Supplementary Table S1. Participant characteristics in the CC genotype of PNPLA3 rs738409.

	Normal n=95	MASLD n=55	p-value
Sex, male	24 (25.3%)	19 (34.5%)	0.306
Age (year)	51.0(42.0-64.0)	60.0(45.0-68.0)	0.033
BMI (kg/m^2)	21.2(19.3-22.7)	24.2(22.5-26.1)	<0.001
Waist circumference (cm)	70.8(66.2-76.5)	81.5(75.9-88.5)	<0.001
Fasting blood sugar (mmHg)	89.0(84.0-93.0)	96.0(91.0-107.0)	<0.001
HbA1c (%)	5.6(5.5-5.8)	5.9(5.7-6.2)	<0.001
Systolic blood pressure (mmHg)	119.0(110.0-130.0)	125.0(116.0-137.0)	0.030
Diastolic blood pressure (mmHg)	76.0(69.0-82.0)	78.0(71.0-87.0)	0.106
Triglycerides (mmHg)	66.0(50.0-97.0)	96.0(69.0-148.0)	<0.001
HDL cholesterol (mmHg)	69.0(58.0-81.0)	58.0(48.0-71.0)	<0.001
LDL cholesterol (mmHg)	119.0(100.0-133.0)	132.0(111.0-149.0)	0.007
Aspartate aminotransferase (IU/L)	21.0(17.0-25.0)	21.0(17.0-27.0)	0.578
Alanine aminotransferase (IU/L)	16.0(12.0-21.0)	20.0(14.0-28.0)	<0.001
γ-Glutamyl TransPeptidase (IU/L)	18.0(14.0-26.0)	21.0(19.0-33.0)	0.012
CAP (dB/m)	194.0(158.0-215.0)	271.0(252.0-312.0)	<0.001
LSM (kPa)	4.2(3.5-5.5)	4.40(3.5-5.3)	0.641
Smoking habit	8 (8.4%)	11 (20.0%)	0.072
Exercise habit	19 (20.0%)	12 (21.8%)	0.956
Fatty liver index	6.6(3.5-17.6)	29.0(15.7-42.2)	<0.001
APRI	0.20(0.15-0.27)	0.19(0.13-0.25)	0.272
FIB-4 index	0.96(0.68-1.43)	0.94(0.64-1.31)	0.354
FAST score	0.05(0.02-0.08)	0.08(0.04-0.13)	0.003
NFS	-2.20(-3.15—1.32)	-1.79(-2.84—0.91)	0.153

Number or median (range), MASLD, metabolic dysfunction associated steatotic liver disease; BMI, body mass index; HDL, high density lipoprotein; LDL, low density lipoprotein; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; APRI, aspartate aminotransferase to platelet ratio index; FAST score, FibroScan-aspartate aminotransferase score; NFS, non-alcoholic fatty liver disease fibrosis score.

Supplementary Table S2. Participant characteristics in the CG genotype of PNPLA3 rs738409.

	Normal n=155	MASLD n=105	p-value
Sex, male	50 (32.3%)	45 (42.9%)	0.107
Age (year)	50.0(37.0-64.0)	57.0(44.0-66.0)	<0.001
BMI (kg/m^2)	21.0(19.2-23.4)	24.6(22.9-26.9)	<0.001
Waist circumference (cm)	71.5(66.5-79.2)	84.5(77.8-89.6)	<0.001
Fasting blood sugar (mmHg)	90.0(84.0-97.0)	94.0(88.0-105.0)	<0.001
HbA1c (%)	5.6(5.4-5.8)	5.7(5.6-6.1)	<0.001
Systolic blood pressure (mmHg)	117.0(108.0-129.0)	127.0(114.5-139.0)	<0.001
Diastolic blood pressure (mmHg)	75.0(67.0-82.0)	79.0(72.5-89.0)	<0.001
Triglycerides (mmHg)	66.0(49.0-95.0)	97.0(65.5-136.0)	<0.001
HDL cholesterol (mmHg)	65.0(55.0-82.0)	58.0(48.5-69.0)	<0.001
LDL cholesterol (mmHg)	111.0(94.0-129.0)	126.0(110.0-143.5)	<0.001
Aspartate aminotransferase (IU/L)	19.0(17.0-23.0)	21.0(18.0-24.5)	<0.001
Alanine aminotransferase (IU/L)	15.0(12.0-20.0)	20.0(15.0-27.5)	<0.001
γ-Glutamyl TransPeptidase (IU/L)	19.0(15.0-29.0)	25.0(16.5-38.5)	<0.001
CAP (dB/m)	195.0(-)	278.0(250.0-303.0)	<0.001
LSM (kPa)	4.2(-)	4.3(3.5-5.3)	0.800
Smoking habit	21 (13.5%)	19 (18.1%)	0.411
Exercise habit	21 (13.5%)	15 (14.3%)	0.999
Fatty liver index	8.8(3.6-15.8)	32.3(15.7-56.5)	<0.001
APRI	0.19(0.15-0.24)	0.19(0.17-0.27)	0.300
FIB-4 index	0.88(0.61-1.34)	1.00(0.56-1.50)	0.570
FAST score	0.04(0.02-0.07)	0.07(0.04-0.12)	<0.001
NFS	-2.32(-3.37--1.17)	-1.62(-2.62--0.57)	<0.001

Number or median (range), MASLD, metabolic dysfunction associated steatotic liver disease; BMI, body mass index; HDL, high density lipoprotein; LDL, low density lipoprotein; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; APRI, aspartate aminotransferase to platelet ratio index; FAST score, FibroScan-aspartate aminotransferase score; NFS, non-alcoholic fatty liver disease fibrosis score.

Supplementary Table S3. Participant characteristics in the GG genotype of PNPLA3 rs738409.

	Normal	MASLD	
	n=68	n=48	p-value
Sex, male	22 (32.4%)	18 (37.5%)	0.707
Age (year)	52.5(38.0-64.0)	57.0(44.3-68.0)	0.148
BMI (kg/m^2)	21.3(-)	23.5(21.3-26.7)	<0.001
Waist circumference (cm)	71.6(66.6-78.5)	80.7(72.0-87.4)	<0.001
Fasting blood sugar (mmHg)	87.0(83.0-92.0)	94.5(87.5-102.8)	<0.001
HbA1c (%)	5.6(5.4-5.8)	5.8(5.6-6.3)	<0.001
Systolic blood pressure (mmHg)	119.5(109.0-132.5)	126.0(120.0-136.5)	0.023
Diastolic blood pressure (mmHg)	77.0(68.3-84.0)	78.0(70.0-85.0)	0.309
Triglycerides (mmHg)	70.5(50.0-91.8)	95.5(59.8-124.0)	0.001
HDL cholesterol (mmHg)	65.5(56.0-76.0)	61.0(48.3-74.8)	0.071
LDL cholesterol (mmHg)	110.0(88.0-131.8)	115.5(107.0-135.3)	0.060
Aspartate aminotransferase (IU/L)	21.5(18.3-25.0)	25.5(19.3-30.8)	0.018
Alanine aminotransferase (IU/L)	17.5(13.0-23.0)	23.0(17.0-44.0)	<0.001
γ-Glutamyl TransPeptidase (IU/L)	18.0(14.0-26.0)	27.0(16.0-45.5)	0.003
CAP (dB/m)	185.0(155.0-208.0)	278.5(255.5-301.3)	<0.001
LSM (kPa)	4.2(3.7-5.0)	4.5(3.7-6.1)	0.136
Smoking habit	5 (7.4%)	5 (10.4%)	0.808
Exercise habit	15 (22.1%)	12 (25.0%)	0.884
Fatty liver index	6.7(4.1-15.6)	22.4(9.4-49.8)	<0.001
APRI	0.23(0.17-0.27)	0.24(0.18-0.31)	0.061
FIB-4 index	0.98(0.72-1.53)	1.02(0.78-1.47)	0.523
FAST score	0.06(0.03-0.08)	0.12(0.04-0.22)	<0.001
NFS	-2.42(-3.45--1.63)	-1.86(-2.30--0.78)	0.015

Number or median (range), MASLD, metabolic dysfunction associated steatotic liver disease; BMI, body mass index; HDL, high density lipoprotein; LDL, low density lipoprotein; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; APRI, aspartate aminotransferase to platelet ratio index; FAST score, FibroScan-aspartate aminotransferase score; NFS, non-alcoholic fatty liver disease fibrosis score.