評価対象論文リスト（要因：たんぱく質摂取、アウトカム：循環器病）

評価判定日：2025/4/17

①既存の系統的レビュー・メタ解析・統合解析

1	Qi XX, Shen P. Associations of dietary protein intake with all-cause, cardiovascular disease, and cancer mortality: A systematic review and meta-analysis of cohort studies. Nutrition, Metabolism and Cardiovascular Diseases. 2020;30(7):1094-1105. doi:10.1016/j.numecd.2020.03.008
2	Naghshi S, Sadeghi O, Willett WC, Esmaillzadeh A. Dietary intake of total, animal, and plant proteins and risk of all cause, cardiovascular, and cancer mortality: systematic review and dose-response meta-analysis of prospective cohort studies. BMJ. July 2020:m2412. doi:10.1136/bmj.m2412
3	Ma Y, Zheng Z, Zhuang L, et al. Dietary macronutrient intake and cardiovascular disease risk and mortality: a systematic review and dose-response meta-analysis of prospective cohort studies. Nutrients. 2024;16(1):152. doi:10.3390/nu16010152
4	Chen Z, Glisic M, Song M, et al. Dietary protein intake and all-cause and cause-specific mortality: results from the Rotterdam Study and a meta-analysis of prospective cohort studies. Eur J Epidemiol. 2020;35(5):411-429. doi:10.1007/s10654-020-00607-6
5	Zhang XW, Yang Z, Li M, Li K, Deng YQ, Tang ZY. Association between dietary protein intake and risk of stroke: A meta-analysis of prospective studies. International Journal of Cardiology. 2016;223:548-551. doi:10.1016/j.ijcard.2016.08.106
6	Mousavi SM, Jayedi A, Jalilpiran Y, Hajishafiee M, Aminianfar A, Esmaillzadeh A. Dietary intake of total, animal and plant proteins and the risk of coronary heart disease and hypertension: a systematic review and dose-response meta-analysis of prospective cohort studies. Critical Reviews in Food Science and Nutrition. 2022;62(5):1336-1349. doi:10.1080/10408398.2020.1841730
7	Zhang Z, Xu G, Yang F, Zhu W, Liu X. Quantitative analysis of dietary protein intake and stroke risk. Neurology. 2014;83(1):19-25.

②日本人個別研究（ランダム化比較試験、コホート研究、症例対照研究、横断研究などの個別疫学研究）

8	Budhathoki S, Sawada N, Iwasaki M, et al. Association of animal and plant protein intake with all-cause and cause-specific mortality in a japanese cohort. JAMA Intern Med. 2019;179(11):1509. doi:10.1001/jamainternmed.2019.2806
9	Iso H. Fat and protein intakes and risk of intraparenchymal hemorrhage among middle-aged japanese. American Journal of Epidemiology. 2003;157(1):32-39. doi:10.1093/aje/kwf166
10	Kurihara A, Okamura T, Sugiyama D, et al. Vegetable protein intake was inversely associated with cardiovascular mortality in a 15-year follow-up study of the general japanese population. J Atheroscler Thromb. 2019;26(2):198-206. doi:10.5551/jat.44172
11	Sauvaget C, Nagano J, Hayashi M, Yamada M. Animal protein, animal fat, and cholesterol intakes and risk of cerebral infarction mortality in the adult health study. Stroke. 2004;35(7):1531-1537. doi:10.1161/01.STR.0000130426.52064.09
12	Nagata C, Wada K, Tamura T, et al. Dietary intakes of glutamic acid and glycine are associated with stroke mortality in japanese adults ,. The Journal of Nutrition. 2015;145(4):720-728. doi:10.3945/jn.114.201293
13	Ozawa M, Yoshida D, Hata J, et al. Dietary protein intake and stroke risk in a general japanese population: the hisayama study. Stroke. 2017;48(6):1478-1486. doi:10.1161/STROKEAHA.116.016059

■コホート研究（コホートのプール解析含む）

Reference			Study subjects						Cate	Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Author	Title	Year	Study perio	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths	Participant's race						
CVD Mortality														
Sanjeev Budhathoki et al,	Association of Animal and Plant Protein Intake with All-cause and Cause-specific Mortality in a Japanese Cohort	2019	1995-2016	70696	JPHC study	CVD mortality	3025	Japanese	Total protein				age (50, 51-55, 56-60, 61-65, 66-70, or >70 years), sex, and percentage of energy from saturated fat, monounsaturated fat, polyunsaturated fat, other fat (all continuous), body mass index (calculated as weight in kilograms divided by the height in meters squared; <22.5, 22.5 to <25.0, 25.0 to <27.5, or 27.5), smoking (never, past, current with 20 and >20 cigarettes/d), alcohol use (none/occasional or regular consumption of ethanol of <150, 150 to <300, or 300 g per day), physical activity (quartile category in metabolic equivalent	-
									Q1	707	1.00 (reference)	0.75		
									Q2	606	0.91 (0.80-1.04)			
									Q3	554	0.84 (0.72-0.98)			
									Q4	542	0.90 (0.76-1.06)			
									Q5	616	0.97 (0.80-1.18)			
									Animal protein					
									Q1	672	1.00 (reference)	0.87		-
									Q2	607	0.90 (0.79-1.03)			
									Q3	563	0.89 (0.77-1.03)			
									Q4	577	0.99 (0.84-1.17)			
									Q5	606	0.97 (0.79-1.19)			
									Plant protein			**0.002**		
									Q1	666	1.00 (reference)			
									Q2	609	**0.84 (0.73-0.96)**			
									Q3	574	**0.77 (0.66-0.90)**			↓
									Q4	547	**0.70 (0.59-0.83)**			
									Q5	629	**0.73 (0.59-0.91)**			
Ayako Kurihara et al.	Vegetable Protein Intake was Inversely Associated with Cardiovascular Mortality in a 15-year follow-up study of the general Japanese Population	2019	1990-2015	7744	NUPPON DATA90	CVD total mortality	354 death	30 years or older	Vegetable protein				sex, age, BMI, animal protein intake, animal fat intake, vegetable fat intake, sodium, potassium, total dietary fiber, cigarette smoking category,	-
									Q1	69	1.00 (reference)			
									Q2	97	1.10 (0.80-1.52)			
									Q3	86	0.88 (0.62-1.24)			
									Q4	102	0.80 (0.55-1.16)			
Coronary Heart Disease (Ischemic Heart Disease) Mortality														
Ayako Kurihara et al.	Vegetable Protein Intake was Inversely Associated with Cardiovascular Mortality in a 15-year follow-up study of the general Japanese Population	2019	1990-2015	7744	NUPPON DATA90	Coronary heart disease, mortality		30 years or older	Vegetable protein				sex, age, BMI, animal protein intake, animal fat intake, vegetable fat intake, sodium, potassium, total dietary fiber, cigarette smoking category,	-
									Q1	12	1.00 (reference)			
									Q2	26	1.89 (0.93-3.84)			
									Q3	18	1.18 (0.53-2.60)			
									Q4	15	0.76 (0.31-1.86)			
Total Stroke Incidence														
Mio Ozawa et al.	Dietary Protein Intake and Stroke Risk in a General Japanese Population The Hisayama Study	2017	1988-2007	2400	Hisayama study	**Stroke event (incidence and mortality)**	254	Japanese adults aged 40-79 y	Total protein					
									Q1	74	1.00 (reference)			
									Q2	66	0.76 (0.54-1.08)			-
									Q3	53	0.61 (0.42-0.89)			
									Q4	61	0.72 (0.50-1.02)	0.04	age, sex, hypertension, diabetes mellitus, total cholesterol, proteinuria, ECG abnormalities, body mass index, smoking habits, alcohol intake, regular exercise, and total energy intake	
									Animal protein					
									Q1	74	1.00 (reference)			
									Q2	57	0.81 (0.57-1.15)			-
									Q3	62	0.90 (0.64-1.27)			
									Q4	61	0.87 (0.62-1.23)	0.54		
									Vegetable protein					
									Q1	72	1.00 (reference)			
									Q2	58	0.75 (0.52-1.08)			↓ ↓
									Q3	67	0.76 (0.53-1.09)			
									Q4	57	**0.60 (0.41-0.88)**	**0.01**		
Total Stroke Mortality														
Ayako Kurihara et al.	Vegetable Protein Intake was Inversely Associated with Cardiovascular Mortality in a 15-year follow-up study of the general Japanese Population	2019	1990-2015	7744	NUPPON DATA90	Stroke, mortality		30 years or older	Vegetable protein				sex, age, BMI, animal protein intake, animal fat intake, vegetable fat intake, sodium, potassium, total dietary fiber, cigarette smoking category,	↓
									Q1	33	1.00 (reference)			
									Q2	31	0.68 (0.41-1.14)			
									Q3	33	0.60 (0.36-1.02)			
									Q4	47	0.61 (0.35-1.05)			
Chisato Nagata et al.	Dietary intakes of Culutamic Acid and Glycine Are Associated with Stroke Mortality in Japanese	2015	1992-2008	29079	Takayama Study	Total stroke mortality	677	Japanese adults aged 35-101y	Animal protein, men				age, energy, height, BMI, physical activity, smoking status, education, marital status, histories of diabetes and hypertension, and intakes of alcohol, total protein, saturated fat, polyunsaturated fat	-
									Q1		1.00 (reference)			
									Q4		1.14 (0.72-1.80)	0.48		
									Plant protein, men					-
									Q1		1.00 (reference)			
									Q4		0.89 (0.56-1.41)	0.53		
									Animal protein, women					

	Adults								Q1		1.00 (reference)		saturated fat, polyunsaturated fat, salt, and dietary fiber. Further adjusted for menopausal status for women	-
									Q4		1.26 (0.81-1.96)	0.59		
									Plant protein, women					
									Q1		1.00 (reference)			-
									Q4		0.81 (0.52-1.26)	0.63		
Ischemic stroke Incidence														
									Total protein					
									Q1	45	1.00 (reference)			
									Q2	50	0.94 (0.62-1.43)			-
									Q3	32	**0.59 (0.37-0.95)**			
									Q4	45	0.86 (0.56-1.33)	0.22		
									Animal protein					
Mio Ozawa et al.	Dietary Protein Intake and Stroke Risk in a General Japanese Population The Hisayama Study	2017	1988-2007	2400	Hisayama study	**Ischemic stroke event (incidence and death)**	172	Japanese adults aged 40-79 y	Q1	46	1.00 (reference)		age, sex, hypertension, diabetes mellitus, total cholesterol, proteinuria, ECG abnormalities, body mass index, smoking habits, alcohol intake, regular exercise, and total energy intake	-
									Q2	38	0.85 (0.55-1.30)			
									Q3	43	0.95 (0.62-1.46)			
									Q4	45	1.01 (0.67-1.53)	0.83		
									Vegetable protein					
									Q1	47	1.00 (reference)			↓ ↓
									Q2	40	0.75 (0.48-1.18)			
									Q3	47	0.77 (0.50-1.20)			
									Q4	39	**0.60 (0.38-0.95)**	**0.046**		
Ischemic Stroke Mortality														
									Vegetable protein					
Ayako Kurihara et al.	Vegetable Protein Intake was Inversely Associated with Cardiovascular Mortality in a 15-year follow-up study of the general Japanese Population	2019	1990-2015	7744	NUPPON DATA90	Cerebral infraction (ischemic stroke), mortality		30 years or older	Q1	19	1.00 (reference)		sex, age, BMI, animal protein intake, animal fat intake, vegetable fat intake, sodium, potassium, total dietary fiber, cigarette smoking category,	-
									Q2	17	0.69 (0.35-1.37)			
									Q3	24	0.86 (0.44-1.67)			
									Q4	28	0.77 (0.38-1.57)			
									Animal protein, men					
									Q1		1.00 (reference)			-
									Q4		0.90 (0.49-1.64)	0.78		
	Dietary intakes of Culutamic Acid and Glycine Are Associated with Stroke Mortality in Japanese Adults								Plant protein, men				age, energy, height, BMI, physical activity, smoking status, education, marital status, histories of diabetes and hypertension, and intakes of alcohol, total protein, saturated fat, polyunsaturated fat, salt, and dietary fiber. Further adjusted for menopausal status for women	
Chisato Nagata et al.		2015	1992-2008	29079	Takayama Study	Ischemic stroke mortality	677	Japanese adults aged 35-101y	Q1		1.00 (reference)			-
									Q4		1.13 (0.62-2.06)	0.72		
									Animal protein, women					
									Q1		1.00 (reference)			-
									Q4		0.96 (0.52-1.78)	0.86		
									Plant protein, women					
									Q1		1.00 (reference)			-
									Q4		1.09 (0.59-2.02)	0.73		
									Total protein					
									T1	29	1.00 (reference)			↓ ↓
									T2	18	0.63 (0.34-1.19)			
									T3	13	**0.42 (0.20-0.85)**			
									Animal protein					
Catherine Sauvaget et al.	Animal Protein, Animal Fat, and Cholesterol Intakes and Risk of Cerebral Infarction Mortality in the Adult Health Study	2004	1984-2001	3731	Adult Health Study (AHS), a clinical study subcohort of the LSS. The LSS is a cohort of 120 000 persons (93 000 atomic bomb survivors and 27 000 unexposed individuals) who were residents of	Cerebral infarction death	60 death	35-89 years	T1	29	1.00 (reference)		sex and age, and adjusted for radiation dose, city, BMI, smoking status, alcohol habits, and medical history of hypertension and diabetes	↓ ↓
									T2	17	0.54 (0.28-1.03)			
									T3	14	**0.45 (0.23-0.89)**			
									Vegetal protein					–
									T1	21	1.00 (reference)			
									T2	21	1.19 (0.62-2.29)			
									T3	18	1.12 (0.57-2.21)			
									Animal protein					
Catherine Sauvaget et al.	Animal Protein, Animal Fat, and Cholesterol Intakes and Risk of Cerebral Infarction Mortality in the Adult Health Study	2004	1984-2001	3731	Adult Health Study (AHS)	Cerebral infarction death			T1		1.00 (reference)		radiation dose, city, BMI, smoking status, alcohol habits, medical history of hypertension and diabetes, fruit and vegetable	↓ ↓
									T2		0.50 (0.26-0.97)			
									T3		0.47 (0.24-0.92)			
Catherine Sauvaget et al.	Animal Protein, Animal Fat, and Cholesterol Intakes and Risk of Cerebral Infarction Mortality in the Adult Health Study	2004	1984-2001	3731	Adult Health Study (AHS)	Cerebral infarction death			Animal protein (per unit of		0.92 (0.43-1.95)		sex and age, and adjusted for radiation dose, city, BMI, smoking status, alcohol habits, medical history of hypertension and diabetes, fruit and vegetable intake, animal fat and cholesterol	-
Hemorrahagic stroke/intracerebral harmorrhage Incidence														
									Total protein					

Hiroyasu Iso et al.	Fat and Protein Intakes and Risk of Intraparenchymal Hemorrhage among Middle-aged Japanese	2002	1973-1997	4775	Residents of five communities (Ikawa, Ishizawa, Yao, Noichi, Kyowa)	**Intraparenchymal Hemorrhage incident and death**	68 (18% were fatal)	Middle-aged Japanese (40-69y)	Q1	16	1.00 (reference)		age, sex, community, sex-specific quartiles of total energy intake and body mass index, hypertension category, serum total cholesterol levels, serum glucose category, smoking status, ethanol intake, and (for women) menopausal status.	↓
									Q2	17	0.95 (0.46-1.93)			
									Q3	19	0.93 (0.44-1.95)			
									Q4	16	0.58 (0.26-1.28)			
									Animal protein					
									Q1	19	1.00 (reference)			↓
									Q2	17	0.96 (0.49-1.86)			
									Q3	17	0.81 (0.41-1.61)			
									Q4	15	0.60 (0.29-1.23)			
									Vegetable protein					
									Q1	12	1.00 (reference)			–
									Q2	17	1.08 (0.51-2.31)			
									Q3	18	1.07 (0.49-2.34)			
									Q4	21	1.15 (0.52-2.58)			
									Total protein					
									Q1	24	1.00 (reference)			↓ ↓ ↓
									Q2	12	**0.48 (0.23-0.97)**			
									Q3	12	**0.48 (0.23-0.99)**			
									Q4	10	**0.37 (0.17-0.80)**	**0.01**		
Mio Ozawa et al.	Dietary Protein Intake and Stroke Risk in a General Japanese Population The Hisayama Study	2017	1988-2007	2400	Hisayama study	**Intracerebral hemmorrhage incident and death**	58	Japanese adults aged 40-79 y	Animal protein				age, sex, hypertension, diabetes mellitus, total cholesterol, proteinuria, ECG abnormalities, body mass index, smoking habits, alcohol intake, regular exercise, and total energy intake	↓ ↓ ↓
									Q1	26	1.00 (reference)			
									Q2	10	0.45 (0.21-0.93)			
									Q3	11	0.53 (0.26-1.08)			
									Q4	11	**0.47 (0.23-0.96)**	**0.03**		
									Vegetable protein					
									Q1	19	1.00 (reference)			
									Q2	11	0.65 (0.29-1.42)			↓
									Q3	15	0.78 (0.37-1.64)			
									Q4	13	0.55 (0.25-1.21)	0.21		
									Total protein					
									Q1	5	1.00 (reference)			
									Q2	4	0.65 (0.17-2.53)			–
									Q3	9	1.46 (0.46-4.61)			
									Q4	6	1.07 (0.31-3.73)	0.57		
Mio Ozawa et al.	Dietary Protein Intake and Stroke Risk in a General Japanese Population The Hisayama Study	2017	1988-2007	2400	Hisayama study	Sibarachnoid hemmorrhage incident and death		Japanese adults aged 40-79 y	Animal protein				age, sex, hypertension, diabetes mellitus, total cholesterol, proteinuria, ECG abnormalities, body mass index, smoking habits, alcohol intake, regular exercise, and total energy intake	↑ ↑
									Q1	2	1.00 (reference)			
									Q2	9	4.7 (1.00-22.03)			
									Q3	8	4.49 (0.93-21.73)			
									Q4	5	2.96 (0.57-15.43)	0.31		
									Vegetable protein					
									Q1	6	1.00 (reference)			
									Q2	7	0.82 (0.26-.2.61)			↓
									Q3	5	0.55 (0.15-1.92)			
									Q4	6	0.63 (0.19-2.15)	0.38		

Hemorrahagic Stroke/Intracerebral Harmorrhage Mortality

Ayako Kurihara et al.	Vegetable Protein Intake was Inversely Associated with Cardiovascular Mortality in a 15-year follow-up study of the general Japanese Population	2019	1990-2015	7744	NUPPON DATA90	Cerebral hemorrhage mortality		30 years or older	Vegetable protein				sex, age, BMI, animal protein intake, animal fat intake, vegetable fat intake, sodium, potassium, total dietary fiber, cigarette smoking category,	↓ ↓
									Q1	7	1.00 (reference)			
									Q2	9	0.75 (0.26-2.15)			
									Q3	4	0.26 (0.07-0.98)			
									Q4	4	0.29 (0.08-1.06)			
Chisato Nagata et al.	Dietary intakes of Culutamic Acid and Glycine Are Associated with Stroke Mortality in Japanese Adults	2015	1992-2008	29079	Takayama Study	Intra cerebral hemorrhage mortality	677	Japanese adults aged 35-101y	Animal protein, men				age, energy, height, BMI, physical activity, smoking status, education, marital status, histories of diabetes and hypertension, and intakes of alcohol, total protein, saturated fat, polyunsaturated fat, salt, and dietary fiber. Further adjusted for menopausal status for women	↑
									Q1		1.00 (reference)			
									Q4		1.73 (0.71-4.22)	0.22		
									Plant protein, men					↓
									Q1		1.00 (reference)			
									Q4		0.58 (0.24-1.42)	0.22		
									Animal protein, women					-
									Q1		1.00 (reference)			
									Q4		1.00 (0.38-2.60)	0.37		
									Plant protein, women					-
									Q1		1.00 (reference)			
									Q4		1.01 (0.39-2.62)	0.37		

■メタ解析、系統的レビュー

Reference			Include study					Design			
Author	Title	Year	Ref No.	First author	Year	Study period	Study location	Event (*Definition)	Category	Relative risk (95% CI or p)	Weight	**Magnitude of association**
Seyed Mohammad Mousavi et al.	**Dietary intake of total, animal and plant proteins and the risk of coronary heart disease and hypertension: a systematic review and dose-response meta-analysis of prospective cohort studies**	**2022**	**Overall**						**Total protein**	**0.97 (0.90-1.05)**	**100**	**-**
				Halton et al.	2006	CHD	US	**Coronary heart disease incidence**		1.06 (0.86-1.30)	11.57	-
				Preis et al.	2010	IHD	US			1.08 (0.95-1.23)	23.92	-
				Prentice et al.	2011	CHD	US			0.89 (0.80-0.99)	30.6	↓
				Wallstrom (men)	2012	fatal/non-fatal MI or death from CHD	Sweden			0.90 (0.69-1.17)	7.53	-
				Wallstrom (women)	2013	fatal/non-fatal MI or death from CHD	Sweden			1.10 (0.77-1.56)	4.41	-
				Haring et al.	2014	CHD	US			0.84 (0.66-1.07)	8.83	-
				Dehghan et al.	2017	MI	International			1.02 (0.83-1.24)	12.15	-
			Overall					**Coronary heart disease incidence**	**Plant protein**	**1.03 (0.86-1.02)**	**100**	**-**
				Halton et al.	2006	CHD	US			1.08 (0.82-1.43)	18.45	-
				Preis et al.	2010	IHD	US			0.93 (0.78-1.12)	43.58	-
				Haring et al.	2014	CHD	US			0.87 (0.68-1.10)	24.66	-
			Overall					**Coronary heart disease incidence**	**Animal protein**	**1.09 (0.97-1.22)**	**100**	**-**
				Halton et al.	2006	CHD	US			1.13 (0.91-1.41)	22.42	-
				Preis et al.	2010	IHD	US			1.11 (0.97-1.28)	55.91	-
				Haring et al.	2014	CHD	US			1.00 (0.79-1.26)	19.73	-
			Overall						**Total protein (highest v. lowest)**	**0.97 (0.90-1.05)**	**100**	**-**
				Kelemen et al.	2005	CHD death	US	**Coronary heart disease incidence and death**		0.84 (0.39-1.79)	0.99	-
				Halton et al.	2006	CHD	US			1.06 (0.86-1.30)	11.57	-
				Preis et al.	2010	IHD	US			1.08 (0.95-1.23)	23.92	-
				Prentice et al.	2011	CHD	US			0.89 (0.80-0.99)	30.6	↓
				Wallstrom (men)	2012	fatal/non-fatal MI or death from CHD	Sweden			0.90 (0.69-1.17)	7.53	-
				Wallstrom (women)	2013	fatal/non-fatal MI or death from CHD	Sweden			1.10 (0.77-1.56)	4.41	-
				Haring et al.	2014	CHD	US			0.84 (0.66-1.07)	8.83	-
				Dehghan et al.	2017	MI	International			1.02 (0.83-1.24)	12.15	-
			Overall						**Plant protein**	**0.91 (0.80-1.02)**	**100**	**-**
				Kelemen et al.	2005	CHD death	US	**Coronary heart disease incidence and death**		0.70 (0.49-0.99)	11.53	↓
				Halton et al.	2006	CHD	US			1.08 (0.82-1.43)	18.45	-
				Preis et al.	2010	IHD	US			0.93 (0.78-1.12)	43.58	-
				Haring et al.	2014	CHD	US			0.87 (0.68-1.10)	24.66	-
				Kurihara et al.	2019	CHD death	Japan			0.76 (0.31-1.86)	1.78	-
			Overall						**Animal protein**	**1.09 (0.98-1.21)**	**100**	**-**
				Kelemen et al.	2005	CHD death	US	**Coronary heart disease incidence and death**		0.88 (0.42-1.86)	1.94	-
				Halton et al.	2006	CHD	US			1.13 (0.91-1.41)	22.42	-
				Preis et al.	2010	IHD	US			1.11 (0.97-1.28)	55.91	-
				Haring et al.	2014	CHD	US			1.00 (0.79-1.26)	19.73	-
Xiao-Wei Zhang et al.	**Association between dietary protein intake and risk of stroke: A meta-analysis of prospective studies**	**2016**	**Overall**						**Total protein (highest v. lowest)**	**0.98 (0.89-1.07)**	100	**-**
				Khaw et al	1987	Fatal	USA	**Stroke risk (incident and death)**		0.85 (0.45-1.61)		-
				Iso et al.	2001	Fatal/nonfatal	USA			0.32 (0.10-1.00)		↓ ↓
				Iso et al.	2003	Fatal/nonfatal	Japan			0.58 (0.26-1.28)		↓
				Sauvaget et al.	2004	Fatal	Japan			0.42 (0.20-0.85)		↓ ↓ ↓
				Preis et al.	2010	Fatal/nonfatal	USA			1.14 (0.90-1.43)		-
				Prentice et al.	2011	Fatal/nonfatal	USA			0.87 (0.78-0.98)		↓
				Larsson et al.	2012	Fatal/nonfatal	Sweden			0.74 (0.61-0.91)		-
				Bemstein et al.	2012	Fatal/nonfatal	USA			1.22 (1.07-1.40)		↑
				Lagiou et al.	2012	Nonfatal?	USA			1.05 (1.01-1.10)		↑
				Lagiou et al.	2012	Nonfatal?	USA			1.05 (0.96-1.14)		-
				Talaei et al.	2014	Fatal	Singapore			0.91 (0.78-1.08)		-
				Nagata et al.	2015	Fatal	Japan			1.26 (0.81-1.96)		-
				Nagata et al.	2015	Fatal	Japan			0.89 (0.56-1.14)		-

			Nagata et al.	2015	Fatal	Japan			0.81 (0.52-1.26)		-
			Nagata et al.	2015	Fatal	Japan			1.14 (0.72-1.80)		-
			Haring et al.	2015	Fatal/nonfatal	Germany			1.21 (0.87-1.69)		-
			Overall (8 studies)					**Animal protein (highest v. lowest)**	**0.94 (0.75-1.17)**	100	-
			Overall (8 studies)					**Vegetable protein (highest v. lowest)**	**0.90 (0.82-0.99)**	100	↓
Zhizhong Zhang et al.	**Quantitative analysis of dietary protein intake and stroke risk**	**2014**	**Overall**					**Total protein (highest v. lowest)**	**0.80 (0.66-0.99)**	**100**	↓
			Khaw et al.	1987	Fatal	US	**Stroke event (incident and death)**		0.85 (0.45-1.61)		
			Iso et al.	2001	Fatal/nonfatal	US			0.32（0.10-1.00）		↓ ↓
			Iso et al.	2003	Fatal/nonfatal	Japan			0.58（0.26-1.28）		↓
			Sauvaget et al.	2004	Fatal	Japan			0.42（0.20-0.85）		↓ ↓ ↓
			Preis et al.	2010	Fatal/nonfatal	US			1.14（0.90-1.43）		-
			Prentice et al.	2011	Fatal/nonfatal	US			0.84（0.78-0.98）		↓
			Larsson et al.	2012	Fatal/nonfatal	Sweden			0.74 (0.61-0.91)		↓
			Overall					**Animal protein (highest v. lowest)**	**0.71 (0.50-0.99)**	**100**	↓
			Iso et al.	2001	Fatal/nonfatal	US	**Stroke event (incident and death)**		0.47 (0.20-1.11)		↓ ↓
			Iso et al.	2003	Fatal/nonfatal	Japan			0.60 (0.29-1.23)		↓
			Sauvaget et al.	2004	Fatal stroke	Japan			0.45 (0.23-0.89)		↓ ↓ ↓
			Preis et al.	2010	Fatal/nonfatal	US			1.11 (0.87-1.41)		-
			Larsson et al.	2012	Fatal/nonfatal	Sweden			0.71 (0.57-0.88)		↓
			Overall					**Plant protein (highest v. lowest)**	**0.88 (0.76-1.02)**	**100**	–
			Iso et al.	2001	Fatal/nonfatal	US	**Stroke event (incident and death)**		0.81 (0.40-1.63)		–
			Iso et al.	2003	Fatal/nonfatal	Japan			1.15 (0.52-2.58)		–
			Sauvaget et al.	2004	Fatal stroke	Japan			1.12 (0.57-2.21)		–
			Preis et al.	2010	Fatal/nonfatal	US			0.82 (0.60-1.12)		-
			Larsson et al.	2012	Fatal/nonfatal	Sweden			0.88 (0.73-1.06)		–
Xiang-Xiu Qi et al.	**Associations of Dietary protein intake with all-cause, cardiovascular disease, and cancer mortality: A systematic review and meta-analysis of cohort studies**	**2020**	**Overall**					**Total protein (highest v. lowest)**	**1.01 (0.93-1.10)**	**100**	-
			Tharrey et al	2018		US and Canada	**CVD-mortality**		1.03 (0.88-1.21)	28.68	-
			Budhathoki et al.	2019		Japan (JPHC study)			0.97 (0.80-1.18)	19.26	-
			Chen et al.	2020		Netherlands			1.22 (0.99-1.52)	15.82	-
			Song et al.	2016		US			0.97 (0.76-1.23)	12.55	-
			Dehghan et al.	2017		18 countries			0.90 (0.71-1.15)	12.51	-
			Levine	2014		US			0.88 (0.63-1.22)	6.66	-
			Chan et al.	2019		China			0.76 (0.48-1.22)	3.34	-
			Hernandez Alonso et a	2016		Spain			2.04 (0.93-4.49)	1.17	↑ ↑
			Overall					**Animal protein (highest v. lowest)**	**1.11 (1.01-1.22)**	**100**	↑
			Tharrey et al	2018		US and Canada	**CVD-mortality**		1.12 (1.05-1.19)	35.95	↑
			Song et al.	2016		US			1.09 (0.99-1.20)	30.02	–
			Budhathoki et al.	2019		Japan (JPHC study)			0.97 (0.79-1.19)	14.92	–
			Chen et al.	2020		Netherlands			1.28 (1.03-1.60)	13.56	↑
			Chan et al.	2019		China			0.81 (0.50-1.32)	3.75	–
			Hernandez Alonso et a	2016		Spain			2.55 (1.24-5.25)	1.78	↑ ↑
			Overall					**Plant protein (highest v. lowest)**	**0.90 (0.80-1.01)**	**100**	-
			Tharrey et al	2018		US and Canada	**CVD-mortality**		0.95 (0.89-1.02)	31.92	–
			song et al.	2016		US			0.85 (0.74-0.97)	24.47	–
			Budhathoki et al.	2019		Japan (JPHC study)			0.73 (0.59-0.91)	16.43	↓
			Chen et al.	2020		Netherlands			1.19 (0.91-1.57)	12.50	–
			Kurihara et al.	2018		Japan (NIPPONDATA 90)			0.80 (0.55-1.16)	7.98	-
			Chan et al.	2019		China			0.82 (0.50-1.32)	5.19	–
			Hernandez Alonso et a	2016		Spain			1.73 (0.67-4.49)	1.52	↑

Sina Naghshi et al.	**Dietary intake of total, animal, and plant proteins and risk of all-cause, cardiovascular, and cancer mortality: systematic review and dose-response meta-analysis of prospective cohort studies**	**2020**	**Overall**			**CVD-mortality**	**Total protein (highest v. lowest)**	**0.98 (0.94-1.03)**	**100**	**-**
			Sauvaget et al	2004	Japan (AHS)			0.42 (0.20-0.85)	0.41	↓
			Kelemen et al.	2005	USA			0.84 (0.39-1.80)	0.37	–
			Nagata et al.	2015	Japan (the Takayama Study)			1.01 (0.73-1.40)	1.98	-
			Nagata et al.	2015	Japan (the Takayama Study)			1.01 (0.74-1.38)	2.16	-
			Hernandez Alonso et a	2016	Spain			2.03 (0.66-6.24)	0.17	↑ ↑
			Song et al.	2016	US			0.98 (0.92-1.05)	27.13	–
			Courand et al.	2016	France			0.76 (0.54-1.06)	1.85	–
			Dehghan et al.	2017	18 countries			0.90 (0.71-1.15)	3.52	-
			Papanikolaou et al.	2019	US			1.01 (1.00-1.03)	56.14	↑
			Budhathoki et al.	2019	Japan (JPHC study)			0.97 (0.80-1.18)	5.25	-
			Chan et al.	2019	China			0.75 (0.41-1.38)	0.58	-
			Chan et al.	2019	China			0.78 (0.38-1.61)	0.41	-
			Overall			**CVD-mortality**	**Animal protein (highest v. lowest)**	**1.02 (0.94-1.11)**	**100**	**-**
			Sauvaget et al	2004	Japan (AHS)			0.45 (0.23-0.89)	1.43	↓
			Kelemen et al.	2005	USA			0.88 (0.42-1.85)	1.19	-
			Nagata et al.	2015	Japan (the Takatama study)			1.14 (0.72-1.80)	3.01	-
			Nagata et al.	2015	Japan (the Takatama study)			1.26 (0.81-1.96)	3.22	-
			Hernandez Alonso et a	2016	Spain			2.54 (0.87-7.42)	0.58	↑ ↑
			Song et al.	2016	US			1.09 (0.99-1.20)	28.82	-
			Papanikolaou et al.	2019	US			1.01 (1.00-1.03)	46.92	-
			Budhathoki et al.	2019	Japan (JPHC study)			0.97 (0.79-1.19)	12.02	-
			Chan et al.	2019	China			0.75 (0.41-1.38)	1.74	-
			Chan et al.	2019	China			0.93 (0.42-2.04)	1.06	-
			Overall			**CVD-mortality**	**Plant protein (highest v. lowest)**	**0.88 (0.80-0.96)**	**100**	**↓**
			Sauvaget et al	2004	Japan			1.12 (0.57-2.21)	0.59	-
			Kelemen et al.	2005	USA			0.70 (0.49-0.99)	4.91	-
			Nagata et al.	2015	Japan (the Takatama study)			0.89 (0.56-1.41)	3.13	-
			Hernandez Alonso et a	2016	Spain			1.73 (0.56-5.33)	0.59	↑
			Song et al.	2016	US			0.88 (0.80-0.97)	18.07	-
			Kurihara et al.	2018	Japan (NIPPONDATA 90)			0.86 (0.75-0.99)	14.64	↓
			Papanikolaou et al.	2019	US			1.00 (0.98-1.03)	22.66	↓
			Sun et al.	2019	US			0.87 (0.79-0.95)	18.40	↓
			Budhathoki et al.	2019	Japan (JPHC study)			0.73 (0.59-0.91)	9.60	↓
			Chan et al.	2019	China			0.92 (0.47-1.79)	1.63	-
			Chan et al.	2019	China			0.71 (0.35-0.96)	1.43	-
Yibin Ma et al.	**Dietary Macronutrient Intake and Cardiovascular Disease Risk and Mortality: A systematic review and Dose-Response Meta-Analysis of Prospective Cohort Studies**	**2024**	**Overall**			**CVD-mortality**	**Total protein (highest v. lowest)**	**0.98 (0.94-1.03)**	**100**	**–**
			Nagata et al.	2015	Japan (the Takayama Study)			1.01 (0.73-1.40)	?	-
			Budhathoki et al.	2019	Japan (JPHC study)			0.97 (0.80-1.18)	?	-
			Overall			**CVD mortality**	**Animal protein (highest v. lowest)**	**1.07 (0.97-1.18)**	**100**	**–**
			Sauvaget et al.	2004	Japan (AHS)			**?**	?	
			Nagata et al.	2015	Japan (the Takayama Study)			1.14 (0.72-1.80)	?	-
			Budhathoki et al.	2019	Japan (JPHC study)			0.97 (0.79-1.19)	?	-
			Overall			**CVD mortality**	**Plant protein (highest v. lowest)**	**0.85 (0.78-0.93)**	**100**	**↓**
			Nagata et al.	2015	Japan (the Takayama Study)			0.89 (0.56-1.41)	?	-
			Budhathoki et al.	2019	Japan (JPHC study)			0.73 (0.59-0.91)	?	↓
			Kurihara et al.	2018	Japan (NIPPONDATA 90)			0.86 (0.75-0.99)	?	↓
Zhangling Chen et al.	**Dietary protein intake and all-cause mortality and cause-specific mortality: results from the Rotterdam Study and a meta-analysis of prospective**	**2020**	**Overall**			**CVD-mortality**	**Total protein**	**1.08 (0.98-1.20)**	**100**	**–**
			Budhathoki et al.	2019	Japan			0.97 (0.80-1.18)		-
			Kelemen et al.	2005	US			0.84 (0.39-1.79)		-
			Levine et al.	2014	US			0.88 (0.63-1.22)		-
			song et al.	2016	US			1.13 (1.03-1.25)		↑

cohort studies	Chen et al.	2019	Netherlands			1.22 (0.99-1.52)		-
	Overall				**Animal protein (highest v. lowest)**	**1.09 (1.01-1.18)**	**100**	**↑**
	Sauvaget et al.	2004	Japan (AHS)	**CVD-mortality**		0.92 (0.43-1.95)	?	–
	Budhathoki et al.	2019	Japan			0.97 (0.79-1.19)	?	–
	Kelemen et al.	2005	US			0.88 (0.42-1.86)		–
	song et al.	2016	US			1.09 (0.99-1.20)		–
	Chen et al.	2019	Netherlands			1.28 (1.03-1.60)		↑
	Overall				**Plant protein (highest v. lowest)**	**0.86 (0.73-1.00)**	**100**	**–**
	Kurihara et al.	2018	Japan (NIPPONDATA 90)	**CVD-mortality**		0.80 (0.55-1.16)	?	–
	Budhathoki et al.	2019	Japan			0.73 (0.59-0.91)	?	↓
	Sauvaget et al.	2004	Japan (AHS)			1.12 (0.57-2.21)		–
	Kelemen et al.	2005	US			0.70 (0.49-0.99)		↓
	song et al.	2016	US			0.85 (0.74-0.97)		↓
	Chen et al.	2019	Netherlands			1.19 (0.91-1.57)		–