88 (0.64, 1.34)	0.77
Q3	0.77 (0.46, 0.97)	0.04
p for trend	0.034	
DII (continuous)	1.16 (1.04, 1.38)	0.003
DII (quartile)		
Q1	Ref	
Q2	1.05 (0.66, 1.47)	0.58
Q3	1.81 (1.44, 2.65)	0.004
p for trend	0.003	
Pro-inflammatory and pro-oxidative diet	Ref	
Composite diet category	0.77 (0.66, 1.41)	0.16
Anti-inflammatory and antioxidant diet	0.62 (0.48, 1.00)	0.04
<i>p</i> for trend	0.031	

The sensitivity analysis model was adjusted for all covariates in Model 3 (age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition) plus physical activity (sufficient/insufficient) and calcium/vitamin D supplementation (yes/no).

Weekly physical activity was converted into metabolic equivalent minutes (MET-min) following WHO guidelines, with sufficient physical activity defined as ≥ 600 MET-min/week (equivalent to 150 min of moderate-intensity or 75 min of vigorous-intensity activity per week) and insufficient physical activity as < 600 MET-min/week

Supplementary Table 23. Association of DOBS with wrist fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		0.97 (0.78, 1.21)	0.97 (0.79, 1.20)	0.81
	≥60	Ref		1.10 (0.89, 1.35)	1.26 (1.05, 1.52)	0.02
Model 2	<60	Ref		0.94 (0.75, 1.17)	0.90 (0.73, 1.12)	0.37
	≥60	Ref		1.06 (0.86, 1.30)	1.19 (0.98, 1.44)	0.08
Model 3	<60	Ref		0.72 (0.53, 0.98)	0.66 (0.48, 0.90)	0.03
	≥60	Ref		1.01 (0.73, 1.41)	1.02 (0.75, 1.40)	0.90
Sex						
Model 1	Male	Ref		1.28 (1.05, 1.58)	1.29 (1.04, 1.59)	0.03
	Female	Ref		0.81 (0.66, 1.00)	0.91 (0.76, 1.11)	0.46
Model 2	Male	Ref		1.22 (0.99, 1.50)	1.18 (0.95, 1.48)	0.18
	Female	Ref		0.79 (0.64, 0.97)	0.87 (0.72, 1.05)	0.23
Model 3	Male	Ref		0.98 (0.67, 1.42)	0.89 (0.59, 1.35)	0.55
	Female	Ref		0.71 (0.50, 1.01)	0.71 (0.50, 1.02)	0.09
Race						
Model 1	Non-hispanic white	Ref		0.98 (0.84, 1.16)	1.00 (0.85, 1.17)	0.99
	Others	Ref		0.99 (0.75, 1.32)	1.11 (0.87, 1.42)	0.42
Model 2	Non-hispanic white	Ref		0.99 (0.84, 1.16)	1.01 (0.85, 1.19)	0.91
	Others	Ref		1.04 (0.79, 1.38)	1.17 (0.92, 1.50)	0.20
Model 3	Non-hispanic white	Ref		0.82 (0.63, 1.08)	0.78 (0.60, 1.03)	0.13
	Others	Ref		0.94 (0.62, 1.41)	0.84 (0.51, 1.38)	0.47
BMI						
Model 1	<30	Ref		1.00 (0.76, 1.32)	1.04 (0.80, 1.34)	0.77
	≥30	Ref		1.05 (0.88, 1.25)	1.13 (0.95, 1.35)	0.16
Model 2	<30	Ref		0.98 (0.74, 1.29)	0.99 (0.76, 1.30)	0.98
	≥30	Ref		1.02 (0.85, 1.21)	1.07 (0.90, 1.28)	0.44
Model 3	<30	Ref		0.75 (0.52, 1.10)	0.66 (0.45, 0.96)	0.04
	≥30	Ref		0.90 (0.68, 1.19)	0.90 (0.67, 1.21)	0.55
Poverty income ratio						
Model 1	<3	Ref		0.92 (0.71, 1.20)	1.09 (0.86, 1.38)	0.32
	≥3	Ref		1.11 (0.93, 1.32)	1.00 (0.84, 1.19)	0.97
Model 2	<3	Ref		0.91 (0.69, 1.19)	1.06 (0.83, 1.35)	0.44
	≥3	Ref		1.08 (0.91, 1.29)	0.95 (0.79, 1.14)	0.59
Model 3	<3	Ref		0.73 (0.50, 1.08)	0.75 (0.51, 1.09)	0.25
	≥3	Ref		0.95 (0.73, 1.22)	0.80 (0.60, 1.08)	0.14
Education						
Model 1	Above College	Ref		0.95 (0.76, 1.19)	0.97 (0.79, 1.20)	0.86
	Others	Ref		1.05 (0.86, 1.29)	1.14 (0.93, 1.41)	0.21
Model 2	Above College	Ref		0.94 (0.75, 1.17)	0.95 (0.77, 1.18)	0.71
	Others	Ref		1.02 (0.83, 1.26)	1.09 (0.88, 1.36)	0.44
Model 3	Above College	Ref		0.80 (0.58, 1.10)	0.72 (0.51, 1.00)	0.08
	Others	Ref		0.88 (0.64, 1.22)	0.93 (0.67, 1.30)	0.71
Smoking						
Model 1	Now	Ref		0.96 (0.71, 1.30)	1.18 (0.86, 1.62)	0.35
	Former	Ref		1.07 (0.87, 1.33)	1.24 (0.99, 1.55)	0.05
	Never	Ref		1.08 (0.84, 1.39)	1.03 (0.81, 1.32)	0.85
Model 2	Now	Ref		0.93 (0.69, 1.26)	1.13 (0.82, 1.56)	0.49
	Former	Ref		1.06 (0.85, 1.32)	1.23 (0.97, 1.56)	0.07
	Never	Ref		1.04 (0.81, 1.34)	0.97 (0.76, 1.25)	0.75
Model 3	Now	Ref		0.72 (0.47, 1.10)	0.82 (0.50, 1.35)	0.44
	Former	Ref		0.80 (0.56, 1.13)	0.83 (0.54, 1.27)	0.52
	Never	Ref		0.96 (0.66, 1.39)	0.80 (0.55, 1.16)	0.20

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 23. Association of DOBS with wrist fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	1.04 (0.88, 1.23)	1.21 (1.00, 1.46)	0.05
	No	Ref	1.01 (0.81, 1.26)	0.97 (0.79, 1.21)	0.79
Model 2	Yes	Ref	1.00 (0.84, 1.18)	1.13 (0.93, 1.38)	0.20
	No	Ref	0.99 (0.80, 1.24)	0.93 (0.75, 1.16)	0.51
Model 3	Yes	Ref	0.85 (0.63, 1.15)	0.89 (0.63, 1.24)	0.56
	No	Ref	0.80 (0.58, 1.10)	0.66 (0.47, 0.93)	0.03
Diabetes					
Model 1	Yes	Ref	1.37 (0.99, 1.89)	1.61 (1.14, 2.26)	0.01
	No	Ref	0.98 (0.84, 1.14)	1.02 (0.87, 1.19)	0.80
Model 2	Yes	Ref	1.36 (0.98, 1.90)	1.53 (1.07, 2.19)	0.03
	No	Ref	0.95 (0.82, 1.11)	0.97 (0.83, 1.14)	0.77
Model 3	Yes	Ref	1.23 (0.81, 1.86)	0.94 (0.50, 1.74)	0.77
	No	Ref	0.78 (0.62, 0.99)	0.76 (0.58, 0.98)	0.09

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 24. Association of DOBS with hip fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		0.53 (0.33, 0.87)	0.43 (0.25, 0.74)	0.003
	≥60	Ref		0.78 (0.57, 1.06)	0.73 (0.50, 1.06)	0.1
Model 2	<60	Ref		0.53 (0.33, 0.88)	0.44 (0.25, 0.75)	0.004
	≥60	Ref		0.75 (0.55, 1.03)	0.69 (0.48, 1.01)	0.06
Model 3	<60	Ref		0.41 (0.20, 0.83)	0.33 (0.14, 0.79)	0.02
	≥60	Ref		0.71 (0.38, 1.30)	0.96 (0.52, 1.77)	0.97
Sex						
Model 1	Male	Ref		0.66 (0.44, 0.99)	0.60 (0.37, 0.96)	0.04
	Female	Ref		0.67 (0.45, 0.99)	0.53 (0.35, 0.80)	0.003
Model 2	Male	Ref		0.71 (0.47, 1.07)	0.70 (0.44, 1.11)	0.14
	Female	Ref		0.68 (0.45, 1.01)	0.59 (0.38, 0.92)	0.02
Model 3	Male	Ref		0.39 (0.18, 0.84)	0.50 (0.22, 1.13)	0.21
	Female	Ref		0.62 (0.35, 1.10)	0.53 (0.34, 1.17)	0.05
Race						
Model 1	Non-hispanic white	Ref		0.62 (0.45, 0.84)	0.51 (0.35, 0.76)	0.001
	Others	Ref		0.79 (0.50, 1.25)	0.70 (0.45, 1.07)	0.09
Model 2	Non-hispanic white	Ref		0.64 (0.47, 0.87)	0.59 (0.40, 0.89)	0.01
	Others	Ref		0.89 (0.56, 1.41)	0.84 (0.55, 1.27)	0.39
Model 3	Non-hispanic white	Ref		0.48 (0.28, 0.81)	0.58 (0.32, 1.05)	0.12
	Others	Ref		0.86 (0.47, 1.59)	0.63 (0.26, 1.52)	0.30
BMI						
Model 1	<30	Ref		0.79 (0.48, 1.32)	0.52 (0.27, 1.01)	0.05
	≥30	Ref		0.67 (0.48, 0.95)	0.59 (0.40, 0.86)	0.01
Model 2	<30	Ref		0.83 (0.49, 1.40)	0.57 (0.28, 1.14)	0.01
	≥30	Ref		0.70 (0.50, 0.99)	0.66 (0.44, 0.99)	0.05
Model 3	<30	Ref		0.65 (0.31, 1.36)	0.47 (0.14, 1.58)	0.02
	≥30	Ref		0.50 (0.29, 0.88)	0.67 (0.39, 1.17)	0.23
Poverty income ratio						
Model 1	<3	Ref		0.83 (0.59, 1.17)	0.88 (0.61, 1.29)	0.5
	≥3	Ref		0.48 (0.31, 0.75)	0.38 (0.23, 0.64)	<0.001
Model 2	<3	Ref		0.86 (0.61, 1.22)	0.99 (0.67, 1.46)	0.92
	≥3	Ref		0.47 (0.30, 0.73)	0.39 (0.23, 0.67)	0.001
Model 3	<3	Ref		0.74 (0.43, 1.25)	0.90 (0.53, 1.54)	0.76
	≥3	Ref		0.39 (0.21, 0.74)	0.38 (0.16, 0.92)	0.05
Education						
Model 1	Above College	Ref		0.60 (0.38, 0.94)	0.46 (0.28, 0.74)	0.002
	Others	Ref		0.76 (0.53, 1.08)	0.78 (0.50, 1.23)	0.26
Model 2	Above College	Ref		0.62 (0.39, 0.98)	0.51 (0.30, 0.85)	0.01
	Others	Ref		0.77 (0.54, 1.10)	0.84 (0.54, 1.31)	0.40
Model 3	Above College	Ref		0.44 (0.23, 0.83)	0.34 (0.17, 0.68)	0.01
	Others	Ref		0.68 (0.36, 1.27)	1.08 (0.54, 2.19)	0.79
Smoking						
Model 1	Now	Ref		0.73 (0.40, 1.37)	0.73 (0.39, 1.36)	0.30
	Former	Ref		0.80 (0.49, 1.29)	0.66 (0.39, 1.13)	0.14
	Never	Ref		0.56 (0.38, 0.81)	0.47 (0.29, 0.74)	0.002
Model 2	Now	Ref		0.76 (0.41, 1.41)	0.74 (0.39, 1.39)	0.33
	Former	Ref		0.89 (0.55, 1.44)	0.88 (0.52, 1.49)	0.65
	Never	Ref		0.61 (0.41, 0.92)	0.58 (0.35, 0.96)	0.04
Model 3	Now	Ref		0.74 (0.33, 1.67)	0.83 (0.39, 1.78)	0.61
	Former	Ref		0.65 (0.25, 1.66)	0.74 (0.27, 2.05)	0.60
	Never	Ref		0.54 (0.23, 0.82)	0.48 (0.21, 1.07)	0.01

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 24. Association of DOBS with hip fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	0.67 (0.47, 0.94)	0.74 (0.50, 1.09)	0.14
	No	Ref	0.67 (0.42, 1.07)	0.39 (0.22, 0.67)	<0.001
Model 2	Yes	Ref	0.69 (0.49, 0.97)	0.83 (0.55, 1.23)	0.35
	No	Ref	0.68 (0.42, 1.10)	0.41 (0.23, 0.73)	0.002
Model 3	Yes	Ref	0.49 (0.27, 0.89)	0.69 (0.38, 1.26)	0.31
	No	Ref	0.63 (0.29, 1.37)	0.45 (0.17, 1.19)	0.01
Diabetes					
Model 1	Yes	Ref	0.55 (0.28, 1.06)	0.48 (0.22, 1.04)	0.06
	No	Ref	0.69 (0.51, 0.93)	0.58 (0.41, 0.83)	0.004
Model 2	Yes	Ref	0.56 (0.29, 1.09)	0.52 (0.23, 1.15)	0.09
	No	Ref	0.72 (0.53, 0.98)	0.66 (0.45, 0.96)	0.03
Model 3	Yes	Ref	0.32 (0.12, 0.89)	0.31 (0.08, 1.22)	0.08
	No	Ref	0.61 (0.37, 1.01)	0.67 (0.39, 1.17)	0.22

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 25. Association of DOBS with spine fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		1.02 (0.70, 1.47)	0.72 (0.51, 1.02)	0.05
	≥60	Ref		1.26 (0.91, 1.74)	0.92 (0.64, 1.32)	0.60
Model 2	<60	Ref		1.00 (0.69, 1.44)	0.69 (0.48, 0.99)	0.03
	≥60	Ref		1.23 (0.88, 1.73)	0.90 (0.61, 1.31)	0.50
Model 3	<60	Ref		1.51 (0.83, 2.73)	0.82 (0.40, 1.66)	0.46
	≥60	Ref		1.41 (0.85, 2.34)	0.93 (0.47, 1.83)	0.70
Sex						
Model 1	Male	Ref		1.04 (0.74, 1.46)	0.87 (0.60, 1.26)	0.42
	Female	Ref		1.25 (0.84, 1.85)	0.72 (0.48, 1.10)	0.03
Model 2	Male	Ref		1.03 (0.72, 1.46)	0.85 (0.58, 1.26)	0.38
	Female	Ref		1.21 (0.82, 1.79)	0.69 (0.46, 1.06)	0.05
Model 3	Male	Ref		1.31 (0.74, 2.35)	0.89 (0.39, 2.03)	0.63
	Female	Ref		1.49 (0.87, 2.58)	0.71 (0.38, 1.32)	0.02
Race						
Model 1	Non-hispanic white	Ref		1.01 (0.75, 1.36)	0.69 (0.52, 0.91)	0.005
	Others	Ref		1.47 (0.87, 2.48)	1.19 (0.75, 1.90)	0.41
Model 2	Non-hispanic white	Ref		1.02 (0.75, 1.38)	0.71 (0.53, 0.94)	0.01
	Others	Ref		1.60 (0.91, 2.79)	1.29 (0.79, 2.11)	0.26
Model 3	Non-hispanic white	Ref		1.31 (0.83, 2.07)	0.71 (0.41, 1.23)	0.13
	Others	Ref		2.20 (0.97, 5.00)	1.57 (0.61, 4.04)	0.36
BMI						
Model 1	<30	Ref		0.94 (0.64, 1.39)	0.65 (0.43, 0.96)	0.03
	≥30	Ref		1.38 (0.97, 1.96)	1.04 (0.76, 1.41)	0.94
Model 2	<30	Ref		0.94 (0.63, 1.39)	0.65 (0.43, 0.98)	0.04
	≥30	Ref		1.36 (0.95, 1.95)	1.02 (0.74, 1.41)	0.86
Model 3	<30	Ref		1.34 (0.70, 2.57)	0.80 (0.37, 1.74)	0.48
	≥30	Ref		1.53 (0.92, 2.55)	0.88 (0.51, 1.53)	0.44
Poverty income ratio						
Model 1	<3	Ref		1.50 (0.97, 2.32)	0.70 (0.57, 1.43)	0.02
	≥3	Ref		0.96 (0.68, 1.35)	0.83 (0.61, 1.14)	0.27
Model 2	<3	Ref		1.51 (0.96, 2.35)	0.92 (0.57, 1.48)	0.36
	≥3	Ref		0.94 (0.66, 1.33)	0.79 (0.57, 1.10)	0.17
Model 3	<3	Ref		1.28 (0.82, 1.99)	1.08 (0.65, 1.80)	0.73
	≥3	Ref		1.55 (0.81, 2.94)	0.68 (0.29, 1.58)	0.03
Education						
Model 1	Above College	Ref		1.07 (0.73, 1.56)	0.72 (0.50, 1.04)	0.03
	Others	Ref		1.10 (0.79, 1.54)	0.84 (0.58, 1.21)	0.37
Model 2	Above College	Ref		1.07 (0.73, 1.58)	0.74 (0.50, 1.09)	0.06
	Others	Ref		1.09 (0.78, 1.52)	0.81 (0.56, 1.18)	0.29
Model 3	Above College	Ref		1.41 (0.81, 2.47)	0.72 (0.36, 1.41)	0.05
	Others	Ref		1.38 (0.80, 2.39)	1.06 (0.51, 2.21)	0.84
Smoking						
Model 1	Now	Ref		0.86 (0.55, 1.34)	1.13 (0.72, 1.79)	0.65
	Former	Ref		1.30 (0.90, 1.89)	0.81 (0.58, 1.13)	0.11
	Never	Ref		1.20 (0.73, 1.96)	0.76 (0.50, 1.15)	0.01
Model 2	Now	Ref		0.81 (0.53, 1.26)	1.07 (0.67, 1.70)	0.84
	Former	Ref		1.35 (0.92, 1.97)	0.88 (0.63, 1.23)	0.02
	Never	Ref		1.17 (0.72, 1.92)	0.73 (0.46, 1.16)	0.10
Model 3	Now	Ref		1.03 (0.47, 2.28)	1.25 (0.38, 4.15)	0.72
	Former	Ref		1.56 (0.83, 2.95)	0.75 (0.38, 1.49)	0.03
	Never	Ref		1.70 (0.76, 3.78)	0.89 (0.42, 1.89)	0.09

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 25. Association of DOBS with spine fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	1.22 (0.88, 1.71)	0.89 (0.62, 1.28)	0.47
	No	Ref	1.00 (0.65, 1.54)	0.72 (0.50, 1.04)	0.05
Model 2	Yes	Ref	1.22 (0.86, 1.74)	0.89 (0.60, 1.32)	0.51
	No	Ref	0.99 (0.65, 1.52)	0.70 (0.48, 1.01)	0.04
Model 3	Yes	Ref	1.41 (0.83, 2.40)	1.06 (0.56, 2.01)	0.91
	No	Ref	1.03 (0.77, 3.04)	0.60 (0.27, 1.33)	0.01
Diabetes					
Model 1	Yes	Ref	0.92 (0.49, 1.73)	0.92 (0.53, 1.61)	0.78
	No	Ref	1.16 (0.88, 1.53)	0.79 (0.60, 1.03)	0.04
Model 2	Yes	Ref	0.92 (0.49, 1.73)	0.92 (0.51, 1.63)	0.77
	No	Ref	1.15 (0.87, 1.53)	0.78 (0.58, 1.03)	0.05
Model 3	Yes	Ref	1.34 (0.57, 3.14)	1.66 (0.58, 4.78)	0.34
	No	Ref	1.41 (0.93, 2.16)	0.68 (0.40, 1.15)	0.06

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 26. Association of DII with wrist fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		0.91 (0.75, 1.11)	0.92 (0.74, 1.14)	0.44
	≥60	Ref		0.79 (0.64, 0.97)	0.91 (0.74, 1.11)	0.31
Model 2	<60	Ref		1.00 (0.83, 1.22)	1.11 (0.89, 1.37)	0.39
	≥60	Ref		0.80 (0.65, 0.99)	0.95 (0.77, 1.16)	0.52
Model 3	<60	Ref		0.99 (0.76, 1.29)	1.14 (0.85, 1.52)	0.44
	≥60	Ref		0.92 (0.69, 1.23)	1.03 (0.73, 1.45)	0.91
Sex						
Model 1	Male	Ref		0.84 (0.70, 1.02)	0.84 (0.68, 1.03)	0.06
	Female	Ref		0.98 (0.79, 1.20)	1.15 (0.95, 1.39)	0.13
Model 2	Male	Ref		1.38 (1.13, 1.68)	1.19 (0.96, 1.49)	0.16
	Female	Ref		0.80 (0.65, 0.97)	0.90 (0.74, 1.08)	0.32
Model 3	Male	Ref		0.90 (0.71, 1.14)	0.99 (0.72, 1.38)	0.79
	Female	Ref		1.07 (0.80, 1.44)	1.24 (0.92, 1.65)	0.15
Race						
Model 1	Non-hispanic white	Ref		0.90 (0.76, 1.07)	0.99 (0.84, 1.16)	0.79
	Others	Ref		0.75 (0.58, 0.95)	0.84 (0.65, 1.08)	0.2
Model 2	Non-hispanic white	Ref		0.93 (0.79, 1.11)	1.05 (0.89, 1.24)	0.64
	Others	Ref		0.78 (0.61, 0.99)	0.89 (0.70, 1.14)	0.38
Model 3	Non-hispanic white	Ref		0.97 (0.77, 1.23)	1.08 (0.86, 1.37)	0.55
	Others	Ref		0.98 (0.67, 1.43)	1.21 (0.78, 1.88)	0.4
BMI						
Model 1	<30	Ref		0.81 (0.67, 0.98)	0.91 (0.76, 1.10)	0.24
	≥30	Ref		0.92 (0.72, 1.18)	0.91 (0.70, 1.17)	0.45
Model 2	<30	Ref		0.87 (0.72, 1.05)	1.03 (0.86, 1.23)	0.97
	≥30	Ref		0.97 (0.76, 1.23)	1.01 (0.78, 1.31)	0.95
Model 3	<30	Ref		0.83 (0.64, 1.09)	0.97 (0.73, 1.30)	0.71
	≥30	Ref		1.17 (0.85, 1.60)	1.32 (0.93, 1.88)	0.12
Poverty income ratio						
Model 1	<3	Ref		0.89 (0.73, 1.07)	0.90 (0.75, 1.08)	0.29
	≥3	Ref		0.86 (0.69, 1.07)	0.92 (0.74, 1.15)	0.34
Model 2	<3	Ref		0.92 (0.76, 1.11)	0.95 (0.80, 1.14)	0.63
	≥3	Ref		0.92 (0.74, 1.14)	1.05 (0.83, 1.31)	0.87
Model 3	<3	Ref		0.86 (0.65, 1.14)	0.98 (0.73, 1.32)	0.9
	≥3	Ref		1.04 (0.76, 1.42)	1.20 (0.87, 1.65)	0.31
Education						
Model 1	Above College	Ref		0.93 (0.76, 1.14)	1.02 (0.84, 1.25)	0.95
	Others	Ref		0.77 (0.62, 0.95)	0.84 (0.69, 1.04)	0.14
Model 2	Above College	Ref		0.99 (0.81, 1.21)	1.16 (0.95, 1.41)	0.21
	Others	Ref		0.79 (0.64, 0.99)	0.90 (0.73, 1.12)	0.41
Model 3	Above College	Ref		1.06 (0.81, 1.39)	1.21 (0.92, 1.59)	0.2
	Others	Ref		0.78 (0.57, 1.06)	0.91 (0.62, 1.34)	0.63
Smoking						
Model 1	Now	Ref		0.75 (0.54, 1.04)	0.93 (0.67, 1.30)	0.87
	Former	Ref		0.78 (0.61, 1.01)	0.75 (0.58, 0.96)	0.02
	Never	Ref		0.95 (0.78, 1.16)	0.97 (0.76, 1.23)	0.74
Model 2	Now	Ref		0.76 (0.54, 1.07)	0.99 (0.70, 1.41)	0.85
	Former	Ref		0.80 (0.63, 1.03)	0.78 (0.61, 1.00)	0.04
	Never	Ref		1.03 (0.84, 1.25)	1.11 (0.88, 1.41)	0.39
Model 3	Now	Ref		0.70 (0.45, 1.10)	1.00 (0.61, 1.62)	0.92
	Former	Ref		0.96 (0.69, 1.33)	0.93 (0.64, 1.37)	0.72
	Never	Ref		1.12 (0.84, 1.48)	1.21 (0.89, 1.66)	0.21

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 26. Association of DII with wrist fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	0.80 (0.65, 0.99)	0.89 (0.74, 1.09)	0.25
	No	Ref	0.91 (0.75, 1.11)	0.93 (0.74, 1.17)	0.48
Model 2	Yes	Ref	0.84 (0.69, 1.03)	0.98 (0.82, 1.18)	0.8
	No	Ref	0.98 (0.80, 1.20)	1.06 (0.84, 1.34)	0.66
Model 3	Yes	Ref	1.07 (0.79, 1.44)	1.22 (0.88, 1.70)	0.23
	No	Ref	0.89 (0.66, 1.18)	1.01 (0.71, 1.42)	0.91
Diabetes					
Model 1	Yes	Ref	0.66 (0.46, 0.95)	0.57 (0.39, 0.82)	0.003
	No	Ref	0.89 (0.76, 1.04)	0.99 (0.85, 1.16)	0.8
Model 2	Yes	Ref	0.69 (0.48, 0.98)	0.63 (0.43, 0.92)	0.01
	No	Ref	0.94 (0.81, 1.11)	1.10 (0.94, 1.29)	0.28
Model 3	Yes	Ref	0.92 (0.60, 1.40)	0.77 (0.39, 1.49)	0.42
	No	Ref	0.97 (0.77, 1.22)	1.18 (0.94, 1.47)	0.21

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 27. Association of DII with hip fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		0.63 (0.32, 1.22)	2.12 (1.21, 3.70)	0.01
	≥60	Ref		1.35 (0.91, 2.02)	1.78 (1.19, 2.66)	0.005
Model 2	<60	Ref		0.65 (0.34, 1.25)	2.28 (1.33, 3.92)	0.01
	≥60	Ref		1.36 (0.91, 2.02)	1.80 (1.22, 2.66)	0.003
Model 3	<60	Ref		0.58 (0.24, 1.43)	2.13 (0.93, 4.88)	0.01
	≥60	Ref		1.30 (0.71, 2.38)	2.08 (1.20, 3.60)	0.01
Sex						
Model 1	Male	Ref		1.09 (0.67, 1.77)	1.68 (1.04, 2.72)	0.05
	Female	Ref		1.12 (0.69, 1.84)	2.27 (1.53, 3.38)	<0.001
Model 2	Male	Ref		1.05 (0.65, 1.71)	1.54 (0.96, 2.50)	0.1
	Female	Ref		1.15 (0.70, 1.88)	2.22 (1.47, 3.35)	<0.001
Model 3	Male	Ref		0.91 (0.44, 1.90)	1.95 (0.92, 4.15)	0.14
	Female	Ref		1.14 (0.52, 2.49)	2.55 (1.43, 4.55)	<0.001
Race						
Model 1	Non-hispanic white	Ref		1.20 (0.79, 1.82)	2.17 (1.45, 3.25)	<0.001
	Others	Ref		0.73 (0.43, 1.23)	1.44 (0.90, 2.33)	0.11
Model 2	Non-hispanic white	Ref		1.17 (0.78, 1.76)	2.05 (1.38, 3.04)	<0.001
	Others	Ref		0.74 (0.44, 1.26)	1.34 (0.83, 2.16)	0.19
Model 3	Non-hispanic white	Ref		1.02 (0.54, 1.92)	2.45 (1.44, 4.16)	0.002
	Others	Ref		0.83 (0.39, 1.75)	1.51 (0.63, 3.61)	0.33
BMI						
Model 1	<30	Ref		1.17 (0.75, 1.81)	2.08 (1.41, 3.08)	<0.001
	≥30	Ref		0.90 (0.47, 1.72)	1.82 (0.96, 3.45)	0.04
Model 2	<30	Ref		0.97 (0.52, 1.83)	2.08 (1.11, 3.89)	0.02
	≥30	Ref		1.15 (0.75, 1.76)	1.91 (1.30, 2.81)	0.001
Model 3	<30	Ref		0.84 (0.37, 1.95)	2.70 (1.00, 7.35)	0.02
	≥30	Ref		1.01 (0.53, 1.92)	1.92 (1.19, 3.08)	0.01
Poverty income ratio						
Model 1	<3	Ref		0.85 (0.55, 1.34)	1.28 (0.86, 1.90)	0.19
	≥3	Ref		1.20 (0.69, 2.07)	2.85 (1.72, 4.74)	<0.001
Model 2	<3	Ref		0.84 (0.54, 1.31)	1.25 (0.85, 1.85)	0.21
	≥3	Ref		1.27 (0.75, 2.14)	3.03 (1.83, 5.01)	<0.001
Model 3	<3	Ref		0.70 (0.40, 1.23)	1.51 (0.95, 2.38)	0.08
	≥3	Ref		1.34 (0.64, 2.80)	3.31 (1.53, 7.18)	0.004
Education						
Model 1	Above College	Ref		1.39 (0.86, 2.24)	2.76 (1.68, 4.52)	<0.001
	Others	Ref		0.76 (0.46, 1.25)	1.24 (0.79, 1.93)	0.27
Model 2	Above College	Ref		1.43 (0.89, 2.28)	2.63 (1.62, 4.28)	<0.001
	Others	Ref		0.76 (0.46, 1.24)	1.25 (0.81, 1.93)	0.23
Model 3	Above College	Ref		1.58 (0.89, 2.82)	3.31 (1.82, 6.02)	<0.001
	Others	Ref		0.54 (0.25, 1.16)	1.32 (0.76, 2.29)	0.32
Smoking						
Model 1	Now	Ref		0.74 (0.33, 1.65)	2.08 (1.02, 4.27)	0.02
	Former	Ref		1.32 (0.77, 2.24)	1.46 (0.86, 2.46)	0.15
	Never	Ref		1.04 (0.62, 1.76)	2.21 (1.40, 3.50)	0.001
Model 2	Now	Ref		0.69 (0.31, 1.54)	1.84 (0.92, 3.64)	0.03
	Former	Ref		1.24 (0.73, 2.10)	1.28 (0.79, 2.10)	0.3
	Never	Ref		1.02 (0.60, 1.71)	1.93 (1.18, 3.16)	0.01
Model 3	Now	Ref		0.42 (0.14, 1.23)	2.16 (0.85, 5.46)	0.08
	Former	Ref		1.32 (0.61, 2.85)	1.79 (0.86, 3.74)	0.12
	Never	Ref		1.13 (0.52, 2.43)	2.28 (1.03, 5.04)	0.04

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 27. Association of DII with hip fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	0.82 (0.53, 1.26)	1.46 (1.01, 2.12)	0.05
	No	Ref	1.67 (0.91, 3.07)	3.03 (1.70, 5.41)	<0.001
Model 2	Yes	Ref	0.84 (0.55, 1.29)	1.48 (1.04, 2.11)	0.03
	No	Ref	1.64 (0.91, 2.98)	2.90 (1.63, 5.17)	<0.001
Model 3	Yes	Ref	0.81 (0.44, 1.47)	2.13 (1.34, 3.40)	0.002
	No	Ref	1.34 (0.55, 3.22)	2.26 (0.97, 5.24)	0.05
Diabetes					
Model 1	Yes	Ref	1.76 (0.83, 3.71)	2.35 (1.15, 4.81)	0.02
	No	Ref	0.99 (0.68, 1.44)	1.91 (1.35, 2.72)	<0.001
Model 2	Yes	Ref	1.78 (0.82, 3.86)	2.41 (1.08, 5.36)	0.03
	No	Ref	1.00 (0.69, 1.43)	1.83 (1.31, 2.56)	<0.001
Model 3	Yes	Ref	2.58 (0.83, 8.03)	4.84 (1.49, 15.70)	0.01
	No	Ref	0.85 (0.49, 1.45)	2.00 (1.25, 3.19)	0.01

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

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Supplementary Table 28. Association of DII with spine fracture stratified by variables of interest

			DOBS			
			Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Age						
Model 1	<60	Ref		0.82 (0.58, 1.18)	1.66 (1.18, 2.33)	0.01
	≥60	Ref		0.86 (0.61, 1.22)	0.96 (0.69, 1.34)	0.78
Model 2	<60	Ref		0.93 (0.64, 1.35)	2.10 (1.46, 3.03)	<0.001
	≥60	Ref		0.90 (0.64, 1.27)	1.06 (0.76, 1.47)	0.78
Model 3	<60	Ref		1.22 (0.70, 2.13)	2.69 (1.37, 5.27)	0.004
	≥60	Ref		1.01 (0.61, 1.69)	1.04 (0.58, 1.87)	0.89
Sex						
Model 1	Male	Ref		0.90 (0.65, 1.23)	1.42 (1.00, 2.02)	0.1
	Female	Ref		0.93 (0.57, 1.52)	1.61 (1.02, 2.53)	0.02
Model 2	Male	Ref		0.90 (0.66, 1.23)	1.45 (1.01, 2.08)	0.09
	Female	Ref		0.96 (0.58, 1.58)	1.68 (1.06, 2.68)	0.02
Model 3	Male	Ref		1.18 (0.70, 2.01)	1.48 (0.72, 3.03)	0.28
	Female	Ref		1.08 (0.53, 2.19)	2.06 (1.02, 4.16)	0.02
Race						
Model 1	Non-hispanic white	Ref		0.84 (0.64, 1.11)	1.57 (1.19, 2.07)	0.003
	Others	Ref		0.88 (0.52, 1.47)	0.68 (0.44, 1.05)	0.08
Model 2	Non-hispanic white	Ref		0.89 (0.68, 1.17)	1.74 (1.31, 2.30)	<0.001
	Others	Ref		0.97 (0.57, 1.67)	0.83 (0.55, 1.25)	0.37
Model 3	Non-hispanic white	Ref		1.07 (0.67, 1.71)	1.94 (1.13, 3.33)	0.02
	Others	Ref		1.36 (0.60, 3.11)	0.96 (0.51, 1.79)	0.89
BMI						
Model 1	<30	Ref		0.77 (0.53, 1.13)	1.40 (0.96, 2.05)	0.04
	≥30	Ref		0.82 (0.59, 1.14)	1.15 (0.82, 1.61)	0.53
Model 2	<30	Ref		0.86 (0.59, 1.25)	1.72 (1.16, 2.54)	0.01
	≥30	Ref		0.88 (0.63, 1.21)	1.29 (0.91, 1.82)	0.21
Model 3	<30	Ref		0.81 (0.47, 1.38)	1.68 (0.88, 3.20)	0.02
	≥30	Ref		1.42 (0.82, 2.46)	1.71 (0.93, 3.15)	0.08
Poverty income ratio						
Model 1	<3	Ref		0.90 (0.67, 1.19)	1.16 (0.85, 1.58)	0.32
	≥3	Ref		0.88 (0.58, 1.33)	1.46 (0.96, 2.22)	0.14
Model 2	<3	Ref		0.96 (0.72, 1.27)	1.30 (0.95, 1.77)	0.09
	≥3	Ref		0.96 (0.63, 1.47)	1.72 (1.12, 2.66)	0.03
Model 3	<3	Ref		0.93 (0.58, 1.50)	0.99 (0.61, 1.61)	0.99
	≥3	Ref		1.22 (0.67, 2.21)	2.50 (1.19, 5.28)	0.02
Education						
Model 1	Above College	Ref		0.88 (0.62, 1.25)	1.59 (1.11, 2.28)	0.03
	Others	Ref		0.80 (0.57, 1.12)	1.10 (0.74, 1.64)	0.54
Model 2	Above College	Ref		0.96 (0.67, 1.36)	1.86 (1.27, 2.71)	0.01
	Others	Ref		0.86 (0.62, 1.21)	1.27 (0.86, 1.87)	0.2
Model 3	Above College	Ref		1.12 (0.63, 1.99)	2.30 (1.20, 4.40)	0.02
	Others	Ref		1.07 (0.64, 1.79)	1.06 (0.52, 2.19)	0.88
Smoking						
Model 1	Now	Ref		0.76 (0.49, 1.19)	0.84 (0.52, 1.37)	0.56
	Former	Ref		0.93 (0.63, 1.37)	1.27 (0.88, 1.85)	0.25
	Never	Ref		0.76 (0.49, 1.17)	1.56 (1.01, 2.40)	0.05
Model 2	Now	Ref		0.84 (0.53, 1.34)	1.11 (0.68, 1.82)	0.62
	Former	Ref		0.93 (0.64, 1.37)	1.30 (0.88, 1.91)	0.23
	Never	Ref		0.82 (0.53, 1.27)	1.79 (1.13, 2.84)	0.03
Model 3	Now	Ref		1.07 (0.46, 2.49)	0.74 (0.29, 1.92)	0.48
	Former	Ref		1.23 (0.63, 2.41)	1.87 (0.85, 4.13)	0.13
	Never	Ref		0.96 (0.50, 1.83)	2.02 (0.94, 4.33)	0.02

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 28. Association of DII with spine fracture stratified by variables of interest (cont.)

		DOBS			
		Q1	Q2 OR (95%CI)	Q3 OR (95%CI)	<i>p</i> -trend [†]
Hypertension					
Model 1	Yes	Ref	0.94 (0.68, 1.30)	1.31 (0.94, 1.83)	0.11
	No	Ref	0.73 (0.50, 1.07)	1.29 (0.88, 1.89)	0.28
Model 2	Yes	Ref	1.02 (0.74, 1.42)	1.54 (1.10, 2.17)	0.02
	No	Ref	0.79 (0.54, 1.16)	1.51 (1.03, 2.22)	0.08
Model 3	Yes	Ref	1.26 (0.80, 1.99)	1.69 (1.00, 2.86)	0.05
	No	Ref	0.96 (0.49, 1.87)	1.75 (0.84, 3.66)	0.15
Diabetes					
Model 1	Yes	Ref	0.65 (0.35, 1.21)	1.11 (0.67, 1.83)	0.67
	No	Ref	0.88 (0.68, 1.15)	1.34 (1.01, 1.78)	0.06
Model 2	Yes	Ref	0.68 (0.37, 1.27)	1.24 (0.72, 2.14)	0.44
	No	Ref	0.96 (0.74, 1.25)	1.58 (1.18, 2.11)	0.004
Model 3	Yes	Ref	0.55 (0.24, 1.28)	0.87 (0.32, 2.42)	0.81
	No	Ref	1.32 (0.83, 2.08)	2.04 (1.24, 3.36)	0.01

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 29. Association of different combinations of DOBS and DII with wrist fracture stratified by variables of interest

			Different combinations of DII and DOBS			
			Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet	<i>p</i> -trend [†]
				OR (95%CI)	OR (95%CI)	
Age						
Model 1	<60	Ref	0.95 (0.79, 1.15)	0.97 (0.77, 1.23)	0.86	
	≥60	Ref	1.09 (0.91, 1.29)	1.19 (0.96, 1.49)	0.13	
Model 2	<60	Ref	0.89 (0.73, 1.07)	0.83 (0.65, 1.04)	0.13	
	≥60	Ref	1.04 (0.87, 1.24)	1.12 (0.90, 1.40)	0.3	
Model 3	<60	Ref	0.72 (0.55, 0.95)	0.64 (0.45, 0.92)	0.04	
	≥60	Ref	1.13 (0.85, 1.50)	1.03 (0.73, 1.45)	1.00	
Sex						
Model 1	Male	Ref	1.23 (1.03, 1.46)	1.28 (1.03, 1.60)	0.07	
	Female	Ref	0.84 (0.69, 1.02)	0.83 (0.67, 1.02)	0.08	
Model 2	Male	Ref	1.17 (0.98, 1.40)	1.18 (0.94, 1.48)	0.28	
	Female	Ref	0.81 (0.67, 0.99)	0.78 (0.63, 0.96)	0.02	
Model 3	Male	Ref	1.05 (0.77, 1.43)	0.98 (0.68, 1.42)	0.78	
	Female	Ref	0.77 (0.55, 1.06)	0.65 (0.44, 0.95)	0.03	
Race						
Model 1	Non-hispanic white	Ref	0.96 (0.83, 1.11)	0.96 (0.80, 1.14)	0.68	
	Others	Ref	1.00 (0.75, 1.32)	1.17 (0.89, 1.53)	0.29	
Model 2	Non-hispanic white	Ref	0.95 (0.82, 1.09)	0.93 (0.78, 1.10)	0.44	
	Others	Ref	1.01 (0.76, 1.33)	1.16 (0.89, 1.50)	0.29	
Model 3	Non-hispanic white	Ref	0.86 (0.67, 1.10)	0.77 (0.57, 1.03)	0.11	
	Others	Ref	1.00 (0.69, 1.45)	0.87 (0.55, 1.36)	0.49	
BMI						
Model 1	<30	Ref	0.97 (0.82, 1.14)	1.09 (0.90, 1.33)	0.32	
	≥30	Ref	1.08 (0.84, 1.38)	1.01 (0.75, 1.37)	0.96	
Model 2	<30	Ref	0.91 (0.78, 1.07)	0.98 (0.81, 1.19)	0.99	
	≥30	Ref	1.03 (0.80, 1.32)	0.93 (0.69, 1.25)	0.58	
Model 3	<30	Ref	0.87 (0.62, 1.21)	0.62 (0.42, 0.91)	0.01	
	≥30	Ref	0.87 (0.67, 1.12)	0.91 (0.67, 1.24)	0.75	
Poverty income ratio						
Model 1	<3	Ref	1.09 (0.92, 1.30)	0.99 (0.80, 1.22)	0.97	
	≥3	Ref	0.91 (0.71, 1.17)	1.05 (0.82, 1.36)	0.45	
Model 2	<3	Ref	1.06 (0.90, 1.25)	0.93 (0.76, 1.13)	0.48	
	≥3	Ref	0.86 (0.67, 1.12)	0.95 (0.73, 1.24)	0.98	
Model 3	<3	Ref	0.97 (0.76, 1.23)	0.84 (0.62, 1.14)	0.25	
	≥3	Ref	0.78 (0.54, 1.13)	0.72 (0.48, 1.08)	0.2	
Education						
Model 1	Above College	Ref	0.92 (0.75, 1.14)	0.96 (0.76, 1.21)	0.86	
	Others	Ref	1.04 (0.87, 1.25)	1.07 (0.86, 1.35)	0.52	
Model 2	Above College	Ref	0.88 (0.71, 1.09)	0.87 (0.70, 1.10)	0.37	
	Others	Ref	1.01 (0.84, 1.21)	0.99 (0.79, 1.26)	0.97	
Model 3	Above College	Ref	0.84 (0.61, 1.16)	0.74 (0.52, 1.06)	0.11	
	Others	Ref	0.91 (0.67, 1.23)	0.88 (0.59, 1.32)	0.55	
Smoking						
Model 1	Now	Ref	0.84 (0.64, 1.11)	1.13 (0.79, 1.62)	0.68	
	Former	Ref	1.26 (0.98, 1.61)	1.32 (1.02, 1.71)	0.06	
	Never	Ref	1.01 (0.80, 1.28)	1.00 (0.77, 1.30)	0.99	
Model 2	Now	Ref	0.81 (0.61, 1.07)	1.06 (0.74, 1.53)	0.94	
	Former	Ref	1.23 (0.95, 1.58)	1.27 (0.98, 1.65)	0.11	
	Never	Ref	0.94 (0.74, 1.20)	0.88 (0.67, 1.15)	0.32	
Model 3	Now	Ref	0.71 (0.49, 1.05)	0.85 (0.49, 1.45)	0.5	
	Former	Ref	1.04 (0.76, 1.44)	0.90 (0.61, 1.32)	0.48	
	Never	Ref	0.91 (0.62, 1.33)	0.76 (0.50, 1.16)	0.16	

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 29. Association of different combinations of DOBS and DII with wrist fracture stratified by variables of interest (cont.)

		Different combinations of DII and DOBS			<i>p</i> -trend [†]
		Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet	
			OR (95%CI)	OR (95%CI)	
Hypertension					
Model 1	Yes	Ref	1.00 (0.85, 1.18)	1.10 (0.88, 1.36)	0.4
	No	Ref	1.02 (0.85, 1.24)	1.04 (0.81, 1.33)	0.78
Model 2	Yes	Ref	0.95 (0.80, 1.11)	0.99 (0.81, 1.23)	0.99
	No	Ref	0.97 (0.80, 1.17)	0.93 (0.72, 1.19)	0.55
Model 3	Yes	Ref	0.84 (0.64, 1.11)	0.72 (0.50, 1.03)	0.08
	No	Ref	0.91 (0.69, 1.22)	0.85 (0.59, 1.23)	0.42
Diabetes					
Model 1	Yes	Ref	1.58 (1.16, 2.16)	1.98 (1.34, 2.92)	0.002
	No	Ref	0.94 (0.82, 1.08)	0.96 (0.81, 1.14)	0.74
Model 2	Yes	Ref	1.51 (1.10, 2.09)	1.80 (1.22, 2.66)	0.01
	No	Ref	0.89 (0.78, 1.03)	0.88 (0.74, 1.04)	0.17
Model 3	Yes	Ref	1.81 (1.14, 2.87)	1.42 (0.78, 2.61)	0.42
	No	Ref	0.77 (0.62, 0.96)	0.71 (0.54, 0.93)	0.04

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 30. Association of different combinations of DOBS and DII with hip fracture stratified by variables of interest

			Different combinations of DII and DOBS		
			Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet
				OR (95%CI)	OR (95%CI)
p-trend [†]					
Age					
Model 1	<60	Ref		0.41 (0.25, 0.66)	0.43 (0.23, 0.79)
	≥60	Ref		0.77 (0.54, 1.11)	0.58 (0.36, 0.92)
Model 2	<60	Ref		0.41 (0.25, 0.66)	0.41 (0.23, 0.76)
	≥60	Ref		0.76 (0.53, 1.09)	0.56 (0.36, 0.89)
Model 3	<60	Ref		0.34 (0.16, 0.73)	0.43 (0.17, 1.12)
	≥60	Ref		0.81 (0.44, 1.47)	0.67 (0.34, 1.32)
Sex					
Model 1	Male	Ref		0.63 (0.40, 0.98)	0.54 (0.31, 0.94)
	Female	Ref		0.59 (0.40, 0.87)	0.44 (0.28, 0.69)
Model 2	Male	Ref		0.67 (0.43, 1.06)	0.63 (0.36, 1.08)
	Female	Ref		0.62 (0.41, 0.92)	0.46 (0.29, 0.75)
Model 3	Male	Ref		0.42 (0.18, 0.97)	0.51 (0.20, 1.28)
	Female	Ref		0.65 (0.39, 1.09)	0.47 (0.24, 0.91)
Race					
Model 1	Non-hispanic white	Ref		0.55 (0.39, 0.78)	0.42 (0.26, 0.68)
	Others	Ref		0.77 (0.50, 1.18)	0.72 (0.45, 1.17)
Model 2	Non-hispanic white	Ref		0.58 (0.40, 0.82)	0.48 (0.30, 0.76)
	Others	Ref		0.87 (0.58, 1.31)	0.84 (0.53, 1.34)
Model 3	Non-hispanic white	Ref		0.50 (0.29, 0.86)	0.49 (0.26, 0.94)
	Others	Ref		0.76 (0.43, 1.37)	0.59 (0.23, 1.53)
BMI					
Model 1	<30	Ref		0.72 (0.43, 1.20)	0.47 (0.22, 1.03)
	≥30	Ref		0.58 (0.41, 0.84)	0.48 (0.31, 0.75)
Model 2	<30	Ref		0.73 (0.42, 1.24)	0.46 (0.21, 1.01)
	≥30	Ref		0.62 (0.43, 0.91)	0.54 (0.35, 0.85)
Model 3	<30	Ref		0.59 (0.27, 1.29)	0.46 (0.14, 1.50)
	≥30	Ref		0.53 (0.31, 0.91)	0.59 (0.33, 1.05)
Poverty income ratio					
Model 1	<3	Ref		0.81 (0.57, 1.16)	0.85 (0.54, 1.35)
	≥3	Ref		0.41 (0.27, 0.63)	0.31 (0.18, 0.54)
Model 2	<3	Ref		0.84 (0.58, 1.20)	0.92 (0.58, 1.44)
	≥3	Ref		0.40 (0.26, 0.62)	0.31 (0.17, 0.54)
Model 3	<3	Ref		0.70 (0.44, 1.12)	0.80 (0.46, 1.40)
	≥3	Ref		0.40 (0.21, 0.75)	0.34 (0.15, 0.78)
Education					
Model 1	Above College	Ref		0.52 (0.34, 0.81)	0.34 (0.19, 0.59)
	Others	Ref		0.71 (0.49, 1.02)	0.81 (0.47, 1.38)
Model 2	Above College	Ref		0.55 (0.35, 0.88)	0.37 (0.21, 0.67)
	Others	Ref		0.71 (0.50, 1.03)	0.83 (0.49, 1.39)
Model 3	Above College	Ref		0.46 (0.25, 0.87)	0.29 (0.14, 0.61)
	Others	Ref		0.62 (0.34, 1.12)	1.02 (0.49, 2.12)
Smoking					
Model 1	Now	Ref		0.60 (0.33, 1.08)	0.68 (0.32, 1.42)
	Former	Ref		0.83 (0.52, 1.32)	0.58 (0.30, 1.10)
	Never	Ref		0.48 (0.33, 0.70)	0.40 (0.24, 0.68)
Model 2	Now	Ref		0.64 (0.35, 1.17)	0.76 (0.37, 1.57)
	Former	Ref		0.91 (0.57, 1.46)	0.73 (0.40, 1.34)
	Never	Ref		0.54 (0.36, 0.81)	0.49 (0.28, 0.87)
Model 3	Now	Ref		0.61 (0.29, 1.28)	0.92 (0.38, 2.23)
	Former	Ref		0.74 (0.32, 1.70)	0.59 (0.22, 1.64)
	Never	Ref		0.43 (0.23, 0.80)	0.42 (0.16, 1.06)

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 30. Association of different combinations of DOBS and DII with hip fracture stratified by variables of interest (cont.)

		Different combinations of DII and DOBS			<i>p</i> -trend [†]
		Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet	
			OR (95%CI)	OR (95%CI)	
Hypertension					
Model 1	Yes	Ref	0.68 (0.47, 0.97)	0.68 (0.43, 1.08)	0.11
	No	Ref	0.53 (0.32, 0.87)	0.30 (0.15, 0.59)	<0.001
Model 2	Yes	Ref	0.70 (0.48, 1.01)	0.72 (0.46, 1.13)	0.16
	No	Ref	0.55 (0.33, 0.91)	0.33 (0.16, 0.65)	0.001
Model 3	Yes	Ref	0.49 (0.28, 0.88)	0.60 (0.33, 1.09)	0.14
	No	Ref	0.62 (0.26, 1.46)	0.42 (0.13, 1.34)	0.04
Diabetes					
Model 1	Yes	Ref	0.60 (0.43, 0.83)	0.51 (0.34, 0.78)	0.01
	No	Ref	0.66 (0.34, 1.28)	0.33 (0.13, 0.81)	0.003
Model 2	Yes	Ref	0.63 (0.45, 0.89)	0.57 (0.38, 0.86)	0.03
	No	Ref	0.67 (0.34, 1.34)	0.34 (0.13, 0.90)	0.01
Model 3	Yes	Ref	0.58 (0.35, 0.96)	0.30 (0.34, 1.07)	0.03
	No	Ref	0.41 (0.14, 1.19)	0.23 (0.06, 0.88)	0.03

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 31. Association of different combinations of DOBS and DII with spine fracture stratified by variables of interest

			Different combinations of DII and DOBS			
			Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet	<i>p</i> -trend [†]
				OR (95%CI)	OR (95%CI)	
Age						
Model 1	<60	Ref	0.78 (0.55, 1.10)	0.72 (0.50, 1.04)	0.10	
	≥60	Ref	1.13 (0.80, 1.60)	1.01 (0.66, 1.53)	0.98	
Model 2	<60	Ref	0.72 (0.51, 1.03)	0.61 (0.41, 0.91)	0.02	
	≥60	Ref	1.08 (0.76, 1.54)	0.94 (0.62, 1.43)	0.71	
Model 3	<60	Ref	1.23 (0.67, 2.23)	0.78 (0.38, 1.62)	0.43	
	≥60	Ref	1.45 (0.86, 2.46)	1.27 (0.61, 2.67)	0.61	
Sex						
Model 1	Male	Ref	0.84 (0.58, 1.22)	0.84 (0.55, 1.28)	0.48	
	Female	Ref	0.95 (0.65, 1.39)	0.66 (0.39, 1.11)	0.01	
Model 2	Male	Ref	0.83 (0.57, 1.22)	0.82 (0.52, 1.28)	0.43	
	Female	Ref	0.93 (0.64, 1.35)	0.62 (0.36, 1.06)	0.04	
Model 3	Male	Ref	1.29 (0.64, 2.60)	1.08 (0.45, 2.58)	1.00	
	Female	Ref	1.26 (0.74, 2.14)	0.72 (0.35, 1.46)	0.06	
Race						
Model 1	Non-hispanic white	Ref	0.80 (0.59, 1.09)	0.70 (0.51, 0.96)	0.03	
	Others	Ref	1.36 (0.82, 2.25)	1.38 (0.82, 2.32)	0.21	
Model 2	Non-hispanic white	Ref	0.79 (0.58, 1.08)	0.67 (0.49, 0.93)	0.02	
	Others	Ref	1.34 (0.80, 2.26)	1.29 (0.76, 2.17)	0.33	
Model 3	Non-hispanic white	Ref	1.16 (0.70, 1.92)	0.83 (0.46, 1.51)	0.42	
	Others	Ref	2.07 (1.10, 3.90)	1.61 (0.69, 3.77)	0.29	
BMI						
Model 1	<30	Ref	0.75 (0.50, 1.13)	0.64 (0.48, 1.15)	0.02	
	≥30	Ref	1.15 (0.82, 1.61)	1.04 (0.73, 1.48)	0.96	
Model 2	<30	Ref	0.72 (0.47, 1.09)	0.67 (0.42, 1.05)	0.05	
	≥30	Ref	1.10 (0.78, 1.56)	0.96 (0.66, 1.39)	0.69	
Model 3	<30	Ref	1.14 (0.56, 2.31)	0.82 (0.45, 2.29)	0.09	
	≥30	Ref	1.46 (0.90, 2.37)	0.91 (0.50, 1.68)	0.54	
Poverty income ratio						
Model 1	<3	Ref	0.83 (0.62, 1.12)	0.89 (0.63, 1.28)	0.50	
	≥3	Ref	0.91 (0.71, 2.04)	0.64 (0.55, 1.60)	0.03	
Model 2	<3	Ref	0.80 (0.60, 1.08)	0.82 (0.57, 1.16)	0.25	
	≥3	Ref	0.97 (0.68, 1.99)	0.76 (0.49, 1.51)	0.33	
Model 3	<3	Ref	0.93 (0.87, 2.02)	0.87 (0.82, 2.64)	0.19	
	≥3	Ref	0.95 (0.63, 2.48)	0.68 (0.28, 1.63)	0.02	
Education						
Model 1	Above College	Ref	0.92 (0.60, 1.40)	0.76 (0.49, 1.19)	0.18	
	Others	Ref	0.85 (0.62, 1.18)	0.87 (0.56, 1.33)	0.45	
Model 2	Above College	Ref	0.89 (0.58, 1.36)	0.71 (0.44, 1.13)	0.11	
	Others	Ref	0.82 (0.59, 1.13)	0.78 (0.51, 1.19)	0.22	
Model 3	Above College	Ref	1.23 (0.66, 2.30)	0.77 (0.37, 1.61)	0.27	
	Others	Ref	1.32 (0.79, 2.20)	1.30 (0.61, 2.77)	0.45	
Smoking						
Model 1	Now	Ref	0.74 (0.51, 1.09)	1.25 (0.73, 2.16)	0.59	
	Former	Ref	1.10 (0.76, 1.60)	0.86 (0.58, 1.26)	0.32	
	Never	Ref	0.95 (0.57, 1.56)	0.78 (0.48, 1.26)	0.06	
Model 2	Now	Ref	0.65 (0.45, 0.96)	1.01 (0.58, 1.74)	0.88	
	Former	Ref	1.12 (0.76, 1.65)	0.90 (0.60, 1.33)	0.46	
	Never	Ref	0.90 (0.54, 1.50)	0.71 (0.42, 1.18)	0.01	
Model 3	Now	Ref	1.16 (0.61, 2.18)	1.37 (0.37, 5.01)	0.63	
	Former	Ref	1.49 (0.76, 2.93)	0.90 (0.43, 1.87)	0.48	
	Never	Ref	1.18 (0.61, 3.12)	0.72 (0.45, 1.29)	0.03	

Model 1: no covariates were adjusted

Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

[†]Tests for trends based on the variables containing the median values for each tertile.

Supplementary Table 31. Association of different combinations of DOBS and DII with spine fracture stratified by variables of interest (cont.)

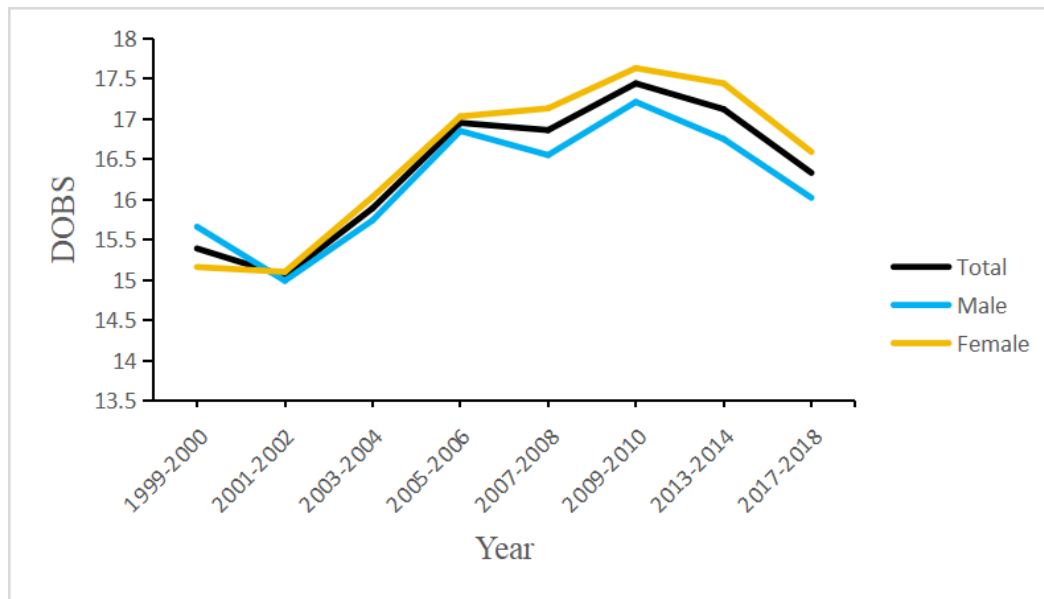
		Different combinations of DII and DOBS			<i>p</i> -trend [†]
		Pro-inflammatory and pro-oxidative diet	Composite diet category	Anti-inflammatory and antioxidant diet	
			OR (95%CI)	OR (95%CI)	
Hypertension					
Model 1	Yes	Ref	0.96 (0.68, 1.36)	0.87 (0.57, 1.31)	0.48
	No	Ref	0.87 (0.57, 1.33)	0.81 (0.53, 1.24)	0.05
Model 2	Yes	Ref	0.92 (0.64, 1.32)	0.79 (0.52, 1.21)	0.27
	No	Ref	0.83 (0.54, 1.28)	0.73 (0.47, 1.13)	0.16
Model 3	Yes	Ref	1.19 (0.72, 1.96)	1.02 (0.52, 2.01)	0.99
	No	Ref	1.55 (0.77, 3.11)	0.90 (0.40, 2.02)	0.55
Diabetes					
Model 1	Yes	Ref	0.77 (0.41, 1.44)	0.92 (0.51, 1.65)	0.76
	No	Ref	0.75 (0.51, 1.27)	0.73 (0.60, 1.14)	0.02
Model 2	Yes	Ref	0.75 (0.40, 1.41)	0.86 (0.47, 1.57)	0.63
	No	Ref	0.61 (0.48, 1.22)	0.75 (0.54, 1.04)	0.03
Model 3	Yes	Ref	1.22 (0.51, 2.92)	1.84 (0.62, 5.48)	0.27
	No	Ref	1.30 (0.82, 2.03)	0.79 (0.45, 1.41)	0.05

Model 1: no covariates were adjusted

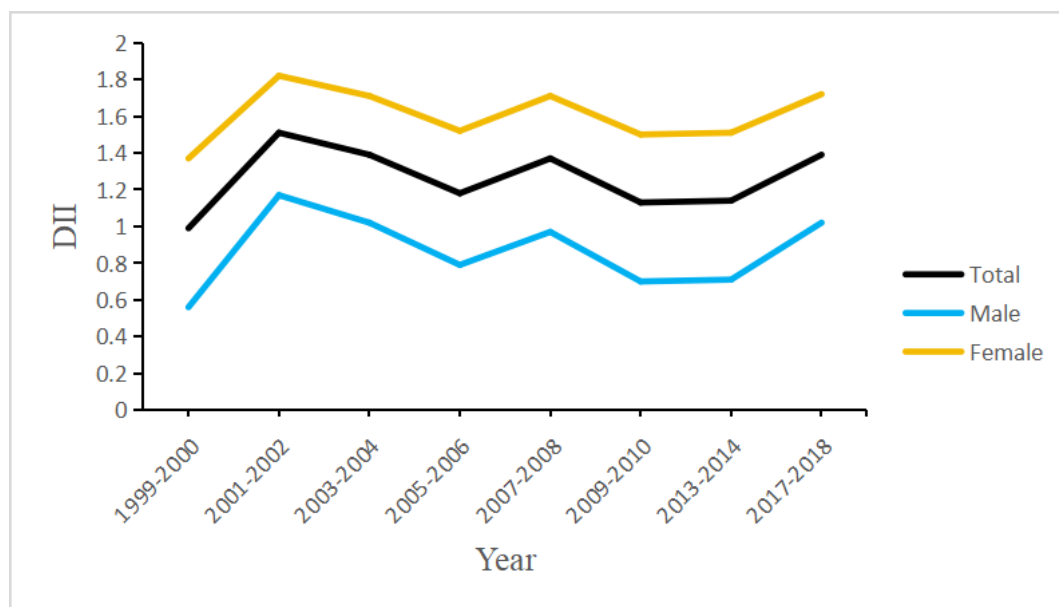
Model 2: age, sex, and race were adjusted

Model 3: age, sex, race, education status, BMI, poverty, smoking status, hypertension status, diabetes status, eGFR, prednisone or cortisone, daily energy intake, thyroid problem, and liver condition were adjusted

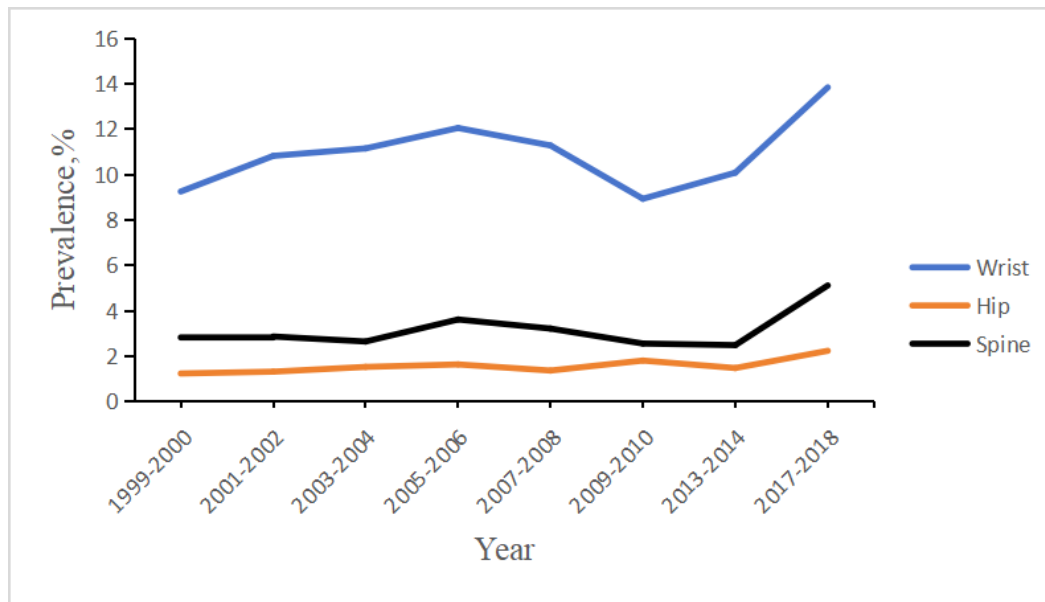
[†]Tests for trends based on the variables containing the median values for each tertile.



Supplementary Figure 1. Trends in DOBS among US adults aged 40 years and older from 1999 to 2018



Supplementary Figure 2. Trends in DII among US adults aged 40 years and older from 1999 to 2018



Supplementary Figure 3. Trends in the prevalence of wrist, hip, and spine fractures among US adults aged 40 years and older from 1999 to 2018