

1 Supplementary Tables

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3 Table S1. Age-adjusted means and proportions of baseline characteristics

	Men		Women	
	Participants for analysis	Participants in baseline survey	Participants for analysis	Participants in baseline survey
Number	34358	45446	40570	49911
Age, years	52.1	52.3	52.5	52.8
BMI, kg/m ²	23.5	23.5	23.5	23.5
BMI at 5-year survey, kg/m ²	23.5	23.4	23.5	23.5
Weight, kg	63.2	63.2	54.2	54.2

Weight at 5-year survey, kg	63.2	63.1	54.2	54.2
Current smokers, %	51.0	51.5	4.8	5.6
Alcohol intake ≥ 300 g/week, %	30.8	30.1	0.9	1.0
Sports ≥ 1 day/week, %	18.4	18.3	16.8	16.7
Hypertension, %	18.5	19.2	17.4	18.1
Diabetes mellitus, %	6.2	6.6	2.9	3.1
Dyslipidemia, %	1.4	1.5	2.1	2.1

4 BMI, body mass index

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7 Table S2. Sex-specific multivariable HRs and 95% CIs of stroke subtypes according to weight change over 5 years

	Weight change over 5 years					<i>p</i> for linear	<i>p</i> for quadratic
	Loss of ≥5 kg	Loss of 3-4 kg	Stable (≤2 kg)	Gain 3-4 kg	Gain ≥5 kg		
Men							
No. at risk	3196	3173	20936	3620	3433		
Person-years	38365	39953	273128	47259	44170		
Thrombotic stroke							
No. of cases	141	116	685	114	100		
Multivariable HR ^a	1.13 (0.93-1.38)	0.89 (0.72-1.11)	Reference	1.05 (0.86-1.29)	0.90 (0.72-1.13)	0.33	0.83
Embolic stroke							

No. of cases	44	42	204	27	30		
Multivariable HR ^a	1.28 (0.90-1.82)	1.21 (0.85-1.73)	Reference	0.95 (0.63-1.42)	1.06 (0.71-1.58)	0.24	0.32
Intraparenchymal hemorrhage							
No. of cases	72	65	377	48	61		
Multivariable HR ^a	1.21 (0.92-1.59)	1.11 (0.84-1.46)	Reference	0.78 (0.56-1.06)	1.01 (0.76-1.35)	0.10	0.38
Subarachnoid hemorrhage							
No. of cases	10	12	84	14	21		
Multivariable HR ^a	0.81 (0.40-1.65)	0.94 (0.50-1.78)	Reference	1.08 (0.61-1.91)	1.42 (0.84-2.41)	0.15	0.73

Women

No. at risk	3147	3590	26596	4324	2913
Person-years	40854	48035	367181	59336	39125

Thrombotic stroke

No. of cases	92	86	434	61	82		
Multivariable HR ^a	1.21 (0.94-1.55)	1.18 (0.93-1.51)	Reference	1.05 (0.80-1.38)	1.86 (1.45-2.39)	0.10	<0.001
<i>p</i> for sex interaction			<0.001				

Embolic stroke

No. of cases	31	28	93	20	15		
Multivariable HR ^a	2.49 (1.63-3.80)	2.00 (1.30-3.06)	Reference	1.66 (1.02-2.70)	1.72 (0.97-3.03)	0.03	<0.001
<i>p</i> for sex interaction			0.09				

Intraparenchymal hemorrhage

No. of cases	54	53	265	45	40		
Multivariable HR ^a	1.29 (0.94-1.79)	1.40 (1.04-1.90)	Reference	1.15 (0.84-1.59)	1.28 (0.90-1.83)	0.53	0.05

<i>p</i> for sex interaction				0.31			
Subarachnoid hemorrhage							
No. of cases	25	23	186	26	30		
Age-adjusted HR	1.07 (0.68-1.69)	0.83 (0.51-1.33)	Reference	0.85 (0.54-1.32)	1.40 (0.91-2.14)	0.44	0.26
Multivariable HR ^a	1.05 (0.66-1.66)	0.82 (0.51-1.32)	Reference	0.85 (0.54-1.32)	1.38 (0.89-2.12)	0.42	0.32
<i>p</i> for sex interaction				0.90			

8 ^a Adjusted for age, body mass index, smoking status, hypertension, diabetes mellitus, dyslipidemia, physical activity, alcohol intake, and
9 public health center areas.

10 CI, confidence interval; HR, hazard ratio

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- 12 Table S3. Sex-specific multivariable HRs and 95% CIs of total stroke, ischemic and hemorrhagic strokes, and CHD excluding events
 13 within another 5 years

	Weight change over 5 years						<i>p</i> for linear	<i>p</i> for quadratic
	Loss of ≥5 kg	Loss of 3-4 kg	Stable (≤2 kg)	Gain 3-4 kg	Gain ≥5 kg			
Total Stroke								
Men								
No. of cases	166	146	887	135	134			
Multivariable HR ^a	1.19 (1.00-1.41)	1.03 (0.86-1.22)	Reference	0.95 (0.80-1.14)	1.00 (0.83-1.20)	0.11	0.21	
Women								
No. of cases	118	127	657	113	110			

Multivariable HR ^a	1.29 (1.05-1.57)	1.29 (1.07-1.57)	Reference	1.19 (0.98-1.46)	1.68 (1.37-2.06)	0.25	<0.001
Ischemic stroke							
Men							
No. of cases	122	100	590	99	85		
Multivariable HR ^a	1.27 (1.04-1.55)	1.02 (0.82-1.26)	Reference	1.06 (0.86-1.31)	0.97 (0.77-1.22)	0.10	0.20
Women							
No. of cases	77	79	373	65	67		
Multivariable HR ^a	1.37 (1.06-1.76)	1.34 (1.05-1.72)	Reference	1.25 (0.96-1.63)	1.87 (1.44-2.42)	0.34	<0.001
Hemorrhagic stroke							
Men							
No. of cases	42	46	295	36	49		

Multivariable HR ^a	0.98 (0.70-1.36)	1.05 (0.76-1.43)	Reference	0.75 (0.53-1.06)	1.07 (0.79-1.45)	0.78	0.84
Women							
No. of cases	41	48	282	47	43		
Multivariable HR ^a	1.17 (0.84-1.64)	1.23 (0.90-1.67)	Reference	1.10 (0.80-1.49)	1.46 (1.05-2.01)	0.55	0.03
CHD							
Men							
No. of cases	40	53	242	43	52		
Multivariable HR ^a	0.95 (0.67-1.33)	1.29 (0.96-1.75)	Reference	1.07 (0.77-1.48)	1.34 (1.00-1.82)	0.28	0.32
Women							
No. of cases	19	21	105	15	11		
Multivariable HR ^a	1.11 (0.67-1.83)	1.19 (0.74-1.90)	Reference	1.02 (0.59-1.75)	1.05 (0.56-1.96)	0.69	0.75

14 ^a Adjusted for age, body mass index, smoking status, hypertension, diabetes mellitus, dyslipidemia, physical activity, alcohol intake, and

15 public health center areas.

16 CI, confidence interval; CVD, cardiovascular disease; HR, hazard ratio

17 Table S4. Sex-specific incidence rate per 10,000 person-years of total stroke and CHD

		Weight change over 5 years				
		Loss of ≥ 5 kg	Loss of 3-4 kg	Stable (≤ 2 kg)	Gain 3-4 kg	Gain ≥ 5 kg
Overall						
Men	Events/n	270/3196	235/3173	1356/20936	203/3620	214/3433
	Total stroke ^a	70.2	59.2	49.7	43.0	48.5
	Events/n	62/3196	79/3173	373/20936	68/3620	73/3433
	CHD ^a	16.2	19.8	13.6	14.4	16.5
Women	Events/n	203/3147	190/3590	981/26596	154/4324	169/2913
	Total stroke ^a	49.6	39.6	26.7	25.9	43.2
	Events/n	29/3147	27/3590	163/26596	24/4324	16/2913

	CHD ^a	7.1	5.6	4.4	4.0	4.1
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BMI<21 kg/m ²						
Men	Events/n	16/251	36/389	257/4153	43/701	48/823
	Total stroke	60.1	81.2	48.1	48.4	46.7
	Events/n	7/251	8/389	52/4153	13/701	13/823
	CHD	26.3	18.0	9.7	14.6	12.6
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Women	Events/n	10/217	29/530	177/5784	31/997	49/773
	Total stroke	37.1	42.4	22.4	23.1	48.2
	Events/n	1/217	1/530	30/5784	4/997	2/773
	CHD	3.7	1.5	3.8	3.0	2.0
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21≤BMI<23 kg/m ²						

Men	Events/n	39/499	49/699	357/5653	54/1063	69/1041
	Total stroke	66.3	56.4	48.5	38.5	51.2
	Events/n	11/499	16/699	103/5653	29/1063	30/1041
	CHD	18.7	18.4	14.0	20.7	22.3
Women	Events/n	29/491	36/808	241/7267	41/1243	41/764
	Total stroke	45.9	33.4	24.0	24.0	40.4
	Events/n	5/491	7/808	42/7267	8/1243	6/764
	CHD	7.9	6.5	4.2	4.7	5.9

23≤BMI<25 kg/m²

Men	Events/n	70/858	55/922	386/5950	49/1007	57/844
	Total stroke	69.4	46.0	49.4	37.0	51.6

	Events/n	11/858	17/922	107/5950	12/1007	13/844
	CHD	10.9	14.2	13.7	9.1	11.8
Women	Events/n	51/790	45/945	230/6627	38/1072	33/653
	Total stroke	49.7	35.6	24.9	25.6	37.5
	Events/n	5/790	13/945	39/6627	4/1072	4/653
	CHD	4.9	10.3	4.2	2.7	4.5
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25≤BMI<27 kg/m ²						
Men	Events/n	62/759	53/694	216/3361	34/544	19/440
	Total stroke	65.2	59.8	48.7	47.6	32.5
	Events/n	14/759	18/694	67/3361	8/544	10/440
	CHD	14.7	20.3	15.1	11.2	17.1
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Women	Events/n	42/655	38/684	158/4041	24/610	21/369
	Total stroke	49.8	40.3	28.4	28.3	41.0
	Events/n	8/655	2/684	29/4041	5/610	1/369
	CHD	9.5	2.1	5.2	5.9	2.0

BMI \geq 27 kg/m²

Men	Events/n	83/829	42/469	140/1819	23/305	21/285
	Total stroke	81.2	69.9	59.4	57.9	59.9
	Events/n	19/829	20/469	44/1819	6/305	7/285
	CHD	18.6	33.3	18.7	15.1	20.0

Women	Events/n	71/994	42/623	175/2877	20/402	25/354
	Total stroke	54.1	50.3	44.4	36.3	51.1

Events/n	10/994	4/623	23/2877	3/402	3/354
CHD	7.6	4.8	5.8	5.5	6.1

18 ^a Adjusted for BMI by a direct method for the above five BMI categories.

19 BMI, body mass index; CHD, coronary heart disease

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23 Table S5. Sex-specific multivariable HRs and 95% CIs of total stroke according to baseline BMI

	Weight change over 5 years					<i>p</i> for linear	<i>p</i> for quadratic
	Loss of ≥5 kg	Loss of 3-4 kg	Stable (≤2 kg)	Gain 3-4 kg	Gain ≥5 kg		
Men, BMI < 25 kg/m ²							
No. at risk	1608	2010	15756	2771	2708		
Person-years	18634	25080	205162	36148	34813		
No. of cases	125	140	1000	146	174		
Multivariable HR ^a	1.11 (0.91-1.36)	0.97 (0.80-1.18)	Reference	0.94 (0.78-1.12)	1.02 (0.86-1.21)	0.56	0.41
Men, BMI ≥ 25 kg/m ²							
No. at risk	1588	1163	5180	849	725		

Person-years	19731	14873	67966	11111	9357		
No. of cases	145	95	356	57	40		
Multivariable HR ^a	1.26 (1.02-1.55)	1.12 (0.88-1.42)	Reference	1.04 (0.78-1.39)	0.93 (0.66-1.30)	0.03	0.43
<i>p</i> for BMI interaction			0.74				

Women, BMI<25 kg/m²

No. at risk	1498	2283	19678	3312	2190		
Person-years	19284	30246	272020	45355	29107		
No. of cases	90	110	648	110	123		
Multivariable HR ^a	1.45 (1.14-1.84)	1.27 (1.03-1.57)	Reference	1.15 (0.94-1.42)	1.65 (1.34-2.04)	0.36	<.0001

Women, BMI≥25 kg/m²

No. at risk	1649	1307	6918	1012	723		
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Person-years	21570	17789	95161	13981	10018		
No. of cases	113	80	333	44	46		
Multivariable HR ^a	1.18 (0.93-1.49)	1.21 (0.94-1.56)	Reference	1.01 (0.73-1.39)	1.36 (0.98-1.89)	0.67	0.05
<i>p</i> for BMI interaction			0.81				

24 ^a Adjusted for age, body mass index, smoking status, hypertension, diabetes mellitus, dyslipidemia, physical activity, alcohol intake, and

25 public health center areas.

26 BMI, body mass index; CI, confidence interval; HR, hazard ratio

27 Table S6. Sex-specific multivariable HRs and 95% CIs of CHD according to baseline BMI

	Weight change over 5 years					<i>p</i> for linear	<i>p</i> for quadratic
	Loss of ≥5 kg	Loss of 3-4 kg	Stable (≤2 kg)	Gain 3-4 kg	Gain ≥5 kg		
Men, BMI<25 kg/m ²							
No. at risk	1608	2010	15756	2771	2708		
Person-years	18634	25080	205162	36148	34813		
No. of cases	29	41	262	54	56		
Multivariable HR ^a	0.78 (0.50-1.21)	1.06 (0.75-1.50)	Reference	1.25 (0.93-1.69)	1.27 (0.95-1.70)	0.03	0.97
Men, BMI≥25 kg/m ²							
No. at risk	1588	1163	5180	849	725		

Person-years	19731	14873	67966	11111	9357		
No. of cases	33	38	111	14	17		
Multivariable HR ^a	0.85 (0.57-1.29)	1.44 (0.98-2.10)	Reference	0.75 (0.43-1.32)	1.09 (0.64-1.85)	0.91	0.55
<i>p</i> for BMI interaction			0.27				

Women, BMI<25 kg/m²

No. at risk	1498	2283	19678	3312	2190		
Person-years	19284	30246	272020	45355	29107		
No. of cases	11	21	111	16	12		
Multivariable HR ^a	0.83 (0.43-1.61)	1.29 (0.81-2.08)	Reference	0.97 (0.56-1.67)	1.04 (0.57-1.91)	0.99	0.82

Women, BMI≥25 kg/m²

No. at risk	1649	1307	6918	1012	723		
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Person-years	21570	17789	95161	13981	10018		
No. of cases	18	6	52	8	4		
Multivariable HR ^a	1.27 (0.72-2.28)	0.54 (0.23-1.27)	Reference	1.25 (0.59-2.66)	0.78 (0.28-2.18)	0.75	0.67
<i>p</i> for BMI interaction			0.27				

28 ^a Adjusted for age, body mass index, smoking status, hypertension, diabetes mellitus, dyslipidemia, physical activity, alcohol intake, and

29 public health center areas.

30 BMI, body mass index; CI, confidence interval; HR, hazard ratio

31 Table S7. Sex-specific multivariable HRs and 95% CIs of total stroke, ischemic stroke, hemorrhagic stroke and CHD according to BMI
 32 change over 5 years

	BMI change over 5 years				
	Loss of ≥ 2 kg/m ²	Loss of 1-2 kg/m ²	Stable (≤ 1 kg/m ²)	Gain 1-2 kg/m ²	Gain ≥ 2 kg/m ²
Men					
No. at risk	2222	3425	22527	3901	2283
Person-years	26287	42839	293694	50807	29247
No. of cases	181	283	1436	226	152
Total stroke ^a	1.10 (0.93-1.30)	1.11 (0.97-1.27)	Reference	0.97 (0.84-1.12)	1.01 (0.85-1.21)
No. of cases	128	188	943	155	89
Ischemic stroke ^a	1.15 (0.94-1.40)	1.04 (0.88-1.23)	Reference	1.02 (0.86-1.22)	0.91 (0.72-1.15)

No. of cases	52	93	487	71	61
Hemorrhagic stroke ^a	0.99 (0.72-1.36)	1.24 (0.98-1.57)	Reference	0.88 (0.68-1.14)	1.19 (0.89-1.58)
No. of cases	45	77	410	71	52
CHD ^a	0.88 (0.64-1.22)	0.98 (0.76-1.27)	Reference	1.01 (0.78-1.30)	1.26 (0.94-1.69)
Women					
No. at risk	3074	3665	26601	4410	2820
Person-years	39935	48981	367277	60507	37831
No. of cases	196	197	979	160	165
Total stroke ^a	1.29 (1.09-1.53)	1.29 (1.10-1.52)	Reference	1.13 (0.96-1.35)	1.61 (1.35-1.92)
No. of cases	119	118	527	85	93
Ischemic stroke ^a	1.37 (1.11-1.70)	1.36 (1.10-1.67)	Reference	1.20 (0.95-1.51)	1.79 (1.42-2.25)

No. of cases	76	79	449	73	70
Hemorrhagic stroke ^a	1.17 (0.89-1.53)	1.22 (0.95-1.56)	Reference	1.04 (0.80-1.34)	1.37 (1.04 -1.80)
No. of cases	27	29	163	25	15
CHD ^a	1.01 (0.66-1.55)	1.07 (0.72-1.59)	Reference	1.06 (0.69-1.62)	0.95 (0.55-1.61)

33 ^a Adjusted for age, body mass index, public health center areas, smoking status, hypertension, diabetes mellitus, dyslipidemia, physical

34 activity, and alcohol intake.

35 BMI, body mass index; CHD, coronary heart disease; CI, confidence interval; HR, hazard ratio