Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Bidel et al. (2010) Finland Enrolment 1972–2002; Mean FU 18 years Cohort	60 041; men and women (age 26–74 years) without history of any cancer at baseline Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	Strengths: homogenous study population; large number of participants randomly selected from the whole population; long follow-up without any loss Limitations: self-reported data; possible misclassification of the exposure; lack of data on caffeine or the other nutrients; not completely excluded the effects of residual confounding
			Men	267	-		
			0	12	1		
			1–2	32	1.18 (0.6–2.32)		
			3–4	74	1.27 (0.68–2.38)		
			5–6	85	1.06 (0.57–2)		
			7–9	41	1.15 (0.59–2.26)		
			≥ 10	23	0.98 (0.47–2.03)		
			Trend-test p-value: 0.86				
		Colon & rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	
			Women	271	-		
			0	8	1		
			1–2	28	1.37 (0.62–3.05)		
			3–4	88	1.5 (0.71–3.15)		
			5–6	97	1.31 (0.62–2.78)		
			7–9	38	1.53 (0.69–3.4)		
			≥ 10	12	1.24 (0.49–3.14)		
			Trend-test p-value: 0.83				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon & rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index, sex	
			Total	538	-		
			0	20	1		
			1–2	60	1.25 (0.74–2.09)		
			3–4	162	1.32 (0.82–2.14)		
			5–6	182	1.14 (0.71–1.85)		
			7–9	79	1.28 (0.76–2.13)		
			≥ 10	35	1.03 (0.58–1.83)		
			Trend-test p-value: 0.61				
		Colon	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	
			Men	150	-		
			0	11	1		
			1–2	24	1.02 (0.46–2.25)		
			3–4	42	0.8 (0.38–1.71)		
			5–6	49	0.77 (0.37–1.63)		
			7–9	24	0.72 (0.31–1.64)		
			≥ 10	16	0.74 (0.31–1.79)		
			Trend-test p-value: 0.89				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	
			Women	154	-		
			0	6	1		
			1–2	16	0.81 (0.3–2.2)		
			3–4	60	1.39 (0.58–1.71)		
			5–6	57	1.06 (0.44–2.59)		
			7–9	24	1.32 (0.51–3.42)		
			≥ 10	4	0.61 (0.16–2.23)		
			Trend-test p-value: 0.31				
		Colon	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index, sex	
			Total	304	-		
			0	17	1		
			1–2	40	0.93 (0.5–1.74)		
			3–4	102	1.04 (0.59–1.83)		
			5–6	106	0.87 (0.49–1.54)		
			7–9	48	0.93 (0.5–1.73)		
			≥ 10	20	0.72 (0.35–1.47)		
			Trend-test p-value: 0.76				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	
			Men	117	-		
			0	5	1		
			1–2	10	1.6 (0.43–5.94)		
			3–4	37	2.71 (0.81–9.03)		
			5–6	43	1.95 (0.58–6.55)		
			7–9	24	2.51 (0.72–8.78)		
			≥ 10	10	1.68 (0.43–6.48)		
			Trend-test p-value: 0.32				
		Rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index	
			Women	117	-		
			0	2	1		
			1–2	18	2.97 (0.67–13.1)		
			3–4	32	1.89 (0.44–8.13)		
			5–6	47	2.07 (0.48–8.83)		
			7–9	16	2.24 (0.49–10.1)		
			≥ 10	8	2.92 (0.6–14.3)		
			Trend-test p-value: 0.53				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Rectum	All coffee (cups/day)			Age, study year, education, cigarette smoking, alcohol consumption, leisure time physical activity, history of diabetes, tea consumption, and body mass index, sex	
			Total	117	-		
			0	7	1		
			1–2	28	2.19 (0.83–5.79)		
			3–4	69	2.19 (0.87–5.53)		
			5–6	90	1.96 (0.77–4.95)		
			7–9	40	2.31 (0.88–6.03)		
			≥ 10	18	1.99 (0.71–5.55)		
			Trend-test p-value: 0.62				
Yamada et al. (2014) Japan Enrolment 1988–1990; Follow up to 2009 Cohort	58 221; 23 607 men & 34 614 women (aged 40–79 years at baseline) without a history of colorectal cancer Exposure assessment method: Questionnaire	Colon	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption, and district	Strengths: large population-based study Limitations: data collected at the baseline survey only; self-reported intake data
			Men	355	-		
			< 1	240	1		
			1	44	1.06 (0.76–1.47)		
			2–3	58	1.26 (0.93–1.7)		
			≥ 4	13	1.79 (1.01–3.18)		
			Trend-test p-value: 0.03				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption, and district	
			Women	332	-		
			< 1	254	1		
			1	46	1 (0.72–1.37)		
			2–3	27	0.86 (0.57–1.3)		
			≥ 4	5	2.02 (0.81–5.03)		
			Trend-test p-value: 0.96				
		Rectum	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption, and district	
			Men	202	-		
			< 1	139	1		
			1	28	1.19 (0.79–1.8)		
			2–3	30	1.12 (0.75–1.7)		
			≥ 4	5	1.19 (0.48–2.95)		
			Trend-test p-value: 0.53				
		Rectum	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index,	
			Women	112	-		
			< 1	82	1		

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
			1	13	0.88 (0.48–1.59)	walking time, and regular meat consumption, and district	
			2–3	17	1.55 (0.89–2.69)		
			≥ 4	0	0		
			Trend-test p-value: 0.37				
		Colon & rectum	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption, and district	
			Men	557	-		
			< 1	379	1		
			1	72	1.11 (0.86–1.43)		
			2–3	88	1.21 (0.95–1.54)		
			≥ 4	18	1.57 (0.97–2.55)		
			Trend-test p-value: 0.03				
		Colon & rectum	All coffee (cups/day)			Age, smoking, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption, and district	
			Women	444	-		
			< 1	336	1		
			1	59	0.97 (0.73–1.28)		
			2–3	44	1.04 (0.75–1.44)		
			≥ 4	5	1.42 (0.57–3.5)		
			Trend-test p-value: 0.61				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Men	355	-		
			Current smoker	173	-		
			< 1	109	1		
			1	21	1.08		
			2–3	34	1.21		
			≥ 4	9	1.68		
			Trend-test p-value: 0.13				
		Colon	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Men	355	-		
			Never smoker	61	-		
			< 1	42	1		
			1	7	1.18		
			2–3	10	1.85		
			≥ 4	2	5.58		
			Trend-test p-value: 0.01				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Women	332	-		
			Current smoker	12	-		
			< 1	4	1		
			1	1	1.03		
			2–3	5	4.71		
			≥ 4	2	6.06		
			Trend-test p-value: 0.02				
		Colon	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Women	332	-		
			Never smoker	279	-		
			< 1	222	1		
			1	37	1.03		
			2–3	17	1.46		
			≥ 4	3	1.69		
			Trend-test p-value: 0.6				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon & rectum	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Men	557	-		
			Current smoker	267	-		
			< 1	168	1		
			1	35	1.17		
			2–3	53	1.21		
			≥ 4	11	1.32		
			Trend-test p-value: 0.2				
		Colon & rectum	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Men	557	-		
			Never smoker	105	-		
			< 1	71	1		
			1	16	1.57		
			2–3	14	1.52		
			≥ 4	4	5.92		
			Trend-test p-value: 0.01				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon & rectum	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Women	444	-		
			Current smoker	16	-		
			< 1	6	1		
			1	1	0.61		
			2–3	7	3.65		
			≥ 4	2	2.87		
			Trend-test p-value: 0.04				
		Colon & rectum	All coffee (cups/day)			Age, drinking, family history of colorectal cancer, education, body mass index, walking time, and regular meat consumption	
			Women	444	-		
			Never smoker	374	-		
			< 1	292	1		
			1	47	0.98		
			2–3	32	1		
			≥ 4	3	1.46		
			Trend-test p-value: 0.8				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Phillips & Snowdon (1985) USA Enrolment, 1960; FU 21 years Cohort	25 493; white men and women California Seventh-Day Adventists aged ≥ 30 years at baseline Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, sex	Strengths: unique characteristics of the Adventist population; linkage with registries; FFQ used by the American Cancer Society. Limitations: all the dietary data come from a 1960 self-administered questionnaire; limited accuracy of the underlying cause of death as recorded on death certificates; inferences with regard to risk of CRC; no adjustment for confounders; possibility that subjects may have substantially changed their dietary habits or weigh during long follow-up period
			< 1	110	1		
			1	20	1.5 (0.9–2.3)		
			≥ 2	34	1.5 (1–2.2)		
			Trend-test p-value: 0.02				
							Strengths: unique characteristics of the Adventist population. Limitations: all the dietary data come from a 1960 self-administered questionnaire; limited accuracy of the underlying cause of death as recorded on death certificates; inferences with regard to risk of CRC; possibility that subjects may have substantially changed their dietary habits or weigh during long follow-up period

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Hartman et al. (1998) Finland Enrolment 1985–1988; Median FU 8 years Cohort	27 111 subjects; male smokers aged 50 and 69 years; men who were alcoholics, who had cirrhosis of the liver, severe angina with exertion, or chronic renal insufficiency, who had been previously diagnosed with cancer, or who had been taking supplements of vitamin E or A or β-carotene in excess of defined amounts or receiving anticoagulant therapy were excluded. Exposure assessment method: Questionnaire	Colon	All coffee (cups/day)			Age, intervention group, calcium, occupational physical activity, BMI	Strengths: all important available measured as confounders Limitations: the distribution and levels of intake of coffee were very different from each other; inability to use nondrinkers of coffee as the referent group; not ruled out the possibility that residual confounding contributed to the results
			≤ 4	51	1		
			> 4	31	0.73 (0.47–1.16)		
			> 6	24	0.69 (0.42–1.13)		
			Trend-test p-value: 0.11				
		Rectum	All coffee (cups/day)			Age, intervention group, calcium, occupational physical activity, BMI, cholesterol	
			≤ 4	33	1		
			> 4	29	1.05 (0.63–1.75)		
			> 6	17	0.77 (0.43–1.4)		
			Trend-test p-value: 0.44				
Naganuma et al. (2007) Japan Enrolment from 1990; FU 11.6 years Cohort	38 701; 18 867 men and 19 834 women aged 40–64 years at the baseline with no previous history of cancer Exposure assessment method: Questionnaire	Colon & rectum	All coffee			Age, sex, family history of colorectal cancer, education level, BMI, walking time, smoking, alcohol drinking, tea consumption, consumption of meat, vegetables, fruits, total caloric intake	Strengths: population based design; large number of cases; long follow-up period; high validity and reproducibility of coffee consumption assessment Limitations: collection of coffee consumption data only once before follow-up period; no information on type of coffee consumed (filtered/boiled, caffeinated/decaffeinated)
			Never	93	1		
			Occasionally	195	1.14 (0.87–1.46)		
			1–2 cups/day	123	0.98 (0.74–1.32)		
			≥ 3 cups/day	46	0.95 (0.65–1.39)		
			Trend-test p-value: 0.55				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Dominianni et al. (2013) Muticenters (England & USA) 1993–2001, median follow up of 11.4 years Cohort	57 398; men and women aged 55–74 years in the National Cancer Institute-Prostate, Lung, Colorectal and Ovarian (PLCO) cancer screening trial enrolled from 10 centres (England and the United States) Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, BMI, smoking, sex, race, family history of colorectal cancer, education, physical activity, NSAID intake, history of diabetes, number of colorectal examinations up to 3 years before the start of study, hormone use (among women), fruit intake (servings per day), vegetable intake (servings per day), meat intake (g per day), alcohol intake (g per day) and study centre	Strengths: collection of diet and demographic information before diagnosis of cancer; collection of extensive baseline and diet intake information allowing for appropriate control of confounders. The majority of the cohort (83.3%) has complete sigmoidoscopy at baseline, so all participants had an equal opportunity to be screened, unlike any screening-related biases. Limitations: Conducted in the screening arm of a randomized controlled trial of CRC screening, results may not be generalizable to all cases; Inherent limitation of dietary questionnaires; Limited power to detect an association in specific subgroups, such as by location (proximal, distal or rectal) or coffee type (caffeinated vs decaffeinated)
			None	73	1		
			< 1	138	0.94 (0.7–1.25)		
			1	147	0.94 (0.7–1.26)		
			2–3	207	1.03 (0.77–1.37)		
			≥ 4	116	1.08 (0.79–1.48)		
			Trend-test p-value: 0.229				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Dik et al. (2014) EPIC Enrollment 1992–2000; median FU 11.6 years Cohort	521, 448; men (29.8%) and women (70%) aged between 25 and 70 years without any type of prevalent cancer at enrolment, carcinoma in situ, unknown histology of the tumour, unknown first incidence tumour or a colorectal tumour originating from other organs, within 23 centres in 10 different European countries Exposure assessment method: Questionnaire	Colon & rectum	All coffee			BMI, diabetes, menopausal status, hormone replacement therapy, physical activity, education level, smoking, baseline intake of energy from fat, energy from non-fat, alcohol, fibres, dairy products, red meat, processed meat	Prospective cohort studies have found no significant associations with either proximal colon, distal colon or rectal cancer. Strengths: prospective population-based design; multiple populations; considerable follow up; large number of participants and cases; performing analyses by anatomical subsite studying differences between caffeinated and decaffeinated coffee Limitations: the self-reported consumption; single assessment; absence of data on brewing methods, cup size and levels of caffeine, cafestol, kahweol and antioxidants
			Non/low	914	-		
			Moderately low	761	1.04 (0.94–1.15)		
			Moderate	694	1.06 (0.95–1.19)		
			Moderately high	863	0.99 (0.89–1.1)		
			High	1002	1.06 (0.95–1.18)		
			Per 100 ml/day	NR	1.01 (0.99–1.02)		
			Trend-test p-value: 0.58				
Larsson et al. (2006) Sweden Enrolment 1987–1990; Follow up to 2004 Cohort	106 739 (pooled two cohorts); 61 433 women aged 40–76 years (Swedish Mammography Cohort) and 45 306 men aged 45–79 years (Cohort of Swedish Men), excluded subjects who diagnosed with cancer	Colon & rectum	All coffee (cups/day)			Age, education, BMI, family history of colorectal cancer, history of diabetes, smoking, physical activity, aspirin use, multivitamin supplement, daily intake of calories, fruit, vegetables,	Approximately 15% of population consumed boiled coffee only or both boiled and filtered coffee. Decaffeinated coffee is very uncommon in Sweden. Strengths: two large population-based cohorts Prospective design eliminated recall bias
			< 1	103	1		
			1	213	1.26 (0.99–1.6)		
			2–3	701	1.19 (0.96–1.47)		
			≥ 4	262	1.14 (0.9–1.44)		

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
	(except nonmelanoma skin cancer) before baseline Exposure assessment method: Questionnaire		One additional cup/day	1279	1 (0.97–1.04)	milk, and red meat, postmenopausal hormone form women	Large number of cases of CRC Information on many potential risk factors for CRC The use of data from two completely separate cohorts Completeness of follow-up Limitations: self-reported coffee consumption No data on type of coffee
Michels et al. (2005) USA Enrolment from 1980 (NHS), from 1986 (HPFS); Follow up to 1998 Cohort	133 893 (pooled two cohorts); 87 794 women aged 30–55 years at enrolment [Nurses' Health Study (NHS)] and 46 099 men aged 40–75 at enrolment [Health Professionals' Follow-up Study (HPFS)], excluded subjects who diagnosed with Crohn disease, ulcerative colitis, or cancers other than nonmelanoma skin cancer at baseline Exposure assessment method: Questionnaire	Colon & rectum	Caffeinated coffee (cups/day)			Age, family history of cancer, history of sigmoidoscopy, height, BMI, smoking pack-years, physical activity, aspirin use, vitamin supplements, alcohol consumption, red meat intake, total calorie intake, menopause, postmenopausal hormone use	Strengths: large sample size, repeated measurements of diet over time, adjustment for screening history Limitations: –
			Total subjects	1431	-		
			Never	259	1		
			0.5	243	1.05 (0.88–1.26)		
			1	228	0.99 (0.82–1.18)		
			2–3	497	1.02 (0.87–1.19)		
			4–5	164	0.98 (0.8–1.21)		
			> 5	40	0.98 (0.69–1.38)		
			1 additional cup/day	1431	0.99 (0.96–1.03)		
			Trend-test p-value: 0.6				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon & rectum	Caffeinated coffee (cups/day)			Age, family history of cancer, history of sigmoidoscopy, height, BMI, smoking pack-years, physical activity, aspirin use, vitamin supplements, alcohol consumption, red meat intake, total calorie intake, menopause, postmenopausal hormone use	
			Non-smoker	1094	-		
			Never	188	1		
			0.5	160	1.02 (0.82–1.27)		
			1	181	0.99 (0.8–1.22)		
			2–3	405	0.99 (0.82–1.19)		
			4–5	130	0.94 (0.75–1.19)		
			> 5	30	0.92 (0.62–1.36)		
			1 additional cup/day	1094	0.99 (0.96–1.03)		
			Trend-test p-value: 0.55				
		Colon & rectum	Decaffeinated coffee (cups/day)			Age, family history of cancer, history of sigmoidoscopy, height, BMI, smoking pack-years, physical activity, aspirin use, vitamin supplements, alcohol consumption, red meat intake, total calorie intake, menopause,	
			Total subjects	1138	-		
			Never	463	1		
			0.25	212	0.82 (0.69–0.97)		
			0.5	167	0.7 (0.58–0.85)		
			1–1.9	146	0.74 (0.61–0.9)		
			> 2	150	0.82 (0.67–0.99)		

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
			1 additional cup/day	1138	0.96 (0.91–1.02)	postmenopausal hormone use	
			Trend-test p-value: 0.08				
Nilsson et al. (2010) Sweden Enrolment from 1992; Follow up to 15 years Cohort	64 603; 32 425 men and 32 178 women aged 30–39 at the baseline Exposure assessment method: Questionnaire	Colon & rectum	All coffee (occasions/day)			Age, sex, BMI, smoking, education, and recreational physical activity	Strengths: large sample size; prospective design; long follow-up; data collection before the diagnosis of cases with cancer; population-based data; Limitations: residual confounding by factors not addressed or not sufficiently measured in this study may have been present
			< 1	19	1		
			1–3	206	1.56 (0.96–2.54)		
			≥ 4	96	1.43 (0.86–2.38)		
		Colon & rectum	Filtered coffee (occasions/day)			Age, sex, BMI, smoking, education, and recreational physical activity	
			< 1	87	1		
			1–3	196	1.18 (0.91–1.52)		
			≥ 4	38	0.73 (0.5–1.08)		
Sinha et al. (2012) USA Enrolment 1995–1996; FU 10.5 years Cohort	489 706; men and women aged 50–71 years without prevalent cancer or end-stage renal disease at baseline Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, race, education, smoking status, smoking status, time since quitting for former smokers, smoking dose, ever smoke a pipe or cigar, diabetes, colorectal screening, family history of colorectal cancer, regular nonsteroidal anti-inflammatory drug use, marital status, BMI,	Risk estimates were presented stratified by type of coffee (decaffeinated versus caffeinated) and organ sites (colon (proximal, distal), rectal). There was no difference in risk by caffeine content, but colon and proximal colon showed a similar pattern to the CRC results, while distal colon and rectal did not. Strengths: large size; prospective design; wide range of coffee consumption

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
			None	647	1	frequency of vigorous physical activity, calories, fruit and vegetables, red meat, dietary calcium intake, alcohol, and menopausal hormone therapy in women	Limitations: self-reported coffee intake at a single time point; not ruled out reverse causality due to lack of information on inflammatory bowel disease or other conditions that may have caused participants to reduce or eliminate coffee consumption; predominantly college educated non-Hispanic white with healthy lifestyle
			< 1 cup/wk	1083	0.97 (0.88–1.07)		
			1	1206	1 (0.9–1.1)		
			2–3	2999	0.98 (0.9–1.07)		
			4–5	785	0.87 (0.78–0.97)		
			≥ 6	226	0.8 (0.69–0.94)		
			Trend-test p-value: 0.001				
Oba et al. (2006) Japan Enrolment from 1992; Follow up to 2000 Cohort	30 221; 13 894 men and 16 327 women aged ≥ 35 years at the baseline, without a history of cancer other than non-melanoma skin cancer Exposure assessment method: Questionnaire	Colon	All coffee			Age, height, BMI, total pack-years of cigarette smoking, alcohol intake, and physical activity, and tea intake	Strengths: prospective cohort study; diet data collection ahead of the diagnosis of colon cancer; community-based population; high response rate (92.0%) Limitations: small number of cases; possible misclassification for colon cancer
			Men	111	-		
			Never to < 1 cup/month	29	1		
			Once cup/month to < 1 cup/day	52	1.13 (0.71–1.81)		
			One cup/day or more	30	0.81 (0.46–1.42)		
			Trend-test p-value: 0.14				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee			Age, height, BMI, total pack-years of cigarette smoking, alcohol intake, and physical activity, and tea intake	
			Women	102	-		
			Never to < 1 cup/month	45	1		
			Once cup/month to < 1 cup/day	44	0.92 (0.59–1.43)		
			One cup/day or more	13	0.43 (0.22–0.85)		
Peterson et al. (2010) Singapore Enrolment 1993–1998; FU 12 year Cohort	61 321; men and women aged 45–74 years at enrolment, excluded subjects with a history of cancer diagnosis at baseline Exposure assessment method: Questionnaire	Colon	All coffee (cups/day)			Age, sex, BMI, cigarette smoking, alcohol consumption, physical activity, family history of cancer, intake of green tea	Strengths: collection of Information on coffee consumption and other dietary and lifestyle factors before cancer diagnosis; ruled out the possibility of recall bias and reverse causality; genetically homogenous study population Limitations: –
			All subjects	591	-		
			< 1	177	1		
			1	228	1.04 (0.85–1.26)		
			2+	186	0.9 (0.73–1.11)		
			Trend-test p-value: 0.31				
		Colon	All coffee (cups/day)			Age, sex, BMI, cigarette smoking, alcohol consumption, physical activity, family history of cancer, intake of green tea	
			Never smokers	384	-		
			< 1	125	1		
			1	147	1 (0.78–1.27)		
			2+	112	1.01 (0.78–1.31)		
			Trend-test p-value: 0.93				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
		Colon	All coffee (cups/day)			Age, sex, BMI, cigarette smoking, alcohol consumption, physical activity, family history of cancer, intake of green tea	
			Ever smokers	207	-		
			< 1	52	1		
			1	81	1.13 (0.79–1.6)		
			2+	74	0.77 (0.54–1.11)		
			Trend-test p-value: 0.1				
Simons et al. (2010) Netherlands Enrolment 1986; FU 13.3 years Cohort	120 852; 1832 male and 2045 female subcohort member (aged 55–69 years) without a history of cancers other than nonmelanoma skin cancer at baseline used for case-cohort analyses Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, family history of CRC, physical activity at the longest held job, non-occupational physical activity, smoking status, education level, BMI, ethanol intake, meat intake, processed meat intake, folate intake, vitamin B6 intake, fibre intake, fluid intake from other fluids	Strengths: No Limitations: No
			Men	1443	-		
			≤ 2	200	1		
			> 2–4	504	0.98 (0.78–1.23)		
			> 4–6	410	1.06 (0.83–1.35)		
			> 6	146	1 (0.74–1.36)		
			Trend-test p-value: 0.67				
		Rectum	All coffee (cups/day)			Age, family history of CRC, physical activity at the longest held job, non-occupational physical activity, smoking status, education level, BMI, ethanol	
			Men	332	-		
			≤ 2	36	1		
			> 2–4	120	1.32 (0.87–1.99)		

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
			> 4–6	116	1.5 (0.97–2.31)	intake, meat intake, processed meat intake, folate intake, vitamin B6 intake, fibre intake, fluid intake from other fluids	
			> 6	50	1.6 (0.96–2.66)		
			Trend-test p-value: 0.05				
		Colon & rectum	All coffee (cups/day)			Age, family history of CRC, physical activity at the longest held job, non-occupational physical activity, smoking status, education level, BMI, ethanol intake, meat intake, processed meat intake, folate intake, vitamin B6 intake, fibre intake, fluid intake from other fluids	
			Women	1040	-		
			≤ 2	206	1		
			> 2–4	425	0.91 (0.74–1.13)		
			> 4–6	245	0.96 (0.75–1.23)		
			> 6	63	1.07 (0.74–1.55)		
			Trend-test p-value: 0.85				
		Rectum	All coffee (cups/day)			Age, family history of CRC, physical activity at the longest held job, non-occupational physical activity, smoking status, education level, BMI, ethanol intake, meat intake, processed meat intake, folate intake, vitamin B6 intake,	
			Women	173	-		
			≤ 2	40	1		
			> 2–4	73	0.8 (0.53–1.2)		
			> 4–6	42	0.79 (0.49–1.27)		
			> 6	18	1.41 (0.75–2.63)		

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
			Trend-test p-value: 0.76			fibre intake, fluid intake from other fluids	
Lee et al. (2007) Japan Enrolment 1990–1994; FU 10 years Cohort	96 162; 46 203 men and 50 139 women (mean age 51.9 years in men and 52.3 years in women) without a history and diagnosis of any cancer Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Age, study area, BMI, smoking status, alcohol drinking, family history of colorectal cancer, physical activity, intake of green vegetables, beef, pork, green tea, Chinese tea, and black tea	Risk estimates were presented stratified by organ site (colon and rectal), but they showed a similar pattern to the CRC results. Strengths: prospective population-based study; long follow-up period; assessment of coffee consumption before the subsequent onset of cancer; sampling from general population; high response rate (79%) Limitations: self-reported coffee consumption data; assessment of coffee consumption only once at the baseline; no data on type of coffee consumed (filtered or boiled, decaffeinated of not)
			Men	726	-		
			Almost never	276	1		
			< 1	217	0.96 (0.78–1.17)		
			1–2	158	0.94 (0.75–1.18)		
			3+	75	1.1 (0.82–1.47)		
			Trend-test p-value: 0.91				
		Colon & rectum	All coffee (cups/day)			Age, study area, BMI, smoking status, alcohol drinking, family history of colorectal cancer, physical activity, intake of green vegetables, beef, pork, green tea, Chinese tea, and black tea	
			Women	437	-		
			Almost never	185	1		
			< 1	129	0.92 (0.71–1.19)		
			1–2	104	1.01 (0.76–1.33)		
			3+	19	0.68 (0.4–1.15)		
			Trend-test p-value: 0.42				

Table 2.22 Cohort studies on cancer of the colorectum and coffee drinking (web only)

Reference, location enrolment/follow-up period, study design	Population size, description, exposure assessment method	Organ site	Exposure category or level	Exposed cases/deaths	Risk estimate (95% CI)	Covariates controlled	Comments
Lukic et al. (2016) Norway Enrolment 1996–2004; FU 6–8 years Cohort	91 767; women aged 30–70 at the baseline excluding subjects with prevalent cancer other than non-melanoma skin cancer at baseline Exposure assessment method: Questionnaire	Colon & rectum	All coffee (cups/day)			Smoking status, age at smoking initiation, number of pack-years smoked, duration of education, physical activity level, use of oral contraceptives, and total energy intake	The interaction between coffee consumption and smoking status for colorectal cancer risk was also tested, but no interaction (data not shown) Strengths: prospective design; relatively large sample size; sampling from general population; validated FFQ; repeated measurements of coffee consumption and smoking exposure Limitations: no information on type of coffee; not excluded the effect of residual confounding; self-reported coffee consumption data with misclassification bias
			Light consumers, ≤ 1	224	1		
			Low moderate consumers, more than 1 up to 3	423	0.95 (0.81–1.11)		
			High moderate consumers, more than 3 up to 7	541	0.83 (0.7–0.98)		
			Heavy consumers, > 7	78	0.98 (0.72–1.32)		
			Trend-test p-value: 0.1				

CI, confidence interval; CRC, colorectal cancer; FU, follow-up; NR, not reported

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