

Supplementary Table 1 Self-reported medical history by sex and year

	2009		2010		2011		2012	
	Men	Women	Men	Women	Men	Women	Men	Women
Family disease history (N, %)								
Heart disease	30 (13.4)	60 (17.7)	22 (9.8)	60 (17.7)	25 (11.2)	64 (18.9)	33 (14.7)	60 (17.7)
Brain disease	31 (13.8)	55 (16.2)	33 (14.7)	56 (16.5)	29 (13.0)	52 (15.3)	42 (18.8)	67 (19.8)
Hypertension	69 (30.8)	126 (37.2)	67 (29.9)	123 (36.3)	76 (33.9)	138 (40.7)	74 (33.0)	146 (43.1)
Diabetes	33 (14.7)	54 (15.9)	38 (17.0)	56 (16.5)	34 (15.2)	57 (16.8)	36 (16.1)	61 (18.0)
Hyperlipidemia	4 (1.8)	11 (3.2)	3 (1.3)	13 (3.8)	4 (1.8)	15 (4.4)	6 (2.7)	14 (4.1)
Use of medicines (N, %)								
Hypertension	74 (33.0)	85 (25.1)	80 (35.7)	96 (28.3)	90 (40.2)	109 (32.2)	99 (44.2)	124 (36.6)*
Diabetes	17 (7.6)	7 (2.1)	18 (8.0)	10 (3.0)	23 (10.3)	10 (3.0)	19 (8.5)	10 (3.0)
Hyperlipidemia	27 (12.1)	85 (25.1)	38 (17.0)	95 (28.0)	42 (18.8)	96 (28.4)	53 (23.7)	120 (35.4)*
Treatment status (N, %)								
Hypertension								
None	145 (64.7)	241 (71.1)	139 (62.1)	233 (68.7)	128 (57.1)	218 (64.3)	120 (53.6)	202 (59.6)
Left untreated	3 (1.3)	5 (1.5)	5 (2.2)	6 (1.8)	4 (1.8)	5 (1.5)	3 (1.3)	8 (2.4)
Recovered	1 (0.5)	6 (1.8)	0 (0.0)	3 (0.9)	1 (0.5)	5 (1.5)	1 (0.5)	3 (0.9)
Receiving outpatient treatment	75 (33.5)	87 (25.7)	80 (35.7)	97 (28.6)	91 (40.6)	111 (32.7)	100 (44.6)	126 (37.2)
Diabetes								
None	199 (88.8)	327 (96.5)	200 (89.3)	327 (96.5)	196 (87.5)	326 (96.2)	199 (88.8)	320 (94.7)
Left untreated	4 (1.8)	1 (0.3)	2 (0.9)	0 (0.0)	3 (1.3)	0 (0.0)	3 (1.3)	2 (0.6)
Recovered	0 (0.0)	1 (0.3)	1 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Receiving outpatient treatment	21 (9.4)	10 (3.0)	21 (9.4)	12 (3.5)	25 (11.2)	13 (3.8)	22 (9.8)	16 (4.7)
Hyperlipidemia								
None	162 (72.3)	211 (62.2)	163 (72.8)	203 (59.9)	155 (69.2)	196 (57.8)	144 (64.3)	164 (48.4)***
Left untreated	28 (12.5)	34 (10.0)	17 (7.6)	39 (11.5)	24 (10.7)	37 (10.9)	21 (9.4)	44 (13.0)***
Recovered	4 (1.8)	3 (0.9)	3 (1.3)	0 (0.0)	0 (0.0)	7 (2.1)	2 (0.9)	7 (2.1)***
Receiving outpatient treatment	30 (13.4)	91 (26.8)	41 (18.3)	97 (28.6)	45 (20.1)	99 (29.2)	57 (25.5)	124 (36.6)***
Heart disease								
None	209 (93.3)	330 (97.4)	211 (94.2)	327 (96.5)	205 (91.5)	324 (95.6)	203 (90.6)	327 (96.5)

	2009		2010		2011		2012	
	Men	Women	Men	Women	Men	Women	Men	Women
(Continued from previous page)								
Left untreated	2 (0.9)	1 (0.3)	0 (0.0)	2 (0.6)	4 (1.8)	2 (0.6)	0 (0.0)	2 (0.6)
Recovered	1 (0.5)	1 (0.3)	0 (0.0)	0 (0.0)	2 (0.9)	1 (0.3)	1 (0.5)	1 (0.3)
Receiving outpatient treatment	12 (5.4)	7 (2.1)	13 (5.8)	10 (3.0)	13 (5.8)	12 (3.5)	20 (8.9)	9 (2.7)
Brain disease								
None	211 (94.2)	335 (98.8)	214 (95.5)	335 (98.8)	215 (95.5)	332 (97.9)	212 (94.6)	333 (98.2)
Left untreated	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Recovered	4 (1.8)	2 (0.6)	3 (1.3)	1 (0.3)	1 (0.5)	3 (0.9)	3 (1.3)	2 (0.6)
Receiving outpatient treatment	9 (4.0)	2 (0.6)	7 (2.1)	3 (0.9)	8 (3.6)	4 (1.2)	9 (4.0)	4 (1.2)
Eye disease								
None	194 (86.6)	276 (81.4)	193 (86.2)	264 (77.9)	185 (82.6)	245 (72.3)	174 (77.7)	247 (72.9)
Left untreated	8 (3.6)	11 (3.2)	4 (1.8)	13 (3.8)	4 (1.8)	15 (4.4)	5 (2.2)	11 (3.2)
Recovered	10 (4.5)	7 (2.1)	8 (3.6)	7 (2.1)	8 (3.6)	11 (3.2)	12 (5.4)	12 (3.5)
Receiving outpatient treatment	12 (5.4)	45 (13.3)	19 (8.5)	55 (16.2)	27 (12.1)	68 (20.1)	33 (14.7)	69 (20.4)
Kidney disease								
None	214 (95.5)	337 (99.4)	215 (96.0)	334 (98.5)	216 (96.4)	335 (98.8)	215 (96.0)	331 (98.0)
Left untreated	1 (0.5)	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.5)	0 (0.0)
Recovered	6 (2.7)	2 (0.6)	6 (2.7)	4 (1.2)	5 (2.2)	1 (0.3)	3 (1.3)	4 (1.2)
Receiving outpatient treatment	3 (1.3)	0 (0.0)	2 (0.9)	1 (0.3)	2 (0.9)	3 (0.9)	5 (2.2)	3 (0.9)
Respiratory disease								
None	219 (97.8)	330 (97.4)	218 (97.3)	329 (97.1)	213 (95.5)	328 (96.8)	215 (96.0)	326 (96.2)
Left untreated	1 (0.5)	1 (0.3)	1 (0.5)	2 (0.6)	1 (0.5)	1 (0.3)	0 (0.0)	1 (0.3)
Recovered	1 (0.5)	6 (1.8)	3 (1.3)	3 (0.9)	3 (1.3)	6 (1.8)	2 (0.9)	3 (0.9)
Receiving outpatient treatment	3 (1.3)	2 (0.6)	2 (0.9)	5 (1.5)	6 (2.7)	4 (1.2)	7 (3.1)	9 (2.7)
Gastrointestinal disease								
None	182 (81.3)	303 (89.4)	184 (82.1)	303 (89.4)	187 (83.5)	302 (89.1)	176 (78.6)	293 (86.7)
Left untreated	2 (0.9)	1 (0.3)	1 (0.5)	0 (0.0)	2 (0.9)	3 (0.9)	3 (1.3)	3 (0.9)
Recovered	30 (13.4)	22 (6.5)	31 (13.8)	27 (8.0)	23 (10.3)	18 (5.3)	30 (13.4)	25 (7.4)
Receiving outpatient treatment	10 (4.5)	13 (3.8)	8 (3.6)	9 (2.7)	12 (5.4)	16 (4.7)	15 (6.7)	17 (5.0)
Colorectal disease								

	2009		2010		2011		2012	
	Men	Women	Men	Women	Men	Women	Men	Women
(Continued from previous page)								
None	199 (88.8)	325 (95.9)	199 (88.8)	316 (93.2)	197 (88.0)	321 (94.7)	188 (83.9)	320 (94.4)
Left untreated	3 (1.3)	3 (0.9)	1 (0.5)	2 (0.6)	3 (1.3)	4 (1.2)	3 (1.3)	1 (0.3)
Recovered	21 (9.4)	10 (3.0)	21 (9.4)	18 (5.3)	20 (8.9)	13 (3.8)	27 (12.1)	16 (4.7)
Receiving outpatient treatment	1 (0.5)	1 (0.3)	3 (1.3)	3 (0.9)	4 (1.8)	1 (0.3)	6 (2.7)	2 (0.6)
Liver disease								
None	217 (96.9)	334 (98.5)	217 (96.9)	332 (97.9)	215 (96.0)	333 (98.2)	215 (96.0)	335 (98.8)
Left untreated	1 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.3)	1 (0.5)	0 (0.0)
Recovered	2 (0.9)	2 (0.6)	1 (0.5)	5 (1.5)	3 (1.3)	2 (0.6)	2 (0.9)	2 (0.6)
Receiving outpatient treatment	4 (1.8)	3 (0.9)	6 (2.7)	2 (0.6)	6 (2.7)	3 (0.9)	6 (2.7)	2 (0.6)
Blood disease								
None	223 (99.6)	338 (99.7)	223 (99.6)	338 (99.7)	222 (99.0)	338 (99.7)	220 (98.2)	339 (100.0)
Left untreated	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.5)	0 (0.0)
Recovered	0 (0.0)	0 (0.0)	1 (0.5)	1 (0.3)	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)
Receiving outpatient treatment	1 (0.5)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.5)	0 (0.0)	3 (1.3)	0 (0.0)
Gout								
None	204 (91.1)	336 (99.1)	205 (91.5)	337 (99.4)	205 (91.5)	337 (99.4)	200 (89.3)	337 (99.4)
Left untreated	6 (2.7)	0 (0.0)	3 (1.3)	0 (0.0)	3 (1.3)	0 (0.0)	6 (2.7)	0 (0.0)
Recovered	2 (0.9)	0 (0.0)	2 (0.9)	0 (0.0)	2 (0.9)	0 (0.0)	2 (0.9)	0 (0.0)
Receiving outpatient treatment	12 (5.4)	3 (0.9)	14 (6.3)	2 (0.6)	14 (6.3)	2 (0.6)	16 (7.1)	2 (0.6)
Anemia								
None	221 (98.7)	311 (91.7)	223 (99.6)	313 (92.3)	222 (99.1)	316 (93.2)	221 (98.7)	319 (94.1)
Left untreated	2 (0.9)	4 (1.2)	1 (0.5)	7 (2.1)	2 (0.9)	1 (0.3)	2 (0.9)	1 (0.3)
Recovered	0 (0.0)	21 (6.2)	0 (0.0)	14 (4.1)	0 (0.0)	17 (5.0)	1 (0.5)	16 (4.7)
Receiving outpatient treatment	1 (0.5)	3 (0.9)	0 (0.0)	5 (1.5)	0 (0.0)	5 (1.5)	0 (0.0)	3 (0.9)
Chronic kidney disease								
No	224 (100.0)	339 (100.0)	223 (99.5)	339 (100.0)	223 (99.5)	338 (99.7)	224 (100.0)	339 (100.0)
Yes	0 (0.0)	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.5)	1 (0.3)	0 (0.0)	0 (0.0)

* p<0.05, ** p<0.01, *** p<0.001 for the difference between baseline vs. 2011 and baseline vs. 2012, for men and women, separately (Chi-squared test or Fisher's exact test).

Supplementary Table 2 Self-reported lifestyle by sex and year

	2009		2010		2011		2012	
	Men	Women	Men	Women	Men	Women	Men	Women
Personal habits (N, %)								
Smoking								
No	178 (79.5)	327 (96.5)	182 (81.3)	325 (95.9)	187 (83.5)	328 (96.8)	189 (84.4)	329 (97.1)
Yes	46 (20.5)	12 (3.5)	42 (18.8)	14 (4.1)	37 (16.5)	11 (3.2)	35 (15.6)	10 (3.0)
Alcohol consumption								
None	38 (17.0)	115 (33.9)	28 (12.5)	107 (31.6)	30 (13.4)	91 (26.8)	37 (16.5)	104 (30.7)
Rarely	21 (9.4)	149 (44.0)	28 (12.5)	145 (42.8)	27 (12.1)	171 (50.4)	28 (12.5)	151 (44.5)
Sometimes	62 (27.7)	51 (15.0)	63 (28.1)	64 (18.9)	60 (26.8)	54 (15.9)	51 (22.8)	59 (17.4)
Everyday	103 (46.0)	24 (7.1)	105 (46.9)	23 (6.8)	107 (47.8)	23 (6.8)	108 (48.2)	25 (7.4)
Lifestyle (N, %)								
High weight gain (Q1) ¹	72 (32.1)	84 (24.8)	77 (34.4)	84 (24.8)	79 (35.3)	97 (28.7)	81 (36.2)	83 (24.5)
Moderate intensity exercise (Q2) ²	97 (43.3)	122 (36.0)	110 (49.1)	125 (36.9)	96 (42.9)	104 (30.8)	92 (41.1)	127 (37.5)
Low intensity exercise (Q3) ³	105 (46.9)	110 (32.5)	106 (47.3)	115 (33.9)	91 (40.6)	90 (26.7)*	87 (38.8)	99 (29.2)
Walk speed (Q4) ⁴	110 (49.1)	154 (45.4)	114 (50.9)	147 (43.4)	109 (48.7)	140 (41.4)	107 (48.0)	154 (45.4)
Small weight gain/loss (Q5) ⁵	47 (21.0)	58 (17.1)	36 (16.1)	66 (19.5)	49 (21.9)	77 (22.8)	46 (20.5)	85 (25.1)
Good sleep (Q6) ⁶	181 (80.8)	260 (76.7)	176 (78.6)	256 (75.5)	161 (71.9)	213 (63.0)***	166 (74.1)	227 (67.0)*
Late evening meal (Q7) ⁷	45 (20.1)	56 (16.5)	49 (21.9)	57 (16.8)	45 (20.1)	42 (12.5)	55 (24.6)	51 (15.1)
Midnight snack (Q8) ⁸	16 (7.1)	36 (10.6)	18 (8.0)	28 (8.3)	20 (9.0)	39 (11.5)	18 (8.1)	22 (6.5)
Breakfast skip (Q9) ⁹	7 (3.1)	9 (2.7)	5 (2.2)	11 (3.2)	6 (2.7)	13 (3.8)	8 (3.6)	13 (3.8)
Eating speed (Q10) ¹⁰								
Normal	137 (61.2)	229 (67.6)	144 (64.3)	224 (66.1)	133 (59.4)	223 (66.0)	133 (59.4)	224 (66.1)
Fast	63 (28.1)	85 (25.1)	57 (25.5)	80 (23.6)	69 (30.8)	82 (24.3)	64 (28.6)	84 (24.8)
Slow	24 (10.7)	25 (7.4)	23 (10.3)	35 (10.3)	22 (9.8)	33 (9.8)	27 (12.1)	31 (9.1)

* p<0.05, ** p<0.01, *** p<0.001 for the difference between 2010 vs. 2011 and 2010 vs. 2012, for men and women, separately (Chi-squared test or Fisher's exact test).

¹Q1: Have you gained ≥10 kg since you were 20 years old?

²Q2: Have you been exercising at least 2 days per week, at least 30 minutes each at an intensity that causes a slight sweat, for at least 1 year?

³Q3: Do you walk for at least 1 hour every day or have equivalent physical activities in your daily life?

⁴Q4: Do you walk faster than people of your age and sex?

⁵Q5: Have you had a weight gain or loss of ≥ 3 kg over the last year?

⁶Q6: Do you feel refreshed after a night's sleep?

⁷Q7: Do you have an evening meal within 2 hours before bedtime 3 days or more per week?

⁸Q8: Do you eat after the evening meal (have a fourth meal) 3 days or more per week?

⁹Q9: Do you skip breakfast 3 days or more per week?

¹⁰Q10: How fast do you eat compared to others?

Supplementary Table 3 Cardiovascular disease (CVD) risk point for men, D'Agostino et al. (2008) ³³

Point	HDL (mg/dL)	Total cholesterol (mg/dL)	SBP without treatment* (mmHg)	SBP with treatment* (mmHg)	Smoking status	Diabetic status
-2	>60		<120			
-1	50–59					
0	45–49	<200	120–129	<120	No	No
1	35–44		130–139			
2	<35	≥ 200	140–159	120–129		Yes
3			≥ 160	130–139		
4				140–159	Yes	
5				≥ 160		

* Treatment indicates use of medicines for hypertension. HDL: high density lipoprotein cholesterol, SBP: systolic blood pressure

Supplementary Table 4 Cardiovascular disease (CVD) risk point for women, D'Agostino et al. (2008) ³³

Point	HDL (mg/dL)	Total cholesterol (mg/dL)	SBP without treatment* (mmHg)	SBP with treatment* (mmHg)	Smoking status	Diabetic status
-3			<120			
-2	>60					
-1	50–59			<120		
0	45–49	<200	120–129		No	No
1	35–44		130–139			
2	<35		140–149	120–129		
3		≥ 200		130–139	Yes	
4			150–159			Yes
5			≥ 160	140–149		
6				150–159		
7				≥ 160		

* Treatment indicates use of medicines for hypertension. HDL: high density lipoprotein cholesterol, SBP: systolic blood pressure

Supplementary Table 5 Comparison of demographic and clinical characteristics between included and excluded participants in baseline (2009 and 2010) by sex

	Included (2009 and 2010)		Excluded (2009 and 2010)	
	Men	Women	Men	Women
Total participants (N, %)	224 (39.8)	339 (60.2)	2466 (42.8)	3297 (57.2)
Age (mean, SD)	64.8 (5.9)	63.1 (6.1)	63.8 (8.3)*	63.1 (8.0)
Clinical characteristics (mean, SD)				
BMI [kg/m ²]	23.5 (2.6)	22.7 (2.9)	23.9 (3.1)*	23.3 (3.4)***
SBP [mmHg]	131.9 (15.2)	128.7 (15.6)	134.3 (15.4)*	130.5 (15.3)*
DBP [mmHg]	78.5 (8.9)	75.4 (9.0)	79.7 (9.2)*	76.1 (8.8)
HbA1c [%]	5.1 (0.6)	5.1 (0.4)	5.2 (0.8)**	5.1 (0.6)*
HDL [mg/dL]	58.7 (14.2)	65.5 (14.6)	56.4 (13.9)*	63.2 (14.0)**
LDL [mg/dL]	122.9 (31.7)	127.0 (29.8)	117.7 (30.1)*	127.6 (29.4)
TG [mg/dL]	108.8 (57.6)	103.4 (65.7)	125.1 (92.8)***	105.2 (58.3)
AST [IU/L]	25.2 (13.3)	22.7 (6.2)	26.8 (15.3)	23.2 (8.4)
ALT [IU/L]	22.1 (14.7)	18.4 (8.3)	24.7 (15.9)**	19.1 (12.0)
γGT [IU/L]	43.7 (47.3)	22.5 (14.0)	52.7 (83.1)*	24.6 (25.5)*
Abdominal circumference [cm]	84.6 (7.2)	82.9 (8.0)	85.8 (8.2)*	84.1 (9.2)*

* p<0.05, ** p<0.01, *** p<0.001 for the difference between included participants and excluded participants in baseline (2009 and 2010), for men and women, separately (un-paired t-test). The baseline data was defined as the average value of the data of 2009 and 2010. SD: standard deviation, BMI: body mass index, SBP: systolic blood pressure, DBP: diastolic blood pressure, HbA1c: hemoglobin A1c, HDL: high density lipoprotein, LDL: low density lipoprotein, TG: triglyceride, AST: aspartate transaminase, ALT: alanine aminotransferase, γGT: gamma-glutamyl transferase.

Supplementary Table 6 Sensitivity analysis of regression models for cardiovascular disease (CVD)
risk point for men and women

Variable	Men (n=791)			Women (n=1,125)		
	Coefficient	95% CI	P-value	Coefficient	95% CI	P-value
Year						
Baseline*	Reference			Reference		
2011	-0.11	-0.33 to 0.12	0.35	-0.04	-0.26 to 0.19	0.75
2012	-0.09	-0.25 to 0.07	0.25	0.10	-0.05 to 0.25	0.20
Age	0.01	-0.02 to 0.04	0.46	0.07	0.05 to 0.09	<0.001
BMI	0.20	0.15 to 0.25	<0.001	0.26	0.22 to 0.30	<0.001
Family history of heart disease						
No	Reference			Reference		
Yes	0.28	-0.04 to 0.59	0.09	0.40	0.13 to 0.66	<0.05
Use of medicines						
Diabetes						
No	Reference			Reference		
Yes	4.35	3.92 to 4.77	<0.001	5.64	5.08 to 6.19	<0.001
Hyperlipidemia						
No	Reference			Reference		
Yes	1.48	1.21 to 1.74	<0.001	2.09	1.86 to 2.32	<0.001
Alcohol consumption						
None	Reference			Reference		
Rarely	0.09	-0.26 to 0.44	0.63	0.07	-0.14 to 0.28	0.51
Sometimes	0.04	-0.28 to 0.37	0.79	0.02	-0.27 to 0.31	0.89
Everyday	0.22	-0.11 to 0.54	0.19	-0.06	-0.54 to 0.42	0.82

* Baseline indicates the average CVD risk point in 2009 and 2010. CI: confidence interval, SD: standard deviation, BMI: body mass index