

KEY QUESTION 4

1. KEY QUESTION 4A

a. *Welke interventies hebben een positief effect op de QoL bij patiënten die na low-anterior **rectumresectie** klachten van fecale incontinentie hebben?*

P: patiënten die een **low-anterior** resectie voor rectumcarcinoom hebben ondergaan en last hebben van **fecale** incontinentie

I: any interventie

C: geen enkele interventie

O: QoL

2. SEARCH STRATEGY 4A

Searches were run on November 29, 2012 for systematic reviews (SRs), randomised controlled trials (RCTs) and observational studies. Pubmed Medline, CINAHL, SCOPUS and the Cochrane Database of Systematic Reviews (CDSR) were searched. Detailed search strings are given below.

3. SEARCH RESULTS 4A

The Medline search yielded 410 hits, the Embase search 449 hits, the CINAHL search yielded 42 hits, and the SCOPUS search yielded 53 hits. The search in the CDSR yielded no additional Cochrane reviews. The search included systematic reviews, randomised trials and observational studies

FULL-TEXT EVALUATION

After merging the 3 search files into 1 file and removal of the duplicates, 752 records were screened on title and abstract. Of these 701 were excluded. The most important reasons for exclusion were that studies were on other populations or interventions, or were concerned with the assessment of fecal incontinence or its risk factors.

Of the remaining 51 studies, the full-text was retrieved. In addition, 15 studies were identified through reference tracking. Table 1 provides an overview of the evaluation of these 66 studies.

Table 1 Key question 4a: overview of reviews evaluated full-text.

	Reference	In-/Excluded	Reason(s)
1	(2012). "Managing the impact of colorectal cancer surgery." <u>Coping With Cancer</u> 26 (2): 29-30.	Ex	Patient information leaflet
	Allgayer, H., C. F. Dietrich, et al. (2005). "Prospective comparison of short- and long-term effects of pelvic floor exercise/biofeedback training in patients with fecal incontinence after surgery plus irradiation versus surgery alone for colorectal cancer: clinical, functional and endoscopic/endosonographic findings." <u>Scand J Gastroenterol</u> 40 (10): 1168-1175.	In	Observational study
	Attene, F., F. Scognamillo, et al. (2009). "The treatment of faecal incontinence following ileostomy takedown after rectal surgery for cancer." <u>Journal of Nursing & Healthcare of Chronic Illnesses</u> 1 (3): 210-214.	Ex	Unclear definition of the outcomes related to quality of life, e.g.: ' All patients reported a significant improvement of the quality of life and social relationships and none of them continued to

	Reference	In-/Excluded	Reason(s)
			use sanitary napkins/diapers' (but sanitary napkin/diaper use before intervention not reported on)
	Bartlett, L., K. Sloots, et al. (2011). "Biofeedback therapy for symptoms of bowel dysfunction following surgery for colorectal cancer." <u>Tech Coloproctol</u> 15 (3): 319-326.	In	Observational study without a control group
5	Brown, C. (2001). "Electrical stimulation for fecal incontinence following bowel resection." <u>Rehabilitation Oncology</u> 19 (3): 20-20.	Ex	Not available
	Brown, S. R., H. Wadhawan, et al. (2010). "Surgery for faecal incontinence in adults." <u>Cochrane Database Syst Rev</u> (9): CD001757.	Ex	Not on rectal cancer patients
	Carapeti EA, Kamm MA, Nicholls RJ, Phillips RK. Randomized, controlled trial of topical phenylephrine for fecal incontinence in patients after ileoanal pouch construction. <u>Dis Colon Rectum</u> . 2000 Aug;43(8):1059-63	Ex	Patients with a resection because of ulcerative colitis
	Carapeti EA, Kamm MA, Phillips RK. Randomized controlled trial of topical phenylephrine in the treatment of faecal incontinence. <u>Br J Surg</u> . 2000 Jan;87(1):38-42	Ex	Patients with faecal incontinence, irrespective whether preceded by low anterior resection or rectal cancer. Therefore, the majority of patients are likely to be other patients
	de Miguel, M., F. Oteiza, et al. (2011). "Sacral nerve stimulation for the treatment of faecal incontinence following low anterior resection for rectal cancer." <u>Colorectal Dis</u> 13 (1): 72-77.	In	Observational study without a control group
10	Ganio E, Masin A, Ratto C, Altomare DF, Ripetti V, Clerico G, Lise M, Doglietto GB, Memeo V, Landolfi V, Del Genio A, Arullani A, Giardiello G, de Seta F. Short-term sacral nerve stimulation for functional anorectal and urinary disturbances: results in 40 patients: evaluation of a new option for anorectal functional disorders. <u>Dis Colon Rectum</u> . 2001 Sep;44(9):1261-7	Ex	8/40 patients had a history of pelvic surgery for undisclosed reasons
	Hallgren T, Fasth S, Delbro DS, Nordgren S, Oresland T, Hultén L. Loperamide improves anal sphincter function and continence after restorative proctocolectomy. <u>Dig Dis Sci</u> . 1994 Dec;39(12):2612-8	Ex	Not on rectal cancer patients
	Herbst F, Kamm MA, Nicholls RJ. Effects of loperamide on ileoanal pouch function. <u>Br J Surg</u> . 1998 Oct;85(10):1428-32	Ex	Not on rectal cancer patients
	Ho, Y. H., J. M. Chiang, et al. (1996). "Biofeedback therapy for excessive stool frequency and incontinence following anterior resection or total colectomy." <u>Diseases of the Colon and Rectum</u> 39 (11): 1289-1292.	Ex	Likely same patients as Ho 1997
	Ho, Y. H. and M. Tan (1997). "Biofeedback therapy for bowel dysfunction following low anterior resection." <u>Annals of the Academy of Medicine Singapore</u> 26 (3): 299-302.	In	Observational study without a control group
15	Ho, Y. H. (2001). "Postanal sphincter repair for anterior resection anal sphincter injuries: report of three cases." <u>Dis Colon Rectum</u> 44 (8): 1218-1220.	In	Observational study without a control group
	Holzer, B., H. R. Rosen, et al. (2008). "Sacral nerve stimulation in patients after rectal resection--preliminary report." <u>J Gastrointest Surg</u> 12 (5): 921-925.	In	Observational study without a control group
	Iwama T, Imajo M, Yaegashi K, Mishima Y. Self washout method for defecational complaints following low anterior rectal resection. <u>Jpn J Surg</u> . 1989 Mar;19(2):251-3	Ex	Patients who complained of difficulty defecating
	Izanec, J. and D. Nagle (2006). "Impact of proctectomy on continence and sexual function in women." <u>Am J Gastroenterol</u> 101 (12 Suppl): S618-624.	Ex	Narrative review

	Reference	In-/Excluded	Reason(s)
	Jarrett, M. E., K. E. Matzel, et al. (2005). "Sacral nerve stimulation for faecal incontinence following a rectosigmoid resection for colorectal cancer." <u>Int J Colorectal Dis</u> 20 (5): 446-451.	In	Observational study without a control group
20	Johansson, E., S. Walter, et al. (2012). "Randomized trial of biofeedback or medical treatment for fecal incontinence." <u>Neurogastroenterology and Motility</u> 24 : 183.	Ex	Other population
	Kim, K. and C. Yu (2010). "Effectiveness of biofeedback therapy in treatment of anterior resection syndrome after rectal cancer surgery." <u>Diseases of the Colon and Rectum</u> 53 (4): 662.	Ex	Double publication of Kim 2011, in abstract form
	Kim, K. H., C. S. Yu, et al. (2011). "Effectiveness of biofeedback therapy in the treatment of anterior resection syndrome after rectal cancer surgery." <u>Dis Colon Rectum</u> 54 (9): 1107-1113.	In	Observational study without a control group
	Koch SM, Uludağ O, El Naggar K, van Gemert WG, Baeten CG. Colonic irrigation for defecation disorders after dynamic graciloplasty. <u>Int J Colorectal Dis</u> . 2008 Feb; 23 (2):195-200	Ex	8/45 patients had had an abdomino-perineal resection for rectum carcinoma; 35/45 patients had fecal incontinence. Unclear whether the 8 patients who had had rectal carcinoma had fecal incontinence
	Koch SM, Melenhorst J, van Gemert WG, Baeten CG. Prospective study of colonic irrigation for the treatment of defaecation disorders. <u>Br J Surg</u> . 2008 Oct; 95 (10):1273-9	Ex	5/18 patients had rectal resection; results not presented separately
25	Koch, S. M., M. P. Rietveld, et al. (2009). "Retrograde colonic irrigation for faecal incontinence after low anterior resection." <u>Int J Colorectal Dis</u> 24 (9): 1019-1022.	In	Observational study without a control group
	Laforest, A., F. Bretagnol, et al. (2012). "Functional disorders after rectal cancer resection: Does a rehabilitation programme improve anal continence and quality of life?" <u>Colorectal Disease</u> 14 (10): 1231-1237.	In	
	Landers, M., E. Savage, et al. (2011). "Self-Care Strategies for the Management of Bowel Symptoms Following Sphincter-Saving Surgery for Rectal Cancer." <u>Clinical Journal of Oncology Nursing</u> 15 (6): E105-113.	Ex	Not evaluating the effectiveness of interventions but describing self-care strategies used by patients
	Lange, M. M. and C. J. van de Velde (2008). "Faecal and urinary incontinence after multimodality treatment of rectal cancer." <u>PLoS Med</u> 5 (10): e202.	Ex	Narrative review with a case description without reporting of outcomes. Used for reference tracking
	Liu, C. H., C. H. Chen, et al. (2011). "Rehabilitation exercise on the quality of life in anal sphincter-preserving surgery." <u>Hepatogastroenterology</u> 58 (110-111): 1461-1465.	Ex	Only 50% of patients had faecal incontinence; results were not presented for this subgroup
30	Lundby, L. and J. Duelund-Jakobsen (2011). "Management of fecal incontinence after treatment for rectal cancer." <u>Curr Opin Support Palliat Care</u> 5 (1): 60-64.	Ex	Narrative review, used for reference tracking
	Maeda, K., M. Maruta, et al. (2002). "Effect of oral diazepam on anal continence after low anterior resection: a preliminary study." <u>Tech Coloproctol</u> 6 (1): 15-18.	In	Observational study without a control group
	Maeda Y, Laurberg S, Norton C. Perianal injectable bulking agents as treatment for faecal incontinence in adults. <u>Cochrane Database Syst Rev</u> . 2010 May 12 ;(5):CD007959	Ex	No rectal cancer patients included
	Maeda, Y., M. Hoyer, et al. (2010). "Temporary sacral nerve stimulation for faecal incontinence following pelvic radiotherapy." <u>Radiotherapy and Oncology</u> 97 (1): 108-112.	Ex	Other patients
	Maeda, Y., M. Hoyer, et al. (2010). "Temporary sacral	Ex	Other patients

	Reference	In- /Excluded	Reason(s)
	nerve stimulation is a successful treatment for fecal incontinence caused by pelvic radiotherapy." <i>Diseases of the Colon and Rectum</i> 53 (4): 568.		
35	Marchal F, Doucet C, Lechaux D, Lasser P, Lehur PA. Secondary implantation of an artificial sphincter after abdominoperineal resection and pseudocontinent perineal colostomy for rectal cancer. <i>Gastroenterol Clin Biol.</i> 2005 Apr;29(4):425-8	Ex	Patients with an abdominoperineal resection
	Maggiori, L., F. Bretagnol, et al. (2011). "Functional disorders after rectal cancer resection: Does a rehabilitation program improve anal continence and quality of life?" <i>Colorectal Disease</i> 13: 13.	Ex	Double publication with Laforest 2012
	Maggiori, L., A. Laforest, et al. (2011). "Functional disorders after rectal cancer resection: Does a rehabilitation program improve anal continence and quality of life?" <i>Techniques in Coloproctology</i> 15 (2): 227.	Ex	Double publication with Laforest 2012
	Mammadli, Z., Y. Barsukov, et al. (2012). "Functional results after electrostimulation of anal sphincter after low anterior resection." <i>European Journal of Surgical Oncology</i> 38 (9): 832.	Ex	Not low-anterior resection patients
	Mammadli, Z. Z., Y. A. Barsukov, et al. (2011). "Electric stimulation of anal sphincter as a treatment option for fecal incontinence after ultra-low coloanal anastomosis with or without intersphincteric resection." <i>European Surgery - Acta Chirurgica Austriaca</i> 43: 10.	Ex	Not low-anterior resection patients
40	Mammadli, Z. Z., Y. A. Barsukov, et al. (2011). "Electric stimulation of anal sphincter as a treatment option for fecal incontinence after ultra-low coloanal anastomosis with or without intersphincteric resection." <i>European Journal of Cancer</i> 47: S441.	Ex	Not low-anterior resection patients
	Massa, L. (2011). "Pelvic floor physical therapy interventions for oncology patients." <i>Topics in Geriatric Rehabilitation</i> 27(3): 206-214.	Ex	Narrative review
	Matzel, K. E., U. Stadelmaier, et al. (2002). "Bilateral sacral spinal nerve stimulation for fecal incontinence after low anterior rectum resection." <i>Int J Colorectal Dis</i> 17(6): 430-434.	In	Case-report
	Melenhorst J, Koch SM, Uludag O, van Gemert WG, Baeten CG. Sacral neuromodulation in patients with faecal incontinence: results of the first 100 permanent implantations. <i>Colorectal Dis.</i> 2007 Oct;9(8):725-30	Ex	Three patients with a low anterior resection included, reasons for resection not described
	Michek, J., M. Sutory, et al. (1997). "Problems of continence after deep pelvic anastomoses for Ca recti." <i>Scripta Medica Facultatis Medicae Universitatis Brunensis Masarykianae</i> 70(1): 15-24.	Ex	In Czech
45	Montori, A. (1997). "Fecal incontinence rehabilitation after surgical resection procedures for carcinoma of the rectum." <i>New Trends in Experimental and Clinical Psychiatry</i> 13(1): 23	Ex	Outcomes described as: 'In 33 patients we have obtained a consolidated positive result'. Definition of outcome not given
	Moya, P., A. Arroyo, et al. (2012). "Sacral nerve stimulation in patients with severe fecal incontinence after rectal resection." <i>Techniques in Coloproctology</i> 16(3): 263	In	
	Norton C, Cody JD. Biofeedback and/or sphincter exercises for the treatment of faecal incontinence in adults. <i>Cochrane Database Syst Rev.</i> 2012 Jul 11;7:CD002111	Ex	Not on (rectal) cancer patients
	Ortega, M., G. S. Ortega, et al. (2012). "Sacral nerve stimulation for the treatment of faecal incontinence	In	

	Reference	In- /Excluded	Reason(s)
	after anterior resection." <u>Colorectal Disease</u> 14 : 29.		
	Panjari, M., R. J. Bell, et al. (2012). "Sexual Function, Incontinence, and Wellbeing in Women after Rectal Cancer-A Review of the Evidence." <u>Journal of Sexual Medicine</u> 9 (11): 2749-2758.	Ex	Review without data on treatment of incontinence or sexual dysfunction
50	Park, J. S., S. B. Kang, et al. (2007). "The efficacy and adverse effects of topical phenylephrine for anal incontinence after low anterior resection in patients with rectal cancer." <u>Int J Colorectal Dis</u> 22 (11): 1319-1324.	In	RCT
	Portier G, Bonhomme N, Platonoff I, Lazorthes F. Use of Malone antegrade continence enema in patients with perineal colostomy after rectal resection. <u>Dis Colon Rectum</u> . 2005 Mar;48(3):499-50	Ex	Patients that had an abdominal perineal resection, not a low anterior resection
	Pucciani, F., L. Iozzi, et al. (2003). "Multimodal rehabilitation for faecal incontinence: Experience of an Italian centre devoted to faecal disorder rehabilitation." <u>Techniques in Coloproctology</u> 7 (3): 139-147.	Ex	61 patients with post-surgical incontinence included, this group existed of patients that had had sphincter saving operations, anal or pelvic surgery for undisclosed causes. Treatment results were not given separately for patients that had had pelvic surgery
	Pucciani, F., M. N. Ringressi, et al. (2008). "Rehabilitation of fecal incontinence after sphincter-saving surgery for rectal cancer: encouraging results." <u>Dis Colon Rectum</u> 51 (10): 1552-1558.	In	Observational study
	Ratto, C., E. Grillo, et al. (2005). "Sacral neuromodulation in treatment of fecal incontinence following anterior resection and chemoradiation for rectal cancer." <u>Dis Colon Rectum</u> 48 (5): 1027-1036.	In	Observational study without a control group
55	Ratto, C., S. Buntzen, et al. (2012). "Gatekeeper in fecal incontinence: Prospective European multicentre study." <u>Colorectal Disease</u> 14 : 68.	Ex	Study protocol
	Ratto, C., A. Parello, et al. (2009). "Sacral nerve stimulation as therapeutic option in patients with faecal incontinence following rectal cancer treatment." <u>Colorectal Disease</u> 11 : 22.	In	Sacral nerve stimulation
	Romano, G., F. La Torre, et al. (2002). "Total anorectal reconstruction with an artificial bowel sphincter: Report of five cases with a minimum follow-up of 6 months." <u>Colorectal Disease</u> 4 (5): 339-344.	Ex	Other population
	Romano, G., F. La Torre, et al. (2003). "Total anorectal reconstruction with the artificial bowel sphincter: Report of eight cases. A quality-of-life assessment." <u>Diseases of the Colon and Rectum</u> 46 (6): 730-734.	Ex	Other population
	Rosen, H. R., C. Urbarz, et al. (2002). "Long-term results of modified graciloplasty for sphincter replacement after rectal excision." <u>Colorectal Disease</u> 4 (4): 266-269.	Ex	Other patient group
60	Rouanet, P., P. Senesse, et al. (1999). "Anal sphincter reconstruction by dynamic graciloplasty after abdominoperineal resection for cancer." <u>Diseases of the Colon and Rectum</u> 42 (4): 451-456.	Ex	Other patient group
	Scala, D., P. Delrio, et al. (2012). "Percutaneous tibial nerve stimulation in patients with the 'anterior resection syndrome': Preliminary results of a pilot study." <u>Colorectal Disease</u> 14 : 30.	Ex	Outcomes reported as: 'Encouraging early improvement in all the evaluated parameters were recorded'
	Shamliyan, T., J. Wyman, et al. (2007). "Prevention of urinary and fecal incontinence in adults." <u>Evid Rep Technol Assess (Full Rep)</u> (161): 1-379.	Ex	http://www.ncbi.nlm.nih.gov/books/NBK38514/ Extensive systematic review with no information on interventions in patients with rectal carcinoma
	Sloots K, Bartlett L. Practical strategies for treating postsurgical bowel dysfunction. <u>J Wound Ostomy Continence Nurs</u> . 2009 Sep-Oct;36(5):522-7	Ex	Mainly description of a programme with results presented as: 'Results from our clinic show a 30% improvement in median HRQOL measured via the FIQOL, and a 48% improvement in

	Reference	In-/Excluded	Reason(s)
			median continence scores for 83% of patients over the median 7-week treatment period'. No further description of patient characteristics
	Venturini, M., G. Bertelli, et al. (1990). "Colostomy irrigation in the elderly: Effective recovery regardless of age." <i>Diseases of the Colon and Rectum</i> 33(12): 1031-1033.	Ex	Other patients (all with stomata)
65	Vaizey CJ, Kamm MA, Turner IC, Nicholls RJ, Woloszko J. Effects of short term sacral nerve stimulation on anal and rectal function in patients with anal incontinence. <i>Gut</i> . 1999 Mar;44(3):407-12	Ex	No patients with rectal carcinoma included
66	Wong, W. D., S. M. Congliosi, et al. (2002). "The safety and efficacy of the artificial bowel sphincter for fecal incontinence: results from a multicenter cohort study." <i>Dis Colon Rectum</i> 45(9): 1139-1153.	Ex	Apparently no patients with surgery for rectal cancer, although they could be included in the 23 'neurologic' or 14 'miscellaneous' patients. No separate outcomes reported for these groups of patients

4. KEY QUESTION 4B

b. *Welke interventies hebben een positief effect op de QoL bij patiënten die na rectum resectie klachten van urine incontinentie hebben?*

P: patiënten die een (**any**) resectie voor rectumcarcinoom hebben ondergaan en last hebben van **urine** incontinentie

I: elke interventie

C: geen enkele interventie

O: QoL

5. SEARCH STRATEGY 4B

Searches were run on November 29, 2012 for systematic reviews (SRs), randomised controlled trials (RCTs) and observational studies. Pubmed Medline, CINAHL and SCOPUS were searched. Detailed search strings are given below.

6. SEARCH RESULTS 4B

The Medline search yielded 134 hits, while the CINAHL search yielded 17 hits and the SCOPUS search 35 hits. The search included systematic reviews, randomised trials and observational studies.

FULL-TEXT EVALUATION

After merging the 3 search files into 1 file and removal of the duplicates, 153 records were screened on title and abstract. Of these 150 were excluded. The most important reasons for exclusion were that studies were on other patients or interventions, or were on the assessment of urinary incontinence or its risk factors.

Of the remaining 3 studies, the full-text was retrieved. Table 2 provides an overview of the evaluation of these studies.

Table 2 Key question 4b: overview of reviews evaluated full-text.

	Reference	In-/Excluded	Reason(s)
1	Gillespie, L., Z. Barbaric, et al. (1985). "Effect of abdominal perineal resection on genitourinary tract." <i>Urology</i> 25(3): 259-263.	In	Narrative review with a description of 2 cases with incontinence after surgery for rectal carcinoma.
	Lange, M. M. and C. J. van de Velde (2008). "Faecal and urinary incontinence after multimodality treatment of	Ex	Narrative review + case report (n=1), no treatment evaluation for urinary incontinence offered, used for

	Reference	In-/Excluded	Reason(s)
	rectal cancer." PLoS Med 5(10): e202.		reference tracking
3	Shamliyan, T., J. Wyman, et al. (2007). "Prevention of urinary and fecal incontinence in adults." Evid Rep Technol Assess (Full Rep)(161): 1-379.	Ex	http://www.ncbi.nlm.nih.gov/books/NBK38514/ Extensive systematic review with no information on interventions in patients with rectal carcinoma

7. KEY QUESTION 4C

c. *Welke interventies verbeteren de QoL bij patiënten met seksueel disfunctioneren na rectumchirurgie?*

P: Alle patiënten die een rectum resectie ondergaan hebben en **seksuele disfunctie** klachten hebben (klachten kunnen zijn: pijn, verminderd libido, erectiele stoornissen, retrograde ejaculatie, sensibiliteitsstoornissen; premature menopauze)

I: any interventie

C: geen enkele interventie

O: verminderd seksueel disfunctioneren

8. SEARCH STRATEGY 4C

Searches were run on November 29, 2012 for systematic reviews (SRs), randomised controlled trials (RCTs) and observational studies. Pubmed Medline and CINAHL were searched. Detailed search strings are given below.

9. SEARCH RESULTS 4C

The Medline search yielded 667 hits, while the Cinahl search yielded 89 hits. The search included systematic reviews, randomised trials and observational studies.

FULL-TEXT EVALUATION

After merging the 2 search files into 1 file and removal of the duplicates, 705 records were screened on title and abstract. Of these 665 were excluded. The most important reasons for exclusion were that studies were on other populations, interventions or comparisons or were concerned with the prevalence of sexual dysfunction after rectal surgery.

Of the remaining 40 studies, the full-text was retrieved. In addition, 4 studies were identified through reference tracking. Table 3 provides an overview of the evaluation of these 44 studies.

Table 3 Key question 4c: overview of studies evaluated full-text

	Reference	In-/Excluded	Reason(s)
1	(2011). "Erectile dysfunction after treatment for colorectal cancer: Is common, but under-recognised and undertreated." <u>BMJ: British Medical Journal (Overseas & Retired Doctors Edition)</u> 343 (7831): 975-975.	Ex	Not on the treatment of sexual dysfunction
	(2011). "Male colorectal cancer patients need sexual rehabilitation advice." <u>Gastrointestinal Nursing</u> 9 (9): 10-10.	Ex	News article
	Andersen, B. L. (1985). "Sexual functioning morbidity among cancer survivors. Current status and future research directions." <u>Cancer</u> 55 (8): 1835-1842.	Ex	Narrative review, not on the treatment of sexual dysfunction
	Andersen, B. L. (1990). "How cancer affects sexual functioning." <u>Oncology (Williston Park)</u> 4 (6): 81-88; discussion 92-84.		
5	Bambrick M, Fazio VW, Hull TL, Pucel G. Sexual function following restorative proctocolectomy in women. Dis		

	Reference	In-/Excluded	Reason(s)
	Colon Rectum 1996; 39: 610-14		
	Banerjee, A. K. (1999). "Sexual dysfunction after surgery for rectal cancer." <u>Lancet</u> 353 (9168): 1900-1902.	Ex	Letter, no information on the treatment of sexual dysfunction
	Beck, M. and D. Justham (2009). "Nurses' attitudes towards the sexuality of colorectal patients." <u>Nurs Stand</u> 23 (31): 44-48.	Ex	Narrative review, no information on the treatment of sexual dysfunction
	Bruner, D. W. and T. Calvano (2007). "The sexual impact of cancer and cancer treatments in men." <u>Nursing Clinics of North America</u> 42 (4): 555-580.	Ex	Narrative review, used for reference tracking
	de Bernardinis, G., D. Tuscano, et al. (1981). "Sexual dysfunction in males following extensive colorectal surgery." <u>Int Surg</u> 66 (2): 133-135.	Ex	No information on the treatment of sexual dysfunction
10	Delacroix, S. E., Jr. and J. C. Winters (2010). "Voiding dysfunction after pelvic colorectal surgery." <u>Clin Colon Rectal Surg</u> 23 (2): 119-127.	Ex	Narrative review, used for reference tracking
	Denlinger, C. S. and A. M. Barsevick (2009). "The challenges of colorectal cancer survivorship." <u>J Natl Compr Canc Netw</u> 7 (8): 883-893; quiz 894.	Ex	Narrative review, used for reference tracking
	Desai, T. K., J. L. Kinzie, et al. (1988). "Life after colectomy." <u>Gastroenterol Clin North Am</u> 17 (4): 905-915.	Ex	Narrative review, used for reference tracking
	DeSnoo L, Faithfull S. A qualitative study of anterior resection syndrome: the experiences of cancer survivors who have undergone resection surgery. <u>European Journal of Cancer Care</u> . 2006; 15 (3):244-251	Ex	No information on the treatment of sexual dysfunction
	Donovan, K. A., L. M. Thompson, et al. (2010). "Sexual function in colorectal cancer survivors." <u>Cancer Control</u> 17 (1): 44-51.	Ex	Narrative review, used for reference tracking
15	Dunberger, G. and K. Bergmark (2012). "Nurse-led care for the management of side effects of pelvic radiotherapy: what does it achieve?" <u>Curr Opin Support Palliat Care</u> 6 (1): 60-68.	Ex	Other population
	Eveno, C., A. Lamblin, et al. (2010). "Sexual and urinary dysfunction after proctectomy for rectal cancer." <u>J Visc Surg</u> 147 (1): e21-30.	Ex	Narrative review, used for reference tracking
	Gallina, A., A. Briganti, et al. (2010). "Surgery and erectile dysfunction." <u>Arch Esp Urol</u> 63 (8): 640-648.	Ex	Narrative review, used for reference tracking
	Hassan, I. and R. R. Cima (2007). "Quality of life after rectal resection and multimodality therapy." <u>J Surg Oncol</u> 96 (8): 684-692.	Ex	No information on the treatment of sexual dysfunction
	Havenga, K. and W. E. Enker (2002). "Autonomic nerve preserving total mesorectal excision." <u>Surg Clin North Am</u> 82 (5): 1009-1018.	Ex	No information on the treatment of sexual dysfunction
20	Hendren, S. K., B. I. O'Connor, et al. (2005). "Prevalence of male and female sexual dysfunction is high following surgery for rectal cancer." <u>Ann Surg</u> 242 (2): 212-223.	Ex	No information on the treatment of sexual dysfunction
	Ho, V. P., Y. Lee, et al. (2011). "Sexual function after treatment for rectal cancer: a review." <u>Dis Colon Rectum</u> 54 (1): 113-125.	Ex	No information on the treatment of sexual dysfunction
	Keating, J. P. (2004). "Sexual function after rectal excision." <u>ANZ J Surg</u> 74 (4): 248-259.	Ex	Narrative review, used for reference tracking
	Lamb, M. A. (1995). "Effects of cancer on the sexuality and fertility of women." <u>Semin Oncol Nurs</u> 11 (2): 120-127.	Ex	Narrative review, used for reference tracking
	Lange, M. M. and Cjh (2010). "Long-term anorectal and urogenital dysfunction after rectal cancer treatment." <u>Seminars in Colon & Rectal Surgery</u> 21 (2): 87-94.		
25	Lange, M. M. and C. J. van de Velde (2011). "Urinary and sexual dysfunction after rectal cancer treatment." <u>Nat Rev Urol</u> 8 (1): 51-57.	Ex	Narrative review, used for reference tracking

	Reference	In-/Excluded	Reason(s)
	Lange, M. M. and C. J. van de Velde (2012). "The role of radiotherapy in the causation of poor function after rectal cancer treatment." <u>Colorectal Dis.</u>	Ex	Letter, no information on the treatment of sexual dysfunction
	Lindsey, I., B. George, et al. (2002). "Randomized, double-blind, placebo-controlled trial of sildenafil (Viagra) for erectile dysfunction after rectal excision for cancer and inflammatory bowel disease." <u>Dis Colon Rectum</u> 45 (6): 727-732.	In	
	Lue, T. F. (1991). "Impotence after radical pelvic surgery: physiology and management." <u>Urol Int</u> 46 (3): 259-265.	Ex	Narrative review, used for reference tracking
	Mancini, R., M. Cosimelli, et al. (2000). "Nerve-sparing surgery in rectal cancer: feasibility and functional results." <u>J Exp Clin Cancer Res</u> 19 (1): 35-40.	Ex	No information on the treatment of sexual dysfunction
30	Massa, L. (2011). "Pelvic Floor Physical Therapy Interventions for Oncology Patients." <u>Topics in Geriatric Rehabilitation</u> 27 (3): 206-214.	Ex	Narrative review
	Miles, C. L., B. Candy, et al. (2007). "Interventions for sexual dysfunction following treatments for cancer." <u>Cochrane Database of Systematic Reviews</u> (4): CD005540.	Ex	Other populations
	Moriya, Y. (2006). "Function preservation in rectal cancer surgery." <u>Int J Clin Oncol</u> 11 (5): 339-343.	Ex	No information on the treatment of sexual dysfunction
	Nishizawa, Y., M. Ito, et al. (2011). "Male sexual dysfunction after rectal cancer surgery." <u>Int J Colorectal Dis</u> 26 (12): 1541-1548.	Ex	Observational study on sildenafil, for which an RCT was included
	Ofman, U. S. and S. S. Auchincloss (1992). "Sexual dysfunction in cancer patients." <u>Curr Opin Oncol</u> 4 (4): 605-613.	Ex	Letter, no information on the treatment of sexual dysfunction
35	Öresland T, Palmblad S, Ellstrom M, Berndtsson I, Crona N, Hulten L. Gynaecological and sexual function related to anatomical changes in the female pelvis after restorative proctocolectomy. <u>Int. J. Colorect. Dis.</u> 1994; 9 : 77–81.	Ex	No information on the treatment of sexual dysfunction
	Panjari, M., R. J. Bell, et al. (2012). "Sexual function, incontinence, and wellbeing in women after rectal cancer-a review of the evidence." <u>J Sex Med</u> 9 (11): 2749-2758.	Ex	Review without data on treatment of incontinence or sexual dysfunction
	Raina, R., G. Pahlajani, et al. (2007). "Female sexual dysfunction: classification, pathophysiology, and management." <u>Fertil Steril</u> 88 (5): 1273-1284.	Ex	Narrative review, used for reference tracking
	Salonia, A., A. Briganti, et al. (2006). "Women's sexual dysfunction: a review of the "surgical landscape"." <u>Eur Urol</u> 50 (1): 44-52.	Ex	No information on the treatment of sexual dysfunction
	Sterk P, Shekarriz B, Günter S, et al. Voiding and sexual dysfunction after deep rectal resection and total mesorectal excision: prospective study on 52 patients. <u>Int J Colorectal Dis.</u> 2005; 20 (5):423-427	In	Observational study, eight men with sexual dysfunction 3 months after surgery were treated with sildenafil and subsequently with SKAT. It was concluded that a good erection (sufficient for intercourse) could be reached in five out of eight men with SKAT
40	Temple, L. K. (2011). "Erectile dysfunction after treatment for colorectal cancer." <u>BMJ</u> 343 : d6366.	Ex	No information on the treatment of sexual dysfunction
	Traa, M. J., J. De Vries, et al. (2012). "Sexual (dys)function and the quality of sexual life in patients with colorectal cancer: a systematic review." <u>Ann Oncol</u> 23 (1): 19-27.	Ex	No information on the treatment of sexual dysfunction
	Tsujimoto, H., T. Nakamura, et al. (2011). "Regeneration and functional recovery of intrapelvic nerves removed during extensive surgery by a new artificial nerve conduit: a breakthrough to radical operation for locally advanced and recurrent rectal cancers." <u>J Gastrointest Surg</u> 15 (6): 1035-1042.	Ex	Other population

	Reference	In-/Excluded	Reason(s)
	van Driel, M. F., W. C. Weymar Schultz, et al. (1993). "Female sexual functioning after radical surgical treatment of rectal and bladder cancer." <i>Eur J Surg Oncol</i> 19 (2): 183-187.	Ex	No information on the treatment of sexual dysfunction
44	Zang, Y. L., L. Y. Chung, et al. (2008). "A review of the psychosocial issues for nurses in male genitalia-related care." <i>J Clin Nurs</i> 17 (8): 983-998.	Ex	No information on the treatment of sexual dysfunction

SEARCH STRINGS

Searches were run on November 29, 2012. Searches were limited to studies published in English, from 1980 onwards.

10. MEDLINE, MEDLINE IN PROGRESS (VIA PUBMED)

A. 4A

("Rectal Neoplasms "[Mesh] OR ((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) AND ("Fecal Incontinence"[Mesh] OR ((fecal OR faecal OR feces OR faeces) AND incontinent*))

B. 4B

("Rectal Neoplasms "[Mesh] OR ((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) AND ("Urinary Incontinence"[Mesh] OR ((urine OR urinary) AND incontinent*))

C. 4C

("Rectal Neoplasms "[Mesh] OR ((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) AND ("Sexual Dysfunction, Physiological"[Mesh] OR "Sexual Dysfunctions, Psychological"[Mesh] OR "Menopause, Premature"[Mesh] OR (sexual AND dysfunction) OR (pain* AND (intercourse OR sex OR sexual)) OR dyspareunia OR ((erection* OR erectile) AND dysfunction) OR impoten* OR (menopaus* AND premature*) OR (retrograde AND ejaculation))

11. EMBASE (VIA OVID)

- 1 exp feces incontinence/dm, dt, rh, su, th [Disease Management, Drug Therapy, Rehabilitation, Surgery, Therapy] (3422)
- 2 ((fecal or faecal or feces or faeces) and incontinen*).tw. (6487)
- 3 1 or 2 (8131)
- 4 exp rectum cancer/ (100124)
- 5 (colorectal or rectum or rectal).tw. (193202)
- 6 (cancer* or carcinoma* or adenocarcinoma* or malignan* or tumor* or tumour* or neoplasm*).tw. (2536234)
- 7 5 and 6 (134197)
- 8 4 or 7 (158214)
- 9 3 and 8 (520)

10 limit 9 to (english language and yr="1980 -Current") (449)

12. CINAHL (VIA WEB.EBSCOHOST.COM)

D. 4A

((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) OR MH "Rectal Neoplasms+"

AND

((fecal OR faecal OR feces OR faeces) AND incontinent*) OR MH "Fecal Incontinence"

E. 4B

((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) OR MH "Rectal Neoplasms+"

AND

((urine OR urinary) AND incontinent*) OR MH "Urinary Incontinence+"

F. 4C

((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) OR MH "Rectal Neoplasms+"

AND

(MH "Sexual Dysfunction, Female+") OR (MH "Sexual Dysfunction, Male+") OR (MH "Psychosexual Disorders+") OR (sexual AND dysfunction) OR (MH "Menopause, Premature") OR (premature* AND menopause*) OR (MH "Dyspareunia") OR dyspareunia OR (pain* AND (intercourse OR sex OR sexual)) OR ((erection* OR erectile) AND dysfunction) OR impoten* OR (retrograde AND ejaculation)

13. SCOPUS (VIA WWW.SCOPUS.COM)

G. 4A

TITLE-ABS-KEY(((colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*)) AND ((fecal OR faecal OR feces OR faeces) AND incontinent*)) AND PUBYEAR > 1979

H. 4B

(colorectal OR rectal OR rectum OR rectosigmoid) AND (cancer* OR carcinoma* OR adenocarcinoma* OR malignan* OR tumor* OR tumour* OR neoplasm*) AND ((urine OR urinary) AND incontinent*)

14. CDSR (VIA THE COCHRANE LIBRARY)

The Cochrane Database of Systematic Reviews was browsed by topic:

- a. cancer -> colorectal -> surgery
- b. cancer -> colorectal -> medical and adjuvant therapy
- c. cancer -> colorectal -> rehabilitation and management
- d. cancer -> generic cancer care -> complementary and alternative medicine
- e. cancer -> generic cancer care -> drug therapies for cancers of similar type
- f. cancer -> generic cancer care -> physical therapies
- g. cancer -> generic cancer care -> psychosocial interventions
- h. urology -> incontinence
- i. urology -> sexual problems
- j. urology -> erectile dysfunction

REFERENCES