

Supplementary Table 1. General characteristics of participants in each phase of investigation in each phase

Characteristic	Phase 1 (n=7794)		Phase 2 (n=6607)		Phase 3 (n=5796)		Phase 4 (n=5224)		Phase 5 (n=5229)		Phase 6 (n=4899)		Phase 7 (n=4,608)		Phase 8 (n=4,627)				
	No NAFLD (HS ≤ 36) (n=5,791)	NAFLD (HS > 36) (n=2,003)	No NAFLD (HS ≤ 36) (n=4,850)	NAFLD (HS > 36) (n=1,757)	No NAFLD (HS ≤ 36) (n=3,496)	NAFLD (HS > 36) (n=1,112)	No NAFLD (HS ≤ 36) (n=3,496)	NAFLD (HS > 36) (n=1,112)	No NAFLD (HS ≤ 36) (n=3,496)	NAFLD (HS > 36) (n=1,112)	No NAFLD (HS ≤ 36) (n=3,496)	NAFLD (HS > 36) (n=1,112)	No NAFLD (HS ≤ 36) (n=3,496)	NAFLD (HS > 36) (n=1,112)	No NAFLD (HS ≤ 36) (n=3,524)	NAFLD (HS > 36) (n=1,103)			
Age (yr)	52.7 ± 9.1	52.5 ± 8.5	0.506	<0.001	54.7 ± 9.1	54.1 ± 8.5	0.016	<0.001	63.7 ± 8.6	62.0 ± 7.8	<0.001	<0.001	63.7 ± 8.6	62.0 ± 7.8	<0.001	<0.001	65.5 ± 8.4	63.7 ± 7.7	<0.001
Obesity <sup>a)</sup>																			
No	4,241 (73.2)	182 (9.1)	3,563 (73.5)	146 (8.3)	2,569 (74.1)	98 (8.8)	2,569 (74.1)	98 (8.8)	2,569 (74.1)	98 (8.8)	2,569 (74.1)	85 (7.7)	2,569 (74.1)	98 (8.8)	2,571 (73.0)	106 (9.6)			
Yes	1,550 (26.8)	1,821 (90.9)	1,287 (26.5)	1,611 (91.7)	907 (25.9)	1,014 (91.2)	907 (25.9)	1,014 (91.2)	907 (25.9)	1,014 (91.2)	907 (25.9)	1,025 (92.3)	907 (25.9)	1,014 (91.2)	953 (27.0)	987 (90.4)			
Category of TBW <sup>b)</sup>																			
Tertile 1	1,223 (21.1)	1,373 (68.5)	827 (17.1)	1,128 (64.2)	1,298 (37.2)	938 (84.4)	1,298 (37.2)	938 (84.4)	1,298 (37.2)	938 (84.4)	1,298 (37.2)	757 (68.2)	1,298 (37.2)	938 (84.4)	1,630 (46.3)	988 (89.6)			
Tertile 2	2,092 (36.1)	2,092 (104.6)	1,684 (34.7)	491 (27.9)	1,143 (32.7)	148 (13.3)	1,143 (32.7)	148 (13.3)	1,143 (32.7)	148 (13.3)	1,143 (32.7)	287 (25.9)	1,143 (32.7)	148 (13.3)	1,049 (29.8)	101 (9.2)			
Tertile 3	2,476 (42.8)	130 (6.5)	2,329 (48.2)	138 (7.9)	1,054 (30.1)	26 (2.3)	1,054 (30.1)	26 (2.3)	1,054 (30.1)	26 (2.3)	1,054 (30.1)	66 (5.9)	1,054 (30.1)	26 (2.3)	845 (24.0)	14 (1.3)			
Sex																			
Male	2,358 (40.7)	654 (32.7)	1,978 (40.8)	584 (33.2)	1,405 (40.2)	324 (29.1)	1,405 (40.2)	324 (29.1)	1,405 (40.2)	324 (29.1)	1,529 (44.2)	311 (28.0)	1,405 (40.2)	324 (29.1)	1,421 (40.3)	316 (28.6)			
Female	3,433 (59.3)	1,349 (67.3)	2,872 (59.2)	1,173 (66.8)	2,091 (59.8)	788 (70.9)	2,091 (59.8)	788 (70.9)	2,091 (59.8)	788 (70.9)	2,260 (59.6)	799 (72.0)	2,091 (59.8)	788 (70.9)	2,103 (59.7)	787 (71.4)			
Smoking																			
Smoker	3,805 (66.7)	1,430 (71.4)	3,218 (66.4)	1,259 (71.7)	2,436 (69.7)	856 (77.0)	2,436 (69.7)	856 (77.0)	2,436 (69.7)	856 (77.0)	2,678 (70.7)	865 (77.9)	2,678 (70.7)	856 (77.0)	2,468 (70.0)	852 (77.2)			
Non-smoker	806 (13.9)	237 (11.8)	761 (15.7)	240 (13.7)	347 (9.9)	73 (6.6)	347 (9.9)	73 (6.6)	347 (9.9)	73 (6.6)	391 (10.3)	78 (7.0)	347 (9.9)	73 (6.6)	293 (8.3)	73 (6.6)			
Past smoker	1,180 (20.4)	336 (16.8)	871 (18.0)	258 (14.7)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Diabetes mellitus																			
No	5,512 (95.2)	1,644 (82.1)	4,604 (94.9)	1,441 (82.0)	3,301 (94.4)	974 (87.6)	3,301 (94.4)	974 (87.6)	3,301 (94.4)	974 (87.6)	3,580 (94.5)	959 (86.4)	3,301 (94.4)	974 (87.6)	3,333 (94.6)	963 (87.3)			
Yes	279 (4.8)	359 (17.9)	246 (5.1)	316 (18.0)	195 (5.6)	138 (12.4)	195 (5.6)	138 (12.4)	195 (5.6)	138 (12.4)	209 (5.5)	151 (13.6)	195 (5.6)	138 (12.4)	191 (5.4)	140 (12.7)			
AST (U/L)	27.8 ± 15.8	31.1 ± 22.4	23.1 ± 11.0	25.0 ± 13.7	24.4 ± 19.0	25.5 ± 10.4	24.4 ± 19.0	25.5 ± 10.4	24.4 ± 19.0	25.5 ± 10.4	25.8 ± 19.5	27.3 ± 10.5	25.8 ± 19.5	25.5 ± 10.4	24.9 ± 19.0	27.2 ± 12.5			
ALT (U/L)	22.7 ± 14.8	39.0 ± 45.8	18.7 ± 9.4	30.5 ± 23.2	19.8 ± 10.8	30.2 ± 17.5	19.8 ± 10.8	30.2 ± 17.5	19.8 ± 10.8	30.2 ± 17.5	21.1 ± 17.1	31.3 ± 17.1	19.8 ± 10.8	30.2 ± 17.5	20.2 ± 9.1	31.8 ± 21.3			
Weight (kg)	59.3 ± 23.4	85.7 ± 28.0	59.2 ± 23.4	84.7 ± 28.2	58.8 ± 23.4	89.4 ± 28.1	58.8 ± 23.4	89.4 ± 28.1	58.8 ± 23.4	89.4 ± 28.1	58.8 ± 23.4	89.5 ± 28.2	58.8 ± 23.4	89.4 ± 28.1	58.9 ± 23.4	89.7 ± 28.2			
BMI (kg/m <sup>2</sup> )	23.4 ± 2.4	28.0 ± 2.5	23.4 ± 2.4	28.2 ± 2.5	23.4 ± 2.4	28.1 ± 2.6	23.4 ± 2.4	28.1 ± 2.6	23.4 ± 2.4	28.1 ± 2.6	23.4 ± 2.4	28.2 ± 2.6	23.4 ± 2.4	28.1 ± 2.6	23.4 ± 2.4	28.2 ± 2.7			

Values are presented as mean ± standard deviation or number (%).

NAFLD, non-alcoholic fatty liver disease; HSI, hepatic steatosis index; TBW<sup>b)</sup>, total body muscle percentage; AST, aspartate aminotransferase; ALT, alanine aminotransferase.

<sup>a)</sup>No: body mass index (BMI) of <25 kg/cm<sup>2</sup>, yes: BMI of ≥25 kg/cm<sup>2</sup>. <sup>b)</sup>Diagnosed by physician or fasting glucose of ≥126 mg/dL.

The p-value was calculated by t-test in continuous variables, and chi-square test in categorical variables.

Tertile of total muscle mass was determined by baseline data of participants. Cut-off for tertile is 72.1% and 76.4% for male, and 62.2% and 66.0% for female.