

Supplementary Table 1. Cause-specific mortality by body size at different ages in the Golestan Cohort Study

		<b>All medical causes<sup>a</sup></b> <b>HR (95% CI)</b>	<b>Cardiovascular</b> <b>HR (95% CI)</b>	<b>Cancer</b> <b>HR (95% CI)</b>
Body size at 15- women	1	1.05 (0.85,1.28)	1.06 (0.81,1.39)	1.03 (0.67,1.56)
	2	1	1	1
	3	1.06 (0.83,1.36)	1.12 (0.81,1.55)	0.97 (0.57,1.63)
	4	1.23 (0.94,1.59)	1.04 (0.72,1.51)	1.45 (0.86,2.43)
	5	1.36 (1.07,1.75)**	1.41 (1.02,1.95)*	1.43 (0.86,2.39)
	6	1.23 (0.95,1.59)	1.26 (0.89,1.76)	1.50 (0.90,2.51)
	7	1.54 (1.17,2.04)**	1.51 (1.04,2.19)*	1.89 (1.08,3.31)**
	>=8	1.59 (1.27,1.99)**	1.50 (1.11,2.03)**	1.75 (1.09,2.80)**
per 1 level increase	1.07 (1.04-1.09)**	1.06 (1.02-1.09)*	1.09 (1.04-1.15)**	
Body size at 30- women	1	0.90 (0.65,1.25)	0.97 (0.63,1.48)	1.05 (0.55,2.01)
	2	1	1	1
	3	0.91 (0.74,1.13)	0.96 (0.72,1.28)	1.08 (0.70,1.66)
	4	1.12 (0.91,1.40)	1.04 (0.78,1.40)	1.16 (0.74,1.82)
	5	1.23 (0.99,1.52)	1.11 (0.83,1.49)	1.70 (1.11,2.58)**
	6	1.39 (1.12,1.73)**	1.50 (1.12,2.00)**	1.21 (0.74,1.97)
	7	1.43 (1.10,1.86)**	1.48 (1.05,2.09)**	1.26 (0.70,2.27)
	>=8	1.46 (1.10,1.93)**	1.49 (1.03,2.16)**	1.44 (0.78,2.67)
per 1 level increase	1.09 (1.05-1.12)**	1.09 (1.04-1.13)**	1.06 (0.99-1.14)	
Body size at cohort baseline- women	1	1.12 (0.90,1.40)	1.22 (0.90,1.65)	0.92 (0.57,1.46)
	2	1	1	1
	3	0.91 (0.73,1.12)	1.10 (0.83,1.47)	0.72 (0.47,1.12)
	4	0.77 (0.61,0.96)**	0.78 (0.57,1.07)	0.83 (0.55,1.26)
	5	0.79 (0.63,0.98)*	0.96 (0.71,1.29)	0.56 (0.35,0.89)**
	6	0.80 (0.62,1.03)	1.03 (0.74,1.43)	0.54 (0.32,0.91)**
	7	0.92 (0.69,1.23)	1.11 (0.75,1.64)	0.74 (0.41,1.34)
	>=8	1.07 (0.78,1.47)	1.29 (0.85,1.97)	0.95 (0.50,1.77)
per 1 level increase	0.97 (0.93-1.00)*	0.99 (0.95-1.04)	0.94 (0.88-1.00)	
Body size at 15- men	1	1.20 (0.98,1.47)	1.32 (1.01,1.72)*	1.17 (0.74,1.85)
	2	1	1	1
	3	1.07 (0.91,1.26)	1.08 (0.87,1.34)	1.27 (0.90,1.79)
	4	1.24 (1.04,1.46)*	1.23 (0.98,1.55)	1.57 (1.10,2.24)*
	5	1.28 (1.05,1.56)*	1.35 (1.04,1.76)*	1.36 (0.88,2.08)
	>=6	1.43 (1.16,1.77)**	1.44 (1.08,1.91)**	1.61 (1.03,2.53)*
	per 1 level increase	1.06 (1.02-1.10)**	1.05 (0.99-1.11)	1.10 (1.01-1.20)*
Body size at 30- men	1	1.37 (0.89,2.09)	1.77 (1.05,2.99)*	0.81 (0.25,2.66)
	2	1	1	1
	3	1.04 (0.85,1.26)	1.03 (0.79,1.35)	1.18 (0.78,1.78)
	4	1.18 (0.98,1.43)	1.23 (0.95,1.59)	1.45 (0.97,2.18)
	5	1.30 (1.07,1.59)*	1.44 (1.10,1.88)**	1.23 (0.79,1.92)
	>=6	1.51 (1.20,1.90)**	1.67 (1.22,2.28)**	1.60 (0.97,2.64)
	per 1 level increase	1.10 (1.05-1.15)**	1.12 (1.06-1.19)**	1.10 (0.99-1.21)
Body size at cohort baseline- men	1	1.24 (1.00,1.52)	1.36 (1.00,1.84)	0.91 (0.58,1.41)
	2	1	1	1
	3	0.79 (0.67,0.94)**	0.98 (0.77,1.25)	0.67 (0.47,0.94)*
	4	0.85 (0.72,1.01)	1.08 (0.85,1.37)	0.71 (0.51,1.00)
	5	0.95 (0.79,1.14)	1.19 (0.92,1.53)	0.87 (0.61,1.25)
	>=6	1.13 (0.92,1.39)	1.63 (1.24,2.13)**	0.57 (0.35,0.94)**
per 1 level increase	0.99 (0.95-1.03)	1.07 (1.01-1.13)*	0.93 (0.85-1.01)	

HR: hazard ratio; Cox regression models adjusted for age, smoking, socioeconomic status, ethnicity, residence, education, opium and number of pregnancies. Body size analyses also adjusted for physical activity at the same age, and vice versa. <sup>a</sup>Excluding accidents, suicide and all other external causes of death. \*p<0.01, \*\*p<0.001

Supplementary Table 2. Cause-specific mortality by body size at ages 30 and cohort start among non-smokers in the Golestan Cohort Study

		<b>All medical causes<sup>a</sup></b>	<b>Cardiovascular</b>	<b>Cancer</b>
		<b>HR (95% CI)</b>	<b>HR (95% CI)</b>	<b>HR (95% CI)</b>
Body size at 30- women	1	0.87 (0.62,1.21)	0.91 (0.59,1.40)	1.05 (0.55,2.01)
	2	1	1	1
	3	0.90 (0.73,1.12)	0.94 (0.71,1.25)	1.08 (0.70,1.66)
	4	1.10 (0.88,1.37)	1.01 (0.75,1.36)	1.16 (0.74,1.82)
	5	1.19 (0.96,1.47)	1.08 (0.81,1.46)	1.68 (1.10,2.56)*
	6	1.37 (1.10,1.70)**	1.47 (1.10,1.97)**	1.19 (0.73,1.95)
	7	1.35 (1.03,1.76)*	1.37 (0.97,1.96)	1.10 (0.59,2.04)
	>=8	1.48 (1.12,1.95)**	1.50 (1.04,2.18)*	1.45 (0.78,2.69)
	per 1 level increase	1.08 (1.05-1.12)**	1.09 (1.04-1.13)**	1.06 (0.99-1.13)
Body size at cohort start- women	1	1.18 (0.93,1.49)	1.26 (0.91,1.74)	0.87 (0.53,1.43)
	2	1	1	1
	3	0.95 (0.76,1.19)	1.14 (0.84,1.54)	0.76 (0.49,1.19)
	4	0.83 (0.66,1.05)	0.84 (0.60,1.16)	0.85 (0.55,1.31)
	5	0.81 (0.64,1.03)	0.96 (0.70,1.32)	0.56 (0.35,0.90)*
	6	0.79 (0.61,1.03)	0.99 (0.70,1.41)	0.50 (0.29,0.87)**
	7	0.97 (0.71,1.31)	1.12 (0.74,1.68)	0.77 (0.42,1.40)
	>=8	1.06 (0.76,1.48)	1.27 (0.82,1.97)	0.82 (0.42,1.62)
	per 1 level increase	0.96 (0.93-1.00)*	0.99 (0.94-1.04)	0.93 (0.87-1.00)
Body size at 30- men	1	1.30 (0.72,2.34)	1.39 (0.66,2.95)	0.50 (0.07,3.77)
	2	1	1	1
	3	1.00 (0.77,1.30)	0.96 (0.68,1.34)	0.96 (0.54,1.69)
	4	1.18 (0.91,1.52)	1.10 (0.79,1.54)	1.48 (0.86,2.53)
	5	1.18 (0.90,1.55)	1.19 (0.84,1.69)	1.14 (0.63,2.05)
	>=6	1.59 (1.18,2.15)**	1.73 (1.18,2.54)**	1.38 (0.70,2.72)
	per 1 level increase	1.10 (1.04-1.17)**	1.12 (1.04-1.22)*	1.11 (0.97-1.26)
Body size at cohort start- men	1	1.06 (0.71,1.60)	0.88 (0.49,1.59)	0.53 (0.18,1.56)
	2	1	1	1
	3	0.89 (0.67,1.19)	0.96 (0.65,1.41)	0.81 (0.44,1.46)
	4	0.79 (0.59,1.05)	0.86 (0.59,1.25)	0.65 (0.36,1.18)
	5	0.96 (0.72,1.29)	1.04 (0.71,1.53)	1.99 (0.55,1.78)
	>=6	1.21 (0.89,1.66)	1.54 (1.04,2.29)*	0.72 (0.35,1.48)
		per 1 level increase	1.03 (0.96-1.09)	1.16 (1.06-1.26)**

HR: hazard ratio; Cox regression models adjusted for age, smoking, socioeconomic status, ethnicity, residence, education, opium and number of pregnancies. Body size analyses also adjusted for physical activity at the same age, and vice versa. <sup>a</sup> Excluding accidents, suicide and all other external causes of death. \*p<0.01, \*\*p<0.001

Supplementary Table 3. Sensitivity analysis for mortality due to medical causes by body size and physical activity at cohort baseline in the Golestan Cohort Study

	Women		Men	
	Excluding death during the first year	Excluding chronic disease <sup>a</sup> at baseline	Excluding death during the first year	Excluding chronic disease <sup>a</sup> at baseline
<b>Body size at cohort baseline</b>				
1	1.03 (0.81,1.31)	1.00 (0.71,1.41)	1.17 (0.93,1.47)	1.11 (0.83,1.47)
2	1	1	1	1
3	0.90 (0.71,1.13)	1.03 (0.74,1.42)	0.83 (0.69,1.01)	0.84 (0.67,1.06)
4	0.76 (0.60,0.97)*	0.68 (0.47,0.98)*	0.87 (0.73,1.05)	0.88 (0.70,1.11)
5	0.80 (0.63,1.02)	0.67 (0.46,0.97)**	0.93 (0.77,1.14)	0.83 (0.64,1.09)
6	0.85 (0.65,1.11)	0.82 (0.55,1.24)	1.04 (0.83,1.31)	0.88 (0.64,1.22)
7	0.95 (0.69,1.30)	1.09 (0.67,1.77)	NA	NA
>=8	0.99 (0.69,1.41)	0.79 (0.40,1.53)	NA	NA
per 1 level increase	0.98 (0.95,1.02)	0.97 (0.94,1.00)	0.98 (0.94,1.03)	0.99 (0.95,1.02)
<b>Level of work activity at cohort baseline</b>				
1	1.39 (0.95,2.02)	1.33 (0.74,2.41)	1.60 (1.26,2.04)**	1.47 (1.05,2.04)*
2	1.75 (1.12,2.76)**	1.74 (0.84,3.59)	1.24 (0.98,1.57)	1.19 (0.87,1.63)
3	1.12 (0.86,1.47)	1.11 (0.76,1.62)	0.96 (0.80,1.17)	0.90 (0.70,1.16)
4	1	1	1	1
per 1 level increase	0.87 (0.78,0.98)*	0.86 (0.78,0.95)**	0.88 (0.82,0.94)**	0.89 (0.84,0.95)**

HR: hazard ratio; Cox regression models adjusted for age, smoking, socioeconomic status, ethnicity, residence, education, opium and number of pregnancies. Body size analyses also adjusted for physical activity and vice versa. Excluding accidents, suicide and all other external causes of death. <sup>a</sup> History of ischemic heart disease, heart failure, cerebrovascular disease, hypertension, diabetes mellitus, chronic pulmonary disease, and cancer.

\*p<0.01, \*\*p<0.001

