

Highlights 2024

Kolorektales Karzinom (CRC) Kolonpolypen

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Themen

- Stuhltests: Was gibt es Neues?
- Liquid Biopsy
- Abführen
- Künstliche Intelligenz
- Polypektomie
- Rektumkarzinom

Neue Stuhl-Tests

DNA Stuhl-Test vs. FIT

NEJM 2024
20,176 Personen (63 Jahre)

NEXT Generation

RNA Stuhl-Test vs. FIT

JAMA 2023
8,920 Personen (53 Jahre)

...und andere: z.B. Syndecan-2 Methylation Test

Gastroenterology 2024;167:611–614

FIT vs Stuhl DNA Test

Imperiale et. al NEJM 2024

20,176 Personen (63 Jahre):

- FIT Test OC-Auto-FIT ($>20 \mu\text{g}$ / g Stuhl)
- Next Generation DNA Test
- Coloskopie (Referenz)

	Colo	DNA	FIT
Karzinome:	98	94%	67%
HGD:	82	75%	47%
Advanced Ad.:	2144	43%	23%

FIT vs Stuhl RNA Test

Barnell et. al JAMA 2023

8920 Personen (53 Jahre):

- FIT Test OC-Auto-FIT
- Stuhl mt-sRNA Test
- Coloskopie (Referenz)

	Coloskopie	RNA	FIT
Karzinome:	36	94%	78%
Advanced Neo.:	606	46%	29%

Cut off >20 µg/g Stuhl

Brenner et. al JAMA 2024

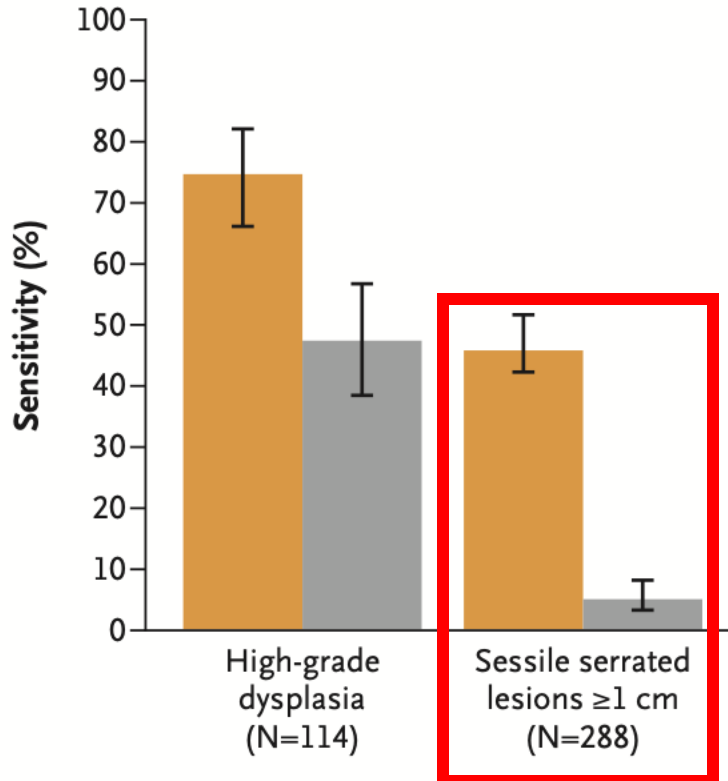
BLITZ Studie (D):

FIT Cut-off: 8.83 µg/g Stuhl

Coloskopie	FIT
59	94%
795	45%

FIT vs Stuhl DNA Test: SSL

Imperiale et. al NEJM 2024



Noch besser: FIT+Stool DNA
Meta-analyse
Garg et. al Endosc Int Open 2024

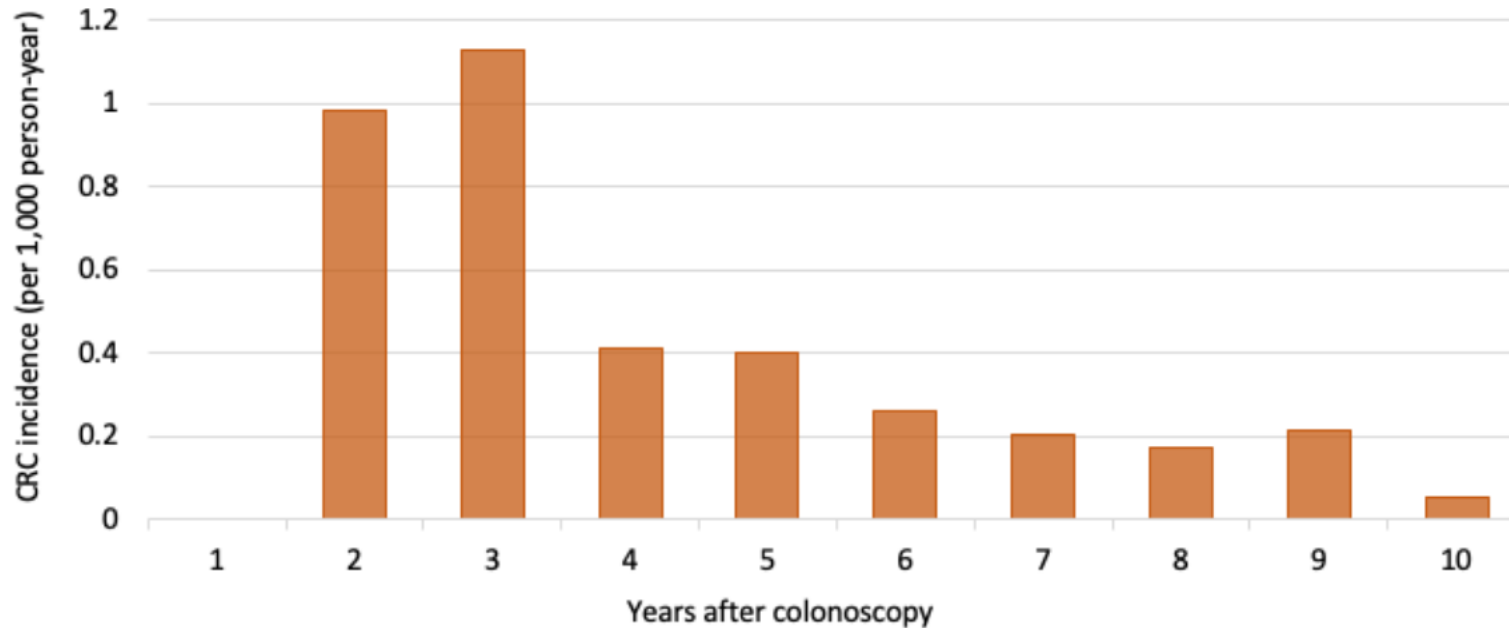
Stuhl-Test: Was heisst das für den Patienten ?

- Der Test entdeckt 85-95% der Karzinome
- Der Test entdeckt 50% der Polypen
- In 8-15-25% der positiven Tests: Coloskopie negativ

Positiver Stuhltest, negative Coloskopie: was tun?

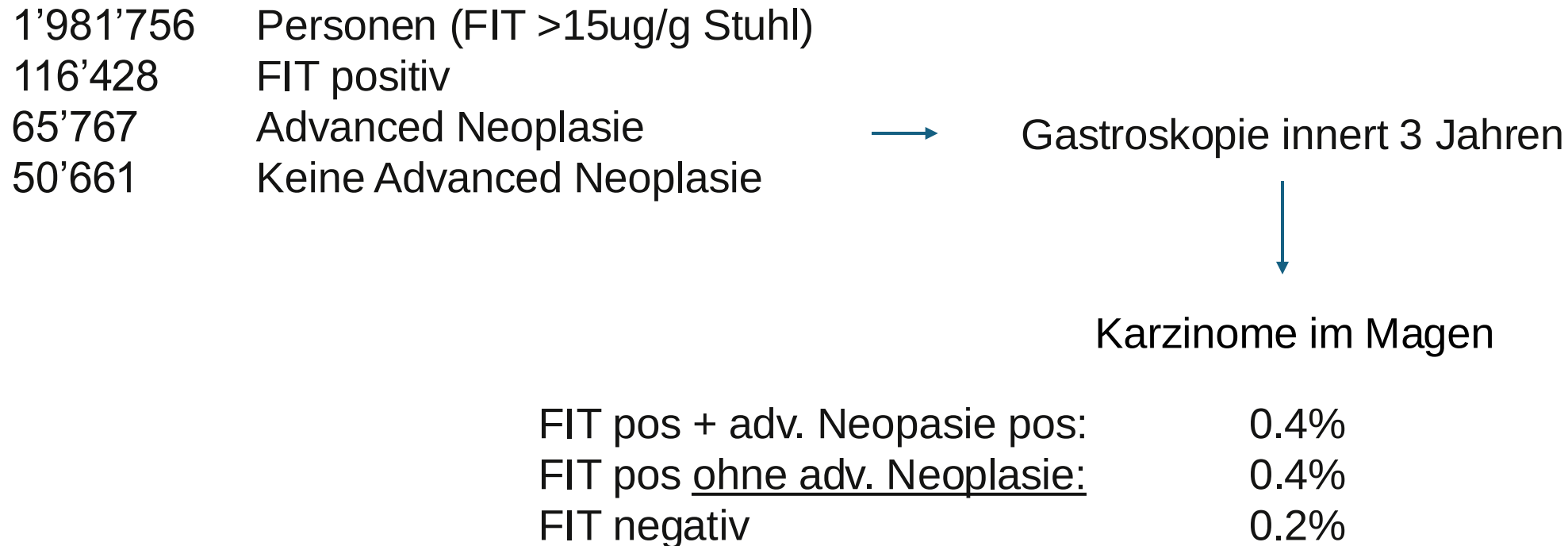
Peng S- M, et al. Gut 2020;0:1–7

32'000 pos FIT → 9'000 neg Colo (28%) → FIT nach 1J, 2J,... → 11% pos (9% CRC)



Pos. Stuhltest – Neg. Coloskopie: Gastroskopie?

De Klaver et al. Gastroenterology 2024



Problem: niedrige Akzeptanz der Stuhltests

Levine et al. Annals of Internal Medicine 2024:

213'928 FIT Kits für 45-49 jährige Kaiser permanente Patienten:

39% Teilnahme

65% der positiven Personen Coloskopie

**Blutprobe (Liquid biopsy)
statt Stuhlprobe ?**

NOW FDA APPROVED
FOR COLON CANCER SCREENING



It's finally here

The more **PLEASANT WAY** to screen for colon cancer

Get screened with a blood test
— It's that simple

[Get started with Shield](#) →[For Healthcare Professionals](#) →

Liquid Biopsy für CRC

Desai et al. Gastroenterology 2023 (USA)

Serum Glycoproteome Profiling

247 CRC, 32 AA and 296 control

- Sensitivity CRC : 89%
- Sensitivität AA: 91%
- Spezifität: 89%

IN DEVELOPMENT

DETECT EARLY WARNING SIGNS OF COLON CANCER WITH GLYCOKNOW™ COLON

GlycoKnow Colon is a blood-based laboratory-developed test (LDT) designed to assess the presence of adenomas with high-grade dysplasia or colorectal cancer by harnessing the power of the immune system.



1 IN 3 PEOPLE

are not screened as recommended

COLORECTAL CANCER SCREENING RATES REMAIN LOW¹

Colorectal cancer (CRC) is the second leading cause of cancer death in the United States, leading to over 50,000 deaths annually. With appropriate and timely screening, CRC is highly preventable and treatable, and early detection is critical to improving patient outcomes.

Unfortunately, screening rates remain below national targets, exacerbated by the lack of convenient and effective options for patients.

Liquid Biopsy für Krebs

Bryce et al. Precision Oncology 2023 (USA)

Whole Genome Methylation Test (Galeri®, Grail)
2,036 cancer and 1,472 noncancer participants:
Sensitivity: 99.8%
Spezifität: 64.3%

Multiple primaries	All	2/2	100.0 (34.2 to 100.0)	2/2	100.0 (34.2 to 100.0)
Unknown primary	All	1/1	100.0 (5.1 to 100.0)	2/2	100.0 (34.2 to 100.0)
Cervix	All	19/20	95.0 (76.4 to 99.7)	3/3	100.0 (43.9 to 100.0)
Liver/bile duct	All	43/46	93.5 (82.5 to 97.8)	5/6	83.3 (43.6 to 99.1)
Colon/rectum	All	135/157	86.0 (79.7 to 90.6)	9/11	81.8 (52.3 to 94.9)
Head and neck	All	90/105	85.7 (77.8 to 91.1)	3/3	100.0 (43.9 to 100.0)
Esophagus	All	85/100	85.0 (76.7 to 90.7)	—	—
Anus	All	17/20	85.0 (64.0 to 94.8)	—	—
Pancreatic	All	113/135	83.7 (76.6 to 89.0)	11/13	84.6 (57.8 to 95.7)
Ovary	All	54/65	83.1 (72.2 to 90.3)	23/28	82.1 (64.4 to 92.1)
Urothelial tract	All	8/10	80.0 (49.0 to 94.3)	2/2	100.0 (34.2 to 100.0)
Lung	All	264/342	77.2 (72.5 to 81.3)	25/42	59.5 (44.5 to 73.0)
Plasma cell neoplasm	All	34/47	72.3 (58.2 to 83.1)	6/6	100.0 (61.0 to 100.0)
Gallbladder	All	12/17	70.6 (46.9 to 86.7)	2/2	100.0 (34.2 to 100.0)
Stomach	All	20/30	66.7 (48.8 to 80.8)	0/1	0.0 (0.0 to 94.9)
Sarcoma	All	18/30	60.0 (42.3 to 75.4)	2/5	40.0 (11.8 to 76.9)
Lymphoma	All	98/174	56.3 (48.9 to 63.5)	4/10	40.0 (16.8 to 68.7)
Breast	All	130/246	52.8 (46.6 to 59.0)	—	—
Melanoma	All	6/13	46.2 (23.2 to 70.9)	—	—
Lymphoid leukemia	All	21/51	41.2 (28.8 to 54.8)	3/6	50.0 (18.8 to 81.2)
Bladder	All	8/23	34.8 (18.8 to 55.1)	1/5	20.0 (1.0 to 62.4)
Prostate	All	10/33	30.3 (17.4 to 47.3)	2/2	100.0 (34.2 to 100.0)
Myeloid neoplasm	All	2/10	20.0 (5.7 to 51.0)	0/3	0.0 (0.0 to 56.1)
Others ^a	All	2/11	18.2 (5.1 to 47.7)	5/12	41.7 (19.3 to 68.0)
Kidney	All	18/99	18.2 (11.8 to 26.9)	6/71	8.5 (3.9 to 17.2)
Uterus	All	20/119	16.8 (11.2 to 24.5)	1/8	12.5 (0.6 to 47.1)
Thyroid	All	0/14	0.0 (0.0 to 21.5)	0/4	0.0 (0.0 to 49.0)

Go further with cancer screening

We can now treat cancer far more effectively, but we can't treat what we haven't found. And while doctors can test individually for 5 specific cancers today, more than 70% of cancer deaths are caused by cancers without recommended screening tests.^{1,2*}

*Assumes screening is available for all prostate, breast, cervical, and colorectal cancer cases and 43% of lung cancer cases (based on the estimated proportion of lung cancers that occur in screen-eligible individuals older than 40 years).



Now there's a proactive tool to screen for cancer

The Galleri test can be taken annually as a simple blood test and screens for a "fingerprint" of many of the deadliest cancers before they become symptomatic, including those with no recommended screening tests today.^{1,2,3}

About the Galleri test



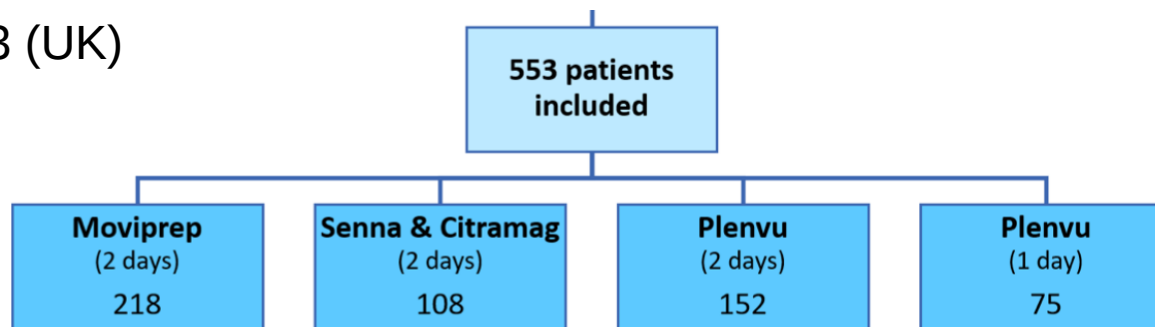
What does Galleri screen for?



The Galleri test does not detect a signal for all cancers and not all cancers can be detected in the blood. False positive and false negative results do occur. The Galleri test should be used in addition to healthcare provider recommended screening tests.

Abführen: Plenvu®

Ahmad et al. BMJ Open Gastro 2023 (UK)



Boston Bowel Preparation Scale score

Total	7.1±1.7	7.0±1.7	7.7±1.6	7.8±1.4	<0.001
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1: The bowel preparation was pleasant to taste

Disagree	26 (13%)	11 (10%)	33 (22%)	16 (23%)
Strongly disagree	30 (14%)	8 (8%)	30 (20%)	13 (18%)

7: Did you experience any side effects*?

Yes	61 (29%)	37 (35%)	64 (43%)	34 (48%)	0.01
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Abführen (Vergleich)

Theunissen et al. United European Gastroenterol J. 2023;11:448–457 (NL)

39,042 Screening Coloskopien:
4l, 2l, 1l (Pico), +/- Bisacodyl

Gemessen wurde:

- BBPS
- CIR
- ADR

Ergebnis:

- Alle gleich gut
- Bisacodyl verbessert die Ergebnisse
- ...aber erhöht Patientendiscomfort

AI und Serratierte Adenome

Maas et. al Endoscopy 2024 (NL,D,F,Rus.Can,I)

500 Personen (CADe DISCOVERY system PENTAX)

CADe in varied colonoscopy indications: an international, randomized trial

International
randomized
controlled trial

7 university &
non-university
centers

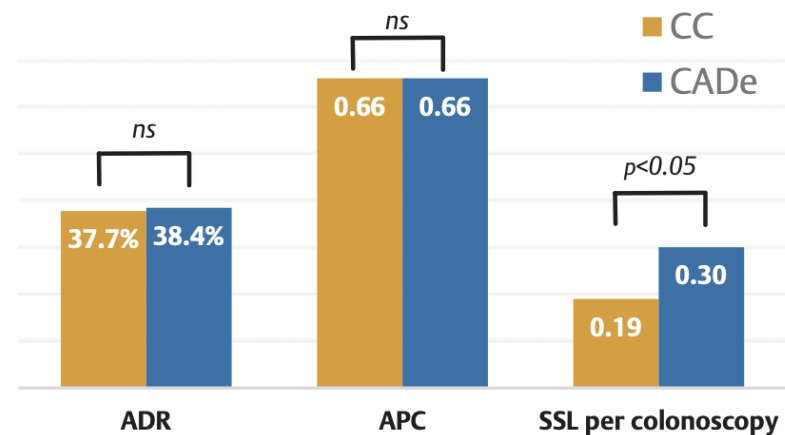
Experienced
endoscopists

Diagnostic, non-iFOBT screening and surveillance colonoscopy

N = 247
Conventional colonoscopy
(CC)

N = 250
Computer-aided detection
(CADe)

Polyp detection parameters



Conclusion: In experienced endoscopists, CADe did not result in a significant increase in ADR

Endoscopy

AI und Serratierte Adenome

Schöler et. al Endoscopy 2024 (Swe)

300 Personen (Olympus, Fuji, GI Genius))

Outcome measures	AI-C	CC
Detection rate		
ADR	53 (43%)	48 (41%)
PDR	79 (65%)	67 (57%)
PDR (<5 mm)	50 (41%)	43 (36%)
SSLDR	27 (22%)	13 (11%)

Polypektomie

- EMR
 - Heiss mit Unterspritzen
 - Cold in toto
 - Cold piecemeal
 - Cold mit Unterspritzen
 - Unterwasser kalt
 - Unterwasser heiss
- EFTR
- Hybrid EFTR
- ESD

- Dünner Draht
- Dicker Draht
- Monofil
- Geflochten
- NaCl
- Kolloid
- +/-Adrenalin
- Indigokarmin

- Rand APC
- Rand Schlingenspitze
- Basis APC
- Hemoclipverschluss
- Naht

Colon: EMR oder ESD ?

Jacques et al. Ann Intern Med. 2024;177:29-38 (F)

360 patients:

Randomisiert:

ESD (178) or EMR (182)

6 Zentren

Polypen Grösse: 4 cm

Frage:

- Rezidivraten
- Komplikationen

PATHOLOGIEN:

- HGD 50% (5 Karzinome)
- LGD 30%
- SSL 7%

Colon-EMR vs. ESD: Ergebnisse

Jacques et al. Ann Intern Med. 2024;177:29-38

Rezidivraten

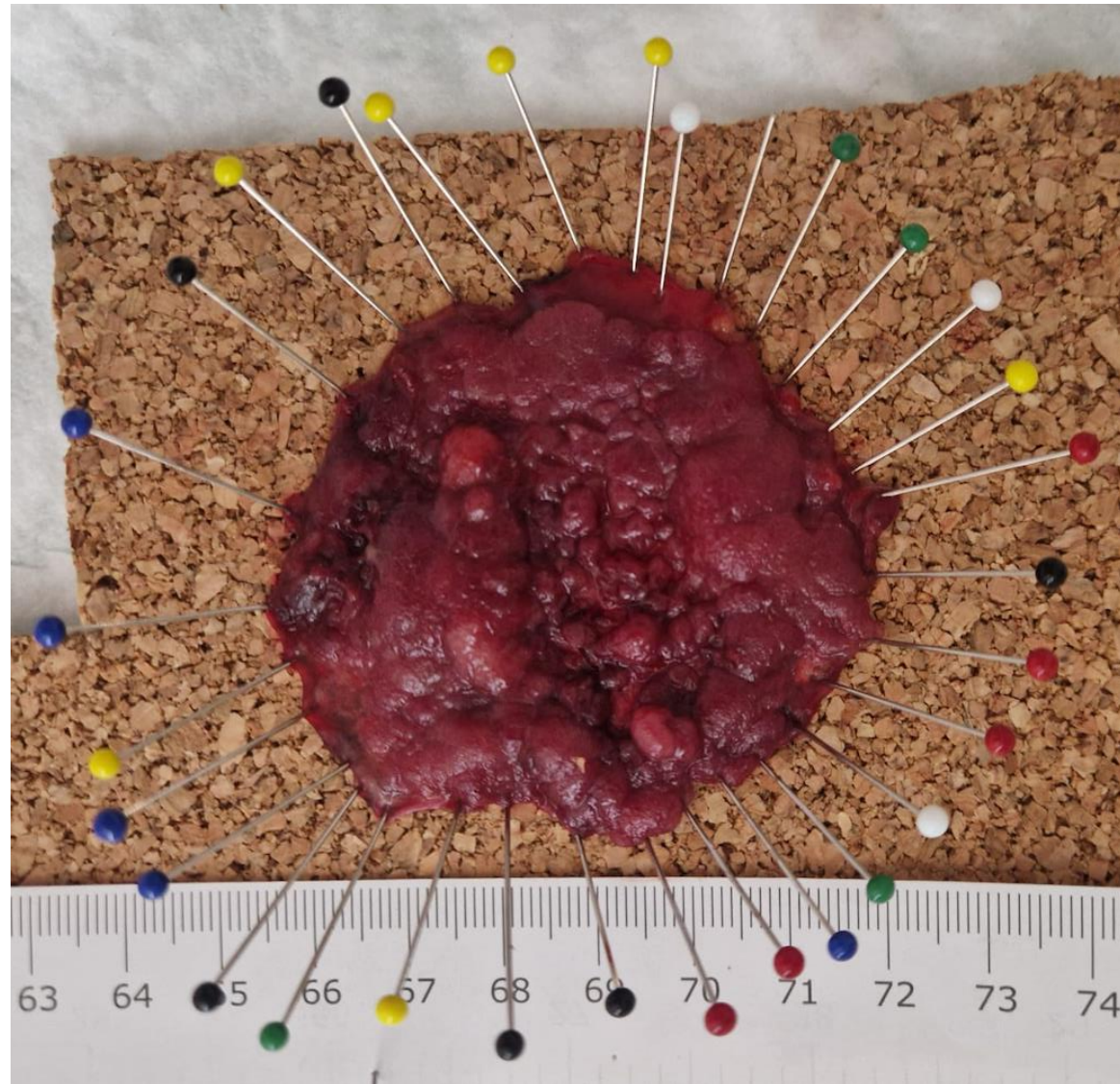
	ESD	EMR
Rezidive nach 6 Monaten	1	8
Karzinom	1	3
Behandelt mit Histologie	alle mit hot biopsy, cold snare etc alle LGD	

Komplikationen

	ESD	EMR
Adverse Events	35.7%	24.7%
Intraprocedural perforation	5.7%	2.2%
Delayed bleeding	7.9%	5.5 %
Postpolypectomy syndrome	11.9%	5.5%
Surgery	2 pat (1xperf,1xSz)	0

ESD im Zökum

Stefan Groth ZH



LZ-Ergebnisse nach Colon/Rektum ESD

Ohata et al. Gastroenterology 2022;163:1423–1434 (JAPAN)

1883 Patienten
97% en bloc Resektionen
14% R1
8 lokale Rezidive (0.5%)
1.1% nicht durchführbar
1.9% Wechsel auf piecemeal
7 delayed perforation (OP)

5 Jahre follow-up
1040 Patienten mit Karzinomen
111 wurden operiert wegen Karzinom
4 Patienten mit Fernmetastasierung

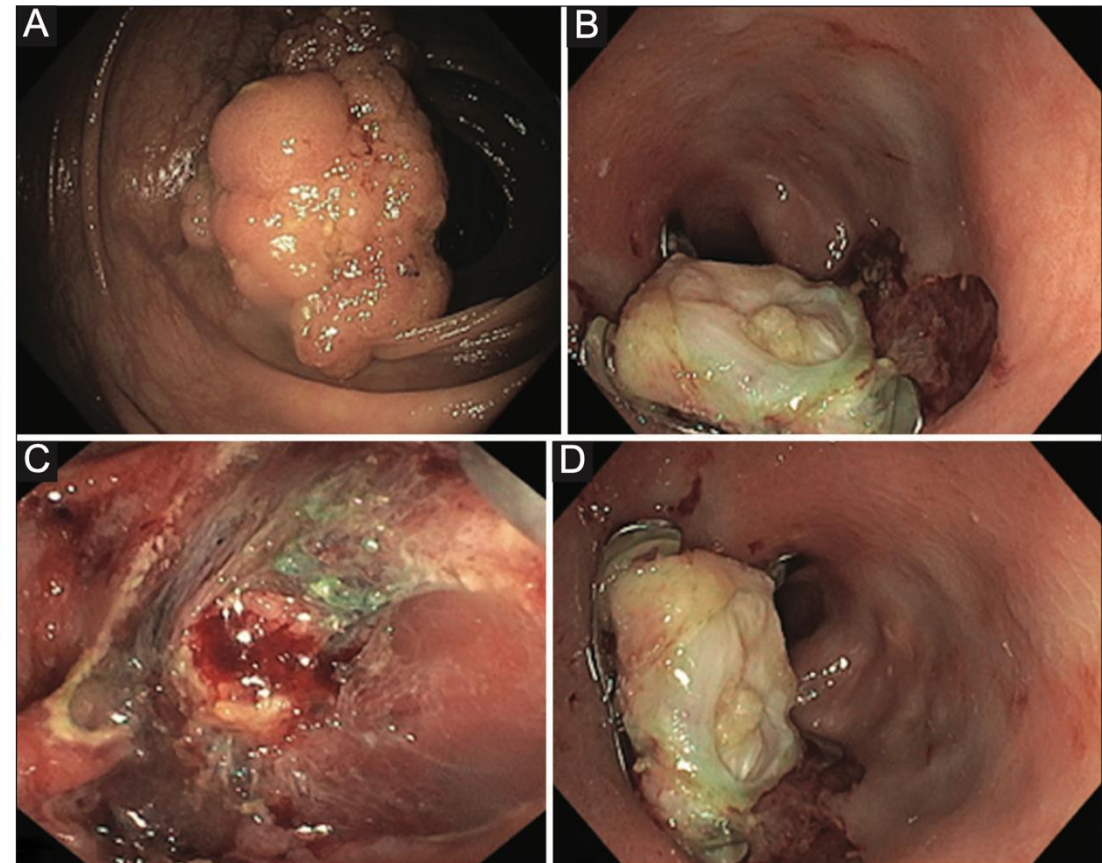
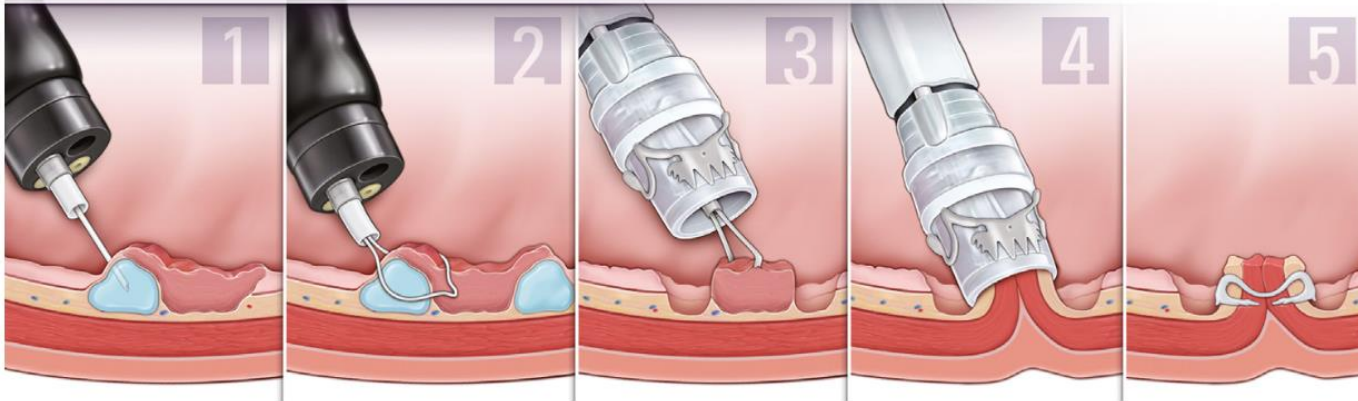
- Rektum
- R1
- 3 von 4 L1/V1
- pT3
- 3 von 4 operiert

d.h. Risiko Fernmetastasierung sehr klein

Hybrid - Vollwandresektion

EMR + eFTR oder ESD + eFTR

Hybrid-Endoscopic Full-Thickness Resection



Hybrid - Vollwandresektion

Meier & Caca GI Endoscopy Volume 98, No. 3 : 2023

- 75 Patienten (EMR + EFTR)
- 8 Monate f/u
- 8 x Chirurgische Resektion (6x pT2 und 2xpT3)
- 8 x Lokalrezive (endoskopisch)

Tribonas et al. Annals of Gastroenterology (2024) 37, 476-484

- 14 Patienten (11xEMR und 3x ESD) + EFTR
- 15 Monate f/u
- 1 x Chirurgische Resektion
- Kein Rezidiv

ESD vs. eFTR

Andrisani et al. GI Endoscopy 2023 (I)

90 Patienten

Multicenter

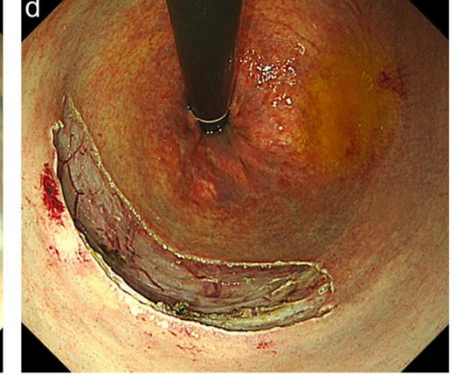
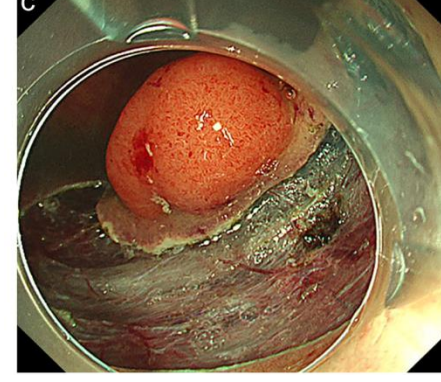
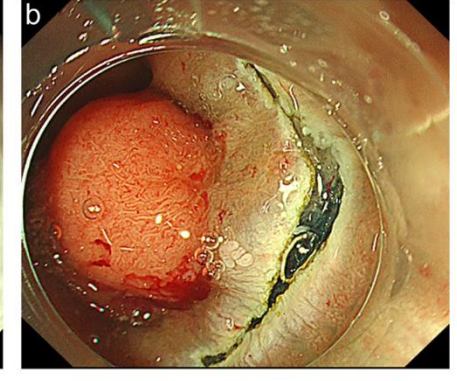
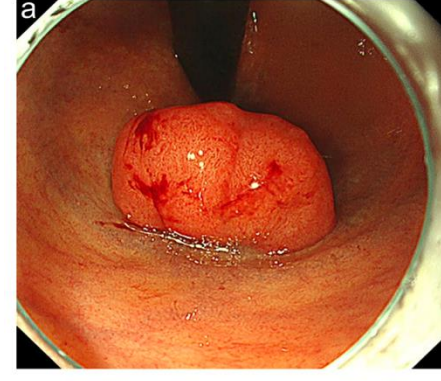
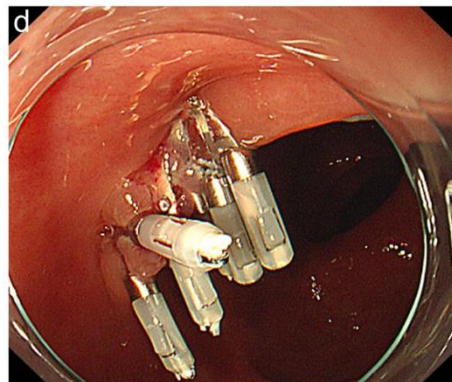
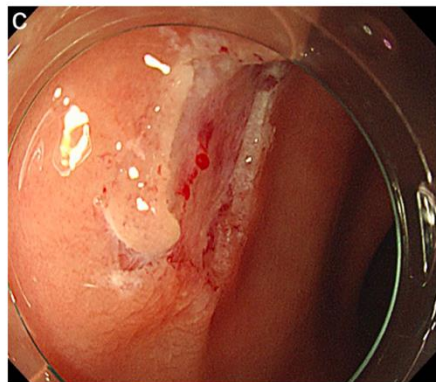
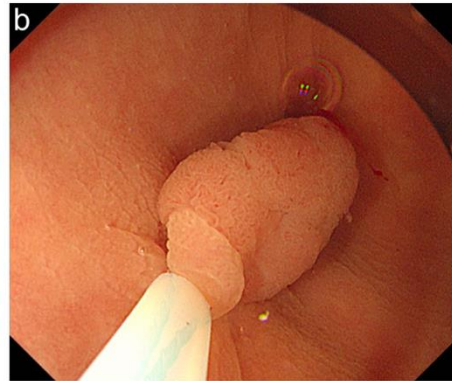
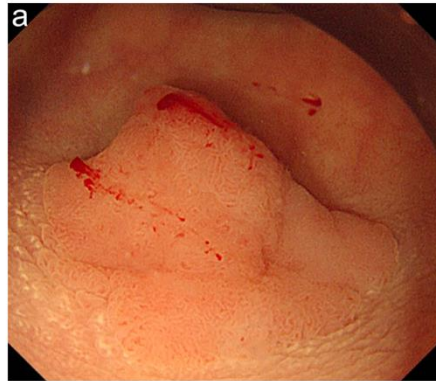
«challenging» Polypen >2 cm (3cm)

	ESD	eFTR
R0 Resektion	93.3%	95.5%
Perforation	6.6%	0
Delayed Bleeding	4.4%	1
Rezidiv	2.2%	4.4%

ESD vs. Underwater

Okimoto et al. Dig Dis Sci 2023 (JP)

22 Patienten
randomisiert
Polypen 20-30 mm



Dauer des Eingriffs:

(8 ± 6) min

(48 ± 29) min

Hot vs. Cold Snare (D)

Steinbrück et al Gastroenterology 2024 (D)

398 Patienten

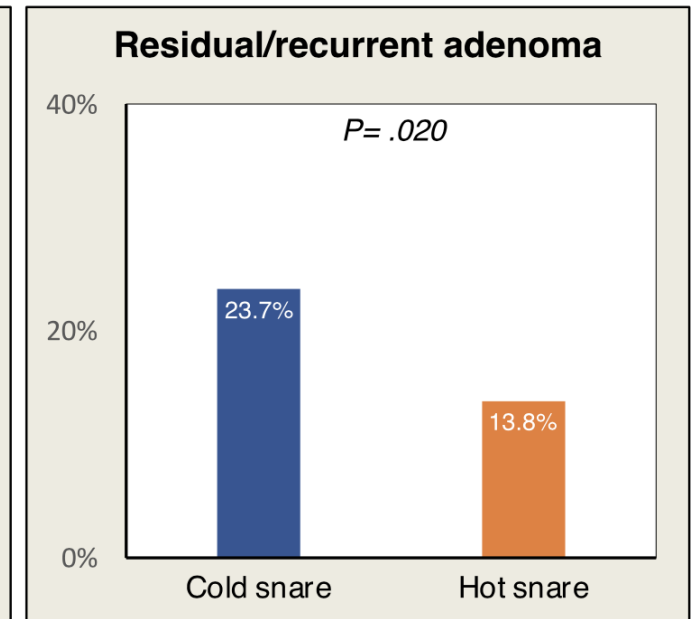
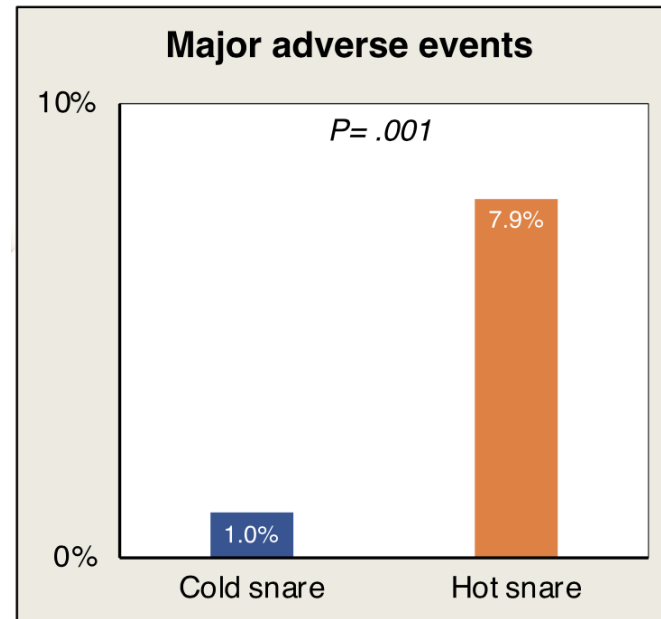
Multicenter

Flache Polypen >2 cm (3cm)

Piecemeal resection

Überwiegend rechte Seite

2 % Karzinome



Ränder Coaguliert

cold
1.6%

hot
30.5%

Hot vs. Cold Snare (AUS)

O'Sullivan et al GUT 2024

177 Patienten

Multicenter

Flache Polypen >2 cm (3cm)

Piecemeal resection

	cold	hot
Rezidiv	18.4%	1.1%
Ränder Coaguliert	0%	100%

Hot vs. Cold Snare (AUS)

O'Sullivan et al GUT 2024

177 Patienten

Multicenter

Flache Polypen >2 cm (3cm)

Piecemeal resection

	cold	hot
Rezidiv	18.4%	1.1%
Ränder Coaguliert	0%	100%
Delayed Perforation	0%	1.1%
Post EMR Blutung	1.1%	7.8%
Clip closure	1.1%	43%

Cold Snare: Unterspritzen?

Paula Arruda do Espirito Santo et al Endoscopy 2024

Meta-Analyse: 7 RCT, Polypen <20 mm

Outcomes	C-EMR vs CSP Risk ratio/mean difference (95%CI)
Complete resection	1.02 (0.98–1.07)
En bloc resection	1.08 (0.82–1.41)
Adverse events	0.74 (0.41–1.32)
Procedure time	42.1 seconds (14.5–69.7)

Cold Snare: mit Gewalt daran ziehen?

Arimoto Jun et al. Cold snare defect... Endoscopy 2024; 56: 14–21 (Jp)

Single center, nicht randomisiert,
prospektive

No previous studies on forced cold snare polypectomy (FCSP)

- Prospective observational study
- Single center, single arm
- FCSP vs. conventional CSP

548 patients, 1315 polyps



FCSP was performed on 105 polyps (8%)

Outcomes	FCSP	Conventional CSP	P value
Perforation	0 (0%)	0 (0%)	NS
Delayed post-polypectomy bleeding	0 (0%)	2 (0.2%)	NS
CSDPs	101 (96.2%)	77 (6.4%)	<0.001
Incomplete polyp resection (IPR)	13 (12.5%)	75 (6.2%)	0.02

Was tun mit den Rändern ?

O'Sullivan... Bourke et al. GUT 2024

Flache Adenome > 2 cm

- 1256 EMR + thermal ablation
- 650 EMR ohne

ERBE VIO

300D, SOFT COAG: 80W, Effect 4



Was tun mit den Rändern ?

O'Sullivan... Bourke et al. GUT 2024

Flache Adenome > 2 cm	Rezidiv	
	nach 6 Monaten	nach 18 Monaten
• 1256 EMR + thermal ablation.....	2%	0.2%
• 650 EMR ohne.....	19.7%	3.5%

ERBE VIO

300D, SOFT COAG: 80W, Effect 4



Thermal ablation: Ränder & Basis ?

Djinbachian et al. GUT 2024

479 Pat, Flache Adenome > 2 cm

Rezidiv nach 6 Monaten

- EMR..... 22.9%
- EMR & Rand (Snare/APC)..... 8.8%
- EMR & Rand & Basis (APC)..... 0.9%

Follow-up nach High-Risk Polyps

Polychronidis et al GUT 2024 (USA)

Analyse von 150'000 Polypen

Sind die EU/CH Empfehlungen
(3 Jahre bei > 5 High risk Polypen)
Sinnvoll ?

Adenome

Serratierte Polypen

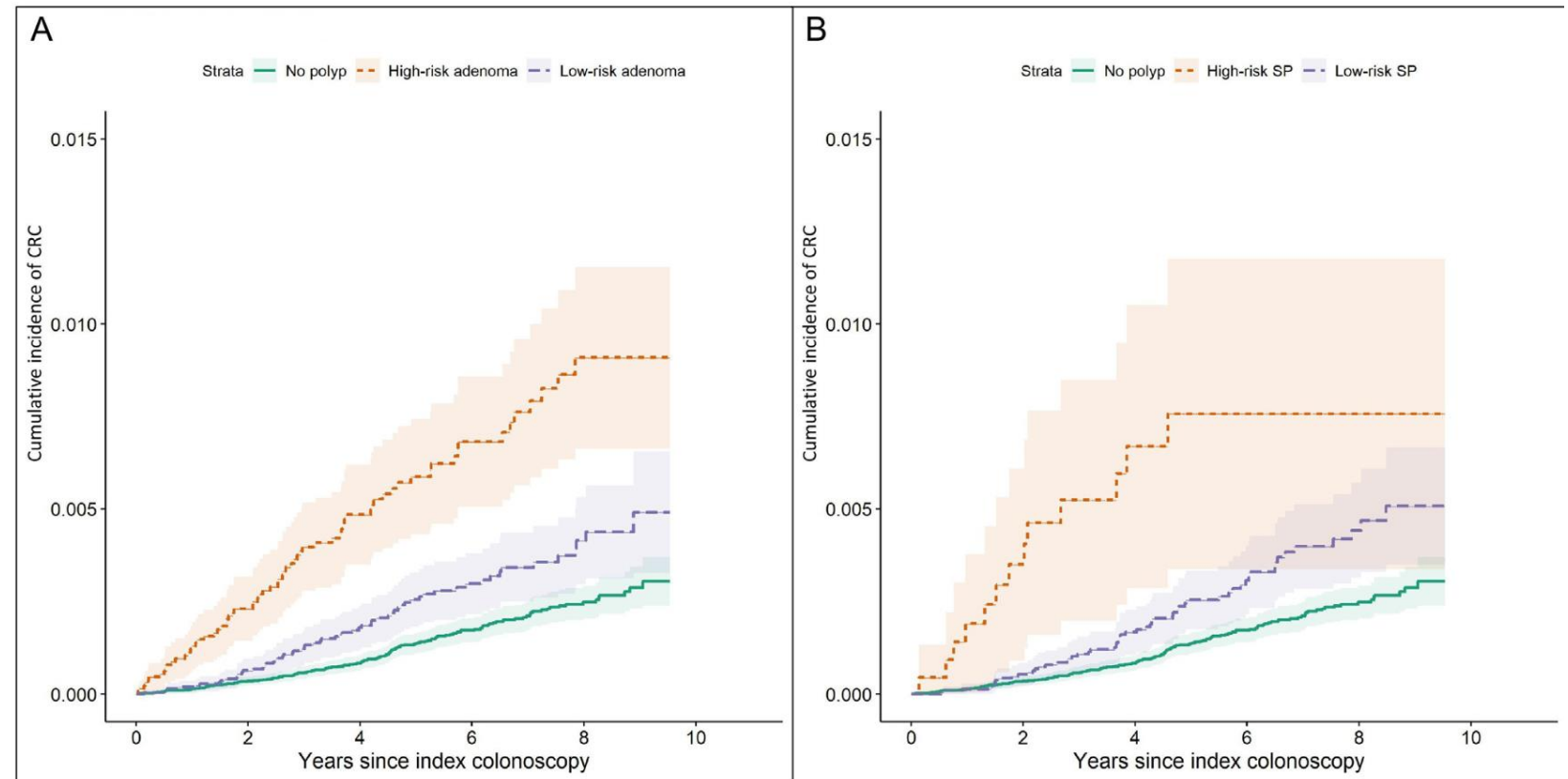


Figure 1 Kaplan-Meier curves of colorectal cancer (CRC) incidence after removal of low-risk and high-risk adenomas (A) and serrated polyps (SPs; B) at index colonoscopy.

DOAC: Blutung nach ESD

Yoshida Clinical Gastroenterology and Hepatology 2024;22:271–282 (Jp)

34,455 cases

Colorectal endoscopic submucosal
dissection

Nationwide 47 Japanese institutions
From 2012 to 2021



DOAC: 1019 cases

(2.96%, 1019/34455)

Warfarin: 459 cases

(1.33%, 459/34455)

Pradaxa ®

Eliquis ®

Lixiana ®

Xarelto ®

	DBR, % (n)
Dabigatran	18.26 (21/115)
Apixaban	10.08 (25/248)
Edoxaban	7.73 (25/323)
Ribaroxaban	7.21 (24/333)
Warfarin	11.76 (54/459)
DBR: delayed bleeding rate	

Rektumkarzinom

Hoch Spezialisierte Medizin (HSM)

vs.

Organ Erhaltung

“Watch and Wait”

nach Chemotherapie oder Radio CT +/- lokale Resektion

Rektumkarzinom: «Watch and Wait»

Thompson et al. JAMA Network Open. 2024;7(1)

304 Patienten mit Rektumkarzinom
stage II (T3-4, N0) or stage III (any T, N1-2)

RCT & CT or CT& RT

complete remission
nearly complete remission

incomplete remission

wait and watch

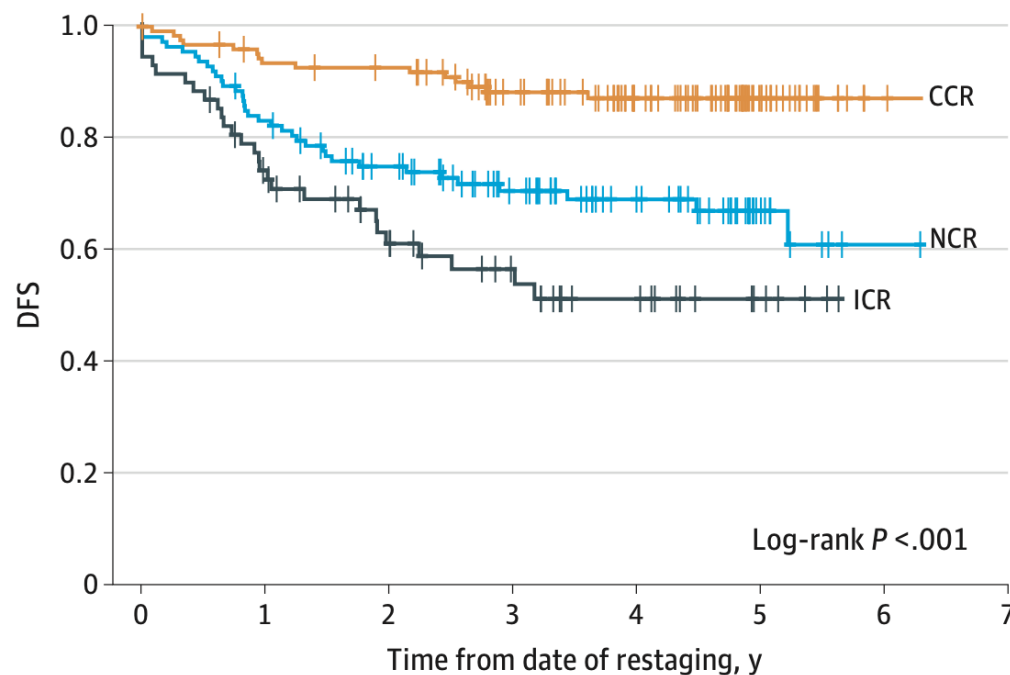
Surgery TME

< 50% wurden operiert

Rektumkarzinom: «Watch and Wait»

Thompson et al. JAMA Network Open. 2024;7(1)

A Disease-free survival by restaging TAF response



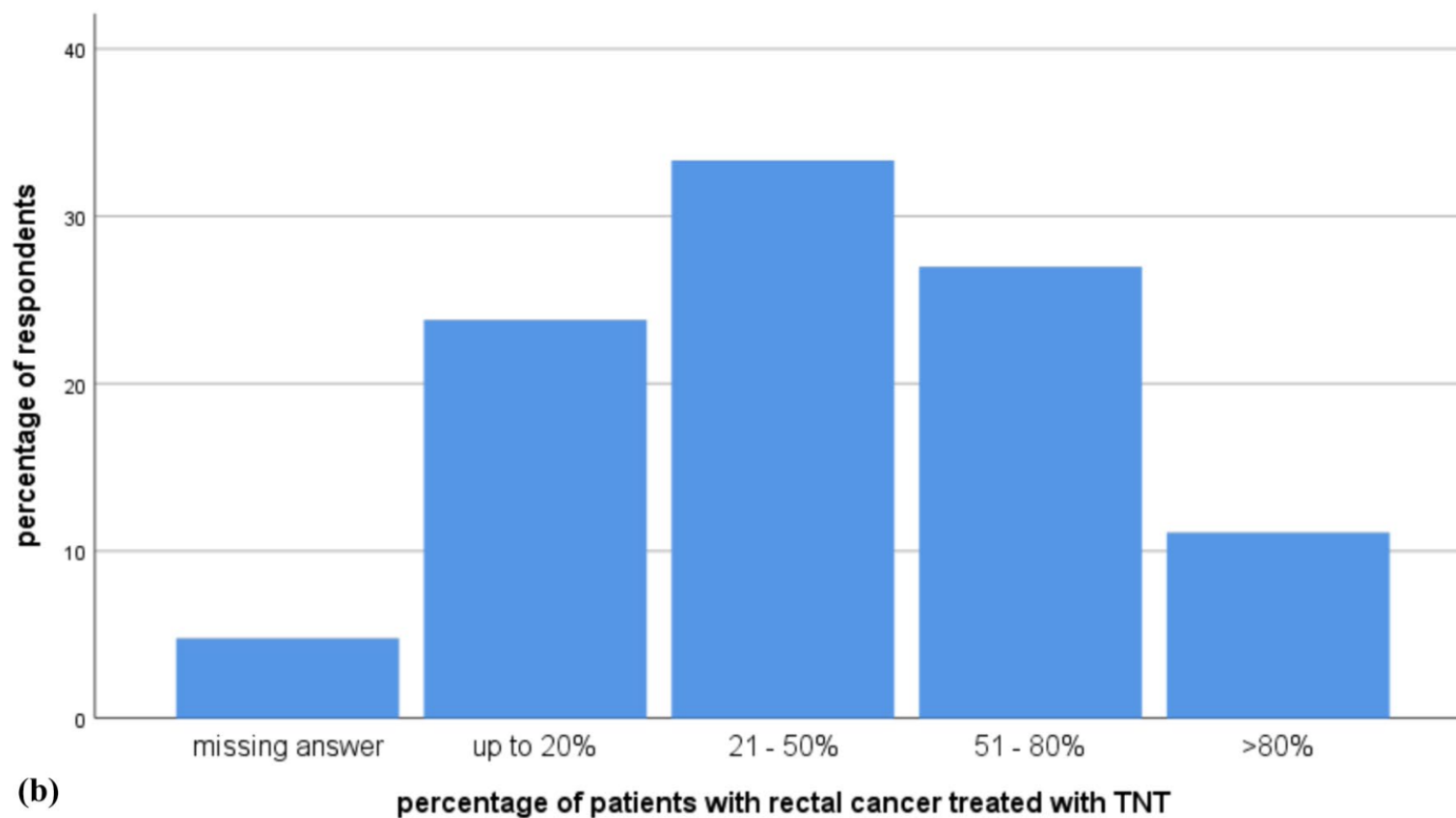
No. at risk

CCR	125	113	110	89	65	26	6
NCR	114	92	75	55	37	14	6
ICR	65	45	29	21	13	5	0

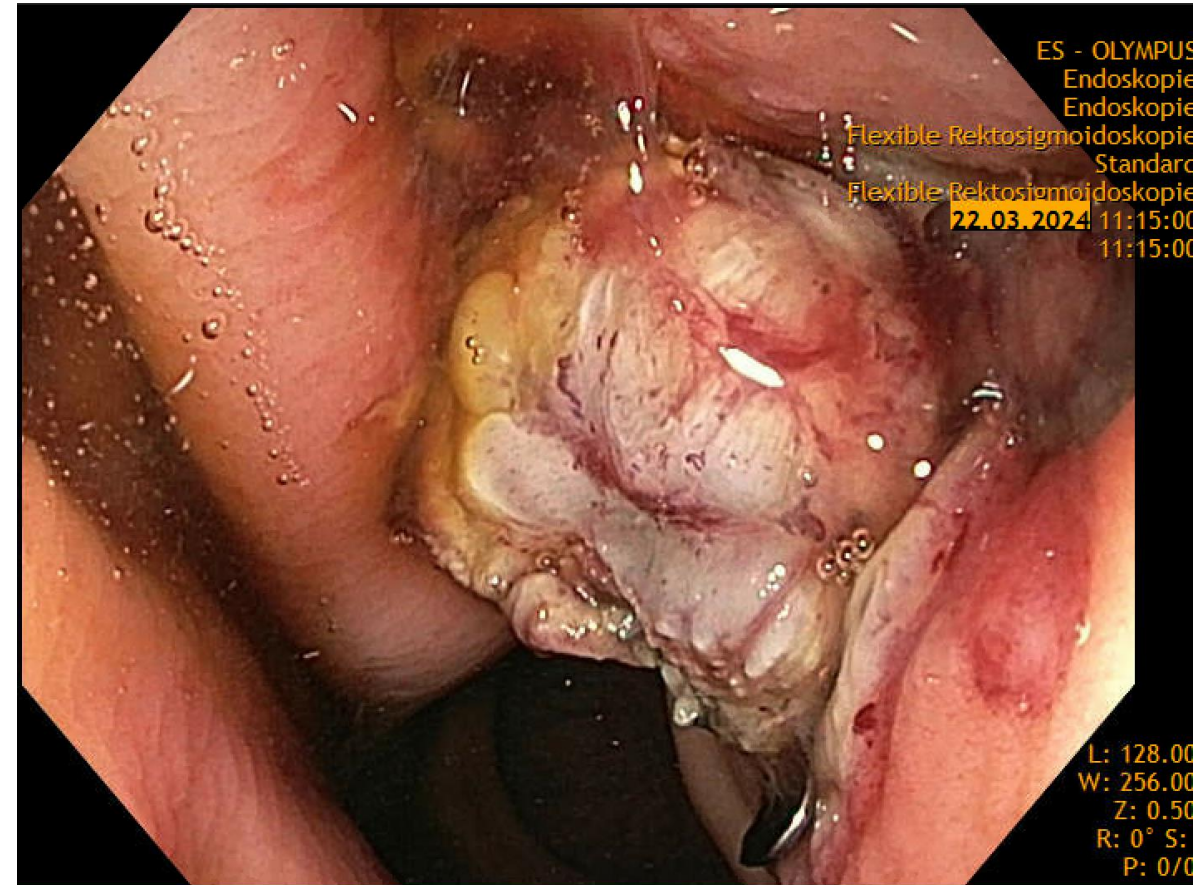
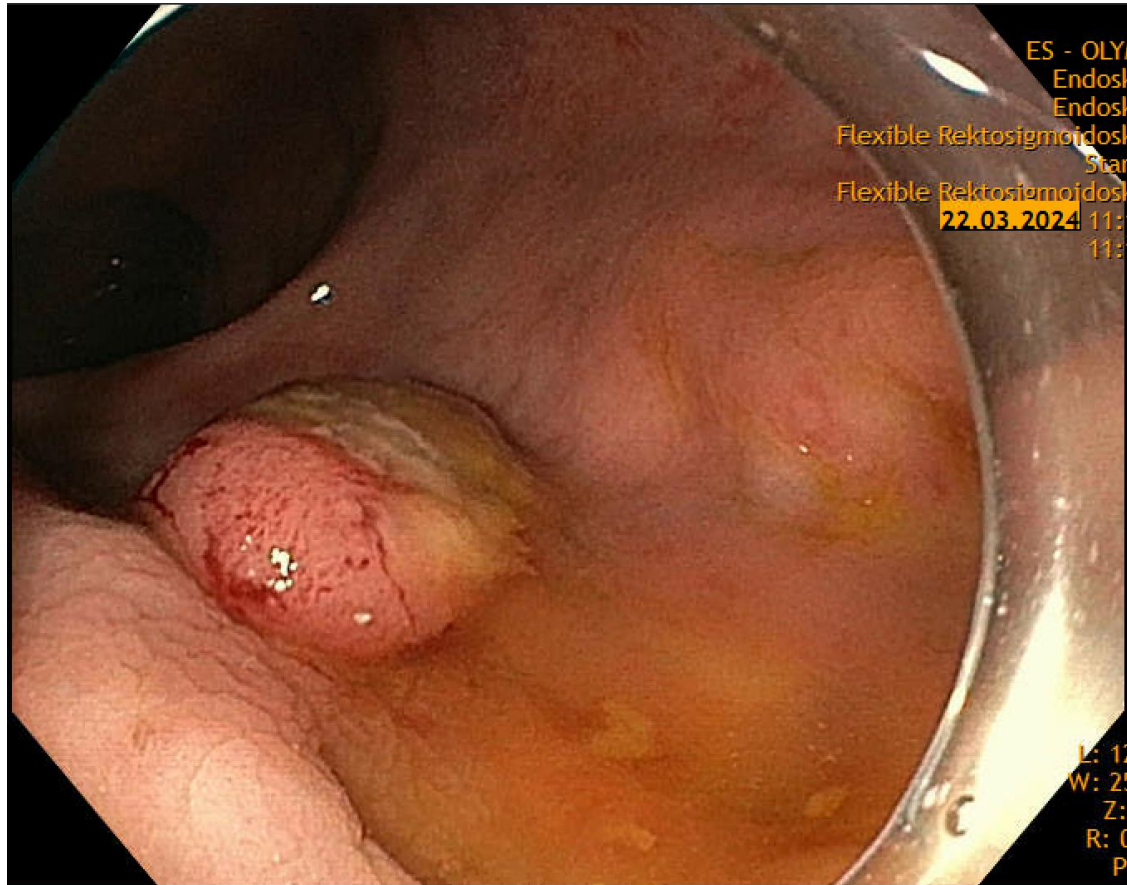
«Watch and Wait»: wie oft wird es eingesetzt ?

Knippen et al. Clinical and Experimental Medicine (2024) 24:242

Survey D,A,CH



«Watch and Wait» auch nach endoskopischer Resektion ?



Adenokarzinom pT2 L0 V0 Pn0 G2 R0

«Watch and Wait» auch nach endoskopischer Resektion ?

TESAR TRIAL: Rectal preserving treatment after local excision for early rectal cancer
randomised trial

radical surgery versus adjuvant chemoradiotherapy (W&W nach Resektion)

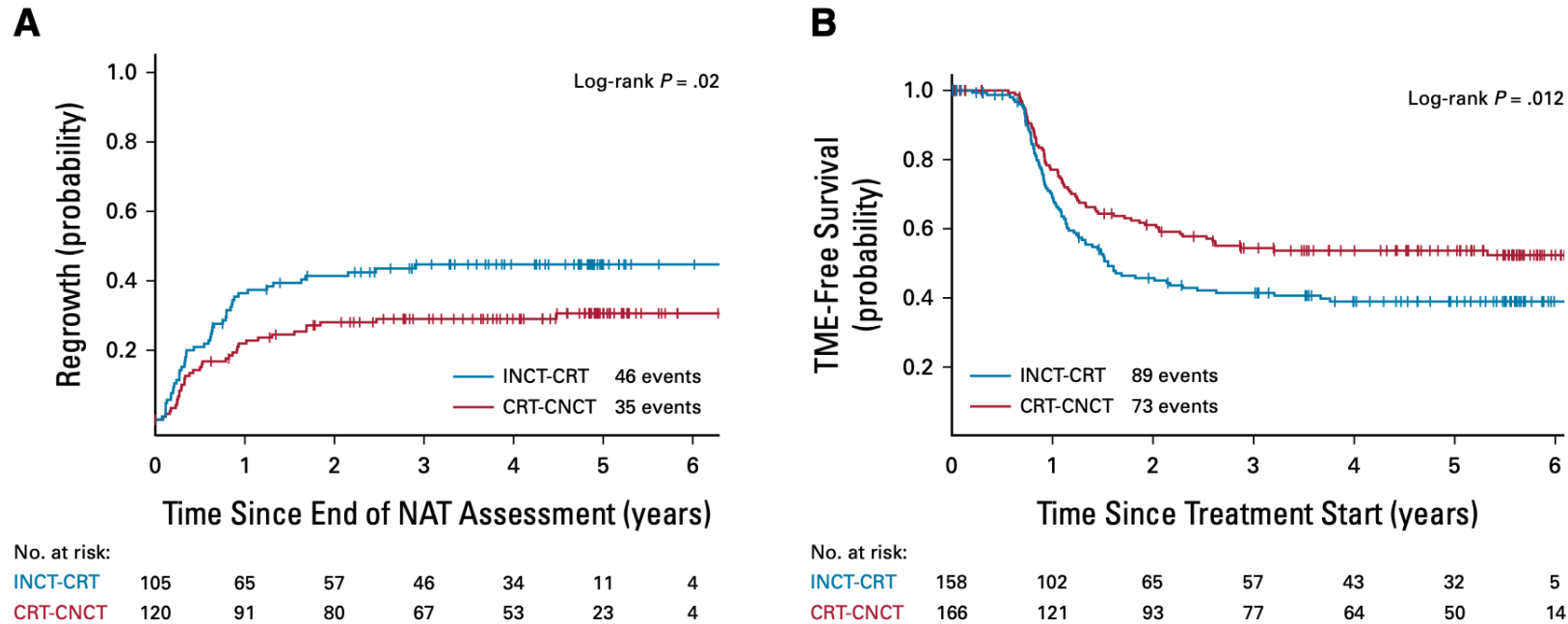
Inclusion criteria:

- T1 adenocarcinoma with a diameter of 3 to 5 cm
- T1 adenocarcinoma diameter of <3 cm with Riskfactors
- T2 adenocarcinoma with a maximum size of 3 cm and well/moderate differentiated and L0/V0
- Complete resection is defined as R0 (>0.1 mm)
- no suspicious mesorectal or other regional lymph nodes on MRI

«Watch and Wait» ja, aber welche Radio-Chemo-Therapie?

OPRA Study Verheij et al J Clin Oncol 42:500-506

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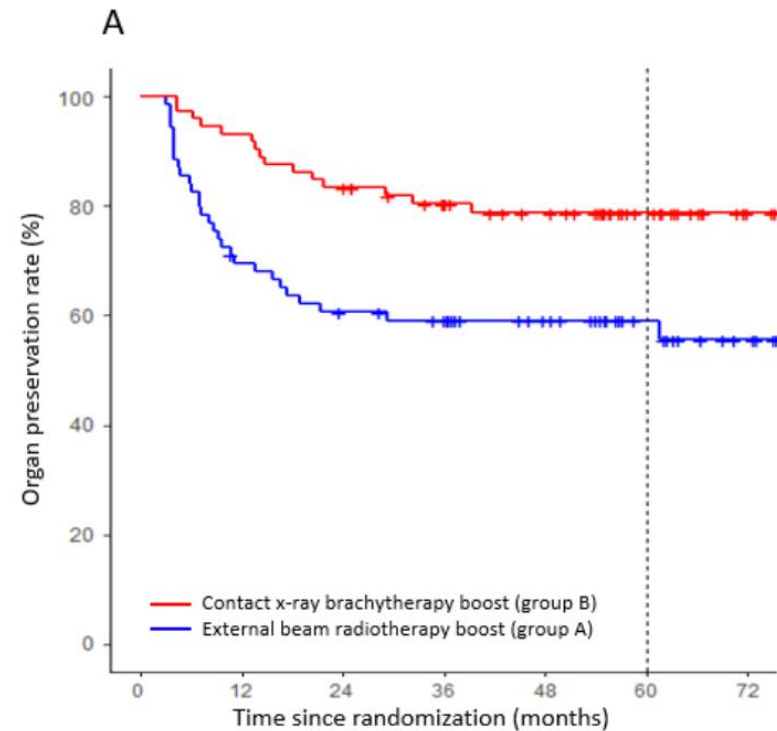


induction chemo-therapy followed by chemoradiation (INCT-CRT)

chemoradiation followed by consolidation chemotherapy (CRT-CNCT)

«Watch and Wait» ja, aber welche Radio-Chemo-Therapie?

OPERA Studie: Brachytherapie vor oder nach RCT
Annal of Oncology 2024
Rektumkarzinome >T2



Number at risk
(number censored)

Group A	69 (0)	47 (1)	40 (1)	37 (3)	28 (8)	17 (11)	9 (7)
Group B	72 (0)	67 (0)	60 (0)	51 (10)	42 (5)	28 (14)	13 (16)