Dietary soy and natto intake and cardiovascular disease mortality in Japanese adults: the Takayama study[1]

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ABSTRACT

Background: Whether soy intake is associated with a decreased risk of cardiovascular disease (CVD) remains unclear. A traditional Japanese soy food, natto, contains a potent fibrinolytic enzyme. However, its relation to CVD has not been studied.

Objective: We aimed to examine the association of CVD mortality with the intake of natto, soy protein, and soy isoflavones in a population-based cohort study in Japan.

Design: The study included 13,355 male and 15,724 female Takayama Study participants aged ≥35 y. At recruitment in 1992, each subject was administered a validated semiquantitative food-frequency questionnaire. Deaths from CVD were ascertained over 16 y.

Results: A total of 1678 deaths from CVD including 677 stroke and 308 ischemic heart disease occurred during follow-up. The highest quartile of natto intake compared with the lowest intake was significantly associated with a decreased risk of mortality from total CVD after control for covariates: the HR was 0.75 (95% CI: 0.64, 0.88, *P*-trend = 0.0004). There were no significant associations between the risk of mortality from total CVD and intakes of total soy protein, total soy isoflavone, and soy protein or soy isoflavone from soy foods other than natto. The highest quartiles of total soy protein and natto intakes were significantly associated with a decreased risk of mortality from total stroke (HR = 0.75, 95% CI: 0.57, 0.99, *P*-trend = 0.03 and HR = 0.68, 95% CI: 0.52, 0.88, *P*-trend = 0.0004, respectively). The highest quartile of natto intake was also significantly associated with a decreased risk of mortality from ischemic stroke (HR = 0.67, 95% CI:0.47, 0.95, *P*-trend = 0.03).

Conclusion: Data suggest that natto intake may contribute to the reduction of CVD mortality. *Am J Clin Nutr* 2017;105:426–31.

Keywords: cohort study, cardiovascular disease, natto, soy, stroke, ischemic heart disease

INTRODUCTION

It has been hypothesized that high consumption of soy has a preventive effect against cardiovascular disease (CVD)[4]. Several prospective studies have assessed the association between soy intake and the risk of CVD (1–9). The current evidence between soy intake and the risk of CVD remains inconsistent. High soy intake was associated with a lower risk of ischemic heart disease (IHD) or stroke in some studies (2, 4) but not others (1, 3, 5–9). As constituents of soy that may contribute to a lower risk of CVD, soy protein and isoflavones have received attention because of their beneficial effects on CVD risk factors such as lipid profiles (10), arterial stiffness (11), blood pressure (12), and endothelial functions (13). One popular traditional soy food in Japan is natto, soybeans fermented with *Bacillus subtilis*. Nattokinase is an enzyme contained in the extracts of natto that can dissolve thrombi and fibrin (14). Its extensive thrombolytic efficacy has been shown in laboratory studies; nattokinase had ∼4 times stronger antithrombolic activity than did plasmin (15). Intravascular thrombus formation causes a variety of CVDs (16). Therefore, the intake of natto may have protective effects against CVD. However, no epidemiologic studies have addressed the association between natto intake and CVD. In general, food items listed on questionnaires tend to reflect a combination of certain foods of similar composition (e.g., soy foods), which may have precluded the estimation of natto intake, even in studies in Japanese subjects. In the present study, we examined the association of natto intake and the risk of mortality from CVD in a community-based cohort in Japan (the Takayama Study). We also assessed the association of the intake of total soy and soy foods other than natto with the risk of mortality from CVD.

METHODS

Study population

Study subjects were participants in the Takayama Study, the investigation of the roles of diet and other lifestyle factors in etiologies of cancer and other chronic diseases (17). The

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[4] Abbreviations used: CVD, cardiovascular disease; FFQ, food-frequency questionnaire; ICD, International Classification of Diseases; IHD, ischemic heart disease.

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Takayama Study began in 1992, when 31,552 residents of Takayama City, Gifu, aged ≥35 y responded to a health questionnaire. The questionnaire included questions on sociodemographic factors, diet, smoking, physical activity, and medical and reproductive histories. Physical activity was assessed by asking the mean hours per week spent performing various kinds of activities during the past year. The time per week spent at each intensity of activity was multiplied by its correspondent energy expenditure requirements, expressed as a metabolic equivalent, and summed up to yield a score (metabolic equivalent task hours per week). The details, including its validity, are described elsewhere (18). The participation rate was 85.3%. The present study included 29,079 subjects (13,355 men and 15,724 women) with no history of cancer, stroke, or IHD. The details of the study design and subjects have been described previously (17).

Dietary assessment

Diet, including alcohol intake, was assessed with a 169-item semiquantitative food-frequency questionnaire (FFQ) at baseline. Participants answered how often, on average, they had consumed each of the food and dish items listed and what the usual serving size of each item was during the year before the study. The FFQ included 9 common soy food items: tofu, miso, soybeans, natto, soy milk, dried tofu, deep-fried tofu, fried tofu, and fried tofu with minced vegetables and/or seaweed. These items and some other dishes that included soy were taken into account to obtain total soy food intake estimates. Natto intake was expressed as a gram amount (the corresponding values in terms of soy protein and soy isoflavones are shown). Total soy food intake and the intake of soy foods other than natto were expressed in terms of soy protein and soy isoflavones. We used data on isoflavone concentrations in soy foods summarized by Wakai et al. (19). Protein values in the soy foods and nutrient values in any foods were obtained from the Japanese Standard Tables of Food Composition, fifth revised and enlarged edition, published by the Science and Technology Agency of Japan (20). Fatty acid composition was determined with the use of data published by Sasaki et al. (21). Details of the method of calculating nutrient intake from the FFQ and its reliability and validity were previously described (22, 23). For example, the Spearman correlation coefficients between the FFQ and 12 daily diet records kept over a 1-y period for soy isoflavone intake were 0.75 in men and 0.62 in women.

Follow-up and endpoints

Deaths and their causes occurring in this cohort between baseline (1 September 1 1992) and 1 October 2008 were confirmed from death certificates provided by the Legal Affairs Bureau. The causes of deaths were coded according to the International Classification of Diseases (ICD). The study endpoint was deaths from CVD (ICD-10: I00–I99). We also studied deaths from IHD (ICD-9 codes 410–414 and ICD-10 codes I20–I25), total stroke (ICD-9 codes 430–438 and ICD-10 codes I60-I69), ischemic stroke (ICD-9 codes 434 and ICD-10 codes I63 and I69.3), and hemorrhagic (subarachnoid hemorrhage and cerebral hemorrhage) stroke (ICD-9 codes 430 and 431 and ICD-10 codes I60, 161, I69.0, and I69.1) separately. Information concerning subjects who moved away from Takayama City during the course of the study was obtained from residential registers or family registers. During the study period, 1912 individuals (6.1%) moved out of Takayama City. The date of emigration was unknown for 104 subjects (0.8%). They were censored at the latest date when they were known to reside in the city. This study was approved by the ethical board of the Gifu University Graduate School of Medicine.

Statistical analyses

We calculated person-years from the date of response to baseline questionnaire to the date of death, the date of emigration out of Takayama, or the end of the follow-up (1 October 2008), whichever was sooner. All foods and nutrients were energy-adjusted by the residual method proposed by Willett (24). Study subjects were divided into quartiles according to their dietary intake of natto, total soy protein and soy isoflavones, and soy protein and soy isoflavones from soy foods other than natto. The characteristics of the study subjects according to natto intake were assessed by linear regression analysis for continuous variables and the Cochran-Armitage test for categorical variables. Proportional hazard regression methods were used to examine the association of natto and other soy variables with total CVD and specific cardiovascular outcomes. The lowest quartile was used as the reference. Linear trend tests for the associations were based on median values for each quartile, and this variable was included in the models as a continuous variable. Covariates included in the multivariate models were age, sex, marital status (married or not married), level of education (≤11, 12–14, or ≥15 y), BMI (by quintile), height (by quintile), smoking status (never, former, current with ≤30 y of smoking, or current with >30 y of smoking), physical activity score, alcohol consumption (by quartile), history of diabetes and hypertension (yes or no), and dietary factors including energy and intake of SFAs, PUFAs, salt, vegetables, and fruit. Multiple imputation by fully conditional specification methods (25) was used to deal with missing data for marital status, level of education, BMI, height, and smoking status. The imputation process was repeated 5 times. All statistical analyses were performed with the use of SAS software, version 9.4. Significance was defined as a 2-sided $P < 0.05$.

RESULTS

Baseline characteristics of the study population according to quartile of energy-adjusted natto intake are presented in **Table 1**. The prevalence of hypertension, marriage, longer years of education, and never smokers increased with increasing quartiles of natto intake. Lower height, physical activity, and intake of total energy, saturated fat, fruit, and alcohol were associated with a greater intake of natto.

During the 16 y of follow-up, there were 1678 CVD deaths, including 677 stroke and 308 IHD deaths. The highest quartile of natto intake was significantly associated with a decreased risk of mortality from CVD compared with the lowest quartile of intake after controlling for covariates (**Table 2**). The trend was also statistically significant ($P = 0.0004$). There were no significant associations between the risk of mortality from total CVD and intake of total soy protein, total soy isoflavone, and soy protein or soy isoflavone from soy foods other than natto. Additional adjustment for green tea intake did not alter the results

TABLE 1
Baseline characteristics of Japanese men and women according to quartiles of natto intake[1]

Basic characteristics	Quartile 1	Quartile 2	Quartile 3	Quartile 4	*P*-trend
Subjects, *n*	7270	7270	7270	7269	
Median intake,[2] mg/d	0	1.4	2.7	7.3	
Age, y	53.2 ± 11.8	55.3 ± 13.2	55.9 ± 13.5	53.8 ± 11.8	0.20
Female	37.4	56.3	64.9	57.7	<0.0001
Married	86.5	82.0	78.9	83.4	0.03
Years of education					
≤11	61.9	63.5	63.5	59.2	
12–14	29.6	29.4	29.1	32.0	
≥15	8.5	7.1	7.5	8.9	0.005
Smoking					
Never	39.7	52.1	58.4	54.0	
Former	17.4	14.7	13.5	17.5	
Current	42.9	33.2	28.1	28.6	<0.0001
History of hypertension	16.3	18.2	18.9	18.9	0.0007
History of diabetes	4.0	3.8	4.5	4.5	0.06
Height, cm	160.3 ± 9.0	157.2 ± 9.0	156.0 ± 9.1	158.1 ± 8.8	<0.0001
BMI, kg/m^2	22.4 ± 2.8	22.1 ± 2.9	22.0 ± 2.9	22.3 ± 2.8	0.25
Exercise, MET-h/wk	26.9 ± 40.8	20.7 ± 33.0	19.8 ± 32.1	23.1 ± 36.2	0.0005
Alcohol intake, mg/d	35.4 ± 43.4	19.5 ± 30.2	16.1 ± 27.6	22.9 ± 34.2	<0.0001
Dietary intake					
Total energy, kcal/d	2990 ± 801	2102 ± 576	1900 ± 727	2436 ± 891	<0.0001
Saturated fat, g/d	15.6 ± 6.5	16.0 ± 4.4	16.7 ± 4.0	16.9 ± 5.0	<0.0001
Polyunsaturated fat, g/d	13.9 ± 4.7	14.4 ± 3.2	14.9 ± 2.9	15.9 ± 3.9	<0.0001
Vegetables, g/d	356 ± 274	369 ± 177	389 ± 167	423 ± 227	<0.0001
Fruit, g/d	121 ± 161	125 ± 99	133 ± 90	134 ± 118	0.0001
Salts, g/d	12.9 ± 4.4	13.2 ± 3.2	13.6 ± 2.8	14.5 ± 3.6	<0.0001

[1] Values are means ± SDs or percentages, unless otherwise indicated, n = 29,079. Dietary values are energy-adjusted. Missing: marital status, n = 384; years of education, n = 408; smoking status, n = 2020; BMI, n = 1641. *P* values are based on linear regression analysis for continuous variables and the Cochran-Armitage test for categorical variables. MET-h, metabolic equivalent task hour.
[2] Adjusted for total energy.

substantially; e.g., the HR for the highest compared with the lowest quartile of natto intake was 0.76 (95% CI: 0.64, 0.89; *P*-trend = 0.0008).

Deaths from stroke and IHD were considered separately in **Table 3**. The highest quartiles of total soy protein and natto intake compared with the lowest quartiles of intake were significantly associated with a decreased risk of mortality from total stroke. The highest quartile of natto intake was also significantly associated with a decreased risk of mortality from ischemic stroke. The highest quartile of total soy protein intake was marginally significantly associated with a decreased risk of mortality from hemorrhagic stroke, and the trend was significant (*P*-trend = 0.01).The trends for decreasing risk of mortality from IHD with increasing intake of natto and soy protein from soy foods other than natto were also statistically significant (*P*-trend = 0.04). The intake of total soy isoflavone or soy isoflavone from soy foods other than natto was not significantly associated with outcomes (data not shown). Additional adjustment for green tea intake did not alter the results substantially; e.g., the HRs of total stroke mortality for the highest compared with the lowest quartile of total soy protein and natto intake were 0.75 (95% CI: 0.56, 0.99; *P*-trend = 0.03) and 0.69 (95% CI: 0.53, 0.90; *P*-trend = 0.006), respectively. The association of natto intake with total stroke mortality remained significant after additional adjustment with total soy protein intake (as a continuous variable); the HR for the highest compared with the lowest quartile of natto intake was 0.69 (95% CI: 0.53, 0.92; *P*-trend = 0.006).

Exclusion of deaths during the first 4 y as a sensitivity analysis did not alter the results substantially; the HRs for total CVD, total stroke, and IHD mortality for the highest compared with the lowest quartile of natto intake were 0.75 (95% CI: 0.62, 0.89; *P*-trend = 0.004), 0.72 (95% CI: 0.54, 0.95; *P*-trend = 0.04), and 0.64 (95% CI: 0.42, 0.98; *P*-trend = 0.03) respectively. The exclusion of subjects in the bottom 12.5% of natto intake also did not alter the results substantially; the HRs for total CVD, total stroke, and IHD mortality for the highest compared with the lowest quartile of natto intake were 0.80 (95% CI: 0.67, 0.97; *P*-trend = 0.008), 0.84 (95% CI: 0.62, 1.14; *P*-trend = 0.10), and 0.61 (95% CI: 0.40, 0.92; *P*-trend = 0.01), respectively.

DISCUSSION

In this prospective study, we found that high natto intake was associated with a decreased risk of mortality from total CVD. High intake of natto also was associated with a decreased risk of mortality from stroke, especially ischemic stroke, and a trend for a decreased risk of mortality from IHD. In laboratory studies, nattokinase has been demonstrated to be a promising enzyme for reducing thrombosis (14, 15). Human studies have been limited; however, studies have shown that nattokinase supplementation enhances markers of fibrinolysis and anticoagulation or decreases blood pressure in human subjects (26–28). These biological mechanisms may partially explain our findings. Nonetheless,

TABLE 2
HRs (95% CIs) for total cardiovascular disease mortality by quartile of intake of soy protein, soy isoflavones, and natto in Japanese men and women

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	*P*-trend
Subjects, *n*	7270	7270	7270	7269	
Total soy protein					
Median,[1] g/d	6.0	9.7	13.2	19.0	
Cases, *n*	292	393	500	493	
Age-adjusted HR	1.0	0.96 (0.83, 1.12)	1.01 (0.87, 1.16)	0.89 (0.77, 1.03)	0.12
Multivariate HR[2]	1.0	0.96 (0.81, 1.11)	0.99 (0.84, 1.16)	0.87 (0.73, 1.04)	0.13
Total soy isoflavones					
Median,[1] mg/d	20.8	33.7	45.3	65.6	
Cases, *n*	255	417	486	520	
Age-adjusted HR	1.0	1.08 (0.92, 1.27)	1.01 (0.87, 1.18)	0.96 (0.83, 1.12)	0.23
Multivariate HR[2]	1.0	1.02 (0.87, 1.21)	0.96 (0.81, 1.14)	0.91 (0.75, 1.09)	0.15
Natto					
Median,[1] g/d	0	1.4	2.7	7.3	
Cases, *n*	362	470	549	297	
Age-adjusted HR	1.0	1.01 (0.88, 1.17)	1.16 (1.01, 1.33)	0.84 (0.72, 0.98)	0.01
Multivariate HR[2]	1.0	0.90 (0.77, 1.05)	0.97 (0.82, 1.14)	0.75 (0.64, 0.88)	0.0004
Soy protein from soy foods other than natto					
Median,[1] g/d	5.7	9.2	12.6	18.1	
Cases, *n*	288	392	499	499	
Age-adjusted HR	1.0	0.93 (0.80, 1.08)	1.00 (0.87, 1.16)	0.88 (0.76, 1.02)	0.11
Multivariate HR[2]	1.0	0.93 (0.79, 1.08)	1.00 (0.85, 1.17)	0.86 (0.72, 1.03)	0.13
Soy isoflavones from soy foods other than natto					
Median,[1] g/d	19.4	31.5	42.6	62.1	
Cases, *n*	254	409	478	539	
Age-adjusted HR	1.0	1.03 (0.87, 1.21)	0.96 (0.81, 1.13)	0.94 (0.78, 1.13)	0.33
Multivariate HR[2]	1.0	1.03 (0.87, 1.22)	0.96 (0.81, 1.14)	0.94 (0.76, 1.14)	0.35

[1] Adjusted for total energy.
[2] Adjusted for age, sex, total energy, BMI, physical activity, smoking status, education, marital status, history of diabetes and hypertension, and intakes of saturated fat, polyunsaturated fat, salt, vegetables, and fruit.

the present study did not aim to identify the components of natto that could be implicated in CVD mortality. Similarly, we expressed soy intake in terms of protein and isoflavones, but could not distinguish the influence of soy protein and soy isoflavones on CVD mortality. We observed that an increased intake of total soy protein was associated with a decreased risk of mortality from hemorrhagic stroke. The trend for decreased risk of IHD was also significant for the intake of soy protein from soy foods other than natto. Therefore, we should not conclude that the potential benefits of soy for reducing CVD mortality should be ascribed solely to natto. In addition, the measurement error for estimating natto intake should be less than that for estimating the sum of protein or isoflavones from various soy foods, which may have favored the detection of a significant association for natto.

So far, to our knowledge, 9 prospective cohort studies [7 in Asian populations (1, 2, 4, 6–9) and 2 in Western populations (3, 5)] have examined the association between soy intake and CVD. Three studies were conducted in Japanese populations (1, 4, 9). In one study, a high intake of total soy and soy isoflavones was associated with a decreased risk of stroke and IHD in women, but not in men (4). Another study was our previous study with 7 y of follow-up that focused on total soy intake (amount in grams of all soy products) and total CVD mortality (1). The results did not differ greatly from the present updated results for total soy protein. The remaining Japanese study reported no association between the frequency of soy product intake and CVD mortality in men and women (9). The inconsistent results in the Japanese studies may be explained partially by the difference in consumption levels of natto across the studies. However, such information was not provided in each study. A high intake of total soy protein was significant associated with a decreased risk of IHD and an increased risk of ischemic stroke in Chinese women (2, 8); however, a recent larger study in Chinese men and women observed no associations between the intake of soy protein or soy isoflavones and CVD, IHD, and stroke mortality (7). It is possible that the benefit of soy for cardiovascular health may be small because of low consumption of natto in Chinese individuals. However, for the consistent results, analyses not only on total soy protein or isoflavone but also on specific soy foods may be advantageous. Two studies in a Western population did not observe a significant association with CVD (3, 5).

To our knowledge, our study is the first one to prospectively assess the relation between natto intake and CVD mortality. Other strengths of the present study include a good participation rate, representation of the general population, and long follow-up. Several limitations should be considered. Our questionnaire was designed to measure an individual's relative intake of nutrients, rather than absolute values. Although we presented the median values of soy protein, soy isoflavones, and natto intake, the absolute values may have been overestimated by our questionnaire. Diet and physical activity were only assessed at baseline, which meant that it was not possible to investigate changes in these factors over time. It is likely that patients on warfarin treatment are prohibited from eating natto because of the high

TABLE 3
HRs (95% CIs) for mortality from stroke and ischemic heart disease by quartiles of soy protein and natto intake in Japanese men[1]

		Total stroke		Ischemic stroke		Hemorrhagic stroke		Ischemic heart disease	
	Median[2]	Cases, *n*	HR (95% CI)	Cases, *n*	HR (95% CI)	Cases, *n*	HR (95% CI)	Cases, *n*	HR (95% CI)
Total soy protein									
Q1 (*n* = 7270)	6.0	122	1.0	59	1.0	54	1.0	53	1.0
Q2 (*n* = 7270)	9.7	168	0.94 (0.74, 1.19)	81	0.90 (0.63, 1.27)	74	1.06 (0.74, 1.53)	78	1.12 (0.78, 1.61)
Q3 (*n* = 7270)	13.2	193	0.86 (0.67, 1.10)	122	1.08 (0.77, 1.51)	54	0.65 (0.43, 0.99)	99	1.19 (0.82, 1.71)
Q4 (*n* = 7269)	19.0	194	0.75 (0.57, 0.99)	131	1.02 (0.70, 1.49)	60	0.64 (0.40, 1.01)	78	0.81 (0 53, 1.24)
P-trend			0.03		0.67		0.01		0.19
Natto									
Q1 (*n* = 3339)	0	153	1.0	85	1.0	60	1.0	69	1.0
Q2 (*n* = 3339)	1.4	192	0.86 (0.67, 1.09)	116	0.87 (0.63, 1.19)	62	0.81 (0.55, 1.20)	87	0.99 (0.69, 1.40)
Q3 (*n* = 3339)	2.7	220	0.89 (0.69, 1.15)	131	0.88 (0.62, 1.24)	73	0.90 (0.61, 1.37)	100	1.09 (0.75, 1.57)
Q4 (*n* = 3338)	7.3	112	0.68 (0.52, 0.88)	61	0.67 (0.47, 0.95)	47	0.74 (0.49, 1.11)	52	0.71 (0.49, 1.04)
P-trend			0.004		0.03		0.21		0.04
Soy protein from soy foods other than natto									
Q1 (*n* = 3339)	5.7	121	1.0	58	1.0	54	1.0	55	1.0
Q2 (*n* = 3339)	9.2	163	0.89 (0.69, 1.13)	81	0.86 (0.60, 1.21)	69	0.99 (0.68, 1.43)	78	1.03 (0.72, 1.47)
Q3 (*n* = 3339)	12.6	189	0.85 (0.66, 1.09)	120	1.05 (0.75, 1.47)	55	0.69 (0.45, 1.04)	102	1.14 (0.79, 1.63)
Q4 (*n* = 3338)	18.1	204	0.79 (0.59, 1.04)	134	0.98 (0.67, 1.43)	64	0.71 (0.45, 1.12)	73	0.67 (0 44, 1.03)
P-trend			0.11		0.76		0.07		0.04

[1] Adjusted for age, sex, total energy, BMI, physical activity, smoking status, education, marital status, history of diabetes and hypertension, and intakes of alcohol, saturated fat, polyunsaturated fat, salt, vegetables, and fruit. Q, quartile.
[2] Adjusted for total energy.

concentration of vitamin K (29); however, we could not obtain information on warfarin use at baseline. Although patients with stroke or IHD were excluded from analysis, we could not identify patients with atrial fibrillation or venous thromboembolism, who were also likely to be treated with warfarin at baseline (30). Based on available prevalence data on atrial fibrillation (31) and pulmonary embolism (ICD-10 codes I26) phlebitis and thrombophlebitis, portal vein thrombosis, and other venous embolisms combined (ICD-10 codes I80-I82) in Japan (32), the estimated numbers of these patients in our study were 75 men and 90 women. Even the exclusion of a greater number of subjects in the low natto intake group (the bottom 12.5%) in a sensitivity analysis did not substantially alter the results. Therefore, it is unlikely that the observed inverse association between natto intake and the risk of CVD mortality reflects the effects of CVD on natto intake. The use of other drugs such as statins or a history of digestive diseases may have affected the absorption of soy. The use of mortality instead of incidence data disabled us from distinguishing the effect of diet on incidence, survival, or both. We did not have data on blood cholesterol, an important risk factor for CVD. However, it would be at least partly intermediate in the association between diet and CVD.

In conclusion, we found that natto intake was significantly inversely associated with the risk of mortality from CVD in men and women. We could not exclude the possibility that the intake of soy foods other than natto may be inversely associated with the risk of CVD. More studies are needed to confirm our results concerning natto intake and to determine the association between the intake of total soy, as well as specific soy foods, and the risk of CVD. Although natto is mainly produced and consumed in Japan, several preparations of nattokinase are currently marketed in the United States as dietary supplements (33). Some other fermented soy foods, e.g., Korean cheonggukjang (34) and Indonesian tempeh (35), are reported to contain antithrombolic enzymes similar to or much stronger than nattokinase. These soy-related products also warrant further attention.

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