

Supplementary Table 1 Baseline characteristics of the study population by different trajectories of TSF thickness in males and females

	Trajectories in males				Trajectories in females			
	Class1	Class2	Class3	P	Class1	Class2	Class3	P
N	2132(29.1%)	3818(52.1%)	1379(18.8%)		1968(26.5%)	4828(65.1%)	620(8.4%)	
				<0.00				<0.00
Age(y)	44.5(16.0)	41.5(15.3)	39.1(13.5)	1	47.0(14.0)	42.0(15.4)	36.4(10.8)	1
				<0.00				<0.00
TSF thickness	6.7(3.1)	11.6(5.3)	18.2(7.3)	1	10.3(4.3)	15.7(5.5)	23.0(5.0)	1
				<0.00				<0.00
MUAC	24.6(2.5)	26.6(3.1)	28.7(3.7)	1	23.7(2.9)	25.7(3.2)	28.6(3.1)	1
				<0.00				
MAMC	22.5(2.5)	23.0(3.2)	23.0(3.2)	1	20.5(2.9)	20.8(2.8)	21.4(2.5)	0.29
				<0.00				<0.00
BMI (kg/m2)	20.8(2.2)	22.8(2.9)	24.5(3.4)	1	21.1(2.7)	22.8(3.1)	25.3(3.4)	1
				<0.00				<0.00
WC	74.6(7.5)	80.9(9.5)	86.3(10.5)	1	73.9(8.3)	77.6(9.8)	82.1(9.8)	1

				<0.00				
SBP (mm Hg)	118.0(16.9)	120.8(16.1)	122.3(14.9)	1	115.5(18.4)	116.4(18.2)	117.2(16.8)	0.047
				<0.00				
DBP (mm Hg)	77.5(11.5)	79.3(11.2)	80.8(10.6)	1	76.0(12.4)	75.9(11.3)	76.8(11.3)	0.016
Alcohol								
consumers	1279(60.0%)	2357(61.7%)	894(64.8%)	0.016	204(10.4%)	545(11.3%)	70(11.3%)	0.534
				<0.00				
Smoking	1429(67.0%)	2331(61.1%)	811(58.8%)	1	118(6.0%)	196(4.1%)	21(3.4%)	0.001
								<0.00
Married	1698(79.6%)	3041(79.6%)	1106(80.2%)	0.898	1651(83.9%)	4112(85.2%)	561(90.5%)	1
				<0.00				<0.00
Living in city	492(23.1%)	1462(38.3%)	636(46.1%)	1	634(32.2%)	1852(38.4%)	262(42.3%)	1
				<0.00				<0.00
Household income per capita								
				1				1
Low	877(41.1%)	988(25.9%)	213(15.4%)		763(38.8%)	1295(26.8%)	120(19.4%)	
Medium	745(34.9%)	1184(31.0%)	357(25.9%)		681(34.6%)	1421(29.4%)	174(28.1%)	
High	510(23.9%)	1646(43.1%)	809(58.7%)		524(26.6%)	2112(43.7%)	326(52.6%)	

				<0.00				<0.00
Educational attainment				1				1
Low	1777(83.3%)	2664(69.8%)	794(57.6%)		1686(85.7%)	3724(77.1%)	437(70.5%)	
Medium	303(14.2%)	913(23.9%)	431(31.3%)		236(12.0%)	870(18.0%)	140(22.6%)	
High	52(2.4%)	241(6.3%)	154(11.2%)		46(2.3%)	234(4.8%)	43(6.9%)	
				<0.00				<0.00
Physical activity				1				1
Low	557(26.1%)	1543(40.4%)	696(50.5%)		754(38.3%)	2460(51.0%)	340(54.8%)	
Medium	367(17.2%)	880(23.0%)	367(26.6%)		244(12.4%)	713(14.8%)	103(16.6%)	
High	1208(56.7%)	1395(36.5%)	316(22.9%)		970(49.3%)	1655(34.3%)	177(28.5%)	
Total energy intake (kcal/d)	2566.5(922.6)	2473.7(734.8)	2393.6(743.7)	0.108	2192.1(883.0)	2120.7(782.4)	2021.0(619.0)	0.398
Carbohydrate intake (g/d)	403.0(148.6)	366.1(141.8)	335.3(128.8)	1	344.2(130.3)	314.8(127.2)	288.4(108.2)	0.001
Fat intake (g/d)	67.4(71.7)	74.2(39.1)	78.2(46.0)	0.412	61.4(69.3)	66.3(60.5)	67.2(40.2)	0.911
Protein	74.5(25.2)	76.5(33.1)	77.6(27.1)	0.048	65.1(38.3)	65.6(22.5)	64.8(21.3)	0.666

intake(g/d)					<0.00				
Baseline diabetes	7(0.3%)	70(1.8%)	36(2.6%)	1		22(1.1%)	86(1.8%)	3(0.5%)	0.012
Baseline hypertension	429(20.1%)	909(23.8%)	347(25.2%)	0.001		342(17.4%)	883(18.3%)	115(18.5%)	0.641

Data given as mean \pm SD or n (%)

Trajectories in males: Class1: Extremely thin, corresponds to males whose TSF thickness was extremely thin throughout adulthood; Class 2: Thin-stable, corresponds to males who had stable thin TSF thickness throughout adulthood; Class 3: thin-moderate, corresponds to males whose TSF thickness increased from thin to moderate throughout adulthood.

Trajectories in females: Class 1: Thin-stable, corresponds to females who had stable thin TSF thickness throughout adulthood; Class 2: thin-moderate, corresponds to females whose TSF thickness increased from thin to moderate throughout adulthood; Class3: moderate to thick then decline, corresponds to participants whose TSF thickness increased from thin to moderate and then showed a slight decline in their senectitude.

TSF, triceps skinfold; MUAC, mid-upper arm circumference; MAMC, mid-arm muscle circumference; BMI, body mass index; WC, waist circumference; SBP, systolic blood pressure; DBP, diastolic blood pressure

Supplementary Table 2 Difference for biomarkers across TSF thickness trajectories in males and females

	MALE				FEMALE			
	class1	class2	class3	P	class1	class2	class3	P
TP (g/L)	75.57(5.07)	76.34(5.10)	77.14(5.03)	<0.001	77.59(5.31)	77.98(5.00)	77.56(5.12)	0.078
Alb (g/L)	46.68(3.46)	47.82(3.42)	49.00(3.49)	<0.001	46.60(3.33)	47.27(3.18)	47.27(3.23)	<0.001
TRF (g/L)	272.12(48.07)	279.32(53.52)	293.22(50.84)	<0.001	282.28(55.11)	296.55(57.05)	304.77(56.54)	<0.001
GNRI	107.60(6.22)	111.68(5.62)	114.16(5.54)	<0.001	108.31(6.21)	111.05(5.17)	111.82(4.87)	<0.001
FBG								
(mmol/L)	5.22(1.15)	5.58(1.86)	5.68(1.73)	<0.001	5.33(1.20)	5.36(1.38)	5.41(1.45)	0.615
Insulin								
(μ IU/ml)	11.32(22.54)	15.81(28.19)	16.19(14.68)	<0.001	11.79(12.54)	14.50(22.20)	15.94(12.69)	<0.001
HbA1c (%)	5.51(0.68)	5.70(1.04)	5.75(1.01)	<0.001	5.61(1.11)	5.62(0.83)	5.67(0.83)	0.575
HOMA-IR	2.79(6.18)	4.32(8.60)	4.45(6.62)	<0.001	3.05(5.34)	3.76(7.69)	4.15(5.08)	0.01
UA (μ mol/L)	330.86(95.30)	360.12(116.57)	379.28(125.67)	<0.001	266.97(78.43)	269.82(81.27)	266.61(79.16)	0.579
hsCRP								
(mg/dL)	3.34(11.44)	2.45(5.61)	2.57(5.33)	0.013	2.98(17.57)	2.22(5.02)	2.05(2.40)	0.11
Cr (μ mol/L)	95.96(18.37)	97.74(33.41)	95.04(13.15)	0.054	82.96(25.49)	79.41(15.29)	76.50(9.31)	<0.001

Urea								
(mmol/L)	5.85(1.58)	5.88(1.67)	5.69(1.45)	0.036	5.33(1.72)	5.23(1.48)	5.10(1.55)	0.05
ALT (U/L)	21.02(16.7)	26.48(19.98)	31.88(25.35)	<0.001	17.39(10.10)	20.45(17.28)	23.44(20.36)	<0.001
TC								
(mmol/L)	4.65(0.88)	4.86(0.99)	5.02(1.02)	<0.001	4.99(1.01)	4.93(1.03)	4.76(1.02)	0.003
TG								
(mmol/L)	1.32(1.10)	1.91(1.77)	2.29(2.21)	<0.001	1.41(0.93)	1.64(1.37)	1.61(1.24)	<0.001
LDL-C								
(mmol/L)	2.79(0.93)	2.95(0.96)	3.05(0.97)	<0.001	3.10(1.00)	3.05(0.99)	2.94(0.94)	0.057
HDL-C								
(mmol/L)	1.53(0.57)	1.39(0.52)	1.28(0.36)	<0.001	1.53(0.38)	1.46(0.47)	1.39(0.35)	<0.001

Data are mean (SD)

TP, total protein; Alb, albumin; TRF, transferrin; GNRI, The Geriatric Nutritional Risk Index; FPG, fasting plasma glucose; UA, uric acid; hs-CRP, high-sensitivity C-reactive protein; Cr, creatinine; ALT, Alanine Aminotransferase; TC, Total cholesterol; TG, triacylglycerol; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol

Supplementary Table 3 Association between tertiles of TSF thickness and risk of all-cause mortality by sex

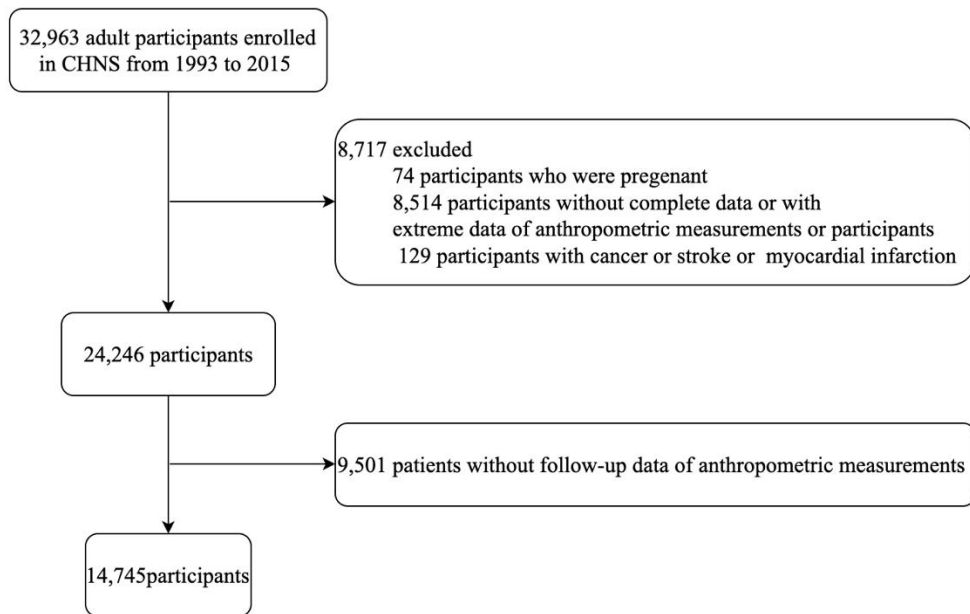
	NO. of participants/Death	Model 1	Model 2	Model 3	Model 4
Male					
Q1(lowest)	2442/283	1	1	1	1
Q2	2443/201	0.932(0.775, 1.120)	0.951(0.789, 1.145)	1.017(0.789, 1.310)	1.019(0.790, 1.313)
Q3	2444/112	0.845(0.672, 1.061)	0.873 (0.693, 1.100)	1.074(0.620, 1.863)	1.088(0.627, 1.887)
Female					
Q1(lowest)	2471/224	1	1	1	1
Q2	2472/124	0.815(0.652, 1.017)	0.831(0.665, 1.039)	1.053(0.737, 1.506)	1.058(0.740, 1.511)
Q3	2473/75	0.739(0.564, 0.969)	0.754(0.574, 0.990)	1.260(0.661, 2.402)	1.261(0.662, 2.402)

Model 1 was adjusted for age, marriage status (married or not), educational attainment levels (low, medium, or high), household income per capita levels (low, medium, or high), and living in city (yes or no).

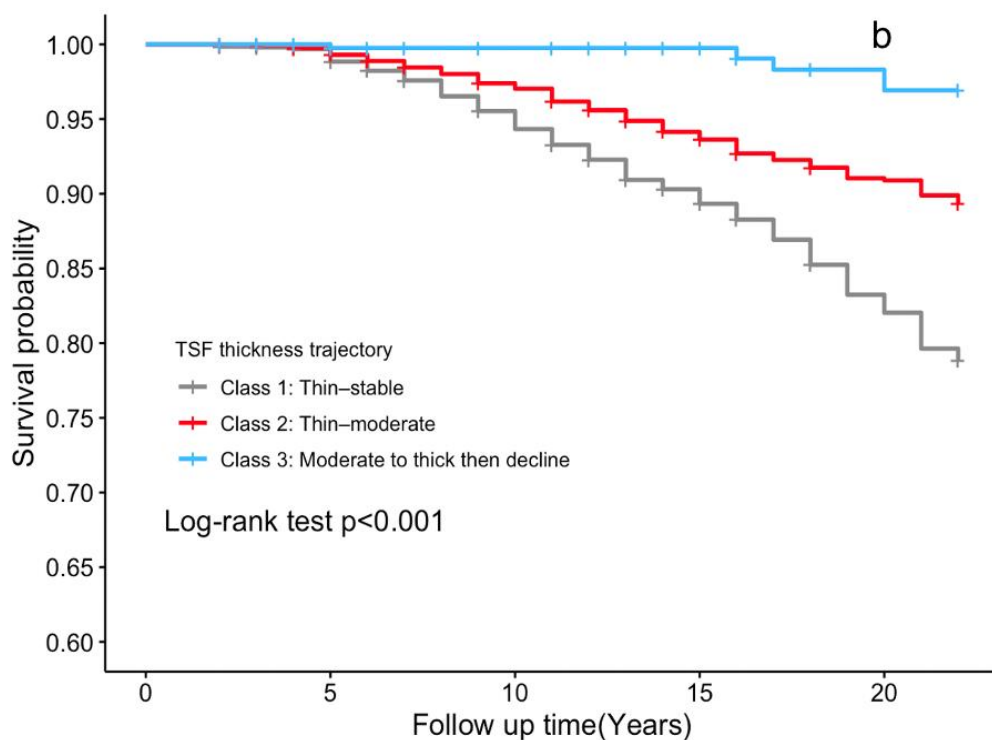
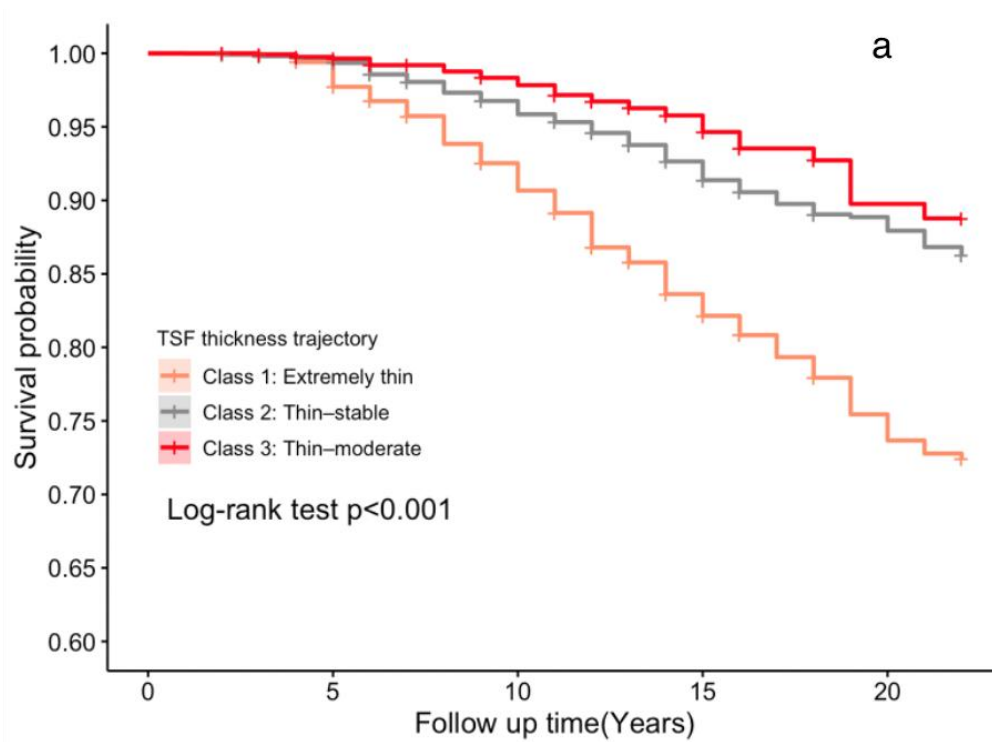
Model 2 was adjusted for the variables in Model 1 as well as smoking status (ever/current or never smoker), alcohol consumption(yes or no), physical activity levels(low, moderate, or high), total energy intake, fat intake, protein intake, carbohydrate intake.

Model 3 included variables in Model 2 and was adjusted for BMI, WC, TSF thickness, MUAC, systolic blood pressure, and diastolic blood pressure.

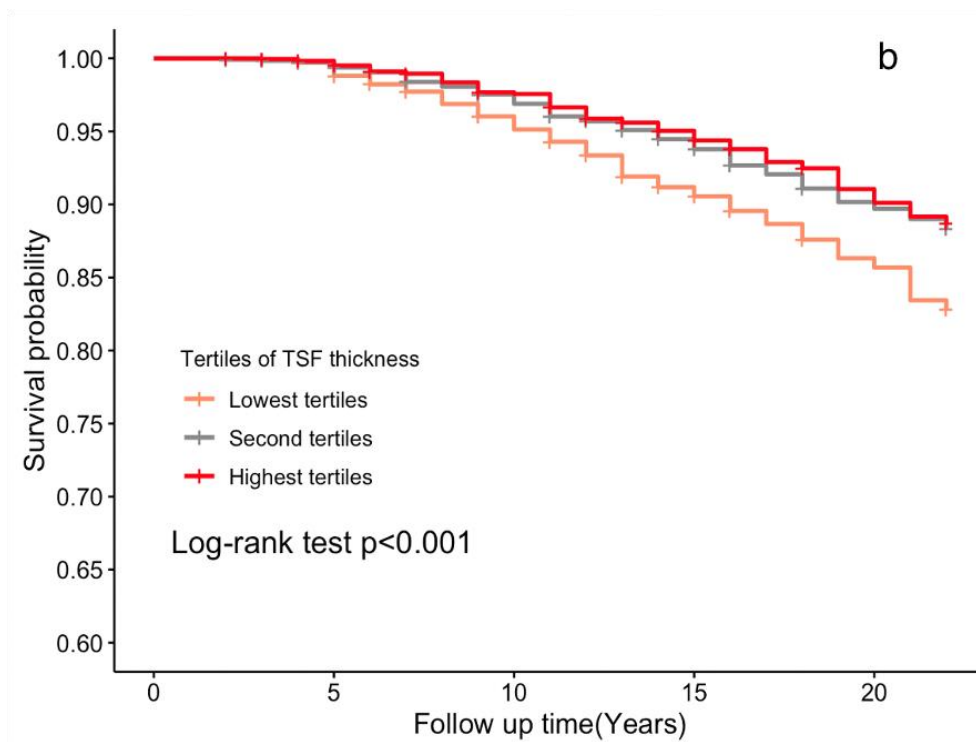
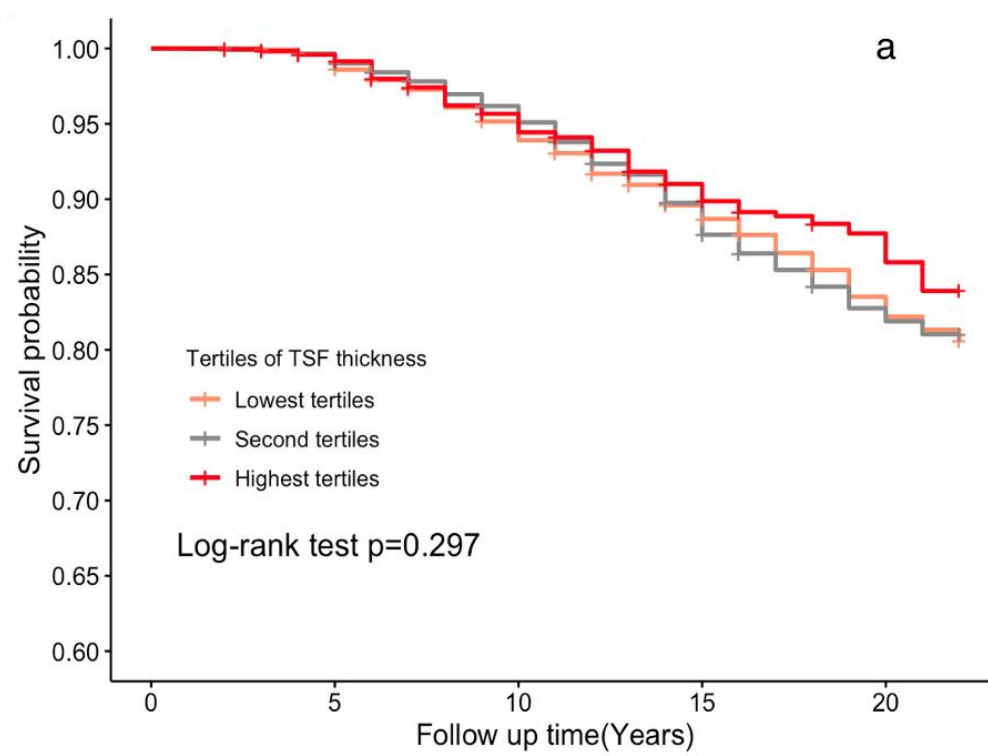
Model 4 was adjusted for the variables in Model 3 as well as the history of diabetes and hypertension.



Supplementary Figure 1 Study population flowchart.



Supplementary Figure 2 Kaplan-Meier estimates of all-cause mortality by different trajectories of TFS thickness in males (a) and females (b). TFS, triceps skinfold.



Supplementary Figure 3 Kaplan-Meier estimates of all-cause mortality by tertiles of TSF thickness in males (a) and females (b).

TSF, triceps skinfold.