Supplementary Table 1 Number of surveillance endoscopies and various interval between the first index and first surveillance endoscopy for different major comparison groups

	No polyp	All conventional adenoma	Non-advanced conventional adenoma	Advanced conventional adenoma	All serrated polyp	Small serrated polyp	Large serrated polyp
Number of surveillance endoscopies							
0	24%	9%	9%	9%	10%	11%	11%
1	28%	20%	20%	20%	21%	21%	23%
2	19%	22%	23%	20%	22%	21%	25%
>2	29%	48%	47%	51%	47%	47%	41%
Having had at least one surveillance endoscopy							
By 4 years	28%	59%	59%	60%	54%	54%	54%
By 6 years	42%	73%	73%	72%	69%	68%	67%
By 8 years	49%	76%	76%	76%	74%	73%	70%
By 10 years	54%	77%	77%	77%	76%	75%	72%

Supplementary Table 2 Polyp subtypes diagnosed at the first endoscopy and subsequent risk of CRC in the three cohorts (NHS [1990-2012], NHS2 [1989-2013] and HPFS [1990-2012]) [a]

	No. of participants	No. of colorectal cancer cases	Model 1 [b]	P	Model 2 [c]	P	Model 3 [d]	P
Non-polyp group	112107	427	1(ref)		1(ref)		1(ref)	
Conventional adenomas								
Proximal colon	1975	10	1.44 (0.76-2.70)	0.26	1.35 (0.72-2.53)	0.36	2.15 (1.13-4.06)	0.02
Distal colon	2448	24	2.02 (1.34-3.05)	0.001	1.83 (1.21-2.77)	0.004	2.69 (1.77-4.09)	<0.001
Rectum	763	4	1.26 (0.47-3.37)	0.65	1.17 (0.44-3.14)	0.76	1.77 (0.66-4.76)	0.26
$P_{interaction}$			0.69		0.83		0.91	

Abbreviations: CRC, colorectal cancer; NHS, the Nurses' Health Study; NHS2, the Nurses' Health Study 2; HPFS, the Health Professionals Follow-up Study; HR, hazard ratio; CI, confidence interval.

[a] Advanced conventional adenomas were defined as at least one conventional adenoma of ≥10 mm in diameter or with advanced histology (tubulovillous/villous histological features or high grade or severe dysplasia), otherwise were defined as non-advanced conventional adenomas.

[b] Model 1 was adjusted by age at first endoscopy, study cohort (NHS, NHS2, HPFS), and year of first endoscopy (continuous).

[c] Model 2 was further adjusted for reason for the first endoscopy (routine screening or symptom), family history of colorectal cancer (yes or no), pack-year of smoking (continuous), body mass index (continuous), physical activity (<7.5, 7.5-14.9, 15-29.9, and ≥30 MET-hours/week), alcohol intake (no drinking, <3.5, 3.5-6.9, and ≥7.0 g/day for women; no drinking, <7.0, 7.0-13.9, or ≥14.0 g/day for men), and regular aspirin use (yes or no).

[d] Model 3 was additionally adjusted for number of surveillance endoscopies (0, 1, 2, >2), based on model 2.

Supplementary Table 3 Polyp subtypes diagnosed at the first endoscopy and subsequent risk of CRC in the three cohorts (NHS [1990-2012], NHS2 [1989-2013] and HPFS [1990-2012])

	Non-polyp group	Synchronous conventional adenomas and serrated polyps
No. of participants	112107	1287
No. of colorectal cancer cases	427	11
Model 1 [a]	1 (ref)	2.06 (1.12-3.75)
P		0.02
Model 2 [b]	1 (ref)	1.79 (0.98-3.28)
P		0.06
Model 3 [c]	1 (ref)	2.69 (1.46-4.93)
P		0.002

Abbreviations: CRC, colorectal cancer; NHS, the Nurses' Health Study; NHS2, the Nurses' Health Study 2; HPFS, the Health Professionals Follow-up Study; HR, hazard ratio; CI, confidence interval.

[a] Model 1 was adjusted by age at first endoscopy, study cohort (NHS, NHS2, HPFS), and year of first endoscopy (continuous).

[b] Model 2 was further adjusted for reason for the first endoscopy (routine screening or symptom), family history of colorectal cancer (yes or no), pack-year of smoking (continuous), body mass index (continuous), physical activity (<7.5, 7.5-14.9, 15-29.9, and ≥30 MET-hours/week), alcohol intake (no drinking, <3.5, 3.5-6.9, and ≥7.0 g/day for women; no drinking, <7.0, 7.0-13.9, or ≥14.0 g/day for men), and regular aspirin use (yes or no).

[c] Model 3 was additionally adjusted for number of surveillance endoscopies (0, 1, 2, >2), based on model 2.

Supplementary table 4 Polyp subtypes diagnosed at the first colonoscopy and subsequent risk of CRC in the three cohorts (NHS [1990-2012], NHS2 [1989-2013] and HPFS [1990-2012]) [a]

	No. of participants	No. of colorectal cancer cases	Model 1 [b]	P	Model 2 [c]	P	Model 3 [d]	P
Non-polyp group	73913	162	1(ref)		1(ref)		1(ref)	
Conventional adenomas	5233	35	1.93 (1.33-2.80)	0.001	1.84 (1.27-2.68)	0.001	3.17 (2.15-4.68)	<0.001
Non-advanced adenomas	3217	8	0.84 (0.41-1.72)	0.64	0.81 (0.40-1.66)	0.57	1.33 (0.65-2.75)	0.43
Advanced adenomas	2016	27	3.15 (2.07-4.77)	<0.001	2.98 (1.96-4.54)	<0.001	5.44 (3.52-8.41)	<0.001
Serrated polyps	5058	15	1.08 (0.63-1.84)	0.78	1.02 (0.59-1.73)	0.96	1.55 (0.90-2.67)	0.11
<10 mm serrated polyps	4283	11	0.94 (0.51-1.73)	0.84	0.89 (0.48-1.65)	0.71	1.37 (0.73-2.55)	0.33
≥10 mm serrated polyps	511	4	3.19 (1.18-8.62)	0.02	3.00 (1.10-8.13)	0.03	5.03 (1.84-13.8)	0.002

Abbreviations: CRC, colorectal cancer; NHS, the Nurses' Health Study; NHS2, the Nurses' Health Study 2; HPFS, the Health Professionals Follow-up Study; HR, hazard ratio; CI, confidence interval.

[a] Advanced conventional adenomas were defined as at least one conventional adenoma of ≥10 mm in diameter or with advanced histology (tubulovillous/villous histological features or high grade or severe dysplasia), otherwise were defined as non-advanced conventional adenomas.

[b] Model 1 was adjusted by age at first endoscopy, study cohort (NHS, NHS2, HPFS), and year of first endoscopy (continuous).

[c] Model 2 was further adjusted for reason for the first endoscopy (routine screening or symptom), family history of colorectal cancer (yes or no), pack-year of smoking (continuous), body mass index (continuous), physical activity (<7.5, 7.5-14.9, 15-29.9, and ≥30 MET-hours/week), alcohol intake (no drinking, <3.5, 3.5-6.9, and ≥7.0 g/day for women; no drinking, <7.0, 7.0-13.9, or ≥14.0 g/day for men), and regular aspirin use (yes or no), based on Model 1.

[d] Model 3 was additionally adjusted for number of surveillance endoscopies (0, 1, 2, >2), based on model 2.

Supplementary Table 5 Polyp subtypes diagnosed at the first endoscopy with indication for screening and subsequent risk of CRC in the three cohorts (NHS [1990-2012], NHS2 [1989-2013] and HPFS [1990-2012]) [a]

	No. of participants	No. of colorectal cancer cases	Model 1 [b]	P	Model 2 [c]	P	Model 3 [d]	P
Non-polyp group	74618	254	1(ref)		1(ref)		1(ref)	
Conventional adenomas	3799	25	1.95 (1.29-2.96)	0.002	1.77 (1.17-2.69)	0.007	2.75 (1.80-4.22)	<0.001
Non-advanced adenomas	2458	9	1.26 (0.65-2.47)	0.49	1.17 (0.60-2.28)	0.65	1.78 (0.91-3.50)	0.09
Advanced adenomas	1341	16	2.82 (1.69-4.70)	<0.001	2.51 (1.50-4.19)	<0.001	4.00 (2.37-6.72)	<0.001
Serrated polyps	3824	12	1.13 (0.63-2.03)	0.67	1.00 (0.56-1.80)	0.99	1.50(0.83-2.70)	0.18
<10 mm serrated polyps	3248	10	1.14 (0.60-2.15)	0.69	1.02 (0.54-1.92)	0.96	1.53 (0.81-2.91)	0.19
≥10 mm serrated polyps	373	1	1.04 (0.15-7.43)	0.97	0.88 (0.12-6.30)	0.90	1.24 (0.17-8.93)	0.83

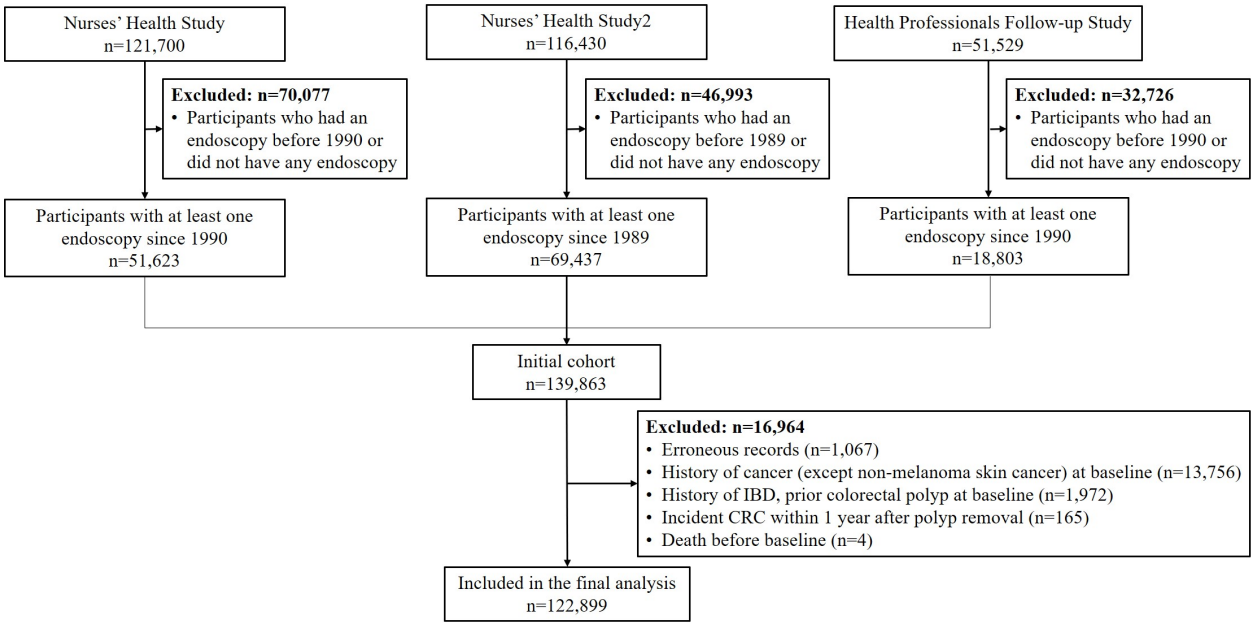
Abbreviations: CRC, colorectal cancer; NHS, the Nurses' Health Study; NHS2, the Nurses' Health Study 2; HPFS, the Health Professionals Follow-up Study; HR, hazard ratio; CI, confidence interval.

[a] Advanced conventional adenomas were defined as at least one conventional adenoma of ≥10 mm in diameter or with advanced histology (tubulovillous/villous histological features or high grade or severe dysplasia), otherwise were defined as non-advanced conventional adenomas.

[b] Model 1 was adjusted by age at first endoscopy, study cohort (NHS, NHS2, HPFS), and year of first endoscopy (continuous).

[c] Model 2 was further adjusted for family history of colorectal cancer (yes or no), pack-year of smoking (continuous), body mass index (continuous), physical activity (<7.5, 7.5-14.9, 15-29.9, and ≥30 MET-hours/week), alcohol intake (no drinking, <3.5, 3.5-6.9, and ≥7.0 g/day for women; no drinking, <7.0, 7.0-13.9, or ≥14.0 g/day for men), and regular aspirin use (yes or no), based on Model 1.

[d] Model 3 was additionally adjusted for number of surveillance endoscopies (0, 1, 2, >2), based on model 2.


Nurses' Health Study
n=121,700
Excluded: n=70,077
• Participants who had an endoscopy before 1990 or did not have any endoscopy
Participants with at least one endoscopy since 1990
n=51,623
Nurses' Health Study2
n=116,430
Excluded: n=46,993
• Participants who had an endoscopy before 1989 or did not have any endoscopy
Participants with at least one endoscopy since 1989
n=69,437
Health Professionals Follow-up Study
n=51,529
Excluded: n=32,726
• Participants who had an endoscopy before 1990 or did not have any endoscopy
Participants with at least one endoscopy since 1990
n=18,803
Initial cohort
n=139,863
Excluded: n=16,964
• Erroneous records (n=1,067)
• History of cancer (except non-melanoma skin cancer) at baseline (n=13,756)
• History of IBD, prior colorectal polyp at baseline (n=1,972)
• Incident CRC within 1 year after polyp removal (n=165)
• Death before baseline (n=4)
Included in the final analysis
n=122,899