評価対象論文リスト(要因:体格(肥満、痩せ)、アウトカム:全がん、乳がん、大腸がん)

評価判定日:2023/4/27

(全がん)

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)

1	Ishii T, Momose Y, Esaki H, Une H. Nihon Koshu Eisei Zasshi. 1998;45(1):27-34.
2	Irie F, Sairenchi T, Iso H, Shimamoto T. Nihon Koshu Eisei Zasshi. 2001;48(2):95-108.
3	Inoue M, Sobue T, Tsugane S; JPHC Study Group. Impact of body mass index on the risk of total cancer incidence and mortality among middle-aged Japanese: data from a large-scale population-based cohort study--the JPHC study. Cancer Causes Control. 2004;15(7):671-680. doi:10.1023/B:CACO.0000036177.77953.47
4	Kuriyama S, Tsubono Y, Hozawa A, et al. Obesity and risk of cancer in Japan. Int J Cancer. 2005;113(1):148-157. doi:10.1002/ijc.20529
5	Hayashi R, Iwasaki M, Otani T, et al. Body mass index and mortality in a middle-aged Japanese cohort. J Epidemiol. 2005;15(3):70-77. doi:10.2188/jea.15.70
6	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. Prev Med. 2012;54(2):112-116. doi:10.1016/j.ypmed.2011.11.003

(大腸がん)

①既存の系統的レビュー・メタ解析・統合解析

7	Matsuo K, Mizoue T, Tanaka K, et al. Association between body mass index and the colorectal cancer risk in Japan: pooled analysis of population-based cohort studies in Japan. Ann Oncol. 2012;23(2):479-490. doi:10.1093/annonc/mdr143

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	Kotake K, Koyama Y, Nasu J, Fukutomi T, Yamaguchi N. Relation of family history of cancer and environmental factors to the risk of colorectal cancer: a case-control study. Jpn J Clin Oncol. 1995;25(5):195-202.
9	Shimizu N, Nagata C, Shimizu H, et al. Height, weight, and alcohol consumption in relation to the risk of colorectal cancer in Japan: a prospective study. Br J Cancer. 2003;88(7):1038-1043. doi:10.1038/sj.bjc.6600845
10	Tamakoshi K, Wakai K, Kojima M, et al. A prospective study of body size and colon cancer mortality in Japan: The JACC Study. Int J Obes Relat Metab Disord. 2004;28(4):551-558. doi:10.1038/sj.ijo.0802603
11	Otani T, Iwasaki M, Inoue M; Shoichiro Tsugane for the Japan Public Health Center-based Prospective Study Group. Body mass index, body height, and subsequent risk of colorectal cancer in middle-aged and elderly Japanese men and women: Japan public health center-based prospective study. Cancer Causes Control. 2005;16(7):839-850. doi:10.1007/s10552-005-4573-z
12	Kuriyama S, Tsubono Y, Hozawa A, et al. Obesity and risk of cancer in Japan. Int J Cancer. 2005;113(1):148-157. doi:10.1002/ijc.20529
13	Isomura K, Kono S, Moore MA, et al. Physical activity and colorectal cancer: the Fukuoka Colorectal Cancer Study. Cancer Sci. 2006;97(10):1099-1104. doi:10.1111/j.1349-7006.2006.00282.x
14	Suzuki S, Goto A, Nakatochi M, et al. Body mass index and colorectal cancer risk: A Mendelian randomization study. Cancer Sci. 2021;112(4):1579-1588. doi:10.1111/cas.14824

（乳がん）

既存の系統的レビュー・メタ解析・統合解析

15	Wada K, Nagata C, Tamakoshi A, et al. Body mass index and breast cancer risk in Japan: a pooled analysis of eight population-based cohort studies. Ann Oncol. 2014;25(2):519-524. doi:10.1093/annonc/mdt542

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）

16	Kyogoku S, Hirohata T, Takeshita S, Hirota Y, Shigematsu T. Anthropometric indicators of breast cancer risk in Japanese women in Fukuoka. Jpn J Cancer Res. 1990;81(8):731-737. doi:10.1111/j.1349-7006.1990.tb02637.x
17	Kato I, Miura S, Kasumi F, et al. A case-control study of breast cancer among Japanese women: with special reference to family history and reproductive and dietary factors. Breast Cancer Res Treat. 1992;24(1):51-59. doi:10.1007/BF01832358
18	Kenji Wakai, Yoshiyuki Ohno, Susumu Watanabe, Goi Sakamoto, Fujio Kasumi, Sadao Suzuki, Nakako Kubo-Fujiwara, Risk Factors for Breast Cancer among Japanese Women in Tokyo : A Case-Control Study, Journal of Epidemiology, 1994, Volume 4, Issue 2, Pages 65-71, Released on J-STAGE November 30, 2007, Online ISSN 1349-9092, Print ISSN 0917-5040, https://doi.org/10.2188/jea.4.65, https://www.istage.ist.go.jp/article/jea1991/4/2/4_2_65/_article/-char/en
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20	Ueji M, Ueno E, Hyiaman DO, Saito T, Takahashi H, Kano K. Risk Factors for Breast Cancer among Japanese Women: A Case-Control Study in Ibaraki, Japan. Breast Cancer. 1998;5(4):351-358. doi:10.1007/BF02967431
21	Key TJ, Sharp GB, Appleby PN, et al. Soya foods and breast cancer risk: a prospective study in Hiroshima and Nagasaki, Japan. Br J Cancer. 1999;81(7):1248-1256. doi:10.1038/sj.bjc.6690837
22	Tung HT, Tsukuma H, Tanaka H, et al. Risk factors for breast cancer in Japan, with special attention to anthropometric measurements and reproductive history. Jpn J Clin Oncol. 1999;29(3):137-146. doi:10.1093/jjco/29.3.137
23	Hirose K, Takezaki T, Hamajima N, Miura S, Tajima K. Dietary factors protective against breast cancer in Japanese premenopausal and postmenopausal women. Int J Cancer. 2003;107(2):276-282. doi:10.1002/ijc.11373
24	Kuriyama S, Tsubono Y, Hozawa A, et al. Obesity and risk of cancer in Japan. Int J Cancer. 2005;113(1):148-157. doi:10.1002/ijc.20529

（そのほかのがん種、あるいは評価時に参照した主な論文）

既存の系統的レビュー・メタ解析・統合解析

25	Tanaka K, Tsuji I, Tamakoshi A, et al. Obesity and liver cancer risk: an evaluation based on a systematic review of epidemiologic evidence among the Japanese population. Jpn J Clin Oncol. 2012;42(3):212-221. doi:10.1093/jjco/hyr198
26	Koyanagi YN, Matsuo K, Ito H, et al. Body-Mass Index and Pancreatic Cancer Incidence: A Pooled Analysis of Nine Population-Based Cohort Studies With More Than 340,000 Japanese Subjects. J Epidemiol. 2018;28(5):245-252. doi:10.2188/jea.JE20160193
27	Nishikawa H, Fukunishi S, Asai A, Nishiguchi S, Higuchi K. Obesity and Liver Cancer in Japan: A Comprehensive Review. Anticancer Res. 2021;41(5):2227-2237. doi:10.21873/anticanres.14999
28	Feng Y, Fu M, Guan X, et al. Uric Acid Mediated the Association Between BMI and Postmenopausal Breast Cancer Incidence: A Bidirectional Mendelian Randomization Analysis and Prospective Cohort Study. Front Endocrinol (Lausanne). 2022;12:742411. Published 2022 Feb 3. doi:10.3389/fendo.2021.742411

29	Jang J, Wang T, Cai H, et al. The U-shaped association between body mass index and gastric cancer risk in the Helicobacter pylori Biomarker Cohort Consortium: A nested case-control study from eight East Asian cohort studies. Int J Cancer. 2020;147(3):777-784. doi:10.1002/ijc.32790

■コホート研究（統合解析含む）

Reference			Study subjects						Category	Number among cases	Relative risk (95%CI or p)	P for trend	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						
Inoue, M., et al.	Impact of body mass index on the risk of total cancer incidence and mortality among middle-aged Japanese: data from a large-scale population-based cohort study--the JPHC study	2004	1990-2001	Men; 42,093 Women; 46,834	The study population was defined as all registered Japanese inhabitants in the 9 public health center areas, aged 40-59 years in Cohort I and 40-69 years in Cohort II at the beginning of each baseline survey.	Incidence	Men; 2,763	Japanese	For men;			N/A;	age at baseline (continuous), study area (9 PHC areas), pack-years of smoking (0, 1–19, 20–29, 30–39, ‡40), weekly ethanol intake (none, occasionally, £149 g, ‡150 g), green vegetable intake (everyday, less than everyday), and leisure-time physical activity (<1 time／month, 1–3 times／month, ‡1 time／week)	↑
									14.0-18.9	157	1.29 (1.08-1.54)			
									19.0-20.9	466	1.14 (1.01-1.28)			
									21.0-22.9	766	1.08 (0.97-1.19)			
									23.0-24.9	725	1.00 (Reference)			
									25.0-26.9	397	0.99 (0.87-1.12)			
									27.0-29.9	197	1.02 (0.87-1.20)			
									30.0-39.9	55	1.22 (0.92-1.61)			
							Women; 1,933		For women;			N/A;	age at baseline (continuous), study area (9 PHC areas), smoking status (never, former, current), weekly ethanol intake (none, occasionally, £99 g, ‡100 g), green vegetable intake (everyday, less than everyday), and leisure-time physical activity (<1 time/month, 1–3 times/month, ‡1 time/week)	-
									14.0-18.9	104	1.01 (0.81–1.26)			
									19.0-20.9	264	0.91 (0.78–1.06)			
									21.0-22.9	497	0.99 (0.88–1.13)			
									23.0-24.9	476	1.00 (Reference)			
									25.0-26.9	328	1.04 (0.90–1.21)			
									27.0-29.9	204	1.01 (0.85–1.19)			
									30.0-39.9	60	60 (0.66–1.15)			
						Cancer Deaths	Men; 1,181		For men;			N/A;	age at baseline (continuous), study area (9 PHC areas), pack-years of smoking (0, 1–19, 20–29, 30–39, ‡40), weekly ethanol intake (none, occasionally, £149 g, ‡150 g), green vegetable intake (everyday, less than everyday), and leisure-time physical activity (<1 time／month, 1–3 times／month, ‡1 time／week)	↑ ↑
									14.0-18.9	96	1.96 (1.54-2.49)			
									19.0-20.9	218	1.36 (1.14-1.64)			
									21.0-22.9	331	1.18 (0.99-1.39)			
									23.0-24.9	282	1.00 (Reference)			
									25.0-26.9	145	0.94 (0.77-1.15)			
									27.0-29.9	85	1.11 (0.87-1.42)			
									30.0-39.9	24	1.26 (0.81-1.94)			
							Women; 648		For women;			N/A;	age at baseline (continuous), study area (9 PHC areas), smoking status (never, former, current), weekly ethanol intake (none, occasionally, £99 g, ‡100 g), green vegetable intake (everyday, less than everyday), and leisure-time physical activity (<1 time/month, 1–3 times/month, ‡1 time/week)	↑
									14.0-18.9	51	1.43 (1.03–1.95)			
									19.0-20.9	85	0.88 (0.67–1.15)			
									21.0-22.9	146	0.9 (0.71–1.13)			
									23.0-24.9	158	1.00 (Reference)			
									25.0-26.9	115	1.09 (0.85–1.39)			
									27.0-29.9	73	1.03 (0.78–1.36)			
									30.0-39.9	20	0.85 (0.53–1.37)			
Kuriyama, S., et al.	Obesity and risk of cancer in Japan	2005	1984-1992	Men; 12,485 Women; 15,054	3 municipalities of Miyagi Prefecture	Incidence	Men; 1,004	Japanese	For men			0.61	age, smoking status, alcohol drinking status, consumption of meat, consumption of fish, consumption of fruits, consumption of green or yellow vegetables, consumption of bean-paste soup, type of health insurance	–
									18.5-24.9	786	1.00 (referenced)			
									25.0-27.4	147	0.94 (0.79–1.13)			
									27.5-29.9	48	1.08 (0.80–1.44)			
									30-<	23	1.21 (0.80–1.84)			
							Women; 668		For women			0.007	age, smoking status, alcohol drinking status, consumption of meat, consumption of fish, consumption of fruits, consumption of green or yellow vegetables, consumption of bean-paste soup, type of health insurance, menopausal status, parity, age at menarche, age at end of first pregnancy	↑
									18.5-24.9	439	1.00 (referenced)			
									25.0-27.4	123	1.04 (0.85–1.27)			
									27.5-29.9	67	1.29 (1.00–1.68)			
									30-<	39	1.47 (1.06–2.05)			
Ishii et al	[A prospective study on the relationship between body mass index and mortality in middle-aged and elderly people in Japan]	1998	1987-1995 (9 years)	12,649 subjects 5,686 men 6,963 women	Residential registry	Death	Men; 193 Women; 91	Japanese	*BMI*			N/A;	Adjusted for age, smoking, alcohol drinking and occupation.	-
									<20	N/A?	1.49 (0.98-2.84)			
									20-<22		1.32 (0.88-1.98)			
									22-<24		1.00			
									24-<26		0.82 (0.50-1.36)			
									26+		1.06 (0.60-1.86)			

									<20		1.34 (0.72-2.48)			
									20-<22		0.94 (0.50-1.77)			
									22-<24		1.00			
									24-<26		1.10 (0.58-2.09)			
									26+		1.27 (0.65-2.47)			
Irie et al	[Prediction of mortality from findings of annual health checkups utility for health care programs]	2001	1993-1998 (5yr2m)	96,664 subjects 32,705 men 63,959 women	Health check up examinee (38 municipalities in Ibaraki Prefecture)	Death	40-79yrs 789 men	Japanese	BMI			N/A;	(adjusted for smoking, alcohol, blood pressure, total cholesterol, HDL cholesterol, blood sugar, blood CR , urea protein)	-
									<18.50	67	1.0			
									18.50-24.49	565	0.8 (0.6-1.0)			
									25.00-29.99	150	0.7 (0.5-0.9)			
									30.00-	7	0.5 (0.2-1.1)			
							542 women		<18.50	40	1.0			
									18.50-24.49	324	0.6 (0.5-0.9)			
									25.00-29.99	160	0.7 (0.5-1.0)			
									30.00-	18	0.6 (0.4-1.1)			
Hayashi et al	Body mass index and mortality in a middle-aged Japanese cohort	2005	1993-2000	40-69yrs 5,554 men 5,827 women	population (Gunnma prefecture)	Death	145 men	Japanese	BMI			N/A;	Adjusted for age, study area, smoking status, alcohol drinking, physical activity, education level	↑ ↑
									-18.4	16	1.93 (1.01-3.68)			
									18.5-21.9	56	1.37 (0.92-2.05)			
									22.0-24.9	49	1.00			
									25.0-27.9	18	0.89 (0.51-1.58)			
									28.0+	6	1.59 (0.67-3.73)			
									-18.4	7	2.65 (1.07-6.61)			↑ ↑ ↑
									18.5-21.9	13	0.98 (0.46-2.10)			
									22.0-24.9	17	1.00			
									25.0-27.9	12	1.45 (0.65-3.24)			
									28.0+	9	2.59 (1.05-6.40)			
Matsuo, K., et al.	Association between body mass index and the colorectal cancer risk in Japan: pooled analysis of population-based cohort studies in Japan	2012	1984-2006	Men; 157,927 Women; 183,457	Japan Cohort Consortiun	Incidence; colorectal canc	Men; 3,055	Japanese	For men;			<0.001	age, area, smoking, drinking, total energy, red meat in quartile, dietary fiber in quartile, calcium intake in quartile, folate intake in quartile and recreational physical exercise	
									<19	159	0.91 (0.74–1.12)			
									19-<21	501	0.99 (0.88–1.12)			
									21-<23	801	0.95 (0.85–1.06)			
									23-<25	805	1 (referenced)			
									25-<27	480	1.14 (1.01–1.29)			
									27-<30	250	1.24 (1.06–1.44)			
									30-<	59	1.24 (1.06–1.44)			↑
							Women; 1,924		For women;			<0.001	age, area, smoking, drinking, total energy, red meat in quartile, dietary fiber in quartile, calcium intake in quartile, folate intake in quartile and recreational physical	
									<19	130	0.91 (0.73–1.15)			
									19-<21	314	0.95 (0.80–1.13)			
									21-<23	480	1.01 (0.88–1.17)			
									23-<25	438	1 (referenced)			
									25-<27	301	1.07 (0.91–1.25)			
									27-<30	192	1.06 (0.88–1.28)			
									30-<	69	1.17 (0.87–1.57)			-
Wada, K., et al.	Body mass index and breast cancer risk in Japan: a pooled analysis of eight population-based cohort studies	2014	1988-2008	Women; 183,940 Premenopausal; 56,414 Postmenopausal; 177,912	Japan Cohort Consortiun	Incidence Pool analysis of 8 cohort: breast cancer	1,783	Japanese	For menopausal;			0.08	age, area, smoking status, alcohol consumption, age at menarche, ag, parity number	
									<19	21	1.05 (0.56–1.99)			
									19-<21	69	1.07 (0.76–1.52)			
									21-<23	78	0.91 (0.64–1.30)			
									23-<25	66	1.00 (Reference)			
									25-<27	37	1.15 (0.76–1.73)			
									27-<30	21	1.45 (0.71–2.94)			
									30-<	9	2.25 (1.10–4.60)			↑ ↑
									For postmenopausal;			<0.001	age, area, smoking status, alcohol consumption , age at menarche, menopausal status, age at first delivery, parity number	
									<19	80	0.65 (0.48–0.86)			↓ ↓
									19-<21	187	0.65 (0.53–0.79)			
									21-<23	387	0.89 (0.77–1.02)			
									23-<25	390	1.00 (Reference)			
									25-<27	227	0.99 (0.81–1.22)			
									27-<30	159	1.09 (0.90–1.32)			
									30-<	52	1.34 (0.99–1.81)			