

**Supplementary Table S1.** Search strategy in the PubMed and Embase

<b>PubMed</b>	<b>Search strategy</b>
#1	"Lipids/blood"[Mesh] OR "Triglycerides"[Mesh] OR "Cholesterol"[Mesh]
#2	"Triacylglycerol"[Title/Abstract] OR "Triacylglycerols"[Title/Abstract] OR "Epicholesterol"[Title/Abstract] OR "alpha Lipoprotein Cholesterol"[Title/Abstract] OR "Cholesterol alpha Lipoprotein"[Title/Abstract] OR "HDL Cholesterol"[Title/Abstract] OR "High Density Lipoprotein Cholesterol"[Title/Abstract] OR "Cholesterol HDL2"[Title/Abstract] OR "HDL2 Cholesterol"[Title/Abstract] OR "Cholesterol HDL3"[Title/Abstract] OR "HDL3 Cholesterol"[Title/Abstract] OR " Low Density Lipoprotein Cholesterol"[Title/Abstract] OR "beta Lipoprotein Cholesterol"[Title/Abstract] OR "Cholesterol beta Lipoprotein"[Title/Abstract] OR "LDL Cholesterol"[Title/Abstract] OR "Cholesteryl Linoleate LDL"[Title/Abstract] OR "LDL Cholesteryl Linoleate"[Title/Abstract] OR "lipids"[Title/Abstract] OR "serum lipid"[Title/Abstract] OR "Triglycerides"[Title/Abstract] OR "Triglyceride"[Title/Abstract] OR "Cholesterol"[Title/Abstract] OR "Total Cholesterol"[Title/Abstract] OR "TG"[Title/Abstract] OR "TC"[Title/Abstract] OR "HDL-C"[Title/Abstract] OR "LDL-C"[Title/Abstract]
#3	#1 OR #2
#4	"Colorectal Neoplasms"[Mesh]
#5	"Colorectal Neoplasms"[Title/Abstract] OR "Colorectal Neoplasm"[Title/Abstract] OR "Neoplasm Colorectal"[Title/Abstract] OR "Colorectal Carcinoma"[Title/Abstract] OR "Carcinoma Colorectal"[Title/Abstract] OR "Carcinomas Colorectal"[Title/Abstract] OR "Colorectal Carcinomas"[Title/Abstract] OR "Colorectal Cancer"[Title/Abstract] OR "Cancer Colorectal"[Title/Abstract] OR "Cancers Colorectal"[Title/Abstract] OR "Colorectal Cancers"[Title/Abstract] OR "Colorectal Tumors"[Title/Abstract] OR "Colorectal Tumor"[Title/Abstract] OR "Tumor Colorectal"[Title/Abstract] OR "Tumors Colorectal"[Title/Abstract] OR "Neoplasms Colorectal"[Title/Abstract] OR "CRC"[Title/Abstract]
#6	#4 OR #5
#7	#3 AND #6

<b>Embase</b>	<b>Search strategy</b>
#1	lipid blood level/exp OR lipids:ab,ti OR serum lipid:ab,ti OR Triacylglycerol/exp OR Triacylglycerol:ab,ti OR Triacylglycerols:ab,ti OR Triglycerides:ab,ti OR Triglyceride:ab,ti OR Cholesterol/exp OR Epicholesterol:ab,ti OR alpha Lipoprotein Cholesterol:ab,ti OR Cholesterol alpha Lipoprotein:ab,ti OR HDL Cholesterol:ab,ti OR High Density Lipoprotein Cholesterol:ab,ti OR Cholesterol HDL2:ab,ti OR HDL2 Cholesterol:ab,ti OR Cholesterol HDL3:ab,ti OR HDL3 Cholesterol:ab,ti OR Low Density Lipoprotein Cholesterol:ab,ti OR beta Lipoprotein Cholesterol:ab,ti OR Cholesterol beta Lipoprotein:ab, ti OR LDL Cholesterol:ab,ti OR Cholesteryl Linoleate LDL:ab,ti OR LDL Cholesteryl Linoleate:ab,ti OR Cholesterol:ab,ti OR Total Cholesterol:ab,ti OR TG:ab,ti OR TC:ab,ti OR HDL -C:ab,ti OR LDL -C:ab,ti
#2	colorectal tumor/exp OR Colorectal Neoplasms:ab,ti OR Colorectal Neoplasm:ab,ti OR Neoplasm Colorectal:ab,ti OR Colorectal Carcinoma:ab,ti OR Carcinoma Colorectal:ab,ti OR Carcinomas Colorectal:ab,ti OR Colorectal Carcinomas:ab,ti OR Colorectal Cancer:ab,ti OR Ca ncer Colorectal:ab,ti OR Cancers Colorectal:ab,ti OR Colorectal Cancers:ab,ti OR Colorectal Tumors:ab,ti OR Colorectal Tumor:ab,ti OR Tumor Colorectal:ab,ti OR Tumors Colorectal:ab,ti OR Neoplasms Colorectal:ab,ti OR CRC:ab,ti
#3	#1 AND #2

**Supplementary Table S2.** Characteristics of included prospective studies of serum lipids and colorectal cancer risk

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors
Li et al[16]*, 2019, China, CS	394/104,333 (mean, 51.2y), 10y	Men: Triglycerides $\geq 1.7$ vs. $< 1.7$ mmol/l (CRC) HDL cholesterol $\geq 1.03$ vs. $< 1.03$ mmol/l (CRC)	1.12 (0.90–1.41) 0.81 (0.54–1.19)	Age, education level, income status, frequency of tobacco smoking, frequency of alcohol drinking, and sitting time
Katzke et al[17], 2017, Germany, C-CS	256/25,546 (35-65y), 18y	All: Triglycerides Q4 vs. Q1 (CRC) Total cholesterol Q4 vs. Q1 (CRC) HDL cholesterol Q4 vs. Q1 (CRC)	1.17 (0.74-1.84) 1.30 (0.84-2.01) 1.12 (0.73-1.73)	Age, sex, baseline height, waist, BMI, lifetime alcohol consumption, red meat intake, fibre intake, smoking status, socioeconomic status, physical activity, diabetes, hypertension and use of lipid lowering drugs
Muka et al[24], 2016, Netherlands, CS	248/6,628 (mean, 69.6y), 22y	All: Total cholesterol 262.55-694.98 vs. 84.94-239.38 mg/dl (CRC)	1.49 (1.08-2.06)	Age, sex, total energy intake, polyunsaturated fatty acids intake, Dutch Healthy Diet index excluding fish and polyunsaturated fatty acids component, processed red meat, unprocessed red meat, dietary fish intake, calcium intake, alcohol intake, physical activity, smoking status, BMI, waist-to-hip ratio, education level, income level, diabetes mellitus, family history of diabetes mellitus, family history of cardiovascular diseases, family history of cancer, history of gallbladder operations, anti-inflammatory and antirheumatic drugs, hormone replacement therapy, lipid lowering mediation drugs

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**Supplementary Table S2 (Continued)**

<b>First author, publication year (reference), Country, Type</b>	<b>Cases/subject (age), duration of follow up</b>	<b>Exposure categories</b>	<b>RR/HR (95%CI)</b>	<b>Matched/Adjusted potential factors</b>
Chandler et al[11], 2016, USA, CS	198/15,602 ( $\geq 45$ y), 21y	Women: Triglycerides Q4 vs. Q1 (CRC) Total cholesterol Q4 vs. Q1 (CRC) HDL cholesterol Q4 vs. Q1 (CRC) LDL cholesterol Q4 vs. Q1 (CRC)	1.86 (1.17-2.97) 1.21 (0.80-1.84) 0.63 (0.41-0.98) 1.14 (0.77-1.68)	Age, race, treatment random assignment, hormone replacement therapy, cigarette smoking, exercise, alcohol consumption, postmenopausal status, family history of cancer, aspirin use, history of colon polyps, total vegetable and fruit intake, history of mammogram, red meat intake and BMI
Lu et al[12]*, 2015, Norway, CS	2,044/143,477 (mean, 50.9y), 15y	All: Triglycerides $\geq 1.7$ vs. $< 1.7$ mmol/l (CRC) HDL cholesterol $\geq 1.03$ (male) and $\geq 1.29$ (women) vs. $< 1.03$ (male) and $< 1.29$ (women) mmol/l (CRC)	1.12 (1.02-1.22) 0.93 (0.85-1.03)	Age, sex, smoking, alcohol consumption, physical activity, education, family history of cancer, and BMI
Shin et al [25], 2014, Korea, CS	9,147/1,326,058 (30-80y), 11y	Men: Total cholesterol $\geq 240$ vs. $\leq 200$ mg/dl (CRC) Total cholesterol $\geq 240$ vs. $\leq 200$ mg/dl (CC) Total cholesterol $\geq 240$ vs. $\leq 200$ mg/dl (RC)	1.16 (1.08-1.26) 1.09 (0.97-1.23) 1.25 (1.12-1.40)	Age

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**Supplementary Table S2 (Continued)**

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors	
Agnoli et al [18], 2014, Italy, C-CS	286/850 (N/A), 15y	All:			Age, gender, BMI, smoking, total physical activity, alcohol consumption, dietary red meat, dietary fiber, and dietary calcium, and menopause status (for women); stratified by center
		Triglycerides	138.84-1124.07 vs. 32.04-89.44 mg/dl (CRC)	1.32 (0.89-1.95)	
		Total cholesterol	246.19-417.46 vs. 72.25-204.71 mg/dl (CRC)	1.66 (1.12-2.45)	
		HDL cholesterol	68.54-129.02 vs. 24.19-55.10 mg/dl (CRC)	0.85 (0.56-1.28)	
		LDL cholesterol	155.17-290.27 vs. 24.10-121.53 mg/dl (CRC)	1.87 (1.27-2.76)	
		Men:			
		Triglycerides	138.84-1124.07 vs. 32.04-89.44 mg/dl (CRC)	1.77 (0.88-3.55)	
		Total cholesterol	246.19-417.46 vs. 72.25-204.71 mg/dl (CRC)	2.54 (1.35-4.79)	
		HDL cholesterol	68.54-129.02 vs. 24.19-55.10 mg/dl (CRC)	0.69 (0.30-1.59)	
		LDL cholesterol	155.17-290.27 vs. 24.10-121.53 mg/dl (CRC)	2.90 (1.51-5.56)	
		Women			
		Triglycerides	138.84-1124.07 vs. 32.04-89.44 mg/dl (CRC)	1.12 (0.66-1.89)	
Total cholesterol	246.19-417.46 vs. 72.25-204.71 mg/dl (CRC)	1.41 (0.83-2.39)			
HDL cholesterol	68.54-129.02 vs. 24.19-55.10 mg/dl (CRC)	0.87 (0.52-1.47)			
LDL cholesterol	155.17-290.27 vs. 24.10-121.53 mg/dl (CRC)	1.65 (0.97-2.78)			
Strohmaier et al [37], 2013, European, CS	4,935/577,330 (mean, 44y), 11.7y	Men:			Age, BMI, smoking status, and stratified by cohort, fasting status, and birth year
		Total cholesterol	Q5 vs. Q1 (CC)	1.18 (0.92-1.51)	
		Total cholesterol	Q5 vs. Q1 (RC)	1.09 (0.81-1.48)	
		Women:			
		Total cholesterol	Q5 vs. Q1 (CC)	1.23 (0.90-1.69)	
		Total cholesterol	Q5 vs. Q1 (RC)	1.48 (0.94-2.32)	

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**Supplementary Table S2 (Continued)**

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors
Borena et al [13], 2011, European, CS	4,984/514,097 (mean, 44y), 12.7y	Men:		
		Triglycerides Q5 vs. Q1 (CC)	1.96 (1.44-2.67)	Age, BMI, smoking status, and stratified by cohort, fasting status, and birth year
		Triglycerides Q5 vs. Q1 (RC)	1.26 (0.85-1.85)	
		Women:		
		Triglycerides Q5 vs. Q1 (CC)	1.05 (0.75-1.47)	
		Triglycerides Q5 vs. Q1 (RC)	1.33 (0.84-2.13)	
Van Duijnhoven et al [19], 2011, European, NC-CS	1,238/2,476 (mean, 59.0/59.1y), 5.5y	All:		Age, sex, centre, follow-up time, time of blood collection, fasting status, height, weight, smoking habits, physical activity, education, consumption of fruit, vegetables, meat, fish and alcohol, intake of fibre, energy from fat and energy from non-fat
		Triglycerides $\geq 201.9$ vs. $< 79.7$ mg/dl (CRC)	1.19 (0.84-1.69)	
		Triglycerides $\geq 201.9$ vs. $< 79.7$ mg/dl (CC)	1.42 (0.91-2.31)	
		Triglycerides $\geq 201.9$ vs. $< 79.7$ mg/dl (RC)	1.06 (0.60-1.88)	
		Total cholesterol $\geq 287.7$ vs. $< 211.5$ mg/dl (CRC)	0.68 (0.50-0.92)	
		Total cholesterol $\geq 287.7$ vs. $< 211.5$ mg/dl (CC)	0.66 (0.45-0.98)	
		Total cholesterol $\geq 287.7$ vs. $< 211.5$ mg/dl (RC)	0.68 (0.41-1.13)	
		HDL cholesterol $\geq 70.4$ vs. $< 43.3$ mg/dl (CRC)	0.54 (0.39-0.77)	
		HDL cholesterol $\geq 70.4$ vs. $< 43.3$ mg/dl (CC)	0.42 (0.28-0.65)	
		HDL cholesterol $\geq 70.4$ vs. $< 43.3$ mg/dl (RC)	0.79 (0.42-1.49)	
		LDL cholesterol $\geq 201.5$ vs. $< 131.9$ mg/dl (CRC)	0.73 (0.54-0.99)	
LDL cholesterol $\geq 201.5$ vs. $< 131.9$ mg/dl (CC)	0.72 (0.48-1.08)			
LDL cholesterol $\geq 201.5$ vs. $< 131.9$ mg/dl (RC)	0.79 (0.48-1.29)			

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**Supplementary Table S2 (Continued)**

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors	
Kitahara et al [26], 2011, Korea, CS	1314/1,189,719 (mean, 44.9y for men/49.3y for women), 12.7y	Men:			Age, cigarette smoking, alcohol drinking, BMI, fasting serum glucose, hypertension, and physical activity
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CC)	1.12 (1.00-1.25)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (RC)	1.06 (0.94-1.19)		
		Women:			
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CC)	1.14 (0.96-1.35)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (RC)	1.13 (0.94-1.36)		
Inoue et al [14], 2009, Japan, CS	312/27,724 (40-69y), 10.2y	Men:			Age, study area, smoking status, weekly ethanol intake, and total serum cholesterol
		Triglycerides $\geq 150$ vs. $< 150$ mg/dl (CC)	1.71 (1.11-2.62)		
		Triglycerides $\geq 150$ vs. $< 150$ mg/dl (RC)	0.54 (0.26-1.11)		
		HDL cholesterol $\geq 40$ vs. $< 40$ mg/dl (CC)	1.15 (0.65-2.03)		
		HDL cholesterol $\geq 40$ vs. $< 40$ mg/dl (RC)	0.41 (0.14-1.16)		
		Women:			
		Triglycerides $\geq 150$ vs. $< 150$ mg/dl (CC)	1.00 (0.63-1.60)		
		Triglycerides $\geq 150$ vs. $< 150$ mg/dl (RC)	0.52 (0.24-1.13)		
		HDL cholesterol $\geq 50$ vs. $< 50$ mg/dl (CC)	1.12 (0.74-1.71)		
		HDL cholesterol $\geq 50$ vs. $< 50$ mg/dl (RC)	1.14 (0.63-2.06)		

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**Supplementary Table S2 (Continued)**

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors	
Iso et al [38]*, 2009, Japan, CS	320/33,368 (40-69y), 12.4y	Men:			Age, BMI, pack year of smoking, ethanol intake, hypertension, diabetes, hyperlipidemia medication use, total vegetable intake, coffee intake and public health center
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CRC)	1.10 (0.67-1.80)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CC)	1.21 (0.68-2.14)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (RC)	0.90 (0.36-2.27)		
		Women:			
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CRC)	1.64 (0.89-3.05)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (CC)	1.83 (0.85-3.93)		
		Total cholesterol $\geq 240$ vs. $< 160$ mg/dl (RC)	1.36 (0.49-3.79)		
Ahn et al [28], 2009, Finland, CS	507/29,093 (50-69y), 18y	Men:			Age, intervention, level of education, systolic blood pressure, BMI, physical activity, duration of smoking, number of cigarettes smoked per day, saturates fat intake, polyunsaturated fat intake, total calorie, alcohol consumption, and serum total and HDL cholesterol for each other
		Total cholesterol $> 276.7$ vs. $< 203.9$ mg/dl (CRC)	0.86 (0.65-1.13)		
		HDL cholesterol $> 55.3$ vs. $< 36.2$ mg/dl (CRC)	1.01 (0.76-1.35)		
Ahmed et al [20]*, 2006, USA, CS	194/14,109 (45-64y), 11.5y	All:			Age, gender, family history of colorectal cancer, physical activity, non-steroidal anti-inflammatory drug use, NSAID use, aspirin use, pack-years of cigarette use, and grams of alcohol per week. Also adjusted for hormone-replacement therapy in women
		Triglycerides $\geq 150$ vs. $< 150$ mg/dl (CRC)	1.08 (0.8-1.5)		
		HDL cholesterol High vs. Low (CRC)	0.84 (0.63-1.12)		

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**Supplementary Table S2 (Continued)**

<b>First author, publication year (reference), Country, Type</b>	<b>Cases/subject (age), duration of follow up</b>	<b>Exposure categories</b>	<b>RR/HR (95%CI)</b>	<b>Matched/Adjusted potential factors</b>
Tsushima et al [21], 2005, USA, CS	504/7619 (45-65y), 31y	Men: Triglycerides Q4 vs. Q1 (CRC) Triglycerides Q4 vs. Q1 (CC) Triglycerides Q4 vs. Q1 (RC)	1.01 (0.77-1.33) 0.92 (0.67-1.26) 1.28 (0.75-2.18)	Age, elapsed time since last caloric intake, elapsed time since 50-g glucose load, BMI, heart rate, cigarette smoking history, alcohol intake, and 24-hr intake of total calories
Saydah et al [22], 2003, USA, NC-CS	173/519 (≥18y), 12y	All: Triglycerides Q4 vs. Q1 (CRC)	0.69 (0.41-1.16)	Age, sex, race, time since last meal, and date of blood draw
Schoen et al [23], 1999, USA, CS	102/5849 (≥65y), 6.4y	All: Triglycerides Q4 vs. Q1 (CRC) HDL cholesterol Q4 vs. Q1 (CRC) LDL cholesterol Q4 vs. Q1 (CRC)	1.4 (0.8-2.5) 0.6 (0.3-1.2) 0.5 (0.3-0.9)	Age, sex, and physical activity
Tulinius et al [15]**, 1997, Iceland, CS	338/22,946 (mean, 50.4y), 27y	Men: Triglycerides T3 vs. T1 (CRC) Total cholesterol T3 vs. T1 (CRC) Women: Triglycerides T3 vs. T1 (CRC) Total cholesterol T3 vs. T1 (CRC)	1.39 (1.13-1.71) 1.32 (1.07-1.62) 1.35 (1.06-1.72) 1.33 (1.05-1.70)	Age

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**Supplementary Table S2 (Continued)**

First author, publication year (reference), Country, Type	Cases/subject (age), duration of follow up	Exposure categories	RR/HR (95%CI)	Matched/Adjusted potential factors	
Gaard et al [29], 1997, Norway, CS	338/62,173 (20-49y), 14y	Men:			Age and attained age, BMI, height, smoking status, and menopausal status
		HDL cholesterol $\geq 1.66$ vs. $\leq 1.19$ mmol/L (CC)	0.99 (0.58-1.68)		
		HDL cholesterol $\geq 1.66$ vs. $\leq 1.19$ mmol/L (RC)	0.87 (0.41-1.86)		
		LDL cholesterol $\geq 4.65$ vs. $\leq 3.17$ mmol/L (CC)	0.99 (0.56-1.74)		
		LDL cholesterol $\geq 4.65$ vs. $\leq 3.17$ mmol/L (RC)	1.17 (0.52-2.64)		
		Women:			
		HDL cholesterol $\geq 1.66$ vs. $\leq 1.19$ mmol/L (CC)	1.23 (0.61-2.45)		
		HDL cholesterol $\geq 1.66$ vs. $\leq 1.19$ mmol/L (RC)	0.73 (0.35-1.53)		
Chyou et al [34], 1996, USA, CS	453/7945 (45-65y), 28y	Men:			Age
		Total cholesterol $\geq 240$ vs. $< 200$ mg/dl (CC)	0.74 (0.56-0.97)		
		Total cholesterol $\geq 240$ vs. $< 200$ mg/dl (RC)	1.10 (0.68-1.79)		
Schatzkin et al [35]*, 1988, USA, CS	130/12,488 (25-74y), 10y	Men:			Age, education, BMI, smoking, alcohol, fat as a percentage of calories, dietary fiber, age at first birth (women), age at menarche (women), parity (women), and cholesterol
		Total cholesterol $\geq 246$ vs. $\leq 189$ mg/dl (CRC)	0.59 (0.27-1.27)		
		Women: Total cholesterol $> 252$ vs. $< 186$ mg/dl (CRC)	1.00 (0.33-3.00)		

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**Supplementary Table S2 (Continued)**

<b>First author, publication year (reference), Country, Type</b>	<b>Cases/subject (age), duration of follow up</b>	<b>Exposure categories</b>	<b>RR/HR (95%CI)</b>	<b>Matched/Adjusted potential factors</b>	
Tomberg et al [27], 1986, Sweden, CS	839/92,898 (≤75y), 16y	Men:			Age
		Total cholesterol ≥276 vs. ≤224 mg/dl (CC)	1.17 (0.81-1.68)		
		Total cholesterol ≥276 vs. ≤224 mg/dl (RC)	1.65 (1.05-2.57)		
		Women:			
		Total cholesterol ≥276 vs. ≤224 mg/dl (CC)	1.23 (0.84-1.81)		
		Total cholesterol ≥276 vs. ≤224 mg/dl (RC)	1.23 (0.64-2.34)		
Sidney et al [36], 1986, USA, NC-CS	245/1,470 (mean, 64.6y), 14y	All: Total cholesterol Q4 vs. Q1 (CRC)	1.2 (0.8 -1.8)	Age, sex, race, and multiphasic checkup at the same facility	

BMI: body mass index; CC: colon cancer; C-CS: case-control study; CI: confidence interval; CRC: colorectal cancer; CS: cohort study; HDL: high density lipoprotein; HR: hazards ratio; LDL: low density lipoprotein; NC-CS: nested case-control study; N/A: not available; RC: rectal cancer; RR: relative risk.

\* Recalculate the RR by the method proposed by Hamling et al.

\*\* Recalculate the RR by the method proposed by Xu et al.

**Supplementary Table S3.** Study quality scores of prospective studies included in the meta-analysis

First author, publication year [reference]	Representativeness of the exposed cohort	Selection of the unexposed cohort	Ascertainment of exposure	Outcome of interest not present at start of study	Control for important factor or additional factor*	Assessment of outcome	Follow-up long enough for outcomes to occur**	Adequacy of follow-up of cohorts***	Total quality scores
Li [16], 2019	★	★	★	★	★	★	★	★	9
Katzke [17], 2017	★	★	★	★	★★	★	★	★	9
Chandler [11], 2016	★	★	★	★	★★	★	★	★	9
Muka [24], 2016	★	★	★	★	★★	★	★	★	9
Lu [12], 2015	★	★	★	★	★★	★	★	★	9
Agnoli [18], 2014	★	★	★	★	★★	★	★	★	9
Shin [25], 2014	★	★	★	★	★	★	★	—	8
Strohmaier [37], 2013	★	★	★	★	★★	★	★	★	9
Van Duijnhoven [19], 2011	★	★	★	★	★★	★	—	★	8
Borena [13], 2011	★	★	★	★	★★	★	★	★	9
Kitahara [26], 2011	★	★	—	★	★★	★	★	★	8
Inoue [14], 2009	★	★	★	★	★	★	★	★	8
Iso [38], 2009	★	★	★	★	★★	★	★	★	9
Ahn [28], 2009	★	★	★	★	★★	★	★	★	9
Ahmed [20], 2006	★	★	★	★	★	★	★	★	8
Tsushima [21], 2005	★	★	★	★	★★	★	★	★	9
Saydah [22], 2003	★	★	★	★	—	★	★	★	7
Schoen [23], 1999	★	★	★	★	—	★	—	★	6
Tulinius [15], 1997	★	★	—	★	—	★	★	—	5
Gaard [29], 1997	★	★	★	★	★★	★	★	★	9

Chyou [34], 1996	★	★	★	★	—	★	★	★	7
Schatzkin [35], 1988	★	★	★	★	★★	★	★	★	9
Tornberg [27], 1986	★	★	★	★	—	★	★	—	6
Sidney [36], 1986	★	★	★	★	★	★	★	★	8

\* Studies that controlled for body mass index received one star, whereas studies that controlled for other important confounders such as cigarette smoking, alcohol drinking, received an additional star.

\*\* The study with a follow-up time >10 y was assigned one star.

\*\*\* The study with a follow-up rate >75% was assigned one star.

**Supplementary Table S4.** Subgroup analysis of the correlation between total cholesterol concentrations and colorectal cancer risk

	No. of studies	Summary RR (95% CIs)	I <sup>2</sup> Value (%)	P <sub>h</sub> *	P <sub>h</sub> **
<b>Overall</b>					
Colorectal cancer	15	1.15 (1.08-1.22)	36.8	0.017	
Colon cancer	7	1.08 (0.98-1.19)	44.1	0.057	
Rectal cancer	7	1.15 (1.05-1.26)	19.4	0.259	
<b>Subgroup analyses</b>					
Study quality					0.679
Medium	3	1.18 (0.99-1.41)	54.7	0.031	
High	12	1.14 (1.06-1.21)	31.3	0.062	
Number of cases					0.805
< 338	7	1.32 (1.14-1.52)	0	0.532	
≥ 338	8	1.11 (1.04-1.20)	46.6	0.010	
Follow-up years					0.416
< 13	6	1.12 (1.05-1.19)	20.0	0.206	
≥ 13	9	1.22 (1.07-1.40)	51.2	0.012	
Geographic location					0.143
North America	4	0.96 (0.76-1.21)	33.5	0.185	
Europe	8	1.20 (1.06-1.36)	49.7	0.011	
Asia	3	1.14 (1.08-1.20)	0	0.717	
Gender					0.107
Male	9	1.10 (0.99-1.23)	49.2	0.016	
Female	8	1.22 (1.11-1.34)	0	0.962	
<b>Adjustment for confounders</b>					
Body mass index					0.553
Yes	10	1.13 (1.04-1.22)	32.5	0.064	
No	5	1.18 (1.06-1.31)	45.0	0.052	
Alcohol drinking					0.196
Yes	9	1.11 (1.01-1.23)	40.3	0.033	
No	6	1.18 (1.09-1.28)	28.2	0.147	
Cigarette smoking					0.553
Yes	10	1.13 (1.04-1.22)	32.5	0.064	
No	5	1.18 (1.06-1.31)	45.0	0.052	
Physical activity					0.304
Yes	7	1.10 (0.98-1.23)	57.0	0.008	
No	8	1.18 (1.10-1.27)	13.8	0.273	
Dietary factors					0.634
Yes	8	1.13 (0.94-1.37)	51.8	0.008	
No	7	1.15 (1.09-1.21)	19.2	0.220	
Two aforementioned confounders					0.553
Yes	10	1.13 (1.04-1.22)	32.5	0.064	
No	5	1.18 (1.06-1.31)	45.0	0.052	
Three aforementioned confounders					0.348
Yes	9	1.11 (1.01-1.23)	40.3	0.033	
No	6	1.18 (1.09-1.28)	28.2	0.147	

CI: confidence interval; N/A: not available; RR: relative risk;

\*P value for heterogeneity within each subgroup.

\*\*P value for heterogeneity between subgroups with meta-regression analysis.

**Supplementary Table S5.** Subgroup analysis of the correlation between high-density lipoprotein cholesterol concentrations and colorectal cancer risk

	No. of studies	Summary RR (95% CIs)	I <sup>2</sup> Value (%)	P <sub>h</sub> *	P <sub>h</sub> **
<b>Overall</b>					
Colorectal cancer	11	0.86 (0.77-0.97)	28.8	0.117	
Colon cancer	3	0.85 (0.55-1.30)	70.8	0.008	
Rectal cancer	3	0.89 (0.65-1.22)	0	0.409	
<b>Subgroup analyses</b>					
Study quality					0.351
Medium	1	0.60 (0.30-1.20)	N/A	N/A	
High	10	0.87 (0.77-0.98)	29.1	0.120	
Number of cases					0.770
< 338	6	0.88 (0.75-1.04)	9.3	0.357	
≥ 338	5	0.84 (0.70-1.01)	47.7	0.054	
Follow-up years					0.273
< 13	5	0.79 (0.62-1.01)	52.2	0.033	
≥ 13	6	0.93 (0.85-1.01)	0	0.763	
Geographic location					0.421
North America	3	0.75 (0.60-0.94)	0	0.447	
Europe	6	0.87 (0.73-1.02)	38.9	0.090	
Asia	2	0.96 (0.75-1.23)	9.6	0.351	
Gender					0.476
Male	4	0.98 (0.80-1.21)	0	0.543	
Female	4	0.88 (0.71-1.09)	0	0.478	
<b>Adjustment for confounders</b>					
Body mass index					0.701
Yes	7	0.84 (0.71-0.99)	42.1	0.061	
No	4	0.89 (0.74-1.07)	4.6	0.392	
Alcohol drinking					0.196
Yes	9	0.86 (0.74-0.98)	42.9	0.045	
No	2	0.88 (0.65-1.18)	0	0.645	
Cigarette smoking					0.351
Yes	10	0.87 (0.77-0.98)	29.1	0.120	
No	1	0.60 (0.30-1.20)	N/A	N/A	
Physical activity					0.249
Yes	8	0.80 (0.68-0.96)	53.0	0.024	
No	3	0.96 (0.80-1.16)	0	0.700	
Dietary factors					0.242
Yes	5	0.77 (0.58-1.02)	60.6	0.019	
No	5	0.92 (0.85-1.00)	0	0.747	
Two aforementioned confounders					0.351
Yes	10	0.87 (0.77-0.98)	29.1	0.120	
No	1	0.60 (0.30-1.20)	N/A	N/A	
Three aforementioned confounders					0.409
Yes	7	0.82 (0.69-0.97)	55.4	0.022	
No	4	0.93 (0.78-1.12)	0	0.619	

CI: confidence interval; N/A: not available; RR: relative risk;

\*P value for heterogeneity within each subgroup.

\*\*P value for heterogeneity between subgroups with meta-regression analysis.

**Supplementary Table S6.** Subgroup analysis of the correlation between low-density lipoprotein cholesterol concentrations and colorectal cancer risk

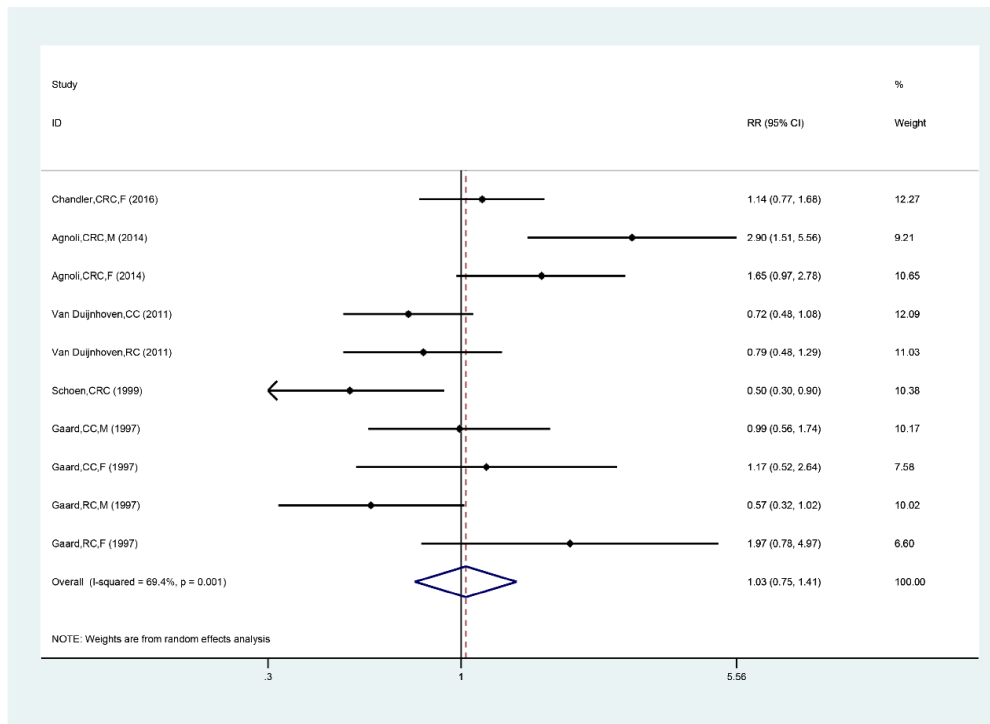
	No. of studies	Summary RR (95% CIs)	I <sup>2</sup> Value (%)	P <sub>h</sub> *	P <sub>h</sub> **
<b>Overall</b>					
Colorectal cancer	5	1.03 (0.75-1.41)	69.4	0.001	
Colon cancer	2	0.85 (0.62-1.15)	0	0.469	
Rectal cancer	2	0.87 (0.49-1.55)	59.6	0.084	
<b>Subgroup analyses</b>					
Study quality					N/A
Medium	1	0.50 (0.29-0.87)	N/A	N/A	
High	4	1.11 (0.81-1.53)	65.3	0.003	
Number of cases					N/A
< 338	3	1.26 (0.67-2.40)	83.6	0.000	
≥ 338	2	0.84 (0.64-1.11)	23.4	0.258	
Follow-up years					0.062
< 13	2	0.68 (0.52-0.89)	0	0.442	
≥ 13	3	1.28 (0.88-1.87)	63.3	0.012	
Geographic location					N/A
North America	2	0.77 (0.35-1.73)	82.6	0.017	
Europe	3	1.12 (0.77-1.63)	69.4	0.002	
Asia	0	N/A	N/A	N/A	
Gender					N/A
Male	2	1.17 (0.47-2.87)	85.3	0.001	
Female	3	1.33 (1.01-1.76)	0	0.566	
<b>Adjustment for confounders</b>					
Body mass index					N/A
Yes	4	1.11 (0.81-1.53)	65.3	0.003	
No	1	0.50 (0.29-0.87)	N/A	N/A	
Alcohol drinking					N/A
Yes	3	1.20 (0.78-1.87)	76.1	0.002	
No	2	0.84 (0.54-1.32)	56.2	0.058	
Cigarette smoking					N/A
Yes	4	1.11 (0.81-1.53)	65.3	0.003	
No	1	0.50 (0.29-0.87)	N/A	N/A	
Physical activity					N/A
Yes	4	1.05 (0.68-1.62)	78.9	0.000	
No	1	0.98 (0.61-1.58)	N/A	N/A	
Dietary factors					N/A
Yes	3	1.20 (0.78-1.87)	76.1	0.002	
No	2	0.84 (0.54-1.32)	56.2	0.058	
Two aforementioned confounders					N/A
Yes	4	1.11 (0.81-1.53)	65.3	0.003	
No	1	0.50 (0.29-0.87)	N/A	N/A	
Three aforementioned confounders					N/A
Yes	3	1.20 (0.78-1.87)	76.1	0.002	
No	2	0.84 (0.54-1.32)	56.2	0.058	

CI: confidence interval; N/A: not available; RR: relative risk;

\*P value for heterogeneity within each subgroup.

\*\*P value for heterogeneity between subgroups with meta-regression analysis.





Supplementary Figure 1 Forest plots on the association between low-density lipoprotein cholesterol concentrations and colorectal cancer risk