評価対象論文リスト(要因:身体活動、アウトカム:全がん、大腸がん)

評価判定日:2023/8/24

(全がん)

②日本人集団の個別研究

1	Toshima, H., Koga, Y., Menotti, A., Keys, A., Blackburn, H., Jacobs, D. R., & Seccareccia, F. (1995年). The seven countries study in japan. Twenty-five-year experience in cardiovascular and all-causes deaths.: Twenty-five-year experience in cardiovascular and all-causes deaths. Japanese Heart Journal, 36(2), 179–189.
2	Sawada, S. S., Muto, T., Tanaka, H., Lee, I.-M., Paffenbarger, R. S., Shindo, M., & Blair, S. N. (2003年). Cardiorespiratory fitness and cancer mortality in japanese men: A prospective study: Medicine & Science in Sports & Exercise, 35(9), 1546–1550. https://doi.org/10.1249/01.MSS.0000084525.06473.8E
3	Inoue, M., Yamamoto, S., Kurahashi, N., Iwasaki, M., Sasazuki, S., Tsugane, S., & for the Japan Public Health Center-based Prospective Study Group. (2008年). Daily total physical activity level and total cancer risk in men and women: Results from a large-scale population-based cohort study in japan. American Journal of Epidemiology, 168(4), 391–403.
4	Inoue, M., Iso, H., Yamamoto, S., Kurahashi, N., Iwasaki, M., Sasazuki, S., & Tsugane, S. (2008年). Daily total physical activity level and premature death in men and women: Results from a large-scale population-based cohort study in japan(Jphc study). Annals of Epidemiology, 18(7), 522–530. https://doi.org/10.1016/j.annepidem.2008.03.008
5	Sasazuki, S., Inoue, M., Iwasaki, M., Sawada, N., Shimazu, T., Yamaji, T., & Tsugane, S. (2012年). Combined impact of five lifestyle factors and subsequent risk of cancer: The Japan Public Health Center Study. Preventive Medicine, 54(2), 112–116. https://doi.org/10.1016/j.ypmed.2011.11.003
6	Kikuchi, H., Inoue, S., Lee, I.-M., Odagiri, Y., Sawada, N., Inoue, M., & Tsugane, S. (2018年). Impact of moderate-intensity and vigorous-intensity physical activity on mortality. Medicine & Science in Sports & Exercise, 50(4), 715–721. https://doi.org/10.1249/MSS.0000000000001463

(大腸がん)

①既存の系統的レビュー・メタ解析・統合解析

7	Pham, N. M., Mizoue, T., Tanaka, K., Tsuji, I., Tamakoshi, A., Matsuo, K., Ito, H., Wakai, K., Nagata, C., Sasazuki, S., Inoue, M., Tsugane, S., for the Research Group for the Development and Evaluation of Cancer Prevention Strategies in Japan, Tsugane, S., Inoue, M., Sasazuki, S., Iwasaki, M., Otani, T., Sawada, N., … Tanaka, K. (2012年). Physical activity and colorectal cancer risk: An evaluation based on a systematic review of epidemiologic evidence among the japanese population. Japanese Journal of Clinical Oncology, 42(1), 2–13. https://doi.org/10.1093/jjco/hyr160

②日本人集団の個別研究

8	Ping, Y., Ogushi, Y., Okada, Y., Haruki, Y., Okazaki, I., & Ogawa, T. (1998年). Lifestyle and colorectal cancer: A case-control study. Environmental Health and Preventive Medicine, 3(3), 146–151. https://doi.org/10.1007/BF02931705
9	Kotake, K., Koyama, Y., Nasu, J., Fukutomi, T., & Yamaguchi, N. (1995年). Relation of family history of cancer and environmental factors to the risk of colorectal cancer: A case-control study. Japanese Journal of Clinical Oncology, 25(5),
10	Inoue, M., Tajima, K., Hirose, K., Hamajima, N., Takezaki, T., Hirai, T., Kato, T., & Ohno, Y. (1995年). Subsite-specific risk factors for colorectal cancer: A hospital-based case-control study in Japan. Cancer Causes and Control, 6(1), 14–23. https://doi.org/10.1007/BF00051676
11	Kato, I., Tominaga, S., Matsuura, A., Yoshii, Y., Shirai, M., & Kobayashi, S. (1990年). A comparative case-control study of colorectal cancer and adenoma. Japanese Journal of Cancer Research, 81(11), 1101–1108.
12	Kato, I., Tominaga, S., & Ikari, A. (1990年). A case‐control study of male colorectal cancer in aichi prefecture, japan: With special reference to occupational activity level, drinking habits and family history. Japanese Journal of Cancer Research, 81(2), 115–121. https://doi.org/10.1111/j.1349-7006.1990.tb02536.x
13	Kono, S., Handa, K., Hayabuchi, H., Kiyohara, C., Inoue, H., Marugame, T., Shinomiya, S., Hamada, H., Onuma, K., & Koga, H. (1999年). Obesity, weight gain and risk of colon adenomas in japanese men. Japanese Journal of Cancer Research, 90(8), 805–811. https://doi.org/10.1111/j.1349-7006.1999.tb00819.x
14	Lee, I.-M. (2003年). Physical activity and cancer prevention??? Data from epidemiologic studies: Medicine & Science in Sports & Exercise, 35(11), 1823–1827. https://doi.org/10.1249/01.MSS.0000093620.27893.23
15	Isomura, K., Kono, S., Moore, M. A., Toyomura, K., Nagano, J., Mizoue, T., Mibu, R., Tanaka, M., Kakeji, Y., Maehara, Y., Okamura, T., Ikejiri, K., Futami, K., Yasunami, Y., Maekawa, T., Takenaka, K., Ichimiya, H., & Imaizumi, N. (2006年). Physical activity and colorectal cancer: The fukuoka colorectal cancer study. Cancer Science, 97(10), 1099–1104. https://doi.org/10.1111/j.1349-7006.2006.00282.x
16	Takahashi, H., Kuriyama, S., Tsubono, Y., Nakaya, N., Fujita, K., Nishino, Y., Shibuya, D., & Tsuji, I. (2007年). Time spent walking and risk of colorectal cancer in Japan: The Miyagi Cohort Study. European Journal of Cancer Prevention, 16(5), 403–408. https://doi.org/10.1097/01.cej.0000236249.63489.05
17	Lee, K.-J., Inoue, M., Otani, T., Iwasaki, M., Sasazuki, S., Tsugane, S., & JPHC Study Group. (2007年). Physical activity and risk of colorectal cancer in Japanese men and women: The Japan Public Health Center-based prospective Study. Cancer Causes & Control, 18(2), 199–209. https://doi.org/10.1007/s10552-006-0098-3
18	Ishii, K., Shibata, A., & Oka, K. (2013年). Identifying environmental, social, and psychological correlates of meeting the recommended physical activity levels for colon cancer prevention among Japanese adults. Journal of Science and Medicine in Sport, 16(6), 520–525. https://doi.org/10.1016/j.jsams.2013.01.001
19	Eshak, E. S., Noda, H., Tamakoshi, A., & Iso, H. (2022年). Walking time, sports activity, job type, and body posture during work in relation to incident colorectal cancer: The JACC prospective cohort study. Cancer Causes & Control, 33(3), 473–481. https://doi.org/10.1007/s10552-021-01542-x

■コホート研究（コホートのプール解析含む）

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	Participant's race						
Inoue et al.	Daily total physical activity level and total cancer risk in men and women: results from a large-scale population-based cohort study in Japan	2008a	From 1990-1993 to 2005	79,771 subjects (37,898 men and 41,873 women)	JPHC Study Subjects who answered the 5-year follow-up questionnaire in 1995-	Incidence（全がん）	2704	（大腸がん）	Quartiles of daily total physical activity level (in METs/day)				Age, study area, occupation, history of diabetes, smoking status, alcohol intake status, body mass index, total energy intake, leisure-time sports or physical exercise	↓
									Men;					
									Lowest	921	1 (reference)			
									Second	575	1.00 (0.90-1.11)			
									Third	574	0.96 (0.86-1.07)			
									Highest	634	**0.87 (0.78-0.96)**	**0.005**		
									per 10-MET increase		**0.93 (0.88-0.99)**			
							1630		Women;					
									Lowest	569	1 (reference)			
									Second	428	0.93 (0.82-1.05)			
									Third	350	**0.84 (0.73-0.96)**			
									Highest	283	**0.84 (0.73-0.97)**	**0.007**		
									per 10-MET increase		**0.90 (0.82-0.98)**			
Inoue et al.	Daily total physical activity level and premature death in men and women: results from a large-scale population-based cohort study in Japan (JPHC study)	2008b	From 1990-1994 to 2004	83,034 subjects (39,183 men and 43,851 women)	JPHC Study Subjects who answered the 5-year follow-up questionnaire in 1995-	Death（全がん死亡）	1359		Quartiles of daily total physical activity level (in METs/day)				Age, study area, occupation, history of diabetes, smoking status, alcohol intake status, body mass index, total energy intake, leisure-time sports or physical exercise	↓
									Men;					
									Lowest	502	1 (reference)			
									Second	286	0.92 (0.80-1.07)			
									Third	284	0.89 (0.77-1.04)			
						（大腸がん）			Highest	287	**0.80 (0.68-0.93)**	**<0.003**		
							685		Women;					
									Lowest	263	1 (reference)			
									Second	175	0.87 (0.72-1.06)			
									Third	149	**0.81 (0.66-0.996)**			
									Highest	98	**0.69 (0.54-0.88)**	**0.001**		
Sasazuki et	Combined impact of five lifestyle factors and subsequent risk of cancer: the Japan Public Health Center Study	2012	From 1990-1994 to 2004	78,548 subjects (36,964 men and 41,584 women)	JPHC Study Subjects who answered the 5-year follow-up questionnaire in 1995-	Incidence（全がん）	3451		Physically active versus inactive				Adjusted for age, area (not for salt-preserved foods), past history of diabetes mellitus, and all listed lifestyle factors	↓
									Men	3451				
									Inactive		1 (reference)			
									Active		**0.88 (0.81-0.95)**	**0.002**		
							2125		Women	2125				
									Inactive		1 (reference)			
									Active		**0.87 (0.80-0.95)**	**0.002**		
Kikuchi et	Impact of Moderate-Intensity and Vigorous-Intensity Physical Activity on Mortality	2018	From 1990-1994 to 2004	83,454 subjects (38,598 men and 44,856 women)	JPHC Study Subjects who answered the 5-year follow-up questionnaire in 1995-	Death（全がん死亡）	8891		Overall (all-cause mortality)				Model 1: multivariables were adjusted for age, sex, and public health centers. Model 2: multivariables were further adjusted for smoking, drinking, body mass index, diabetes history, and hypertension status. Model 3: multivariables were further adjusted for MVPA.	↓
									Men;					
							4502		Physically inactive (<450 MET-min-wk-1)		1 (reference)			
									Physically active Proportion of VPA to Total MVPA Volume					
							709		0%		**0.75 (0.68-0.83)**			
							426		>0% to <=30%		**0.73 (0.65-0.82)**			
							160		>30%		**0.74 (0.62-0.89)**			
									Women;					
							2430		Physically inactive (<450 MET-min-wk-1)		1 (reference)			
									Physically active					
							378		0%		**0.71 (0.62-0.81)**			
							225		>0% to <=30%		**0.75 (0.64-0.88)**			
							88		>30%		**0.74 (0.58-0.94)**			

■メタ解析、系統的レビュー

Reference			Include study						Design	Category	Relative risk (95% CI or p)			Weight	**Magnitude of association**
Author	Title	Year	Ref No.	First author	Year	Study period	Study location	Event (*Definition)			Colon	Rectum	Colorectum		
Pham NM., et al.	Physical activity and colorectal cancer risk: an evaluation based on a systematic review of epidemiologic evidence among the Japanese population.	2012	14	Lee et al.	2007	1995-2002	JPHC Study	Incidence（大腸がん）	Cohort	Men;	↓ ↓ ↓	−	↓		colon cancer: ↓ ↓ ↓
										Women;	↓	↑ ↑	−		
			15	Takahashi et al.	2007	1990-1997	Miyagi Study	Incidence（大腸がん）	Cohort	Men;	↓ ↓ ↓	−	↓ ↓		
										Women;	−	−	−		
			16	Kato et al.	1990	1979-1987	Aichi Cancer Registry		Case-control	Men;	↓ ↓	↓	NA		
			17	Kato et al.	1990	1986-1990	Aichi Cancer Center hospital		Case-control	Men and Women	↓ ↓	↓ ↓	NA		
			18	Kotake et al.	1995	1992-1994	10 hospitals in Kanto region		Case-control	Men and Women	−	↓	NA		
			19	Inoue et al.	1995	1988-1992	Aichi Cancer Center hospital		Case-control	Men;	−	−	NA		
										Women;	↓	−	NA		
			20	Ping et al.	1998	1986-1994	Tokai uni Hospital: health checkup		Case-control	Men and Women	NA	NA	−		
			21	Isomura et al.	2006	2000-2003	2 uni hospitals and 6 affiliated		Case-control	Men;	↓ ↓	↓ ↓	NA		
										Women;	↓ ↓ ↓	−	NA		

■コホート研究（コホートのプール解析含む）

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	Participant's race								
Lee KJ, Inoue M, Otani T, Iwasaki M, Sasazuki S, Tsugane S, for the JPHC Study Group	Physical activity and risk of colorectal cancer in Japanese men and women: the Japan Public Health Center-based prospective study	2007	1995-2002	65,022 subjects (29,842 men and 35,180 women)	JPHC Study	Incidence（大腸がん）		Men;		Vigorous physical activity						
									Total colorectal	No vs. Yes	167/123	0.58 (0.67-				↓
									Colon cancer	No vs. Yes	120/77	**0.73 (0.55-0.98)**				↓
									Proximal colon cancer	No vs. Yes	58/24	**0.43 (0.26-0.70)**				↓ ↓
									Distal colon cancer	No vs. Yes	57/50	1.03 (0.70-				-
									Rectal cancer	No vs. Yes	47/46	1.16 (0.76-				-
								Women;	Total colorectal	No vs. Yes	140/56	1.11 (0.80-			age, study area, family history of colorectal cancer, smoking status, alcohol intake, body mass index, intake of red meat, dietary fiber, folate	-
									Colon cancer	No vs. Yes	103/37	1.02 (0.68-				-
									Proximal colon cancer	No vs. Yes	56/16	0.86 (0.48-				-
									Distal colon cancer	No vs. Yes	40/19	1.26 (0.70-				-
									Rectal cancer	No vs. Yes	37/19	1.36 (0.77-				-
								Men;	Total colorectal	Walking or standing hours							

		More than 3 h per day	122/168	0.82 (0.65-1.05)			-
		Colon cancer					
		More than 3 h per day	84/113	0.79 (0.59-1.06)			-
		Proximal colon cancer					
		More than 3 h per day	37/45	**0.62 (0.40-0.98)**			↓ ↓
		Distal colon cancer					
		More than 3 h per day	42/65	1.02 (0.68-1.52)			-
		Rectal cancer					
		More than 3 h per day	38/55	0.88 (0.57-1.36)		age, study area, family history of colorectal cancer, smoking status, alcohol intake, body mass index, intake of red meat, dietary fiber, folate	-
	Women;	Total colorectal					
		More than 3 h per day	66/130	1.06 (0.78-1.45)			-
		Colon cancer					
		More than 3 h per day	48/92	1.02 (0.70-1.47)			-
		Proximal colon cancer					
		More than 3 h per day	24/48	1.03 (0.62-1.72)			-
		Distal colon cancer					
		More than 3 h per day	21/38	1.03 (0.58-1.83)			-
		Rectal cancer					
		More than 3 h per day	18/38	1.20 (0.65-2.19)			-
		Quartile (MET hours					
		Total colorectal				age, study area, family history of colorectal cancer, smoking status, alcohol intake, body mass index, intake of red meat, dietary fiber, folate	
	Men;	Lowest	84	1 (reference)			
		Second	81	0.99 (0.72-			
		Third	64	0.85 (0.61-			
		Highest	61	**0.69 (0.49-0.97)**	**0.022**		↓
		Colon cancer					
		Lowest	64	1 (reference)			
		Second	55	0.87 (0.61-			
		Third	38	**0.62 (0.41-0.95)**			
		Highest	40	**0.58 (0.39-0.87)**	**0.006**		↓ ↓
		Proximal colon cancer					
		Lowest	29	1 (reference)			
		Second	27	0.89 (0.52-			
		Third	15	**0.44 (0.22-0.86)**			
		Highest	11	**0.29 (0.14-0.60)**	**<0.001**		↓ ↓ ↓
		Distal colon cancer					
		Lowest	32	1 (reference)			
		Second	27	0.92 (0.54-			
		Third	20	0.75 (0.42-			

									Highest	28	0.89 (0.53-	0.685		-
									Rectal cancer					
									Lowest	20	1 (reference)			
									Second	26	1.36 (0.74-			
									Third	26	1.64 (0.90-			
									Highest	21	1.06 (0.56-	0.97		
								Women;	Total colorectal				age, study area, family history of colorectal cancer, smoking status, alcohol intake, body mass index, intake of red meat, dietary fiber, folate	-
									Lowest	53	1 (reference)			
									Second	53	1.17 (0.79-			
									Third	45	0.97 (0.63-			
									Highest	45	1.16 (0.76-	0.569		-
									Colon cancer					
									Lowest	41	1 (reference)			
									Second	37	1.03 (0.65-			
									Third	35	0.91 (0.57-			
									Highest	27	0.89 (0.54-	0.61		-
									Proximal colon cancer					
									Lowest	21	1 (reference)			
									Second	21	1.14 (0.61-			
									Third	21	1.01 (0.53-			
									Highest	9	0.55 (0.24-	0.151		↓
									Distal colon cancer					
									Lowest	17	1 (reference)			
									Second	15	1.09 (0.52-			
									Third	11	0.77 (0.34-			
									Highest	16	1.37 (0.66-	0.401		-
									Rectal cancer					
									Lowest	12	1 (reference)			
									Second	16	1.72 (0.76-			
									Third	10	1.20 (0.49-			
									Highest	18	2.23 (0.99-	0.061		↑ ↑
Eshak ES, Noda H, Tamakoshi A, Iso H.	Walking time, sports activity, job type, and body posture during work in relation to incident colorectal cancer: the JACC prospective cohort study	2022	1988-1990	26,897 subjects	JACC Study	Incidence （大腸がん）	CRC; 423 Colon; 267 Rectal; 156		Walking;				age, sex, area of residence, body mass index, history of diabetes, family history of cancer, education, occupation, hours of watching TV, smoking habit, ethanol intake, total meat, fish, vegetable, total dietary fiber, folate, and total energy intakes, job type, mutually for walking/sports activity	Walking; - Sports; Colorectal, Colon - Rectal ↓
									Colorectal cancer					
									Never	49	1 (reference)			
									<30 min /day	83	0.90 (0.63-			
									30-60 min/day	79	0.77 (0.54-			
									1h or more/day	212	0.76 (0.56-1.04)	0.051		
									Colon cancer					
									Never	31	1 (reference)			
									<30 min /day	47	0.78 (0.49-			
									30-60 min/day	54	0.82 (0.52-			
									1h or	135	0.76 (0.51-	0.3		
									Rectal cancer					
									Never	18	1 (reference)			
									<30 min /day	36	1.10 (0.62-			
									30-60 min/day	25	0.69 (0.37-			
									1h or	77	0.77 (0.45-	0.12		
									Sports;					
									Colorectal cancer					
									Never	299	1 (reference)			
									1-2 h/week	74	1.04 (0.80-			
									3-4 h/week	6831	1.23 (0.84-			
									5 h or more/week	19	0.76 (0.47-1.22)	0.79		
									Colon cancer					
									Never	188	1 (reference)			
									1-2 h/week	50	1.14 (0.83-			

	3-4 h/week	16	1.03 (0.61-	
	5 h or more/week	13	0.86 (0.48-1.53)	0.92
	Rectal cancer			
	Never	111	1 (reference)	
	1-2 h/week	24	0.87 (0.56-	
	3-4 h/week	15	1.54 (0.89-	
	5 h or more/week	6	0.61 (0.26-1.41)	0.75