Supplementary materials

Table S1. General characteristics of normal and vitamin D-deficient participants aged 19 to 39 years

Characteristic	Younger men (n=529)			Younger women (n=650)		
	Normal (n=195)	Vitamin D deficiency (n=334)	P-value[a)]	Normal (n=262)	Vitamin D deficiency (n=388)	P-value[a)]
Age (yr)	31.1±0.5	28.4±0.3	<0.001	31.5±0.4	27.8±0.4	<0.001
Household income			0.370			0.146
Low	17 (10.1)	35 (11.2)		18 (6.8)	40 (10.7)	
Middle-low	31 (14.1)	66 (19.1)		55 (19.9)	107 (25.3)	
Middle-high	70 (34.8)	117 (35.1)		100 (35.1)	130 (32.8)	
High	77 (41.0)	116 (34.5)		89 (38.2)	111 (31.2)	
Current alcohol consumers	128 (63.1)	223 (66.3)	0.554	153 (57.6)	237 (61.3)	0.417
Current smoker	51 (26.4)	96 (28.5)	0.670	10 (3.5)	31 (8.3)	0.019
Regular aerobic exercise	120 (66.1)	203 (65.0)	0.825	141 (56.2)	223 (63.2)	0.110
Body mass index (kg/m^2)	25.2±0.3	25.4±0.3	0.529	22.0±0.2	22.7±0.3	0.030
Percent body fat (%)	23.4±0.5	24.7±0.4	0.036	30.7±0.4	32.0±0.4	0.007
Waist circumference (cm)	86.9±0.7	88.0±0.8	0.282	74.2±0.6	74.8±0.6	0.478
TyG index[b)]	8.62±0.05	8.62±0.04	0.943	8.18±0.03	8.21±0.03	0.434
Metabolically unhealthy state[c)]	63 (33.4)	113 (33.6)	0.967	34 (12.4)	68 (17.2)	0.119
25(OH)D3 (ng/mL)	27.2±0.6	13.1±0.2	<0.001	28.0±0.5	13.1±0.3	<0.001
Vitamin D intake (μg)	3.1±0.4	3.0±0.2	0.829	2.7±0.3	2.9±0.3	0.618
Total energy intake (kcal/day)	2227±59	2231±56	0.950	1577±48	1621±42	0.492

Values are presented as mean±standard error of mean for continuous variables or number (%) for categorical variables. Vitamin D deficiency was defined as serum 25(OH)D3 of <20 ng/mL.

TyG index, triglyceride-glucose index; 25(OH)D3, 25-hydroxyvitamin D_3.

a) Differences between normal and vitamin D deficient participants were determined using t-test for continuous variables and Rao-Scott chi-square test for categorical variables. [b)]The TyG index is calculated as ln [fasting triglycerides (mg/dL)×fasting glucose (mg/dL)/2]. [c)]A metabolically unhealthy state is defined as TyG index of ≥8.82 for men and ≥8.73 for women.

b)