Insulin resistance, beta cell function, adipokine profiles and cardio-metabolic risk factors among Chinese youth with isolated impaired fasting glucose versus impaired glucose tolerance: The BCAMS study

Supplemental Data

Supplementary Table 1. Number (percentage) of individuals according to glycemic status classified by FPG and OGTT

		2-h PG (mmol/L)			total
		NGT (< 7.8)	IGT (7.8 - 11.1)	T2D ($\geq$ 11.1)	
FPG (mmol/L)	NGT (< 5.6)	478 (95.6)	32 (97.0)	2 (22.2)	512 (94.5)
	IFG (5.6 - 7.0)	21 (4.2)	1 (3.0)	4 (44.4)	26 (4.8)
	T2D ($\geq$ 7.0)	1 (0.4)	0	3 (33.3)	4 (0.7)
	total	500	33	9	542

Kappa value = 0.12; Numbers in brackets are percentages of vertical total.

Abbreviations: FPG Fasting plasma glucose; NGT Normal glucose tolerance; IFG Impaired fasting glucose; IGT Impaired glucose tolerance; T2D Diabetes mellitus.

Supplementary Table 2. Sensitivity/Specificity of diverse triglycerides cut-offs

	Morrison KM, et al (5-17y, n=259 obese, to identify iIGT)		Morandi A, et al (8-18.4y, n=817 obese, to identify IGT)		Our study (14-28y, n=510, to identify iIGT in normal FPG)		Our study (14-28y, n=542, to identify IGT+T2DM in all participants)	
	sensitivity	specificity	sensitivity	specificity	sensitivity	specificity	sensitivity	specificity
TG ≥ 1.17 mmol/L[a]	71.4(57.8-85.1)	64.1(57.7-70.4)	66.6(51.8-81.4)	68.2(64.9-71.5)	46.9(29.6-64.2)	71.1(67.0-75.1)	50.0(34.9,65.1)	69.9(65.9,74.0)
TG ≥ 1.13 mmol/L[b]	-	-	69	65	56.3(39.1-73.4)	68.8(64.6-72.9)	57.1(42.2,72.1)	67.5(63.4,71.6)
TG ≥ 1.7 mmol/L[c]	-	-	-	-	28.1(12.5-43.7)	87.0(84.0-90.0)	33.3(19.1,47.6)	86.8(83.8,89.7)
TG ≥ 1.11 mmol/L[d]	-	-	-	-	62.5(45.7-79.3)	67.1(62.9-71.3)	61.9(47.2,76.6)	65.9(61.8,70.1)

Data are percentage (95% CI). IGT: impaired glucose tolerance; iIGT: isolated impaired glucose tolerance; FPG: fasting plasma glucose; T2DM: type 2 diabetes; TG: triglycerides.

[a] criterion proposed by Morrison KM et al based on the Canadian cohort of obese children and adolescents.

[b] criterion proposed by Morandi A et al based on the Italian cohort of obese children and adolescents.

[c] criterion proposed by ADA.

[d] the cut-off point of TG calculated by ROC analysis based on our cohort both in all participants or participants with normal FPG.

Supplementary Table 3. Sensitivity/Specificity of combinations of triglycerides (TG) and fasting plasma glucose (FPG) cut-offs

	Morandi A, et al (8-18.4y, n=817 obese, detect IGT)		Our study (14-28y, n=510, detect iIGT in normal FPG)		Our study (14-28y, n=542, detect IGT+T2DM in all participants)	
	sensitivity	specificity	sensitivity	specificity	sensitivity	specificity
TG ≥ 1.13 mmol/L plus FPG ≥ 4.44 mmol/L[a]	69.2(54.7-83.7)	78.2(76.8-79.6)	53.1(35.8-70.4)	73.0(69.0-77.0)	54.8(39.7,69.8)	71.5(67.6,75.5)
FPG ≥ 4.44 mmol/L[a]	92	32	-	-	-	-
FPG ≥ 4.99 mmol/L[b]	-	-	59.4(42.4,76.4)	69.5(65.3,73.6)	-	-
FPG ≥ 5.03 mmol/L[c]	-	-	-	-	64.3(49.8,78.8)	71.8(67.9,75.7)
TG ≥ 1.11 mmol/L plus FPG ≥ 4.99 mmol/L[d]	-	-	40.6(23.6-57.6)	88.7(85.8-91.5)	-	-
TG ≥ 1.11 mmol/L plus FPG ≥ 5.03 mmol/L[e]	-	-	-	-	42.9(27.9,57.8)	87.8 (84.9,90.6)

Data are percentage (95% CI). IGT: impaired glucose tolerance; iIGT: isolated impaired glucose tolerance; FPG: fasting plasma glucose; T2DM: type 2 diabetes; TG: triglycerides.

[a] criterion proposed by Morandi A et al based on the Italian cohort of obese children and adolescents.

[b] the cut-off point of FPG calculated by ROC analysis based on our cohort among participants with normal FPG.

[c] the cut-off point of FPG calculated by ROC analysis based on our cohort among all participants.

[d] criterion based on our cohort among participants with normal FPG.

^e criterion based on our cohort among all participants.
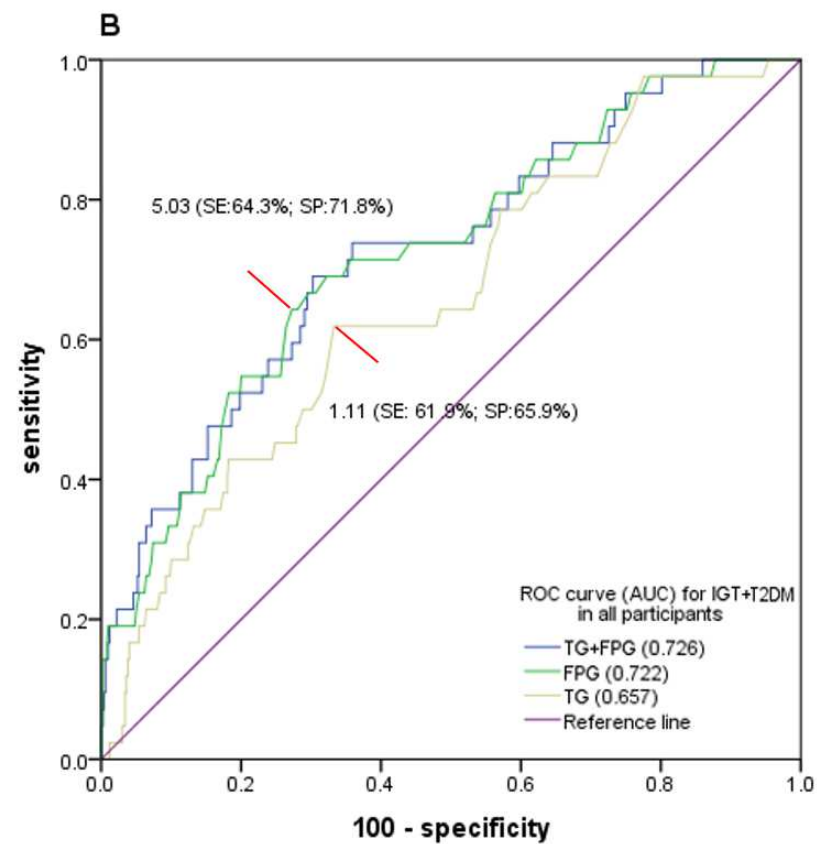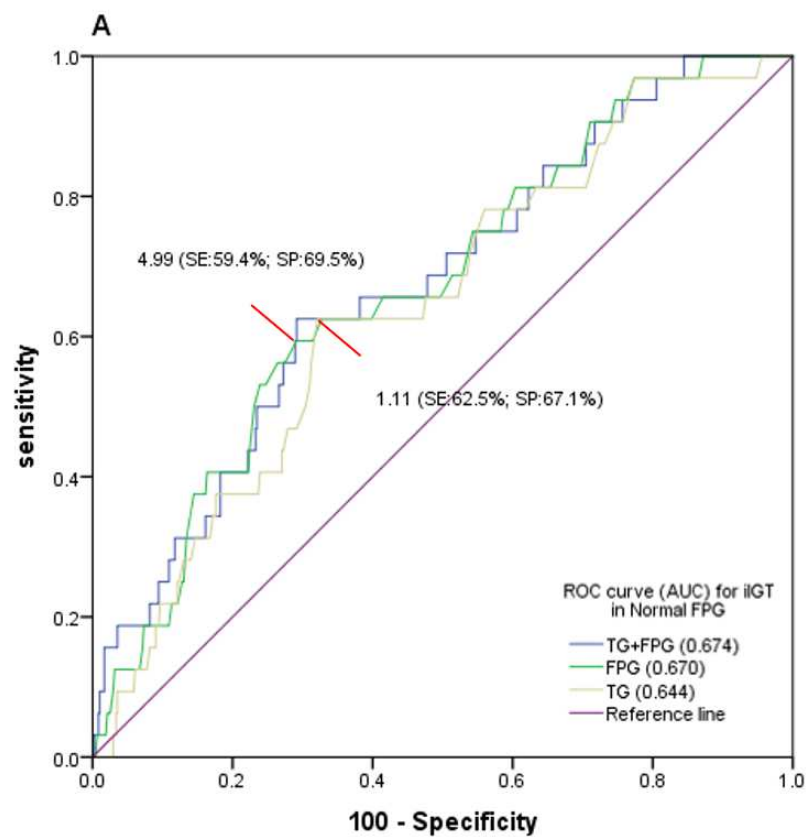
Supplementary Figure 1 ROC curves of TG, FPG and TG + FPG discrimination iIGT (A) and IGT + T2DM (B).

The blue discontinuous line indicates the curve defining the area for the TG + FPG, the green continuous curve defines the area for FPG, and the yellow continuous curve

defines the area for TG. The red arrows indicate the different thresholds (sensitivity, specificity) of TG and FPG.

FPG, fasting plasma glucose; IGT, impaired glucose tolerance; iIGT, isolated impaired glucose tolerance; T2DM, type 2 diabetes; ROC, receiver operating characteristic curve; AUC, area under

the curve; SE, sensitivity; SP, specificity;

References in the manuscript:

1. Morrison KM, Xu LQ, Tarnopolsky M, et al. Screening for Dysglycemia in Overweight Youth Presenting for Weight Management. *Diabetes care* 2012;**35**(4):711-16.

2. Morandi A, Maschio M, Marigliano M, et al. Screening for impaired glucose tolerance in obese children and adolescents: a validation and implementation study. *Pediatric Obesity* 2014;**9**(1):17-25.