

SUPPLEMENTARY DATA

Supplementary Table 1. Baseline characteristics of study subjects.

	Subjects (n=7849)
Male (%)	5409 (68.9)
Age (years)	44.5±5.4
HbA1c (%)	5.39±0.33
Fasting glucose (mg/dl)	95.0±8.4
AST (IU)	23.2±8.9
ALT (IU)	24.9±15.8
BMI (kg/m ²)	23.6±2.8
Systolic BP (mmHg)	112.7±14.5
HDL-C (mg/dl)	51.8±11.7
Triglycerides (mg/dl)	131.6±81.5
LDL-C (mg/dl)	112.5±26.8
Fasting insulin (μIU)	8.5±3.2
HOMA IR	2.01±0.82
Physical activity (%)*	1505 (19.2)
Smoking status (%)	
Current	1705 (21.7)
Former	1666 (21.2)
Current drinker (%)	4942 (63.0)

NOTE. Data are n (%) or mean ± standard deviation

*Physical activity denotes engagement in physical activity for a minimum of 30 minutes at least three times per week

Abbreviations: AST, aspartate aminotransferase; ALT, alanine aminotransferase; BMI, body mass index; BP, blood pressure; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; HOMA-IR, homeostasis model assessment of insulin resistance

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Supplementary Table 2. Hazard ratios for developing type 2 diabetes according to the presence of NAFLD at baseline.

Variable	non-NAFLD	NAFLD	<i>p</i> value
No. of subjects	5557	2292	
No. of subjects who developed diabetes	208	227	
Proportion of subjects who developed diabetes (%)	3.7	9.9	
Person-years of follow-up	22,009	8,928	
No. of incident case of diabetes (per 100 person-years)	0.9	2.5	
Adjusted hazard ratio (95% CI)*			
Age and gender	1	2.46	<0.001
	(reference)	(2.02-3.00)	
Age, gender, BMI, TG, HDL-C, systolic BP, and concurrent presence of IFG	1	1.34	0.011
	(reference)	(1.07-1.67)	
Multivariate [†]	1	1.33	0.010
	(reference)	(1.07-1.66)	

* estimated from Cox proportional hazard analysis.

† The multivariate Cox regression model was adjusted for baseline age, gender, BMI, TG, HDL-C, systolic BP, concurrent presence of IFG, smoking status (never smoked, former smoker or current smoker), physical activity (a minimum of 30 minutes at least 3 times per week or less), and alcohol consumption (current drinker or not).

Abbreviations: NAFLD, non-alcoholic fatty liver disease; CI, confidence interval; BMI, body mass index; TG, triglycerides; HDL-C, high density lipoprotein cholesterol; BP, blood pressure.

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Supplementary Table 3. Baseline characteristics of study subjects by presence of NAFLD and IFG.

	NFG(n=5800)			P	IFG(n=2049)		
	non NAFLD	NAFLD			non NAFLD	NAFLD	P
n (%)	4353 (75.1)	1447 (24.9)			1204 (58.8)	845 (41.2)	
Male (%)	2486 (57.1)	1289 (89.1)			868 (72.1)	766 (90.7)	
Age (years)	44.2±5.4	44.4±4.8 [†]	0.15 *		45.6±5.9	45.4±5.1	0.404 *
HbA1c (%)	5.33±0.30	5.36±0.32 [†]	<0.001 *		5.46±0.33	5.58±0.36	<0.001 *
Fasting glucose (mg/dl)	90.6±5.3	92.6±4.7 [†]	<0.001 *		105.4±5.2	106.6±6.0	<0.001 *
AST (IU)	21.6±6.7	26.6±13.3 [†]	<0.001 *		22.2±6.6	27.3±9.4	<0.001 *
ALT (IU)	19.8±10.7	35.1±20.1 [†]	<0.001 *		22.1±10.8	37.4±20.0	<0.001 *
BMI(kg/m ²)	22.5±2.4	25.6±2.4 [†]	<0.001 *		23.6±2.4	26.1±2.4	<0.001 *
Systolic BP (mmHg)	109.6±13.5	115.8±13.9	<0.001 *		115.9±15.2	118.8±14.9	<0.001 *
HDL-C (mg/dl)	54.3±12.0	46.4±8.7 [†]	<0.001 *		53.4±12.1	46.2±8.0	<0.001 *
Triglycerides (mg/dl)	107.0±57.1	177.2±93.3 [†]	<0.001 *		125.9±75.7	188.2±109.4	<0.001 *
LDL-C (mg/dl)	107.9±25.8	120.4±26.8 [†]	<0.001 *		112.3±26.0	122.2±27.6	<0.001 *
Fasting insulin (μIU)	7.5±2.6	9.9±3.2 [†]	<0.001 *		8.4±2.8	10.9±3.8	<0.001 *
HOMA IR	1.70±0.60	2.28±0.76 [‡]	<0.001 *		2.20±0.76	2.89±1.05	<0.001 *
Physical activity (%)	853 (19.5)	216 (14.9) [¶]	<0.001 [§]		298 (24.8)	138 (16.3)	<0.001 [§]
Smoking status (%)							
Current	763 (17.7)	437 (30.3) [¶]	<0.001 [§]		261 (21.8)	244 (28.9)	<0.001 [§]
Former	770 (17.8)	414 (28.7) [¶]	<0.001 [§]		246 (20.5)	236 (28.0)	<0.001 [§]
Current drinker (%)	2579 (59.2)	981 (67.9)	<0.001 [§]		809 (67.2)	573 (67.8)	0.481 [§]

NOTE. Data are n (%) or mean ± standard deviation

* by unpaired t-test.

§ by Pearson's Chi square

† P < 0.001 vs. with non-NAFLD group in the IFG subjects by unpaired t-test.

‡ P = 0.011 vs. with non-NAFLD group in the IFG subjects by unpaired t-test.

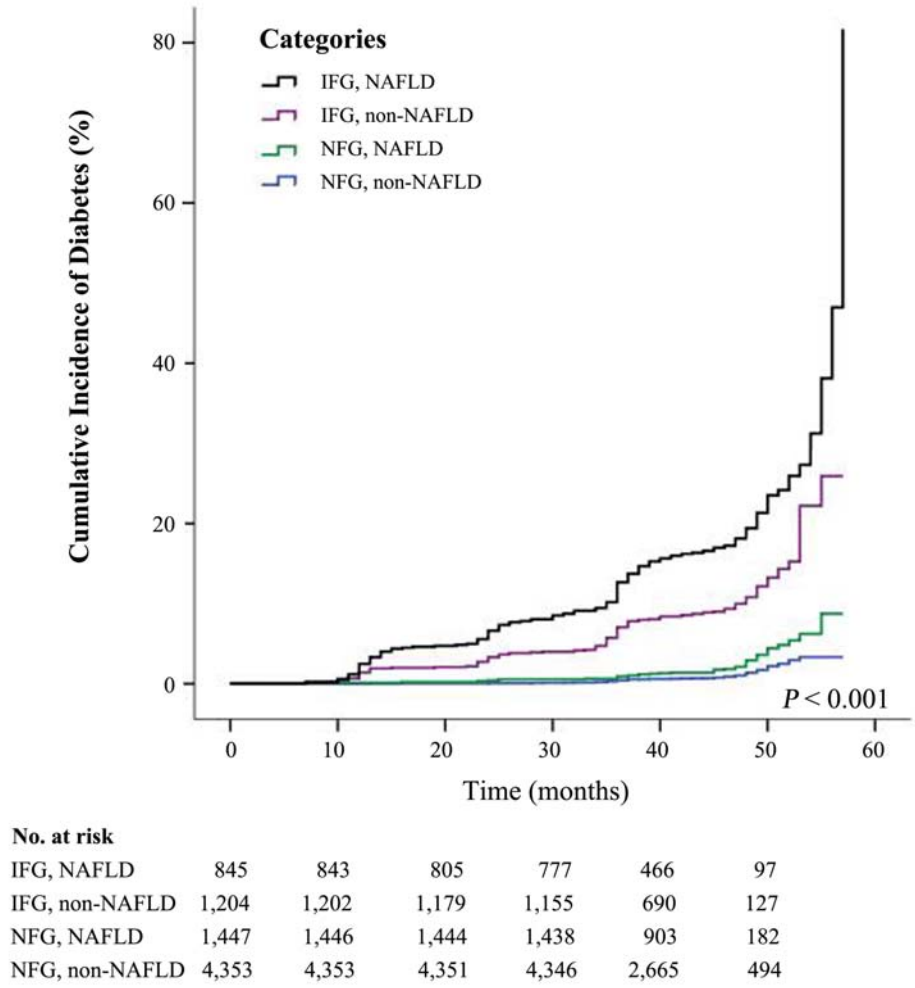
¶ P < 0.001 vs. with non-NAFLD group in the IFG subjects by Pearson's Chi square

// Physical activity denotes engagement in physical activity for a minimum of 30 minutes at least three times per week

Abbreviations: NAFLD, non-alcoholic fatty liver disease; NFG, normal fasting glucose; IFG, impaired fasting glucose; AST, aspartate aminotransferase; ALT, alanine aminotransferase; BMI, body mass index; BP, blood pressure; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; HOMA-IR, homeostasis model assessment of insulin resistance.

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Supplementary Figure 1. Kaplan-Meier estimates for the percentage of subjects who developed diabetes during the follow-up period based on the presence of IFG and NAFLD.



The difference between the four groups was significant ($P < 0.001$ by the log-rank test).