

S1 Table. Multivariable adjusted weight change* and relative risk (95% confidence intervals) for weight gain and incident obesity according to the joint categories of total nuts intake at the first and fourth years of each period based on pooled data of Nurses' Health Study I, Nurses' Health Study II, and the Health Professionals Follow-Up Study.

		Consumption Tree nuts (serving/day)								
1st year intakes	0	0.1-0.49	≥0.5	0	0.1-0.49	≥0.5	0	0.1-0.49	≥0.5	
4th year intakes	0	0	0	0.1-0.49	0.1-0.49	0.1-0.49	≥0.5	≥0.5	≥0.5	
<u>Weight Change (kgs)</u>										
Means	1.46±0.01	1.33±0.02*	1.21±0.13*	1.42±0.02	1.37±0.01*	1.39±0.06	0.60±0.06*	0.80±0.04*	1.11±0.04*	
Differences ¹	0	-0.13±0.02*	-0.25±0.13*	-0.04±0.02	-0.09±0.02*	-0.07±0.06	-0.86±0.07*	-0.67±0.04*	-0.35±0.04*	
<u>Weight gain (≥2kg)</u>										
Cases (prevalence)	84019 (45.7)	23531(42.1)	746 (40.1)	32318 (43.1)	42131 (40.4)	3353 (38.7)	2290 (34.2)	6016 (33.0)	3437 (32.1)	
Relative Risk ²	1	0.98 (0.97, 0.99)	0.99 (0.94, 1.05)	0.99 (0.98, 1.00)	0.97 (0.97, 0.98)	0.98 (0.96, 1.01)	0.85 (0.83, 0.88)	0.85 (0.84, 0.87)	0.85 (0.83, 0.88)	
<u>Weight gain (≥5kg)</u>										
Cases (prevalence)	35510 (19.3)	9292 (16.6)	316 (17.0)	13217 (17.6)	15627 (15.0)	1281 (14.8)	833 (12.4)	2043 (11.2)	1164 (10.9)	
Relative Risk ²	1	0.96 (0.94, 0.98)	1.02 (0.93, 1.13)	0.98 (0.96, 1.00)	0.92 (0.91, 0.94)	0.94 (0.89, 0.99)	0.78 (0.73, 0.83)	0.76 (0.73, 0.79)	0.78 (0.74, 0.82)	
<u>Incident Obesity</u>										
Cases (incidence)	9310 (6.32)	2436 (5.39)	92 (6.20)	3654 (6.15)	4296 (5.11)	332 (4.82)	241 (4.49)	631 (4.27)	330 (3.61)	
Relative Risk ³	1	0.91 (0.88, 0.95)	0.98 (0.82, 1.19)	1.01 (0.98, 1.05)	0.90 (0.86, 0.93)	0.79 (0.71, 0.87)	0.78 (0.70, 0.88)	0.76 (0.71, 0.82)	0.63 (0.57, 0.69)	
		<u>Consumption of Walnuts (serving/day)</u>								
<u>Weight Change (kg)</u>										
Means	0.78±0.02	0.76±0.04	0.65±0.33	0.77±0.03	0.69±0.02	0.35±0.13	0.00±0.13	0.17±0.09	0.70±0.13	
Differences ¹	0	-0.01±0.05	-0.13±0.33	-0.01±0.04	-0.09±0.03	-0.43±0.13	-0.78±0.13*	-0.61±0.09*	-0.08±0.13	
<u>Weight gain (≥2kg/)</u>										
Cases (prevalence)	153959(44.1)	6367 (38.3)	125 (34.4)	21327 (39.8)	13699 (36.0)	535 (33.3)	641 (31.3)	872 (29.3)	316 (28.9)	
Relative Risk ²	1	1.00 (0.98,1.02)	0.92 (0.80,1.05)	0.99 (0.98,1.01)	0.96 (0.94,0.97)	0.88 (0.82,0.94)	0.82 (0.76,0.88)	0.82 (0.77,0.87)	0.83 (0.76,0.91)	
<u>Weight gain (≥5kg/)</u>										
Cases (prevalence)	62504 (17.9)	2544 (15.3)	55 (15.2)	8345 (15.6)	5006 (13.2)	215 (13.4)	222 (10.8)	287 (9.7)	105 (9.6)	
Relative Risk ²	1	0.98 (0.94,1.01)	0.94 (0.75,1.20)	0.97 (0.94,1.00)	0.88 (0.85,0.90)	0.88 (0.78,0.99)	0.76 (0.66,0.87)	0.73 (0.65,0.81)	0.75 (0.63,0.90)	
<u>Incident Obesity</u>										
Cases (incident)	4369 (6.38)	731(5.97)	13 (4.89)	1436(5.91)	1474(5.04)	56(4.31)	64(4.79)	89(3.63)	36(3.88)	
Relative Risk ³	1	0.96 (0.89,1.04)	0.75 (0.45,1.25)	0.96 (0.91,1.01)	0.83 (0.79,0.88)	0.68 (0.53,0.88)	0.82 (0.66,1.04)	0.65 (0.53,0.79)	0.69 (0.51,0.94)	

Consumption of other tree nuts (serving/day)									
1st year intakes	None	0.1-0.49	≥0.5	0	0.1-0.49	≥0.5	0	0-0.5	≥0.5
4th year intakes	0	0	0	0.1-0.49	0.1-0.49	0.1-0.49	≥0.5	≥0.5	≥0.5
<u>Weight Change (kgs)</u>									
Means	0.81±0.02	0.72±0.04	0.99±0.19	0.77±0.03	0.76±0.02	0.92±0.08	-0.15±0.09	0.11±0.06	0.67±0.08
Differences ¹	0	-0.09±0.05	0.18±0.19	-0.03±0.04	-0.05±0.03	0.11±0.08	-0.95±0.09*	-0.69±0.06*	-0.13±0.08
<u>Weight gain (≥2kg)</u>									
Cases (prevalence)	137634 (44.7)	6838 (38.6)	418 (42.4)	26736 (40.5)	19855 (37.2)	1682 (38.4)	1512 (31.6)	2180 (30.4)	986 (33.3)
Relative Risk ²	1	1.00 (0.98,1.02)	1.11 (1.03,1.20)	0.99 (0.97,1.00)	0.97 (0.96,0.99)	1.00 (0.96,1.04)	0.83 (0.78,0.87)	0.83 (0.80,0.86)	0.92 (0.88,0.97)
<u>Weight gain (≥5kg)</u>									
Cases (prevalence)	55799 (18.1)	2844 (16.1)	196 (19.9)	10614 (16.1)	7558 (14.2)	670 (15.3)	541 (11.3)	733 (10.2)	328 (11.1)
Relative Risk ²	1	0.99 (0.94,1.03)	1.26 (1.10, 1.44)	0.97 (0.93,1.00)	0.92 (0.89,0.95)	0.97 (0.89,1.05)	0.78 (0.71,0.87)	0.75 (0.70,0.81)	0.82 (0.73,0.92)
<u>Incident Obesity</u>									
Cases (incidence)	2817 (6.58)	823 (6.50)	55 (7.10)	1757 (6.06)	2219 (5.48)	184 (5.20)	105 (3.74)	238 (4.01)	70 (2.72)
Relative Risk ³	1	1.01 (0.94,1.08)	1.04 (0.81,1.3)	0.95 (0.90,1.00)	0.89 (0.84,0.94)	0.80 (0.70,0.92)	0.61 (0.51,0.74)	0.69 (0.61,0.78)	0.46 (0.37,0.58)
<u>Consumption of peanuts (serving/day)</u>									
<u>Weight Change (kg)</u>									
Means	1.39±0.01	1.26±0.02*	1.19±0.13	1.46±0.02*	1.38±0.01	1.58±0.06*	0.59±0.11*	0.91±0.06*	1.34±0.07
Differences ¹	0	-0.13±0.02*	-0.20±0.13	0.07±0.02*	0.00±0.02	0.19±0.06*	-0.80±0.11*	-0.48±0.06*	-0.05±0.07
<u>Weight gain(≥2kg/)</u>									
Cases (prevalence)	78070 (44.5)	28332 (41.6)	622 (37.7)	30658 (43.7)	53509 (40.8)	2481 (39.9)	776 (33.2)	2359 (33.5)	1034 (33.9)
Relative Risk ²	1	0.98 (0.97, 0.99)	0.95 (0.90, 1.02)	1.02 (1.01, 1.03)	1.00 (0.99, 1.00)	1.04 (1.01, 1.07)	0.84 (0.79, 0.90)	0.89 (0.86, 0.92)	0.96 (0.91, 1.01)
<u>Weight gain (≥5kg/)</u>									
Cases (prevalence)	33245 (18.9)	11334 (16.7)	256 (15.5)	12642 (18.0)	19449 (14.8)	931 (15.0)	314 (13.4)	814 (11.6)	298 (9.8)
Relative Risk ²	1	0.95 (0.93, 0.97)	1.02 (0.90, 1.15)	1.01 (0.99, 1.03)	0.91 (0.90, 0.93)	1.04 (0.98, 1.11)	0.87 (0.78, 0.98)	0.84 (0.78, 0.90)	0.81 (0.72, 0.91)
<u>Incident Obesity</u>									
Cases (incident)	8628 (6.16)	3067(5.62)	74 (5.40)	3495 (6.30)	5435 (5.10)	250 (4.77)	79 (4.21)	205 (3.50)	89 (3.29)
Relative Risk ³	1	0.96 (0.92, 1.00)	0.96 (0.78, 1.17)	1.05 (1.01, 1.09)	0.93 (0.90, 0.96)	0.89 (0.79, 1.00)	0.77 (0.63, 0.93)	0.69 (0.61, 0.79)	0.69 (0.57, 0.84)

Consumption of peanut butter (serving/day)									
1st year intakes	0	0.1-0.49	≥0.5	0	0.1-0.49	≥0.5	0	0.1-0.49	≥0.5
4th year intakes	0	0	0	0.1-0.49	0.1-0.49	0.1-0.49	≥0.5	≥0.5	≥0.5
<u>Weight Change (kg)</u>									
Means	1.34±0.01	1.22±0.02	0.94±0.11	1.46±0.02	1.43±0.01	1.56±0.04	0.75±0.11	1.00±0.04	1.30±0.04
Differences ¹	0	-0.12±0.03	-0.40±0.12	0.12±0.03	0.10±0.02	0.23±0.04	-0.59±0.11	-0.34±0.04	-0.04±0.04
<u>Weight gain (≥2kg)</u>									
Cases (prevalence)	40349(42.3)	21357 (42.9)	971 (39.2)	22451 (43.5)	90064 (43.1)	7875 (42.9)	1218 (39.1)	8163 (38.5)	5393 (37.7)
Relative Risk ²	1	0.99 (0.98, 1.00)	0.95 (0.91, 1.00)	1.01 (1.00, 1.02)	1.01 (1.00, 1.02)	1.03 (1.01, 1.05)	0.96 (0.92, 1.00)	0.95 (0.93, 0.96)	0.95 (0.93, 0.98)
<u>Weight gain (≥5kg)</u>									
Cases (prevalence)	15943 (16.7)	8763 (17.6)	422 (17.0)	9422 (18.2)	35753 (17.1)	3269 (17.8)	492 (15.8)	3213 (15.2)	2006 (14.0)
Relative Risk ²	1	0.99 (0.97, 1.01)	1.03 (0.95, 1.12)	1.03 (1.01, 1.05)	0.98 (0.96, 1.00)	1.05 (1.02, 1.09)	0.95 (0.88, 1.03)	0.92 (0.89, 0.95)	0.93 (0.89, 0.97)
<u>Incident Obesity</u>									
Cases (incident)	1212 (5.3)	894 (6.4)	29 (4.6)	600 (5.8)	2862 (6.0)	290 (6.3)	26 (5.5)	168 (4.5)	114 (3.9)
Relative Risk ³	1	1.08 (1.04, 1.14)	0.88 (0.73, 1.07)	1.08 (1.03, 1.13)	1.10 (1.06, 1.14)	1.13 (1.05, 1.20)	1.04 (0.90, 1.22)	0.97 (0.91, 1.04)	0.93 (0.86, 1.01)

*Results are pooled from HPFS, NHS and NHS II

¹ Differences in weight change compare those who never or almost never consume nuts.

² Relative Risk of weight gain was calculated by multivariate model adjusted for age, menopausal status (pre- or postmenopausal) and hormone therapy use (never, past, or current) in women; baseline BMI of every 4 year; hours of sleeping at baseline; changes in lifestyle factors: smoking status (never, former, current: 1 to 14, 15 to 24, or ≥25 cigarettes/day), physical activity (Met/h/wk), hours of sitting (hr/wk); changes in dietary factors: fruits, vegetables, alcohol, snacks, dessert, French fries, red or processed meat, whole grain, refined grain and sugar sweetened beverages. Participants who do not consume nuts were used as reference group.

³ Relative Risk of incident obesity was calculated by multivariable model excluding the adjustment of baseline BMI of every 4-year interval. Participants who do not consume nuts were used as reference group