Supplementary Table 1. Residual proportional hazard models for dementia incidence according to baseline BMI and 2-year BMI change after adjusted for cardiovascular risk factors as age-varying covariates.

	Men		Women	
	β (SE) [*]	HR (95% CI) [*]	β (SE) [*]	HR (95% CI) [*]
Body weight				
BMI change for 2 years [†]				
Decrease of >10%	0.2399 (0.0775)	1.27 (1.09-1.48)	0.1484 (0.0579)	1.16 (1.04-1.30)
Decrease of 5<-10%	0.1717 (0.0426)	1.19 (1.09-1.29)	0.1053 (0.0361)	1.11 (1.04-1.19)
Stable at ±5%	Ref	Ref	Ref	Ref
Increase of 5<-10%	0.0179 (0.0492)	1.02 (0.92-1.12)	0.0579 (0.0401)	1.06 (0.98-1.15)
Increase of >10%	0.2029 (0.0755)	1.23 (1.06-1.42)	0.1728 (0.0581)	1.19 (1.06-1.33)
BMI				
<18.5 kg/m^2	0.2113 (0.0726)	1.24 (1.07-1.42)	0.0682 (0.0761)	1.07 (0.92-1.24)
18.5-23 kg/m^2	0.0618 (0.0362)	1.06 (0.99-1.14)	0.0411 (0.0329)	1.04 (0.98-1.11)
23-25 kg/m^2	Ref	Ref	Ref	Ref
25-30 kg/m^2	0.0107 (0.0399)	1.01 (0.93-1.09)	-0.0326 (0.0322)	0.97 (0.91-1.03)
≥30 kg/m^2	-0.2500 (0.1461)	0.78 (0.58-1.04)	-0.0805 (0.0675)	0.92 (0.81-1.05)
Socioeconomic status				
Age	-0.2590 (0.0067)	0.77 (0.76-0.78)	-0.2827 (0.0059)	0.75 (0.75-0.76)
Income				
Low	Ref	Ref	Ref	Ref
Med	0.0060 (0.0396)	1.01 (0.93-1.09)	0.0137 (0.0327)	1.01 (0.95-1.08)
High	-0.0589 (0.0403)	0.94 (0.87-1.02)	-0.0739 (0.0331)	0.93 (0.87-0.99)
Health behaviours				
Smoking status				
Never smoker	Ref	Ref	Ref	Ref
Past smoker	0.0583 (0.0420)	1.06 (0.98-1.15)	0.0573 (0.1244)	1.06 (0.83-1.35)
Current smoker	0.0958 (0.0340)	1.10 (1.03-1.18)	0.1676 (0.0638)	1.18 (1.04-1.34)
Drinking status				

None	Ref	Ref	Ref	Ref
<Twice a week	-0.0352 (0.0348)	0.97 (0.90-1.03)	0.0029 (0.0452)	1.00 (0.92-1.10)
≥Three times a week	0.0991 (0.0366)	1.10 (1.03-1.19)	-0.0738 (0.1043)	0.93 (0.76-1.14)
Physical activity				
None	Ref	Ref	Ref	Ref
<Twice a week	-0.1739 (0.0407)	0.84 (0.78-0.91)	-0.1640 (0.0414)	0.85 (0.78-0.92)
≥Three times a week	-0.1150 (0.0358)	0.89 (0.83-0.96)	-0.0737 (0.0357)	0.93 (0.87-1.00)
Cardiovascular risk factors ‡				
Age-adjusted total cholesterol (mg/dL)	-0.0006 (0.0004)	1.00 (1.00-1.00)	0.0001 (0.0003)	1.00 (1.00-1.00)
Age-adjusted fasting blood sugar (mg/dL)	0.0016 (0.0003)	1.00 (1.00-1.00)	0.0006 (0.0003)	1.00 (1.00-1.00)
Age-adjusted atrial fibrillation				
No	Ref	Ref	Ref	Ref
Yes	0.0524 (0.1052)	1.05 (0.86-1.30)	-0.0394 (0.1093)	0.96 (0.78-1.19)
Age-adjusted hypertension				
No	Ref	Ref	Ref	Ref
Yes	0.1471 (0.0309)	1.16 (1.09-1.23)	0.1961 (0.0261)	1.22 (1.16-1.28)
Age-adjusted congestive heart failure				
No	Ref	Ref	Ref	Ref
Yes	0.1490 (0.0669)	1.16 (1.02-1.32)	0.1398 (0.0458)	1.15 (1.05-1.26)
Age-adjusted diabetes mellitus				
No	Ref	Ref	Ref	Ref
Yes	0.2489 (0.0439)	1.28 (1.18-1.40)	0.2790 (0.0355)	1.32 (1.23-1.42)

SE = standard error; HR = Hazard Ratios; CI = Confidential interval; BMI=body mass index

* Estimated HRs were obtained from Cox proportional hazard models using age at follow-up as survival time. All variables were analysed in one model.

† BMI change for 2 years was calculated as following: (BMI at baseline - BMI in 2004 or 2005)/BMI at baseline.

‡ Cardiovascular risk factors that vary with age were regressed marginally with age, and the residuals from these regressions were used as age-adjusted cardiovascular risk factors in Cox proportional hazard models.

Supplementary Table 2. Hazard ratios for dementia during 3-year follow-up (2010-2013) according to 2-year BMI change and baseline BMI

	Men (n=6,820)		Women (n=6,281)	
	Dementia case / n	Multivariate* HR (95% CI)	Dementia case / n	Multivariate* HR (95% CI)
Cognitive function				
KDSQ-C score [†]	595/6820	1.05(0.97-1.14)	788/6281	1.07(1.00-1.15)
Body weight				
BMI change over 2 years [‡]				
Decrease of >10%	20/184	1.33(0.85-2.10)	35/221	1.29(0.91-1.82)
Decrease of 5<-10%	72/722	1.17(0.91-1.50)	101/804	1.00(0.81-1.24)
Stable at ±5%	422/5104	Ref	540/4343	Ref
Increase of 5<-10%	54/648	0.96(0.72-1.28)	78/690	0.86(0.68-1.09)
Increase of >10%	27/162	1.94(1.30-2.88)	34/223	1.11(0.78-1.58)
BMI				
<18.5 kg/m^2	22/220	1.12 (0.71-1.77)	20/128	1.41 (0.88-2.25)
18.5-23 kg/m^2	249/2609	1.14 (0.93-1.41)	251/1900	1.19 (0.98-1.44)
23-25 kg/m^2	150/1922	Ref	185/1621	Ref
25-30 kg/m^2	165/1963	1.08 (0.86-1.35)	304/2373	1.07 (0.89-1.29)
≥30 kg/m^2	9/106	1.12 (0.56-2.20)	28/259	0.80 (0.54-1.20)

KDSQ-C=Korean Dementia Screening Questionnaire Cognitive; BMI=body mass index; HR=hazard ratio; CI=confidence interval

* Adjusted for age, household income, smoking, drinking, exercise, cholesterol level, arterial fibrillation, congestive heart failure, fasting plasma glucose, diabetes, and hypertension.

‡ The BMI change over 2 years was calculated as follows: (BMI at baseline - BMI in 2004 or 2005)/BMI at baseline.