

評価対象論文リスト(要因:食塩、アウトカム:胃がん)

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①既存の系統的レビュー・メタ解析・統合解析

1	Hirohata T, Kono S. Diet/nutrition and stomach cancer in Japan. <i>Int J Cancer</i> . 1997;Suppl 10:34-36. doi:10.1002/(sici)1097-0215(1997)10+<34::aid-
2	Key TJ, Schatzkin A, Willett WC, Allen NE, Spencer EA, Travis RC. Diet, nutrition and the prevention of cancer. <i>Public Health Nutr</i> . 2004;7(1A):187-200. doi:10.1079/phn2003588
3	Dias-Neto M, Pintalhao M, Ferreira M, Lunet N. Salt intake and risk of gastric intestinal metaplasia: systematic review and meta-analysis. <i>Nutr Cancer</i> . 2010;62(2):133-147. doi:10.1080/01635580903305391
4	D'Elia L, Rossi G, Ippolito R, Cappuccio FP, Strazzullo P. Habitual salt intake and risk of gastric cancer: a meta-analysis of prospective studies. <i>Clin Nutr</i> . 2012;31(4):489-498. doi:10.1016/j.clnu.2012.01.003
5	Ge S, Feng X, Shen L, Wei Z, Zhu Q, Sun J. Association between habitual dietary salt intake and risk of gastric cancer: a systematic review of observational studies. <i>Gastroenterol Res Pract</i> . 2012;2012:808120. doi:10.1155/2012/808120
6	Bonequi P, Meneses-González F, Correa P, Rabkin CS, Camargo MC. Risk factors for gastric cancer in Latin America: a meta-analysis. <i>Cancer Causes Control</i> . 2013;24(2):217-231. doi:10.1007/s10552-012-0110-z
7	Woo HD, Park S, Oh K, et al. Diet and cancer risk in the Korean population: a meta- analysis. <i>Asian Pac J Cancer Prev</i> . 2014;15(19):8509-8519. doi:10.7314/apjcp.2014.15.19.8509
8	Liu ZT, Lin AH. Dietary factors and thyroid cancer risk: a meta-analysis of observational studies. <i>Nutr Cancer</i> . 2014;66(7):1165-1178.
9	Johnson C, Raj TS, Trudeau L, et al. The science of salt: a systematic review of clinical salt studies 2013 to 2014. <i>J Clin Hypertens (Greenwich)</i> . 2015;17(5):401-411. doi:10.1111/jch.12529
10	Fang X, Wei J, He X, et al. Landscape of dietary factors associated with risk of gastric cancer: A systematic review and dose-response meta-analysis of prospective cohort studies. <i>Eur J Cancer</i> . 2015;51(18):2820-2832. doi:10.1016/j.ejca.2015.09.010
11	Poorolajal J, Moradi L, Mohammadi Y, Cheraghi Z, Gohari-Ensaf F. Risk factors for stomach cancer: a systematic review and meta-analysis. <i>Epidemiol Health</i> . 2020;42:e2020004. doi:10.4178/epih.e2020004
12	Kalan Farmanfarma K, Mahdavi N, Hassanipour S, Salehiniya H. Epidemiologic study of gastric cancer in iran: a systematic review. <i>Clin Exp Gastroenterol</i> . 2020;13:511-542. doi:10.2147/CEG.S256627
13	Banda KJ, Chiu HY, Hu SH, Yeh HC, Lin KC, Huang HC. Associations of dietary carbohydrate and salt consumption with esophageal cancer risk: a systematic review and meta-analysis of observational studies. <i>Nutr Rev</i> . 2020;78(8):688-698. doi:10.1093/nutrit/nuz097
14	Wu B, Yang D, Yang S, Zhang G. Dietary salt intake and gastric cancer risk: a systematic review and meta-analysis. <i>Front Nutr</i> . 2021;8:801228.
15	Vahid F, Davoodi SH. Nutritional factors involved in the etiology of gastric cancer: a systematic review. <i>Nutr Cancer</i> . 2021;73(3):376-390. doi:10.1080/01635581.2020.1756353
16	Morais S, Costa A, Albuquerque G, et al. Salt intake and gastric cancer: a pooled analysis within the Stomach cancer Pooling (Stop) Project. <i>Cancer Causes Control</i> . 2022;33(5):779-791. doi:10.1007/s10552-022-01565-y
17	Lian M. Salted fish and processed foods intake and nasopharyngeal carcinoma risk: a dose-response meta-analysis of observational studies. <i>Eur Arch Otorhinolaryngol</i> . 2022;279(5):2501-2509. doi:10.1007/s00405-021-07210-9

②日本人集団の個別疫学研究

18	Oiso T. Incidence of stomach cancer and its relation to dietary habits and nutrition in Japan between 1900 and 1975. <i>Cancer Res.</i> 1975;35(11 Pt. 2):3254-3258.
19	Haenszel W, Kurihara M, Locke FB, Shimuzu K, Segi M. Stomach cancer in Japan. <i>J Natl Cancer Inst.</i> 1976;56(2):265-274. doi:10.1093/jnci/56.2.265
20	Nagai M, Hashimoto T, Yanagawa H, Yokoyama H, Minowa M. Relationship of diet to the incidence of esophageal and stomach cancer in Japan. <i>Nutr Cancer.</i> 1982;3(4):257-268. doi:10.1080/01635588109513730
21	Kono S, Ikeda M, Ogata M. Salt and geographical mortality of gastric cancer and stroke in Japan. <i>J Epidemiol Community Health.</i> 1983;37(1):43-46.
22	Ikeda M, Yoshimoto K, Yoshimura T, Kono S, Kato H, Kuratsune M. A cohort study on the possible association between broiled fish intake and cancer. <i>Gan.</i> 1983;74(5):640-648.
23	Tajima K, Tominaga S. Dietary habits and gastro-intestinal cancers: a comparative case-control study of stomach and large intestinal cancers in Nagoya, Japan. <i>Jpn J Cancer Res.</i> 1985;76(8):705-716.
24	Yamakawa H. [The relationship between stomach cancer and intestinal metaplasia of the gastric mucosa and food intake]. <i>Gan No Rinsho.</i> 1986;32(6):681-691.
25	Kono S, Ikeda M, Tokudome S, Kuratsune M. A case-control study of gastric cancer and diet in northern Kyushu, Japan. <i>Jpn J Cancer Res.</i> 1988;79(10):1067-1074. doi:10.1111/j.1349-7006.1988.tb01528.x
26	Osima A. [Prevention of stomach cancer]. <i>Gan To Kagaku Ryoho.</i> 1989;16(6):2142-2148.
27	Watanabe H, Hirayama T. [Stomach cancer mortality and life styles in Niigata Prefecture]. <i>Gan No Rinsho.</i> 1990;Spec No:285-291.
28	Kato I, Tominaga S, Ito Y, et al. A comparative case-control analysis of stomach cancer and atrophic gastritis. <i>Cancer Res.</i> 1990;50(20):6559-6564.
29	Tsugane S, Akabane M, Inami T, et al. Urinary salt excretion and stomach cancer mortality among four Japanese populations. <i>Cancer Causes Control.</i> 1991;2(3):165-168. doi:10.1007/BF00056209
30	Kato I, Tominaga S, Ito Y, et al. A prospective study of atrophic gastritis and stomach cancer risk. <i>Jpn J Cancer Res.</i> 1992;83(11):1137-1142. doi:10.1111/j.1349-7006.1992.tb02736.x
31	Kato I, Tominaga S, Matsumoto K. A prospective study of stomach cancer among a rural Japanese population: a 6-year survey. <i>Jpn J Cancer Res.</i> 1992;83(6):568-575. doi:10.1111/j.1349-7006.1992.tb00127.x
32	Hoshiyama Y, Sasaba T. A case-control study of stomach cancer and its relation to diet, cigarettes, and alcohol consumption in Saitama Prefecture, Japan. <i>Cancer Causes Control.</i> 1992;3(5):441-448. doi:10.1007/BF00051357
33	Takemori K, Mikami S, Nihira S, Sasaki N. Relationship of urinary sodium and potassium and of urinary sodium/creatinine, potassium/creatinine and sodium/potassium ratios to stomach cancer and cerebrovascular disease mortalities in Japanese women. <i>Tohoku J Exp Med.</i> 1993;171(3):185-194.
34	Honjo S, Kono S, Yamaguchi M. Salt and geographic variation in stomach cancer mortality in Japan. <i>Cancer Causes Control.</i> 1994;5(3):285-286.
35	Inoue M, Tajima K, Hirose K, Kuroishi T, Gao CM, Kitoh T. Life-style and subsite of gastric cancer--joint effect of smoking and drinking habits. <i>Int J Cancer.</i> 1994;56(4):494-499. doi:10.1002/ijc.2910560407
36	Imaizumi Y. Longitudinal gompertzian analysis of mortality from stomach cancer in Japan, 1950-1993. <i>Mech Ageing Dev.</i> 1995;85(2-3):133-145. doi:10.1016/0047-6374(95)01669-4
37	Takezaki T, Hirose K, Inoue M, et al. Tobacco, alcohol and dietary factors associated with the risk of oral cancer among Japanese. <i>Jpn J Cancer Res.</i> 1996;87(6):555-562. doi:10.1111/j.1349-7006.1996.tb00259.x
38	Inoue M, Tajima K, Kobayashi S, et al. Protective factor against progression from atrophic gastritis to gastric cancer--data from a cohort study in Japan. <i>Int J Cancer.</i> 1996;66(3):309-314. doi:10.1002/(SICI)1097-0215(19960503)66:3<309::AID-IJC7>3.0.CO;2-2
39	Tsubono Y, Takahashi T, Iwase Y, Itoi Y, Akabane M, Tsugane S. Nutrient consumption and gastric cancer mortality in five regions of Japan. <i>Nutr Cancer.</i> 1997;27(3):310-315. doi:10.1080/01635589709514542

40	Watabe K, Nishi M, Miyake H, Hirata K. Lifestyle and gastric cancer: a case-control study. <i>Oncol Rep.</i> 1998;5(5):1191-1194. doi:10.3892/or.5.5.1191
41	Kitagawa Y, Nakaji S, Shimoyama T, et al. Differences in lifestyle of a smoking and non-smoking population in Japan. <i>Asian Pac J Cancer Prev.</i>
42	Fujino Y, Tamakoshi A, Ohno Y, et al. Prospective study of educational background and stomach cancer in Japan. <i>Prev Med.</i> 2002;35(2):121-127. doi:10.1006/pmed.2002.1066
43	Ngoan LT, Mizoue T, Fujino Y, Tokui N, Yoshimura T. Dietary factors and stomach cancer mortality. <i>Br J Cancer.</i> 2002;87(1):37-42.
44	Nozaki K, Tsukamoto T, Tatematsu M. [Effect of high salt diet and Helicobacter pylori infection on gastric carcinogenesis]. <i>Nihon Rinsho.</i> 2003;61(1):36-40.
45	Ito LS, Inoue M, Tajima K, et al. Dietary factors and the risk of gastric cancer among Japanese women: a comparison between the differentiated and non-differentiated subtypes. <i>Ann Epidemiol.</i> 2003;13(1):24-31. doi:10.1016/s1047-2797(02)00269-7
46	for the JPHC Study Group, Tsugane S, Sasazuki S, Kobayashi M, Sasaki S. Salt and salted food intake and subsequent risk of gastric cancer among middle-aged Japanese men and women. <i>Br J Cancer.</i> 2004;90(1):128-134. doi:10.1038/sj.bjc.6601511
47	Khan MMH, Goto R, Kobayashi K, et al. Dietary habits and cancer mortality among middle aged and older Japanese living in Hokkaido, Japan by cancer site and sex. <i>Asian Pac J Cancer Prev.</i> 2004;5(1):58-65.
48	Machida-Montani A, Sasazuki S, Inoue M, et al. Association of Helicobacter pylori infection and environmental factors in non-cardia gastric cancer in Japan. <i>Gastric Cancer.</i> 2004;7(1):46-53. doi:10.1007/s10120-004-0268-5
49	Tsugane S. Salt, salted food intake, and risk of gastric cancer: epidemiologic evidence. <i>Cancer Sci.</i> 2005;96(1):1-6. doi:10.1111/j.1349-7006.2005.00006.x
50	Tokui N, Yoshimura T, Fujino Y, et al. Dietary habits and stomach cancer risk in the JACC Study. <i>J Epidemiol.</i> 2005;15 Suppl 2(Suppl II):S98-108.
51	Sauvaget C, Lagarde F, Nagano J, Soda M, Koyama K, Kodama K. Lifestyle factors, radiation and gastric cancer in atomic-bomb survivors (Japan). <i>Cancer Causes Control.</i> 2005;16(7):773-780. doi:10.1007/s10552-005-5385-x
52	Shikata K, Kiyohara Y, Kubo M, et al. A prospective study of dietary salt intake and gastric cancer incidence in a defined Japanese population: the Hisayama study. <i>Int J Cancer.</i> 2006;119(1):196-201. doi:10.1002/ijc.21822
53	Kurosawa M, Kikuchi S, Xu J, Inaba Y. Highly salted food and mountain herbs elevate the risk for stomach cancer death in a rural area of Japan. <i>J Gastroenterol Hepatol.</i> 2006;21(11):1681-1686. doi:10.1111/j.1440-1746.2006.04290.x
54	Tsugane S, Sasazuki S. Diet and the risk of gastric cancer: review of epidemiological evidence. <i>Gastric Cancer.</i> 2007;10(2):75-83. doi:10.1007/s10120-007-
55	Iso H, Kubota Y, Japan Collaborative Cohort Study for Evaluation of Cancer. Nutrition and disease in the Japan Collaborative Cohort Study for Evaluation of Cancer (JACC). <i>Asian Pac J Cancer Prev.</i> 2007;8 Suppl:35-80.
56	Hayashi F, Yokoyama T, Yoshiike N. [Dietary intake and health behavior in relation to total and disease-specific mortality in Japan: an ecological analysis]. <i>Nihon Koshu Eisei Zasshi.</i> 2009;56(9):633-644.
57	Takachi R, Inoue M, Shimazu T, et al. Consumption of sodium and salted foods in relation to cancer and cardiovascular disease: the Japan Public Health Center-based Prospective Study. <i>The American Journal of Clinical Nutrition.</i> 2010;91(2):456-464. doi:10.3945/ajcn.2009.28587
58	Murata A, Fujino Y, Pham TM, et al. Prospective cohort study evaluating the relationship between salted food intake and gastrointestinal tract cancer mortality in Japan. <i>Asia Pac J Clin Nutr.</i> 2010;19(4):564-571.
59	Sasazuki S, Inoue M, Iwasaki M, et al. Combined impact of five lifestyle factors and subsequent risk of cancer: the Japan Public Health Center Study. <i>Prev Med.</i> 2012;54(2):112-116. doi:10.1016/j.ypmed.2011.11.003
60	Charvat H, Sasazuki S, Inoue M, et al. Impact of five modifiable lifestyle habits on the probability of cancer occurrence in a Japanese population-based cohort: Results from the JPHC study. <i>Preventive Medicine.</i> 2013;57(5):685-689. doi:10.1016/j.ypmed.2013.08.030
61	Charvat H, Sasazuki S, Inoue M, et al. Prediction of the 10-year probability of gastric cancer occurrence in the Japanese population: the JPHC study cohort II. <i>Intl Journal of Cancer.</i> 2016;138(2):320-331. doi:10.1002/ijc.29705

62	Umesawa M, Iso H, Fujino Y, Kikuchi S, Tamakoshi A, JACC Study Group. Salty food preference and intake and risk of gastric cancer: the jacc study. <i>J Epidemiol.</i> 2016;26(2):92-97. doi:10.2188/jea.JE20150023
63	Charvat H, Shimazu T, Inoue M, et al. Estimation of the performance of a risk prediction model for gastric cancer occurrence in Japan: Evidence from a small external population. <i>Cancer Epidemiology.</i> 2020;67:101766. doi:10.1016/j.canep.2020.101766
64	Nomura S, Yoneoka D, Tanaka S, et al. Forecasting disability-adjusted life years for chronic diseases: reference and alternative scenarios of salt intake for 2017-2040 in Japan. <i>BMC Public Health.</i> 2020;20(1):1475. doi:10.1186/s12889-020-09596-3
65	Nohara-Shitama Y, Adachi H, Enomoto M, et al. Differential impacts of 24 hour urinary sodium excretion on cardiovascular diseases or cancer mortality in a general population. <i>J Cardiol.</i> 2021;78(4):334-340. doi:10.1016/j.jjcc.2021.04.013

Almost none		1.00 (Reference)		
1-2 days week	N/A	0.83 (0.54-1.27)	0.14	
3-4 days week		2.18 (1.19-3.98)		↑ ↑ ↑
Almost everyday		2.18 (0.53-8.98)		

Dried or salted fish (e.g. mezashi, shio-sake)

Men;				
Almost none		1.00 (Reference)		
1-2 days week	N/A	1.15 (0.79-1.70)	0.74	-
3-4 days week		0.94 (0.62-1.43)		
Almost everyday		1.20 (0.71-2.02)		
Women;				
Almost none		1.00 (Reference)		
1-2 days week	N/A	1.05 (0.54-2.05)	0.98	-
3-4 days week		1.17 (0.58-2.37)		
Almost everyday		0.89 (0.35-2.22)		

R. Takachi, M. Inoue, T. Shimazu, S. Sasazuki, J. Ishihara, N. Sawada, et al.	Consumption of sodium and salted foods in relation to cancer and cardiovascular disease: the Japan Public Health Center -based Prospective Study	2010	1995-2004	77,500 men; 35,730 women; 41,770	JPHC Study;	<u>Total cancer incidence</u>	4476 Japanese	<u>Sodium;</u> Q1 (Median intake 3084mg) Q2 (4005mg) Q3 (4709mg) Q4 (5503mg) Q5 (6844mg)	<u>Total cancer Hazard Ratios</u> 876 1.00 (reference) 881 1.02 (0.93, 1.13) 906 1.07 (0.96, 1.18) 882 1.01 (0.91, 1.12) 931 1.04 (0.93, 1.16)	0.61	
						Gastric Colorectal Lung Breast Liver Other	867 836 541 304 271 1657	Q1 (Median intake 3084mg) Q2 (4005mg) Q3 (4709mg) Q4 (5503mg) Q5 (6844mg)	<u>Gastric cancer Hazard Ratios</u> 177 1.00 (reference) 175 1.05 (0.84, 1.31) 167 1.06 (0.84, 1.34) 174 1.05 (0.83, 1.34) 174 1.07 (0.83, 1.38)	0.64	
								Q1 (Median intake 3084mg) Q2 (4005mg) Q3 (4709mg) Q4 (5503mg) Q5 (6844mg)	<u>Colorectal cancer Hazard Ratios</u> 164 1.00 (reference) 161 1.05 (0.84, 1.33) 163 1.08 (0.85, 1.37) 171 1.08 (0.84, 1.37) 177 1.10 (0.85, 1.42)	0.51	
								<u>Pickled vegetables;</u> Q1 (Median intake 3.3g) Q2 (12g) Q3 (23g) Q4 (39g) Q5 (85g)	<u>Gastric cancer Hazard Ratios;</u> 833 1.00 (reference) 844 1.04 (0.94, 1.15) 844 1.01 (0.91, 1.12) 978 1.15 (1.04, 1.27) 977 1.08 (0.97, 1.20)	0.1	sex, age (5-y groups), BMI, smoking status, alcohol consumption, physical activity in metabolic equivalent task-hours/d, and quintiles of energy, potassium, and calcium.
								<u>Dried and salted fish;</u> Q1 (Median intake 0.5g) Q2 (6.4g) Q3 (13g) Q4 (23g) Q5 (43g)	<u>Gastric cancer Hazard Ratios;</u> 901 1.00 (reference) 924 1.08 (0.98, 1.19) 896 1.05 (0.95, 1.16) 820 0.99 (0.89, 1.10) 935 1.11 (1.00, 1.22)	0.19	
								<u>Salted fish roe;</u> Q1 (Median intake 0.0g) Q2 (0.2) Q3 (0.7) Q4 (1.6) Q5 (4.7)	880 1.00 (reference) 875 1.08 (0.96, 1.22) 877 1.05 (0.94, 1.17) 874 1.12 (1.01, 1.25) 970 1.15 (1.04, 1.27)	0.01	
								<u>Miso soup;</u> Q1 (Median intake 42g) Q2 (132g) Q3 (218g) Q4 (313g) Q5 (458g)	765 1.00 (reference) 876 1.08 (0.97, 1.20) 934 1.09 (0.98, 1.20) 932 1.03 (0.93, 1.14) 969 0.99 (0.89, 1.10)	0.36	
								<u>Cooking and table salt;</u> Q1 (Median intake 2.3g) Q2 (3.4g) Q3 (4.4g)	973 1.00 (reference) 884 0.97 (0.88, 1.07) 896 1.02 (0.92, 1.12)	0.94	

Q4 (5.6g)
Q5 (8.0g)

845 0.96 (0.86,1.06)
878 1.00 (0.89,1.12)

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■ 統合解析

Reference			Study subjects					Category	Relative risk (95%CI or p)	I ² (%)	Confounding variables considered	Magnitude of association	
Author	Title	Year	Study period	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths						Participant 's race
Morais S et al.,	Salt intake and gastric cancer: a pooled analysis within the Stomach cancer Pooling (StoP) Project.	2022	1989-2015	34,926 cases; 10,283 controls; 24,643	The Stomach cancer Pooling (StoP) Project 25 studies;	Gastric cancer incidence							
								Studies from Brazil (two studies), Canada, China (four studies), Greece, Iran (two studies), Italy (four studies), Japan, Mexico (three studies), Portugal, Russia, Spain (two studies), and USA (three studies).					
									Overall: Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	1.59 (1.25–2.03) 1.33 (1.16–1.54) 1.08 (0.82–1.43) 1.24 (1.01–1.51)	66.2 13.0 83.2 77.4	study-specific ORs were adjusted, when available and applicable, for sex, age (5-year age groups: <40; 40–44; ...; 70–74; ≥75), socioeconomic status (low, intermediate, or high, as defined in each original study based on education, income or occupation), smoking status (never, former and current smokers of <10 cigarettes/day [low]; 10–20 cigarettes/day [intermediate]; >20 cigarettes/day [high]), alcohol drinking (never, low: < 13 g of ethanol/day, intermediate: 13 to 47 g of ethanol/day, high: > 47 g of ethanol/day), fruit and vegetables intake (study-specific	↑ ↑ ↑ - ↑
									Geographic region Americas Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	1.24 (0.82–1.87) 1.36 (1.18–1.56) 0.69 (0.34–1.43) 1.22 (0.75–1.98)	0.0 0.0 88.3 80.0	- ↑ - -	
									Asia Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	2.24 (1.25–4.03) - 1.31 (0.75–2.31) 0.86 (0.58–1.26)	78.2 - 82.7 69.0	↑ ↑ ↑ - - -	
									Europe Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	1.39 (1.18–1.64) 1.12 (0.79–1.58) 1.28 (0.95–1.72) 1.62 (1.42–1.85)	0.0 45.7 68.4 3.7	↑ - - ↑ ↑	
									Studies with information on H. pylori infection serostatus H. pylori positive Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	1.52 (0.93–2.48) 1.64 (0.98–2.74) 1.39 (0.95–2.01) 1.14 (0.75–1.74)	50.5 44.3 65.7 70.1	- ↑ - -	
									H. pylori negative Salt taste preference Use of table salt Total sodium intake High-salt and salt-pre- served foods intake	1.61 (0.60–4.35) 1.18 (0.65–2.14) 0.93 (0.54–1.63) 0.97 (0.66–1.43)	54.8 0.0 11.9 6.8	↑ - - -	