



Figure S1. Correlation of anthropometric indicators with adipose tissue insulin resistance index stratified by gender. β (unstandardized coefficients) and 95% CI (95% confidence interval): from linear regression analysis. Model I, unadjusted; Model II, adjusted for age, income, education level, current smoking status and current drinking status; Model III, Model II+ adjusted for SBP, DBP, FPG, 2h-PG, HDL-C, LDL-C, TG and TC.

Table S1. Association of the best anthropometric indicators and lipid profiles with Adipo-IR stratified by gender

	OR(95% CI)	AUC
Male		
WC	3.43(2.03,5.82)	0.788
TC	0.45(0.11,1.90)	0.619
TG	3.21(1.28,8.04)	0.738
LDL	2.54(0.68,9.45)	0.594
HDL	1.51(0.71,3.20)	0.347
Female		
BMI	3.08(2.04,4.66)	0.779
TC	1.83(0.40,8.30)	0.589
TG	1.27(0.57,2.85)	0.724
LDL	0.89(0.25,3.20)	0.543
HDL	0.73(0.39,1.38)	0.396

OR (odds ratio) and 95% CI (95% confidence interval): from logistic regression analysis;

In this model, we put the best anthropometric indicator, lipid profiles and adjusted for age, income, education level, current smoking status and current drinking status, SBP, DBP, FPG and 2h-PG;

AUC, area under the ROC-curves for Anthropometric indicators for Distinguishing Adipo-IR in male and female.

Table S2. Association of anthropometric indicators with Adipo-IR stratified by gender in different populations

	Non-diabetes	Non-CVD	Non-fat liver	Non-metabolic diseases
Male, n	198	217	211	171
BMI	3.11(1.78,5.43)	2.45(1.49,4.01)	2.59(1.52,4.44)	2.40(1.30,4.44)
Neck circumference	2.69(1.61,4.50)	1.94(1.25,3.00)	2.03(1.25,3.29)	2.29(1.28,4.10)
Waist circumference	4.64(2.40,8.98)	3.21(1.85,5.59)	3.25(1.83,5.79)	3.79(1.83,7.83)
WHR	1.88(1.13,3.13)	1.55(0.99,2.43)	1.70(1.05,2.75)	1.95(1.05,3.60)
Female, n	216	242	237	179
BMI	2.86(1.80,4.55)	3.59(2.24,5.75)	2.95(1.88,4.63)	3.36(1.86,6.04)
Neck circumference	2.14(1.39,3.29)	2.95(1.87,4.66)	2.63(1.66,4.18)	2.53(1.43,4.45)
Waist circumference	2.54(1.65,3.93)	3.47(2.22,5.42)	2.87(1.83,4.49)	3.26(1.78,5.99)
WHR	1.79(1.21,2.64)	1.93(1.33,2.80)	1.68(1.12,2.54)	2.00(1.20,3.32)

Adjusted for age, income, education level, current smoking status and current drinking status, SBP, DBP, FPG, 2h-PG, HDL,LDL,TG,TC.

None metabolism disease included the population of none disease of diabetes, CVD and fat liver.

OR (odds ratio) and 95% CI (95% confidence interval): from logistic regression analysis.

Table S3. Optimal cutoffs of anthropometric indicators for distinguishing Adipo-IR using ROC curve analysis

	Cut-off value, cm	Sensitivity(95%CI),%	Specificity(95%CI),%	+LR	-LR	AUC(95%CI)	<i>P</i> value
Male							
Waist circumference	83.5	0.91(0.82,0.96)	0.54(0.46,0.62)	1.98	0.17	0.788(0.730,0.846)	Ref
BMI	22.04	0.86(0.76,0.93)	0.61(0.53,0.69)	2.21	0.23	0.774(0.712,0.835)	0.48
Neck circumference	36.25	0.78(0.67,0.87)	0.66(0.58,0.73)	2.28	0.34	0.754(0.689,0.819)	0.18
WHR	0.88	0.91(0.82,0.96)	0.43(0.35,0.51)	1.60	0.21	0.690(0.623,0.756)	0.08
Female							
BMI	21.77	0.92(0.85,0.97)	0.51(0.44,0.59)	1.89	0.15	0.779(0.721,0.836)	Ref
Neck circumference	33.75	0.72(0.61,0.81)	0.71(0.64,0.77)	2.46	0.40	0.774(0.716,0.832)	0.74
Waist circumference	84.75	0.73(0.63,0.82)	0.71(0.64,0.78)	2.55	0.38	0.772(0.713,0.830)	0.84
WHR	0.89	0.69(0.58,0.78)	0.60(0.53,0.67)	1.72	0.52	0.674(0.607,0.741)	0.003

+LR, Positive predictive ; -LR, Negative predictive; *p* value in male, comparison AUC of waist circumference to other indicators'; *p* value in female, comparison AUC of BMI to other indicators'.

Table S4. Distribution of adipose tissue insulin resistance in participants with different obesity phenotypes

	Total, N	Adipo-IR, n(%)	Non-Adipo-IR, n(%)
B0W0	236	42(17.8)	194(82.2)
B1W0	7	1(14.3)	6(85.7)
B0W1	157	53(33.8)	104(66.2)
B1W1	99	70(70.7)	29(29.3)

B0/B1: without/with general obesity; W0/W1: without/with abdominal obesity.

Table S5. Comparison of the prevalence of metabolic disease in participants with and without adipose tissue insulin resistance

	DM			CVD			Fat liver		
	n/N(%)	OR(95% CI)	<i>p</i>	n/N(%)	OR(95% CI)	<i>p</i>	n/N(%)	OR(95% CI)	<i>p</i>
B0W0A0	21/194(10.8)	Ref.		12/194(6.2)	Ref.		3/194(1.5)	Ref.	
B0W0A1	8/42(19.0)	2.04(0.78,5.38)	0.15	7/42(16.7)	3.75(1.11,12.67)	0.033	3/42(7.1)	5.89(0.93,37.29)	0.06
B1W0A0	0/6	-	-	0/6	-	-	0/6	-	-
B1W0A1	0/1	-	-	0/1	-	-	0/1	-	-
B0W1A0	18/104(17.3)	Ref.		7/104(6.7)	Ref.		10/104(9.6)	Ref.	
B0W1A1	17/53(32.1)	2.20(0.93,5.18)	0.07	4/53(7.5)	1.24(0.31,4.91)	0.76	7/53(13.2)	1.27(0.42,3.86)	0.67
B1W1A0	5/29(17.2)	Ref.	-	2/29(6.9)	Ref.		5/29(17.2)	Ref.	
B1W1A1	16/70(22.9)	1.17(0.34,4.00)	0.80	8/70(11.4)	1.80(0.28,11.37)	0.53	22/70(31.4)	2.40(0.72,8.05)	0.16

Adjusted: sex, age, income, education level, current smoking status and current drinking status.

B0/B1: without/with general obesity; W0/W1: without/with abdominal obesity; A0/A1: without/with adipose tissue insulin resistance.