

Supplementary materials 5: Tables of results for evidence from randomised controlled trials

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Table 1. Data for clinical outcomes for each study trialling an ERP intervention to improve recovery following colorectal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Anderson 2003 ¹	LOS (days)	14	4.0	1.77	10	7.0	2.07			-1.60 (-2.54 to -.66)	-3.0 (-4.66 to -1.40)	<.001
Anderson 2003 ¹	Readmissions (n)	14	0		11	0						
Anderson 2003 ¹	Mortality (n)	14	0		11	1						.25
Anderson 2003 ¹	Patients with postop complications (n)	14	4		11	5				OR: 0.48 (0.09 to 2.52)		.38
Chen 2017 ² (Right hemi- colectomy)	Delirium incidence (%)	32	3.1		32	6.3				OR: 0.48 (0.04 to 5.55)		.55
Chen 2017 ² (Right hemi- colectomy)	LOS (days)	32	12 (median)	10 to 14 (IQR)	32	13 (median)	11.25 to 15.25 (IQR)	12.0 (3.1)	13.0 (4.3)	-.32 (-.82 to .17)	-1.0 (-2.52 to .52)	.29
Chen 2017 ² (Left hemi- colectomy, LAR or AR)	Delirium incidence (%)	67	9.0		67	14.9				OR: 0.56 (0.19 to 1.65)		.29
Chen 2017 ² (Left hemi- colectomy, LAR or AR)	LOS (days)	67	12 (median)	10 to 14 (IQR)	67	12 (median)	10.5 to 14.5 (IQR)	12.0 (3.0)	12.0 (3.8)	0.0 (-.34 to .34)	0.0 (-1.16 to 1.16)	1.0
Forsmo 2016 ³	Total stay, including readmissions (days)	154	5 (median)	2 to 50 (range)	153	8 (median)	2 to 48 (range)					
Forsmo 2016 ³	Postop LOS (days)	154	5 (median)	2 to 50 (range)	153	7 (median)	2 to 48 (range)					

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Forsmo 2016 ³	Readmissions <30 days (%)	154	18.8		153	13.4			OR: 1.46 (0.79 to 2.69)		.23	
Forsmo 2016 ³	Morbidity <30 days (%)	154	42.2		153	44.4			OR: 0.91 (0.58 to 1.43)		.69	
Forsmo 2016 ³	Mortality <30 days (%)	154	1.9		153	0					.08	
Forsmo 2016 ³	Reoperations (%)	154	11.0		153	7.2			OR: 1.6 (0.72 to 3.54)		.24	
Forsmo 2016 ³	Patients with major complication (%)	154	11.1		153	7.8			OR: 1.46 (0.67 to 3.17)		.34	
Forsmo 2016 ³	Patients with minor complication (%)	154	34.4		153	41.2			OR: 0.75 (0.47 to 1.19)		.22	
Garcia-Botello 2011 ⁴	LOS (days)	61	4.2	2.2	58	9.2	7.0			-0.99 (-1.37 to -0.61)	-5.1 (-6.94 to -3.22)	<.001
Garcia-Botello 2011 ⁴	Readmission <30 days (%)	61	4.9		58	3.4			OR: 1.45 (0.23 to 9)		.69	
Garcia-Botello 2011 ⁴	Postoperative ileus (%)	61	19.6		58	19.0			OR: 1.05 (0.42 to 2.6)		.92	
Garcia-Botello 2011 ⁴	Vomiting (%)	61	19.6		58	17.2			OR: 1.18 (0.46 to 2.98)		.73	
Garcia-Botello 2011 ⁴	Re-insertion of nasogastric tube (%)	61	11.5		58	15.5			OR: 0.71 (0.24 to 2.04)		.52	
Garcia-Botello 2011 ⁴	Total complications (n)	61	31		58	30			OR: 0.96 (0.47 to 1.98)		.92	
Gatt 2005 ⁵	LOS (days)	19	5	4 to 9	20	7.5	6 to 10					

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate (median)	Variance (range)	n	Estimate (median)	Variance (range)					
Gatt 2005 ⁵	Readmissions <30 days (%)	19	5.2		20	20.0			OR: 0.22 (0.02 to 2.2)		.17	
Gatt 2005 ⁵	GP assessments <30 days (%)	19	5.2		20	0					.30	
Gatt 2005 ⁵	Patients with complications (%)	19	47.4		20	75.0			OR: 0.3 (0.08 to 1.16)		.08	
Gatt 2005 ⁵	Mortality (%)	19	5.2		20	0					.30	
Khoo 2007 ⁶	Postop LOS (days)	35	5 (median)	3 to 37 (range)	35	7 (median)	4 to 63 (range)					
Khoo 2007 ⁶	Postop stay including readmissions (days)	35	5 (median)	3 to 37 (range)	35	7 (median)	4 to 63 (range)					
Khoo 2007 ⁶	GP advice sought: outcome = advice only (n)	35	4		35	7			OR: 0.48 (0.13 to 1.82)		.27	
Khoo 2007 ⁶	GP advice sought: outcome = prescription given (n)	35	4		35	3			OR: 1.29 (0.27 to 6.26)		.75	
Khoo 2007 ⁶	GP advice sought: outcome = readmitted (n)	35	3		35	3			OR: 1.0 (0.19 to 5.33)		1.0	
Khoo 2007 ⁶	Patient called ward for advice (n)	35	4		35	4			OR: 1.0 (0.23 to 4.36)		1.0	
Khoo 2007 ⁶	Mortality (n)	35	0		35	2					.15	
Khoo 2007 ⁶	Total number of complications (n)	35	9		35	18			OR: 0.33 (0.12 to 0.89)		<.05	
Lee 2011 ⁷	Postop LOS (days)	45	7 (median)	6 to 8 (range)	54	8 (median)	7 to 9 (range)					
Lee 2011 ⁷	Total LOS (days)	45	9	8 to 10	54	10	9 to 11					

Study	Outcome (units)	Intervention			Comparator			Intervention	Comparator	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate (median)	Variance (range)	n	Estimate (median)	Variance (range)	Imputed Mean (SD)	Imputed Mean (SD)			
Lee 2011 ⁷	Total complications (n)	45	6		54	14				OR: 0.44 (0.15 to 1.26)		.12
Lidder 2013 ⁸	Actual postop discharge day (days)	27	7 (median)	5 to 10 (IQR)	30	8.5 (median)	6 to 13.3 (IQR)	7.3 (3.9)	9.3 (5.7)	-.39 (-.92 to .13)	-1.93 (-4.55 to .69)	.13
Lidder 2013 ⁸	Total number of complications by POD5 (n)	27	15		30	20				OR: 0.63 (0.21 to 1.83)		.39
Lidder 2013 ⁸	Patients with complications by POD5 (n)	27	10		30	13				OR: 0.77 (0.27 to 2.23)		.63
Lidder 2013 ⁸	Total number of complications by day 30 (n)	27	15		30	27				OR: 0.14 (0.03 to 0.57)		<.01
Lidder 2013 ⁸	Patients with complications by day 30 (n)	27	10		30	15				OR: 0.59 (0.2 to 1.7)		.33
Maggiore 2017 ⁹	LOS (days)	130	10.6	5.3	133	10.9	5.2			-.06 (-.30 to .18)	-.3 (-1.57 to .97)	.64
Maggiore 2017 ⁹	Theoretical LOS (days)	130	9.6	5.1	133	9.7	3.3			-.02 (-.27 to .22)	-.1 (-1.14 to .94)	.85
Maggiore 2017 ⁹	Mortality <30 days (%)	130	0		133	0						
Maggiore 2017 ⁹	Patients with >1 complications (%)	130	35.4		133	28.6				OR: 1.37 (0.81 to 2.3)		.24
Maggiore 2017 ⁹	Patients with severe morbidity (%)	130	7.5		133	11.5				OR: 0.62 (0.27 to 1.45)		.27
Mari 2014 ¹⁰	Day of discharge	25	4.7	2.4	25	7.7	2.4			-1.22 (-1.83 to -.62)	-2.95 (-4.31 to -1.59)	<.001
Mari 2014 ¹⁰	Readmissions (%)	25	0		25	0						
Mari 2014 ¹⁰	Complications (n)	25	1		25	0						.31

Study	Outcome (units)	Intervention			Comparator			Intervention	Comparator	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance	Imputed Mean (SD)	Imputed Mean (SD)			
Mari 2016 ¹¹	Day of discharge	40	4.7	1.2	43	6	1.6			-0.91 (-1.37 to -.46)	-1.3 (-1.92 to -.68)	<.001
Mari 2016 ¹¹	Complications (n)	40	4		43	3				OR: 1.48 (0.31 to 7.07)		.62
Muller 2009 ¹²	LOS (days)	76	5 (median)	2 to 30 (range)	75	9 (median)	6 to 30 (range)					
Muller 2009 ¹²	Readmissions (n)	76	3		75	2				OR: 1.5 (0.24 to 9.24)		.66
Muller 2009 ¹²	General complications (n)	76	7		75	21				OR: 0.26 (0.1 to 0.66)		<.01
Muller 2009 ¹²	Surgical complications (n)	76	9		75	16				OR: 0.5 (0.2 to 1.2)		.12
Muller 2009 ¹²	Patients with a complication (n)	76	13		75	28				OR: 0.35 (0.16 to 0.74)		<.01
Pappalardo 2016 ¹³	Dischargeable day: POD 4	25	17		25	0						
Pappalardo 2016 ¹³	Dischargeable day: POD 5	25	5		25	5						
Pappalardo 2016 ¹³	Dischargeable day: POD 6	25	3		25	8						
Pappalardo 2016 ¹³	Dischargeable day: POD 7 or more	25	0		25	7						
Pappalardo 2016 ¹³	Mortality <30 days (%)	25	0		25	0						
Pappalardo 2016 ¹³	Anastomic leakage (n)	25	3		25	2				OR: 1.57 (0.24 to 10.3)		.64
Pappalardo 2016 ¹³	Postop nausea (n)	25	1		25	4				OR: 0.22 (0.02 to 2.11)		.16
Pappalardo 2016 ¹³	Total complications (n)	25	4		25	6				OR: 0.6 (0.15 to 2.47)		.48
Vlug 2011 ¹⁴	Total LOS (days)	100	5 (median)	4 to 8 (IQR)	109	6 (median)	4.5 to 9.5 (IQR)	5.7 (3.0)	6.7 (3.8)	-.29 (-.57 to -.02)	-1.0 (-1.9 to -.07)	<.05
Vlug 2011 ¹⁴	Postop LOS	100	5	4 to 7	109	6	4 to 8.5	5.3 (2.3)	6.2 (3.4)	-.29	-.83	<.05

Study	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Laparoscopy	(days)		(median)	(IQR)		(median)	(IQR)			(-.56 to -.02)	(-1.6 to -.04)	
Vlug 2011 ¹⁴ Laparoscopy	Reoperation rate (%)	100	10		109	10.1				OR: .99 (0.4 to 2.44)		.98
Vlug 2011 ¹⁴ Laparoscopy	Readmission rate (%)	100	6		109	6.4				OR: 0.93 (0.3 to 2.88)		.91
Vlug 2011 ¹⁴ Laparoscopy	Patients with major complications (%)	100	15		109	11				OR: 1.43 (0.63 to 3.22)		.39
Vlug 2011 ¹⁴ Laparoscopy	Mortality (%)	100	2		109	1.8				OR: 1.11 (0.15 to 8.13)		.92
Vlug 2011 ¹⁴ Open	Total LOS (days)	93	7 (median)	5 to 11 (IQR)	98	7 (median)	6 to 13 (IQR)	7.7 (4.5)	8.7 (5.2)	-.20 (-.49 to .08)	-1.0 (-2.4 to .40)	.16
Vlug 2011 ¹⁴ Open	Postop LOS (days)	93	6 (median)	4.5 to 10 (IQR)	98	7 (median)	6 to 10.5 (IQR)	6.8 (4.1)	7.8 (3.4)	-.26 (-.55 to -.02)	-1.0 (-2.08 to .08)	.07
Vlug 2011 ¹⁴ Open	Reoperation rate (%)	93	14		98	18.4				OR: 0.72 (0.33 to 1.57)		.41
Vlug 2011 ¹⁴ Open	Readmission rate (%)	93	7.5		98	7.1				OR: 1.06 (0.36 to 3.16)		.92
Vlug 2011 ¹⁴ Open	Patients with major complications (%)	93	20.4		98	21.4				OR: 0.94 (0.47 to 1.89)		.87
Vlug 2011 ¹⁴ Open	Mortality (%)	93	4.3		98	2.0				OR: 2.2 (0.39 to 12.46)		.36

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). LOS=Length of stay; SE=Standard Error; IQR=Interquartile range; OR=Odds Ratio; POD=Post-operative day; SD=Standard deviation; CI=Confidence interval; Postop=Postoperative; LAR=Lower Anterior Resection; AR=Anterior Resection; n=sample size

Table 2. Data for patient-reported outcomes for each study trialling an ERP intervention to improve recovery following colorectal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Anderson 2003 ¹	Return of gastrointestinal function (postop hours)	14	48 (median)	33 to 55 (IQR)	11	76	70 to 110 (IQR)	45.3 (18.1)	85.3 (33.9)	-1.53 (-2.43 to -.66)	-40.0 (-61.8 to -18.2)	<.001
Anderson 2003 ¹	Walked to toilet unaided (postop hours)	14	46 (median)	37 to 54 (IQR)	11	69 (median)	44 to 121 (IQR)	45.7 (14.0)	78.0 (65.3)	-.65 (-1.46 to .16)	-32.3 (-69.3 to 4.6)	.08
Forsmo 2016 ³	Passage of first flatus (POD)	154	1 (median)	0 to 4 (range)	153	1 (median)	1 to 14 (range)					
Forsmo 2016 ³	Passage of first stool (POD)	154	1 (median)	1 to 6 (range)	153	2 (median)	1 to 14 (range)					
Forsmo 2016 ³	Tolerating food without nausea (POD)	154	2 (median)	0 to 9 (range)	153	1 (median)	0 to 12 (range)					
Forsmo 2016 ³	Pain control with oral medication (POD)	154	2 (median)	0 to 9 (range)	153	4 (median)	0 to 16 (range)					
Forsmo 2016 ³	C-reactive protein levels (mg/L)	154	121 (median)	19 to 499 (range)	153	96 (median)	7 to 454 (range)					
Garcia-Botello 2011 ⁴	Start of liquid diet (POD)	61	0 (median)	0 to 2 (range)	58	3 (median)	1 to 5 (range)					
Garcia-Botello 2011 ⁴	Passage of first flatus (POD)	61	1 (median)	1 to 3 (range)	58	3 (median)	1 to 6 (range)					
Garcia-Botello 2011 ⁴	Passage of first stool (POD)	61	3 (median)	3 to 7 (range)	58	4 (median)	2 to 8 (range)					
Garcia-	Pain on POD1	61	4	1 to 9	58	5	1 to 10					

Study, intervention	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Botello 2011 ⁴	(VAS 1-10)		(median)	(range)		(median)	(range)					
Garcia-Botello 2011 ⁴	Pain on POD2 (VAS 1-10)	61	4 (median)	1 to 8 (range)	58	4 (median)	2 to 8 (range)					
Garcia-Botello 2011 ⁴	Pain on POD3 (VAS 1-10)	61	3 (median)	1 to 6 (range)	58	3 (median)	1 to 7 (range)					
Gatt 2005 ⁵	Time out of bed on POD1 (mins)	19	105 (median)	34 to 225 (range)	20	8 (median)	0 to 38 (range)					
Khoo 2007 ⁶	Tolerating solid diet (POD)	35	1 (median)	0 to 6 (range)	35	4 (median)	2 to 9 (range)					
Khoo 2007 ⁶	Independent mobility (POD)	35	2 (median)	1 to 10 (range)	35	4 (median)	2 to 32 (range)					
Khoo 2007 ⁶	Passage of first stool (POD)	35	3 (median)	1 to 5 (range)	35	5 (median)	0 to 23 (range)					
Khoo 2007 ⁶	Patient felt they would benefit from longer stay (n)	35	3		35	24						
Lee 2011 ⁷	Fluid intake (postop hours)	46	6 (median)	5 to 10.5 (IQR)	54	71 (median)	48 to 195 (IQR)	7.2 (4.2)	70.2 (33.1)	-2.57 (-3.1 to -2.04)	-63.0 (-72.8 to -53.2)	<.001
Lee 2011 ⁷	Normal diet (postop hours)	56	43 (median)	39 to 46.5 (IQR)	54	95 (median)	85 to 113.5 (IQR)	42.8 (5.7)	97.8 (21.7)	-3.49 (-4.09 to -2.9)	-55.0 (-61.0 to -49.0)	<.001
Lee 2011 ⁷	Passage of first flatus (postop hours)	46	58 (median)	39 to 74.2 (IQR)	54	62 (median)	41 to 79 (IQR)	57.1 (26.9)	60.7 (28.9)	-.13 (-.52 to .27)	-3.6 (-14.8 to 7.6)	.52
Lee 2011 ⁷	Passage of first stool (postop hours)	46	113 (median)	76 to 144 (IQR)	54	120 (median)	86 to 145 (IQR)	111.0 (52.0)	117.0 (44.9)	-.12 (-.52 to .27)	-6.0 (-25.2 to 13.2)	.54
Lee 2011 ⁷	Overall time to recovery (postop hours)	46	93.5 (median)	84 to 110 (IQR)	54	127 (median)	101 to 138.3 (IQR)	95.8 (19.9)	122.1 (28.4)	-1.06 (-1.48 to -.64)	-26.3 (-36.2 to -16.4)	<.001

Study, intervention	Outcome (units)	Intervention			Comparator			Intervention	Comparator	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance	Imputed Mean (SD)	Imputed Mean (SD)			
Lee 2011 ⁷	Tolerating diet for 24 hours (postop hours)	46	67 (median)	63 to 70.5 (IQR)	54	120 (median)	98 to 127 (IQR)	66.8 (5.7)	115.0 (22.1)	-2.88 (-3.45 to -2.32)	-48.2 (-54.8 to -41.5)	<.001
Lee 2011 ⁷	Safe ambulation (postop hours)	46	18 (median)	14 to 20.7 (IQR)	54	21 (median)	18 to 24 (IQR)	17.6 (5.1)	21.0 (4.6)	-.71 (-1.11 to -.3)	-3.4 (-5.4 to -1.5)	<.001
Lee 2011 ⁷	Analgesic-free (postop hours)	46	88 (median)	71.5 to 120 (IQR)	54	117 (median)	86 to 149 (IQR)	93.2 (37.1)	117.3 (48.0)	-.56 (-.96 to -.16)	-24.2 (-41.4 to -6.9)	<.01
Lee 2011 ⁷	Afebrile without complications (postop hours)	46	84 (median)	84 to 108 (IQR)	54	118 (median)	90 to 117.5 (IQR)	92.0 (18.4)	108.5 (20.9)	-.83 (-1.24 to -.42)	-16.5 (-24.4 to -8.6)	<.001
Lee 2011 ⁷	Pain (VAS score)	46	1.2	1.1	54	1.1	1.3			.08 (-.31 to .48)	.1 (-.38 to .58)	.68
Lidder 2013 ⁸	Fit for discharge (POD)	27	7 (median)	5 to 10 (IQR)	30	8 (median)	6 to 13 (IQR)	7.3 (3.9)	9.0 (5.5)	-.35 (-.87 to .17)	-1.67 (-4.21 to .88)	.19
Mari 2014 ¹⁰	First bowel movement (POD)	25	0.3	0.6	25	1.7	0.5			-2.5 (-3.25 to -1.76)	-1.43 (-1.75 to -1.10)	<.001
Mari 2014 ¹⁰	Passage of first flatus (POD)	25	0.9	0.8	25	2.1	0.9			-1.39 (-2.01 to -.77)	-1.2 (-1.69 to -.71)	<.001
Mari 2014 ¹⁰	Passage of first stool (POD)	25	1.6	1.0	25	5	1.8			-2.36 (-3.09 to -1.63)	-3.4 (-4.22 to -2.58)	<.001
Mari 2014 ¹⁰	Solid diet tolerance (POD)	25	1.2	0.4	25	3.8	1.0			-3.46 (-4.35 to -2.57)	-2.61 (-3.04 to -2.18)	<.001
Mari 2014 ¹⁰	Walk at least 60m (POD)	25	1.3	0.8	25	3.6	0.5			-3.35 (-4.22 to -2.48)	-2.25 (-2.63 to -1.87)	<.001
Mari 2016 ¹¹	Passage of flatus (POD)	40	1.5	0.6	43	2.4	0.9			-1.17 (-1.64 to -.7)	-1.97 (-1.23 to -.56)	<.001
Mari 2016 ¹¹	Solid diet tolerance (POD)	40	1.2	0.8	43	2.9	0.3			-2.85 (-3.47 to -)	-1.7 (-1.96 to -1.44)	<.001

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
										2.24)		
Mari 2016 ¹¹	Walking of 100 metres (POD)	40	1.6	0.8	43	2.9	0.9			-1.52 (-2.01 to -1.03)	-1.3 (-1.67 to -.93)	<.001
Mari 2016 ¹¹	C-reactive protein levels (mg/L)	40	52.9	29.9	43	84.2	67.9			-.6 (-1.04 to -.16)	-31.3 (-54.5 to -8.1)	<.01
Mari 2016 ¹¹	Prolactin concentrations in serum (mg/dl)	40	25.4	14.6	43	17.9	15.2			.5 (.07 to .94)	7.5 (.98 to 14.0)	<.05
Mari 2016 ¹¹	White blood cell count (/mm ³)	40	9295	2587	43	10132	2929			-.3 (-.74 to .13)	-837 (-2048 to 74)	.17
Mari 2016 ¹¹	IL-6 concentrations in serum (pg/ml)	40	33.5	24.2	43	57.4	19.1			-1.09 (-1.55 to -.63)	-23.9 (-33.4 to -14.4)	<.001
Mari 2016 ¹¹	Cortisol concentrations (mcg/dl)	40	11.7	8.1	43	17.4	11.1			-.59 (-1.03 to -.15)	-5.7 (-9.97 to -1.43)	<.01
Mari 2016 ¹¹	Transferrin serum levels (mg/dl)	40	202	42.2	43	178	34.5			.62 (.18 to 1.06)	24.0 (7.22 to 40.8)	<.01
Mari 2016 ¹¹	Prealbumin serum levels (mg/dl)	40	14.4	5	43	13.3	4.4			.23 (-.2 to .67)	1.1 (-.95 to 3.15)	.29
Mari 2016 ¹¹	Albumin serum levels (g/dl)	40	3.12	0.3	43	3.09	0.36			.03 (-.4 to .46)	.03 (-.12 to .18)	.68
Mari 2016 ¹¹	Triglyceride serum levels (mg/dl)	40	69.55	36.2	43	63.28	17.6			.22 (-.21 to .65)	6.3 (-6.03 to 18.6)	.31
Pappalardo 2016 ¹³	EORTC QLC-CR 38: score excellent/ good (n)	25	14		25	12						
Pappalardo 2016 ¹³	EORTC QLC-CR 38: Score moderately good	25	8		25	9						

Study, intervention	Outcome (units) (n)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Pappalardo 2016 ¹³	EORTC QLC-CR 38: Score acceptable (n)	25	2		25	3						
Pappalardo 2016 ¹³	EORTC QLC-CR 38: Score poor (n)	25	1		25	1						
Vlug 2011 ¹⁴ ^Λ Laparoscopy	Gastric retention (% remaining in stomach)	18	70 (median)	36 to 94 (IQR)	17	81 (median)	34 to 95 (IQR)	43.6 (46.7)	70.0 (49.3)	-.55 (-1.23 to .13)	-26.4 (-59.4 to 6.6)	.11
Vlug 2011 ¹⁴ ^Λ Laparoscopy	Colonic transit: geometric centre of intracolonic mass 48 postprandially (0-3)* ¹	18	2.2 (median)	1.8 to 2.6 (IQR)	17	1.3 (median)	1.2 to 2.0 (IQR)	2.2 (0.6)	1.5 (0.6)	1.09 (.37 to 1.8)	.7 (.26 to 1.1)	<.01
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Pain control with Oral medication	100	2 (median)	2 to 3 (IQR)	109	3 (median)	2 to 4 (IQR)	2.3 (0.8)	3.0 (1.5)	-.56 (-.83 to -.28)	-.67 (-1.0 to -.34)	<.001
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Tolerate solid food	100	1 (median)	1 to 2 (IQR)	109	2 (median)	1 to 3 (IQR)	1.3 (0.8)	2.0 (1.5)	-.56 (-.83 to -.28)	-.67 (-1.0 to -.34)	<.001
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Absence of nausea	100	1 (median)	1 to 3 (IQR)	109	1 (median)	1 to 3 (IQR)	1.7 (1.5)	1.7 (1.5)	0 (-.27 to .27)	0 (-.41 to .41)	1.0
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Passage of first flatus	100	1 (median)	1 to 2 (IQR)	109	2 (median)	1 to 3 (IQR)	1.3 (0.8)	2.0 (1.5)	-.56 (-.83 to -.28)	-.67 (-1.0 to -.34)	<.001
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria:	100	2 (median)	1 to 4 (IQR)	109	3 (median)	2 to 4 (IQR)	2.3 (2.3)	3.0 (1.5)	-.35 (-.63 to -.08)	-.67 (-1.19 to -.15)	<.05

Study, intervention	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
y	Passage of first stool											
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Mobilization as preoperative	100	3 (median)	2 to 5 (IQR)	109	5 (median)	4 to 7 (IQR)	3.3 (2.3)	5.3 (2.3)	-.89 (-1.17 to -.6)	-2.0 (-2.62 to -1.38)	<.001
Vlug 2011 ¹⁴ Laparoscopy	Days to fulfil discharge criteria: Acceptance of discharge	100	4 (median)	3 to 6 (IQR)	109	5.5 (median)	4 to 8.5 (IQR)	4.3 (2.3)	6.0 (3.4)	-.58 (-.85 to -.3)	-1.67 (-2.46 to -.88)	<.001
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Pain control with Oral medication	93	2 (median)	2 to 4 (IQR)	98	3 (median)	2 to 5 (IQR)	2.7 (1.5)	3.3 (2.3)	-.34 (-.63 to -.06)	-.67 (-1.22 to -.12)	<.05
Vlug 2011 ¹⁴ [^] Open	Gastric retention (% remaining in stomach)	18	58 (median)	26 to 71 (IQR)	18	81 (median)	34 to 95 (IQR)	51.7 (36.2)	63.0 (55.5)	-.24 (-.9 to .41)	-11.3 (-43.1 to 20.4)	.07
Vlug 2011 ¹⁴ [^] Open	Colonic transit: geometric centre of intracolonic mass 48 postprandially (0-3)* ¹	18	1.5 (median)	1.2 to 1.9 (IQR)	18	1.1 (median)	1.0 to 1.4 (IQR)	1.5 (0.6)	1.2 (0.3)	.79 (.11 to 1.47)	.37 (.06 to .68)	<.05
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Tolerate solid food	93	1 (median)	1 to 3 (IQR)	98	3 (median)	2 to 5 (IQR)	1.7 (1.5)	3.3 (2.3)	-.86 (-1.16 to -.56)	-1.67 (-2.22 to -1.12)	<.001
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Absence of nausea	93	2 (median)	1 to 5 (IQR)	98	1 (median)	1 to 4 (IQR)	2.7 (3.0)	2.0 (2.3)	.25 (-.03 to .54)	.67 (-.09 to 1.42)	.07
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Passage of first flatus	93	1 (median)	1 to 3 (IQR)	98	2 (median)	1 to 3 (IQR)	1.7 (1.5)	2.0 (1.5)	-.22 (-.5 to .07)	-.33 (-.76 to .10)	.17

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Passage of first stool	93	3 (median)	2 to 4 (IQR)	98	4 (median)	3 to 6 (IQR)	3.0 (1.5)	4.3 (2.3)	-.69 (-.98 to -.4)	-1.33 (-1.88 to -.78)	<.001
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Mobilisation as preoperative	93	4 (median)	3 to 7 (IQR)	98	6 (median)	5 to 8 (IQR)	4.7 (3.0)	6.3 (2.3)	-.63 (-.92 to -.34)	-1.67 (-2.42 to -.91)	<.001
Vlug 2011 ¹⁴ Open	Days to fulfil discharge criteria: Acceptance of discharge	93	5.5 (median)	4 to 9 (IQR)	98	7 (median)	5 to 12 (IQR)	6.2 (3.8)	8.0 (5.3)	-.4 (-.68 to -.11)	-1.83 (-3.15 to -.52)	<.05

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs, imputed where necessary. P-values are from independent samples t-tests. ^data from van Bree 2011; *1 score correlates with location: 0=small intestine, 1=proximal colon, 2=distal colon, 3=stool; HADS=Hospital Anxiety and Depression Scale; IQR=Interquartile Range; VAS=Visual Analogue Scale; EORTC=European Organisation for Research and Treatment of Cancer; LASA=Longitudinal Ageing Study Amsterdam; QoL=Quality of Life; POD=Post-operative Day; SE=Standard Error; SF36=Short Form 36; n=sample size

Table 3. Data for clinical outcomes for each study trialling a Prehabilitation intervention to improve recovery following colorectal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Carli 2010 ¹⁵	Postop LOS (days)	21	7.4	6.5 (SE)	53	6.6	3.6 (SE)	7.4 (48.2)	6.6 (26.7)	.02 (-.36 to .40)	.8 (-14.1 to 15.7)	.93
Carli 2010 ¹⁵	Patients with a complication (%)	21	39		53	33				OR: 1.3 (0.46 to 3.7)		.63
Dronkers 2010 ¹⁶	Postop LOS (days)	21	16.2	11.5	20	21.6	23.7			-.29 (-.91 to .32)	-5.4 (-17.1 to 6.3)	.36
Dronkers 2010 ¹⁶	Patients with postop complications (%)	21	45		20	38				OR: 1.33 (0.38 to 4.64)		.65
Gillis 2014 ¹⁷	LOS (primary hospitalisation, days)	38	4 (median)	3 to 5 (IQR)	39	4 (median)	3 to 7 (IQR)	4.0 (1.5)	4.7 (3.1)	-.27 (-.72 to .17)	-.67 (-1.78 to .44)	.21
Gillis 2014 ¹⁷	Total stay, including readmissions (days)	38	4 (median)	3 to 6 (IQR)	39	5 (median)	3 to 9 (IQR)	4.3 (2.3)	5.7 (4.6)	-.37 (-.82 to .09)	-1.33 (-3.0 to .33)	.10
Gillis 2014 ¹⁷	30 day emergency department visits (n)	38	6		39	9				OR: 0.63 (0.2 to 1.97)		.42
Gillis 2014 ¹⁷	Readmissions <30 days (%)	38	15.8		39	12.9				OR: 1.28 (0.35 to 4.59)		.71
Gillis 2014 ¹⁷	Patients with complications <30 days (%)	38	32		39	44				OR: 0.6 (0.24 to 1.52)		.28

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). LOS=Length of stay; OR=Odds Ratio; SE=Standard Error; IQR=Interquartile range; POD=Post-operative day; SD=Standard deviation; CI=Confidence interval; ERP=Enhanced Recovery Protocol; Prehab=Prehabilitation; Postop=Postoperative; n=sample size

Table 4. Data for patient-reported outcomes for each study trialling a Prehabilitation intervention to improve recovery following colorectal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance (SE)	n	Estimate	Variance (SE)					
Carli 2010 ¹⁵	6MWT (min)	58	463.6	18.5 (SE)	54	502.8	15.8 (SE)	463.6 (140.9)	502.8 (116.1)	-.3 (-.68 to .07)	-39.2 (-87.7 to 9.3)	.11
Carli 2010 ¹⁵	HADS Anxiety (raw score)	58	5.2	0.5 (SE)	54	5.7	0.6 (SE)	5.2 (3.8)	5.7 (4.4)	-.12 (-.49 to .25)	-.5 (-2.04 to 1.04)	.52
Carli 2010 ¹⁵	HADS Depression (raw score)	58	3.2	0.4 (SE)	54	3.4	0.5 (SE)	3.2 (3.0)	3.4 (3.7)	-.06 (-.43 to .31)	-.2 (-1.46 to 1.06)	.88
Carli 2010 ¹⁵	Peak VO2 (ml/min)	58	1529	88 (SE)	54	1511	84 (SE)	1529 (670.2)	1511 (617.3)	.03 (-.34 to .4)	18.0 (-223.8 to 259.8)	.88
Carli 2010 ¹⁵	Physical activity (hours/week)	45	8.3	6.2	42	6	4.8			.42 (-.01 to .84)	2.3 (-.08 to 4.68)	.06
Dronkers 2010 ¹⁶	Timed up and go (s)	20	7.8	3.3	19	6.6	1.2			.49 (-.15 to 1.13)	1.2 (-.43 to 2.83)	.14
Dronkers 2010 ¹⁶	Chair rise time test (s)	20	26.6	6.2	19	21.2	6.1			.88 (.22 to 1.54)	5.4 (1.41 to 9.39)	<.01
Dronkers 2010 ¹⁶	Maximal Inspiratory Pressure (cmH2O)	20	92.0	26.0	19	98.0	26.0			-.23 (-.86 to .4)	-6.0 (-22.9 to 10.9)	.48
Dronkers 2010 ¹⁶	Respiratory Muscle analyser energy (J)	20	404.0	349.0	19	305.0	323.0			.29 (-.34 to .93)	99.0 (-119.5 to 317.5)	.29
Dronkers 2010 ¹⁶	LASA Physical Activity questionnaire: Energy expended (kcal/day)	20	980.0	771.0	19	1657.0	3400.0			-.27 (-.9 to .36)	-677.0 (-2257.5 to 903.6)	.39
Dronkers 2010 ¹⁶	LASA Physical Activity questionnaire:	20	236.0	157.0	19	280.0	399.0			-.14 (-.77 to .49)	-44.0 (-238.8 to 150.8)	.65

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	d (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
	Activity in past 14 days (mins/day)											
Dronkers 2010 ¹⁶	Physical Work Capacity (O ₂ mL/kg/min)	20	27.6	6.5	19	32.9	6.9			-.79 (-1.44 to -.14)	-5.3 (-9.64 to -.95)	<.05
Dronkers 2010 ¹⁶	Abbreviated Fatigue Questionnaire (raw score)	20	12.7	6.6	19	8.80	4.30			.70 (.06 to 1.35)	3.9 (.26 to 7.54)	<.05
Dronkers 2010 ¹⁶	EORTC QoL Questionnaire: global health (raw score)	20	72.0	19.0	19	68.0	18.0			.22 (-.41 to .85)	4.0 (-8.0 to 16.0)	.50
Dronkers 2010 ¹⁶	EORTC QoL Questionnaire: function (raw score)	20	413.0	64.0	19	425.0	67.0			-.18 (-.81 to .45)	-12.0 (-54.5 to 30.5)	.57
Dronkers 2010 ¹⁶	EORTC QoL Questionnaire: symptoms (raw score)	20	119.0	98.0	19	155.0	117.0			-.33 (-.97 to .3)	-36.0 (-105.9 to 33.9)	.30
Gillis 2014 ¹⁷	6MWT (m)	38	25.2 (mean change from baseline)	50.2	39	-16.4 (mean change from baseline)	46					
Gillis 2014 ¹⁷	CHAMPS questionnaire (hours)	38	81.2	101	39	61.7	125.6			.17 (-.28 to .62)	19.5 (-32.3 to 71.3)	.46
Gillis 2014 ¹⁷	SF-36 physical function (raw score)	38	73.5	25	39	72.6	29.7			.03 (-.41 to .48)	.9 (-11.6 to 13.4)	.89
Gillis 2014 ¹⁷	SF-36 role physical (raw score)	38	62.3	44.3	39	56.6	50.4			.12 (-.33 to .57)	5.7 (-15.9 to 27.3)	.60

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Gillis 2014 ¹⁷	SF-36 bodily pain (raw score)	38	74.7	22.6	39	73.6	25.3			.05 (-.4 to .49)	1.1 (-9.80 to 12.0)	.84
Gillis 2014 ¹⁷	SF-36 general health (raw score)	38	66.4	22.8	39	60	25.8			.26 (-.19 to .71)	6.4 (-4.66 to 17.5)	.25
Gillis 2014 ¹⁷	SF-36 vitality (raw score)	38	60.3	22.7	39	59.2	23.4			.05 (-.4 to .49)	1.1 (-9.4 to 11.6)	.83
Gillis 2014 ¹⁷	SF-36 social functioning (raw score)	38	72.3	28.8	39	75.4	31.9			-.1 (-.55 to .34)	-3.1 (-16.9 to 10.7)	.66
Gillis 2014 ¹⁷	SF-36 role emotional (raw score)	38	62.8	48.8	39	53.4	49.8			.19 (-.26 to .64)	9.4 (-13.0 to 31.8)	.41
Gillis 2014 ¹⁷	SF-36 mental health (raw score)	38	71.6	21.5	39	69.6	24.8			.09 (-.36 to .53)	2.0 (-8.55 to 12.5)	.71
Gillis 2014 ¹⁷	HADS Anxiety (raw score)	38	5.6	3.9	39	5.9	4.7			-.07 (-.52 to .38)	-.3 (-2.26 to 1.67)	.76
Gillis 2014 ¹⁷	HADS Depression (raw score)	38	3.2	3.1	39	3.6	4.6			-.10 (-.55 to .34)	-.4 (-2.19 to 1.39)	.66

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs, imputed where necessary. P-values are from independent samples t-tests. 6MWT=6 Minute Walk Test; HADS=Hospital Anxiety and Depression Scale; IQR=Interquartile Range; VAS=Visual Analogue Scale; EORTC=European Organisation for Research and Treatment of Cancer; LASA=Longitudinal Ageing Study Amsterdam; QoL=Quality of Life; POD=Post-operative Day; SE=Standard Error; n=sample size; CHAMPS=Community Healthy Activities Model Programme for Seniors; SF-36=Short Form 36

Table 5. Data for clinical outcomes for each study trialling an ERP intervention to improve recovery following lower limb arthroplasty. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Borgwardt 2009 ¹⁸	LOS (days)	17	1 (median)	1 to 3 (range)	23	6 (median)	4 to 7 (range)			
Borgwardt 2009 ¹⁸	Rehospitalisation within 3 months (n)	17	0		23	0				
Borgwardt 2009 ¹⁸	Phone contact with a GP (n)	17	4		23	2		OR: 3.23 (0.52 to 20.2)		.19
Borgwardt 2009 ¹⁸	Contact with a nurse (n)	17	4		23	6		OR: 0.87 (0.2 to 3.74)		.85
Larsen 2008 ¹⁹	Total LOS (days)	45	4.9	2.4	42	7.8	2.1	-1.28 (-1.75 to -.82)	-2.9 (-3.89 to -1.94)	<.001
Larsen 2008 ¹⁹	Readmissions (n)	45	2		41	1		OR: 1.86 (0.16 to 21.32)		.61
Pour 2007 ²⁰	LOS (days)	46	3.5	2 to 5 (range)	48	4.2	3 to 8 (range)			
Pour 2007 ²⁰	Short term complications (n)	46	0		48	0				1.0
Reilly 2005 ²¹	LOS (days)	21	1.5	1 to 5 (range)	20	4.3	1 to 6 (range)			
Reilly 2005 ²¹	Patients who developed complications post discharge (n)	21	3		20	1		OR: 3.17 (0.3 to 33.31)		.32
Reilly 2005 ²¹	Major complications (n)	32	2		20	1		OR: 0.95 (0.06 to 16.29)		.97
Siggeirsdottir 2005 ²²	LOS (days)	27	6.4	2.4	23	10	3.5	-1.22 (-1.83 to -.61)	-3.6 (-5.29 to -1.91)	<.001
Siggeirsdottir 2005 ²²	Readmissions (n)	27	0		23	1				.27
Siggeirsdottir 2005 ²²	Total complications (n)	27	5		23	11		OR: 0.25 (0.07 to 0.88)		<.05

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). LOS=Length of stay; SD=Standard deviation; CI=Confidence interval; OR=Odds Ratio; n=sample size

Table 6. Data for patient-reported outcomes for each study trialling an ERP intervention to improve recovery following lower limb arthroplasty. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Borgwardt 2009 ¹⁸	Knee joint function (raw score)	17	95 (median)	64 to 100 (range)	23	90 (median)	35 to 100 (range)			
Borgwardt 2009 ¹⁸	Ability to walk and climb stairs (raw score)	17	100 (median)	70 to 100 (range)	23	93 (median)	35 to 100 (range)			
Borgwardt 2009 ¹⁸	Number who had lower limb weakness	17	0		23	11				
Borgwardt 2009 ¹⁸	Pain at mobilisation (VAS 1 to 10)	17	1 (median)	0 to 2.5 (range)	23	5 (median)	0 to 7.5 (range)			
Borgwardt 2009 ¹⁸	Number who were confident or very confident	17	13		23	18				
Borgwardt 2009 ¹⁸	Number very satisfied with operation and perioperative period	17	11		23	14				
Larsen 2008 ¹⁹	Patients well at 3 months (n)	45	28		42	15				
Larsen 2008 ¹⁹	EQ-5D (index score)	45	0.87	0.15	42	0.79	0.2	.50 (.07 to .93)	.08 (.004 to .16)	<.05
Pour 2007 ²⁰	Walking status at discharge (n independent or supervised)	46	39		48	29				
Pour 2007 ²⁰	Walking status at discharge (n assisted or contact guard needed)	46	7		48	19				
Pour 2007 ²⁰	Walking aid use at discharge (n single point cane)	46	4		48	1				
Pour 2007 ²⁰	Walking aid use at discharge (n axillary)	46	10		48	8				

Study	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
	crutches)									
Pour 2007 ²⁰	Walking aid use at discharge (n rolling walker)	46	10		48	12				
Pour 2007 ²⁰	Walking aid use at discharge (n standard walker)	46	22		48	27				
Pour 2007 ²⁰	Walking distance at discharge (m)	46	35	7 to 91.5 (range)	48	24.3	3.5 to 91.5 (range)			
Pour 2007 ²⁰	LASA PAQ: Energy (raw score)	46	8	5 to 10 (range)	48	7	2 to 9.8 (range)			
Pour 2007 ²⁰	LASA PAQ: Daily activity (raw score)	46	8.3	3 to 10 (range)	48	7	3 to 10 (range)			
Pour 2007 ²⁰	LASA PAQ: Quality of Life (raw score)	46	8.4	3 to 10 (range)	48	7.5	3 to 10 (range)			
Pour 2007 ²⁰	Harris Hip score (raw score)	46	87.6	51.4 to 100 (range)	48	86.2	55.7 to 95.7 (range)			
Pour 2007 ²⁰	SF-36: Physical health (raw score)	46	71.2	35.6 to 95.9 (range)	48	63.6	24.2 to 95.9 (range)			
Pour 2007 ²⁰	SF-36: Mental health (raw score)	46	80.8	41.6 to 98 (range)	48	72.3	24.6 to 95.2 (range)			
Pour 2007 ²⁰	WOMAC (raw score)	46	12.4	0 to 51 (range)	48	13.5	0 to 32 (range)			
Pour 2007 ²⁰	Lower extremity functional score (raw score)	46	9.8	6 to 12 (range)	48	9.2	7 to 11 (range)			
Reilly 2005 ²¹	Oxford Knee Assessment (raw score)	21	43.7	3.7	20	42.2	7.1	.27 (-0.35 to .88)	1.5 (-2.05 to 5.05)	.40
Reilly 2005 ²¹	AKSS Objective (raw score)	21	88.4	10.4	20	89.4	17.5	-.07 (-.68 to .54)	-1.0 (-10.0 to 8.04)	.82
Reilly 2005 ²¹	AKSS Functional (raw score)	21	90.9	11.7	20	90	13.3	.07 (-.54 to .68)	.9 (-7.00 to 8.80)	.82

Study	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Reilly 2005 ²¹	Knee flexion ROM (degrees)	21	124.7	5.5	20	119.8	6.8	.79 (.16 to 1.43)	4.9 (1.0 to 8.8)	<.05
Reilly 2005 ²¹	Knee extension ROM (degrees)	21	-3.10	3.5	20	-2.3	3.5	-.23 (-.84 to .39)	-.8 (-3.01 to 1.41)	.42
Siggeirsdottir 2005 ²²	Oxford Hip Score (raw score)	27	19	6.3	21	24	9	-.66 (-1.24 to -.07)	-5.0 (-9.45 to -.55)	<.05
Siggeirsdottir 2005 ²²	Harris Hip Score (raw score)	27	76 (median)	56 to 93 (range)	27	71 (median)	31 to 83 (range)			

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs, imputed where necessary. P-values are from independent samples t-tests. 6MWT=6 Minute Walk Test; HADS=Hospital Anxiety and Depression Scale; VAS=Visual Analogue Scale; ROM=Range of Movement; AKSS=American Knee Society Score; WOMAC=Western Ontario and McMaster Universities Osteoarthritis Index; SF-36=Short Form 36; LASA PAQ=Longitudinal Ageing Study Amsterdam Physical Activity Questionnaire; n=sample size

Table 7. Data for clinical outcomes for each study trialling a Prehabilitation intervention to improve recovery following lower limb arthroplasty. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Crowe 2003 ²³	LOS (days)	65	6.55	4.2	68	10.5	14.2	-.37 (-.71 to -.03)	-3.95 (-7.58 to -.32)	<.05
Crowe 2003 ²³	Total complications (n)	65	7		68	22		OR: 0.25 (0.1 to 0.64)		<.01
Hoogeboom 2012 ²⁴	LOS (days)	10	6 (median)	5 to 22 (range)	11	6 (median)	4 to 7 (range)			
Hoogeboom 2012 ²⁴	Total complications (n)	10	2		11	0				.12
Huang 2012 ²⁵	LOS (days)	126	7.0	2.0	117	8.0	1.0	-.63 (-.88 to -.37)	-1.0 (-1.40 to -.60)	<.001
Huang 2012 ²⁵	Blood transfusion (%)	126	11.9		117	8.5		OR: 1.45 (0.62 to 3.38)		.38
Huang 2012 ²⁵	Infection (%)	126	1.6		117	0.9		OR: 1.79 (0.17 to 19.16)		.63
Huang 2012 ²⁵	Deep vein thrombosis (%)	126	4		117	2.6		OR: 1.56 (0.37 to 6.63)		.54
Huang 2012 ²⁵	Total complications (%)	126	17.5		117	12		OR: 1.56 (0.76 to 3.2)		1.0
McGregor 2004 ²⁶	LOS (days)	19	15		20	18				
Williamson 2007 ²⁷	LOS (days)	60	6.49	1.99	61	6.6	2.62	-.04 (-.40 to .31)	-.11 (-.95 to .73)	.80

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of Stay; SD=Standard Deviation; CI=Confidence Interval; n=sample size

Table 8. Data for patient-reported outcomes for each study trialling a Prehabilitation intervention to improve recovery from lower limb arthroplasty. Mean and standard deviation (SD) are presented throughout.

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Mean	SD	n	Mean	SD			
Crowe 2003 ²³	Days to meet specific discharge criteria: independently get out of bed	65	4.71	3.4	68	5.87	3.2	-.36 (-.71 to -.02)	-1.16 (-2.29 to -.03)	<.05
Crowe 2003 ²³	Days to meet specific discharge criteria: joint flexion	65	5.12	5.4	68	6.54	3.5	-.31 (-.65 to .03)	-1.42 (-2.97 to .13)	.07
Crowe 2003 ²³	Days to meet specific discharge criteria: walk 30 metres	65	5.27	5.9	68	6.75	7.5	-.22 (-.56 to .12)	-1.48 (-3.80 to .84)	.21
Crowe 2003 ²³	Days to meet specific discharge criteria: climb stairs	65	5.83	6.6	68	6.38	3.4	-.12 (-.46 to .23)	-.55 (-2.34 to 1.24)	.54
Crowe 2003 ²³	Days to meet specific discharge criteria: equipment ready for discharge	65	1.95	5.6	68	6.06	4	-.85 (-1.20 to -.49)	-4.11 (-5.77 to -2.45)	<.001
Crowe 2003 ²³	Days to meet specific discharge criteria: meals planned for discharge	65	1.37	1.3	68	5.8	4.5	-1.32 (-1.69 to -.94)	-4.43 (-5.58 to -3.28)	<.001
Crowe 2003 ²³	Days to meet all discharge criteria	65	4.71	3.4	68	5.87	3.2	-.43 (-.77 to -.08)	-2.59 (-4.69 to -.49)	<.05
Hoogeboom 2012 ²⁴	6MWT (m)	10	363	126.3	10	342.7	133.7	.16 (-.72 to 1.03)	20.3 (-102 to 143)	.73
Hoogeboom 2012 ²⁴	Timed up and go test (s)	10	9.6	2.8	10	13.4	11.5	-.45 (-1.34 to .43)	-3.8 (-11.7 to 4.06)	.32
Hoogeboom 2012 ²⁴	Chair rise time (s)	10	15	5.8	10	17.4	5.9	-.41 (-1.30 to .48)	-2.4 (-7.90 to 3.10)	.37
Hoogeboom 2012 ²⁴	PWC-170 ergometer test (raw score)	10	103.6	74.5	10	120.7	63.3	-.25 (-1.13 to .63)	-17.1 (-82.0 to 47.8)	.59
Hoogeboom	Hand Grip Strength	10	289.6	105.8	10	317.9	85.1	-.29	-28.3	.52

Study, intervention	Outcome (units) (raw score)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Mean	SD	n	Mean	SD			
2012 ²⁴								(-1.18 to .59)	(-119 to 61.9)	
Hoogeboom 2012 ²⁴	Hand Grip Strength (2 s mean score)	10	243.7	92.2	10	283.5	83.3	-.45 (-1.34 to .44)	-39.8 (-122 to 42.8)	.32
Hoogeboom 2012 ²⁴	LASA PAQ (kcal/minutes/kg)	10	0.04	0.01	10	0.04	0.01	.0 (-.88 to .88)	.0 (-.01 to .01)	1.0
Huang 2012 ²⁵	Knee range of motion	126	30	11	117	30	12	.0 (-.25 to .25)	.0 (-2.91 to 2.91)	1.0
Huang 2012 ²⁵	Knee pain (VAS 1-10)	126	4.5	1.3	117	4.4	1.2	.08 (-.17 to .33)	.1 (-.22 to .42)	.53
Huang 2012 ²⁵	Ambulation status (% ambulating by day 5)	117	81.2		126	85.7				
McGregor 2004 ²⁶	Pain (VAS 1-10)	19	7.8	1.5	20	7.6	2	.11 (-.52 to .74)	.2 (-.95 to 1.35)	.73
McGregor 2004 ²⁶	WOMAC Pain (raw score)	19	10.2	2.7	20	10.3	4.1	-.03 (-.66 to .60)	-.1 (-2.37 to 2.17)	.93
McGregor 2004 ²⁶	WOMAC Stiffness (raw score)	19	4.3	1.3	20	4.1	1.7	.13 (-.50 to .76)	.2 (-.79 to 1.19)	.68
McGregor 2004 ²⁶	WOMAC Function (raw score)	19	35.8	12	20	41	10	-.47 (-1.11 to .17)	-5.2 (-12.4 to 1.95)	.15
McGregor 2004 ²⁶	Harris Hip score (raw score)	19	45.4	11.5	20	43.2	16.2	.16 (-.47 to .78)	2.2 (-6.96 to 11.4)	.62
McGregor 2004 ²⁶	Barthel ADL (raw score)	19	19.2	1.3	20	19	1.3	.15 (-.48 to .78)	.2 (-.64 to 1.04)	.63
Williamson 2007 ²⁷	Oxford Knee Score (raw score)	60	28.3	9.78	61	26.7	7.45	.18 (-.17 to .54)	1.6 (-1.53 to 4.73)	.31
Williamson 2007 ²⁷	Time to walk 50 m (s)	60	46.6	11.4	61	44.1	6.91	.27 (-.09 to .62)	2.5 (-.89 to 5.89)	.15
Williamson 2007 ²⁷	Pain (VAS 1-10)	60	3.86	2.59	61	3.95	2.59	-.04 (-.39 to .32)	-.09 (-1.02 to .84)	.85
Williamson 2007 ²⁷	WOMAC (raw score)	60	26.0	17.7	61	24.6	16.8	.08 (-.27 to .44)	1.4 (-4.81 to 7.61)	.66
Williamson 2007 ²⁷	HADS Anxiety (raw score)	60	4.26	4.04	61	2.42	2.39	.58 (.21 to .94)	1.84 (.65 to 3.03)	<.01

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Mean	SD	n	Mean	SD			
Williamson 2007 ²⁷	HADS Depression (raw score)	60	3.43	2.54	61	3.68	2.93	-.11 (-.47 to .25)	-.25 (-1.24 to .74)	.62

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs. P-values are from independent samples t-tests. 6MWT=6 Minute Walk Test; HADS=Hospital Anxiety and Depression Scale; VAS=Visual Analogue Scale; ROM=Range of Movement; AKSS=American Knee Society Score; WOMAC=Western Ontario and McMaster Universities Osteoarthritis Index; SF-36=Short Form 36; LASA PAQ=Longitudinal Ageing Study Amsterdam Physical Activity Questionnaire; n=sample size

Table 9. Data for all outcomes for studies trialling Rehabilitation interventions to improve recovery from lower limb arthroplasty. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
den Hertog 2012 ²⁸	LOS (days)	69	6.75		71	13.2						
den Hertog 2012 ²⁸	Procedure-related complications (n)	69	8		71	12				OR: 0.64 (0.25 to 1.69)		.37
den Hertog 2012 ²⁸	WOMAC (raw score, Per protocol)	69	271.5 (median)	240.2 to 302.7 (95% CI)	71	345.4 (median)	312.3 to 378.6 (95% CI)	271.5 (47.3)	345.4 (50.2)	-1.52 (-1.89 to -1.14)	-74.0 (-90.3 to -57.6)	<.001
den Hertog 2012 ²⁸	WOMAC (raw score, ITT cohort)	74	275.5 (median)	245.3 to 305.7 (95% CI)	73	345.7 (median)	313.2 to 378.3 (95% CI)	275.5 (45.6)	345.7 (49.3)	-1.48 (-1.85 to -1.11)	-70.2 (-85.7 to -54.8)	<.001
Vesterby 2017 ²⁹	LOS (days)	36	1 (median)	1 to 5 (range)	36	2 (median)	1 to 4 (range)					
Vesterby 2017 ²⁹	Unplanned telephone calls from patient/patient (n)	36	0.92	0.6 to 0.7 (range)	36	1.5	1.1 to 1.9 (range)			OR: 0.6 (0.04 to 8.43)		.70
Vesterby 2017 ²⁹	Unplanned extra visits to hospital/patient (n)	36	0.17	-0.01 to 0.3 (range)	36	0.31	.04 to .57 (range)			OR: 0.55 (0 to 206.16)		.84
Vesterby 2017 ²⁹	Readmissions/patient (n)	36	0.03	-0.03 to 0.08 (range)	36	0						

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of Stay; CI=Confidence Interval; WOMAC=Western Ontario and McMaster Universities Osteoarthritis Index; n=sample size

Table 10. Data for all outcomes for the one study trialling a Staff Mix intervention to improve recovery from lower limb arthroplasty. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Huddleston 2004 ³⁰	LOS (unadjusted) (days)	232	5.6		237	5.7						
Huddleston 2004 ³⁰	LOS (adjusted) (days)	232	5.1		237	5.6						
Huddleston 2004 ³⁰	Incidence of complications overall (%)	232	38.4		237	50.2				OR: 0.62 (0.43 to 0.89)		<.05
Huddleston 2004 ³⁰	Incidence of minor complications (%)	232	30.2		237	44.3				OR: 0.54 (0.37 to 0.8)		<.01
Huddleston 2004 ³⁰	Incidence of intermediate complications (%)	232	6.9		237	4.6				OR: 1.54 (0.7 to 3.39)		.28
Huddleston 2004 ³⁰	Incidence of major complications (%)	232	1.3		237	1.3				OR: 1 (0.2 to 4.94)		1.0

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of Stay; n=sample size

Table 11. Data for clinical outcomes for each study trialling a Prehabilitation intervention to improve recovery after cardiac surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Arthur 2000 ³¹	Time until order for discharge from ICU (h)	123	19.7 (median)	15.9 to 23.3 (IQR)	123	21.2 (median)	18.5 to 39.6 (IQR)	19.6 (5.5)	26.4 (15.8)	-.57 (-.83 to -.32)	-6.80 (-9.80 to -3.82)	<.001
Arthur 2000 ³¹	Actual time in ICU (h)	123	24.7 (median)	21.7 to 41.9 (IQR)	123	26.7 (median)	22.8 to 46.5 (IQR)	29.4 (15.1)	32.0 (17.8)	-.16 (-.41 to .09)	-2.59 (-6.74 to 1.56)	.22
Arthur 2000 ³¹	Time spent in the hospital after surgery (days)	123	5 (median)	5 to 6 (IQR)	123	6 (median)	5 to 7 (IQR)	5.3 (0.8)	6.0 (1.5)	-.56 (-.82 to -.31)	-.67 (-.96 to -.37)	<.001
Arthur 2000 ³¹	Total time in hospital (days)	123	6 (median)	5 to 7 (IQR)	123	7 (median)	6 to 8 (IQR)	6.0 (1.5)	7.0 (1.5)	-.67 (-0.92 to -.41)	-1.0 (-1.37 to .62)	<.001
Furze 2009 ³²	LOS (days)	100	7.61	2.69	104	8.24	4.96			-.16 (-.43 to .12)	-.63 (-1.74 to .48)	.26
Furze 2009 ³²	No. of visits to NHS GP during 8 week follow up = 0 (%)	100	75		104	78.9				OR: 0.8 (0.42 to 1.55)		.51
Furze 2009 ³²	No. of visits to NHS GP during 8 week follow up = 1-2 (%)	100	21		104	18.3				OR: 1.19 (0.6 to 2.38)		.62
Furze 2009 ³²	No. of visits to NHS GP during 8 week follow up = 3 or above (%)	100	4		104	2.9				OR: 1.4 (0.31 to 6.43)		.66
Furze 2009 ³²	No. admissions to NHS hospital during 8 week follow up = 0 (%)	100	99		104	97.1				OR: 2.94 (0.3 to 28.75)		.33
Furze 2009 ³²	No. admissions to NHS hospital	100	1		104	2.9				OR: 0.34 (0.03 to 3.33)		.33

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
	during 8 week follow up = 1 (%)											
Furze 2009 ³²	Non-fatal cardiac events (n)	100	1		104	2				OR: 0.52 (0.05 to 5.77)		.58
Furze 2009 ³²	Deaths (n)	100	1		104	1				OR: 1.04 (0.06 to 16.86)		.98
Goodman 2008 ³³	LOS (days)	91	8.5 (median)	6.88 to 10.13 (IQR)	90	9 (median)	7.5 to 10.5 (IQR)	8.5 (2.4)	9 (2.3)	-.21 (-.5 to .08)	-.50 (-1.19 to .19)	.16
Rosenfeldt 2011 ³⁴	LOS (days)	60	6 (median)	5 to 8 (range)	57	6 (median)	5 to 8 (range)					

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of stay; SD=Standard deviation; CI=Confidence interval; ICU=Intensive Care Unit; IQR=Interquartile range; n=sample size

Table 12. Data for patient-reported outcomes for each study trialling an ERP intervention to improve recovery from cardiac surgery. Mean and standard deviation are presented throughout.

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Arthur 2000 ³¹	SF-36: Physical role subscale (Mean change from baseline)	111	9.46	34.39	109	-2.06	33.7	.34 (-.07 to -.6)	11.5 (-2.47 to 20.6)	<.05
Arthur 2000 ³¹	SF-36: Physical functioning subscale (Mean change from baseline)	111	-1.17	18.46	109	-6.56	20.12	.28 (-.01 to -.54)	5.39 (-.26 to 10.5)	<.05
Arthur 2000 ³¹	SF-36: General health subscale (Mean change from baseline)	111	8.22	18.2	109	4.14	18.78	.22 (-.04 to .49)	4.08 (-.83 to 8.90)	.10
Arthur 2000 ³¹	SF-36: Bodily pain subscale (Mean change from baseline)	111	3.58	22.24	109	4.11	20.54	-.02 (-.294 to .24)	-.53 (-6.22 to 5.16)	.85
Arthur 2000 ³¹	SF-36: Physical composite summary score (Mean change from baseline)	111	1.55	7.48	109	-1.46	7.81	.39 (-.13 to .66)	3.01 (-.98 to -5.04)	<.01
Arthur 2000 ³¹	SF-36: Vitality subscale (Mean change from baseline)	111	-0.95	18.46	109	-1.19	15.48	.01 (-.25 to .28)	.24 (-4.29 to 4.77)	.92
Arthur 2000 ³¹	SF-36: Social functioning subscale (Mean change from baseline)	111	4.5	24.7	109	0.92	24.1	.15 (-.12 to .41)	3.58 (-2.91 to 10.1)	.28
Arthur 2000 ³¹	SF-36: Emotional role subscale (Mean change from baseline)	111	7.51	45.32	109	16.82	44.82	-.21 (-.47 to .06)	-9.31 (-21.3 to 2.67)	.12
Arthur 2000 ³¹	SF-36: Mental health subscale (Mean change from baseline)	111	2.05	18.52	109	0.77	17.11	.07 (-.19 to -.34)	1.28 (-3.46 to 6.02)	.60
Arthur 2000 ³¹	SF-36: Mental composite summary	111	1.54	10.55	109	2.93	9.15	-.14 (-.41 to .12)	-1.39 (-4.01 to 1.24)	.30

Study, intervention	Outcome (units) score (Mean change from baseline)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Furze 2009 ³²	Cardiac Depression Scale (raw score)	100	81.69		104	93.37				
Furze 2009 ³²	CLASP Mobility subscale (raw score)	100	8.1		104	9.05				
Rosenfeldt 2011 ³⁴	SF-36 Physical composite score	60	40.6	8.5* ¹	57	39.4	9.8* ¹	.13 (-.23 to .49)	1.2 (2.16 to 4.56)	.48
Rosenfeldt 2011 ³⁴	SF-36 Mental composite score	60	45.6	10.8* ¹	57	43.1	10.6* ¹	.23 (-.13 to .6)	2.5 (-1.42 to 6.42)	.21

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs, imputed where necessary. P-values are from independent samples t-tests. SF-36=Short Form 36; *Quality Adjusted Life Years: Calculated using EQ-5D questionnaire using area under the curve method; CLASP=Cardiovascular Limitations and Symptoms Profile; *¹SD imputed from SE; n=sample size

Table 13. Data for clinical outcomes for studies trialling Specialist Ward or Rehabilitation interventions to improve recovery from cardiac surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Probst 2014 ³⁵ , SW	Total hospital LOS (days)	100	9 (median)	8.0 to 11.0 (IQR)	100	9 (median)	8.0 to 12.0 (IQR)	9.3 (2.3)	9.7 (3)	-.13 (-.40 to .15)	-.33 (-1.08 to .41)	.38
Probst 2014 ³⁵ , SW	LOS on unit (PACU or ICU, h)	100	3.3 (median)	2.7 to 4.0 (IQR)	100	17.9 (median)	10.3 to 24.9 (IQR)	3.3 (1)	17.7 (11)	-1.84 (-2.17 to -1.51)	-14.4 (-16.5 to -12.2)	<.001
Probst 2014 ³⁵ , SW	LOS on IMC (h)	100	23 (median)	19.9 to 41.8 (IQR)	100	21 (median)	10.5 to 28.8 (IQR)	28.2 (16.5)	20.1 (13.8)	.54 (.25 to .82)	8.1 (3.90 to 12.4)	<.001
Probst 2014 ³⁵ , SW	Overall Intensive Care Treatment (h)	100	30.9 (median)	23.9 to 59.9 (IQR)	100	43.9 (median)	24.9 to 65.4 (IQR)	38.2 (27.1)	44.7 (30.5)	-.23 (-.50 to 0.05)	-6.5 (-14.5 to 1.54)	.11
Probst 2014 ³⁵ , SW	Total postoperative complications (n)	100	56		100	86				OR: 0.21 (0.1 to 0.41)		<.001
Probst 2014 ³⁵ , SW	Mortality (n)	100	0		100	3						.08
van der Peijl 2004 ³⁶ , Rehab	Length of stay (days)	134	7 (median)	4 to 15 (range)	112	7 (median)	3 to 18 (range)					
van der Peijl 2004 ³⁶ , Rehab	Activity monitor: locomotion (% of 10h period)	85	3	1.7	85	3	2.3			.0 (-.3 to .3)	.0 (-.50 to .50)	1.0
van der Peijl 2004 ³⁶ , Rehab	Activity monitor: time spent standing (% of 10h period)	85	8	5.1	85	8	6.2			.0 (-.3 to .3)	.0 (-1.42 to 1.42)	1.0
van der Peijl 2004 ³⁶ , Rehab	Activity monitor: time spent sitting (% of 10h period)	85	70	17.2	85	69	22.2			.05 (-.25 to .35)	1.0 (-5.01 to 7.01)	.74
van der Peijl	Activity monitor:	85	19	18.4	85	20	21.9			-.05	-1.0	.75

Study, intervention	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
2004 ³⁶ , Rehab	time spent lying (% of 10h period)									(-.35 to .25)	(-7.12 to 5.12)	
van der Peijl 2004 ³⁶ , Rehab	Self-care scale	134	38.9	2.5	112	38.9	2.5			0.0 (-.3 to .3)	.0 (-.63 to .63)	1.0
van der Peijl 2004 ³⁶ , Rehab	Functional independence measure: Transfers scale	134	20.2	1.2	112	20.2	1.4			0.0 (-.3 to .3)	.0 (-.33 to .33)	1.0
van der Peijl 2004 ³⁶ , Rehab	Functional independence measure: Locomotion scale	134	12.2	1.4	112	12.1	1.5			0.1 (-.2 to .3)	.1 (-.26 to .46)	.59

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; SW=Specialist Ward; Rehab=Rehabilitation; PACU=Post-Anaesthetic Care Unit; ICU=Intensive Care Unit; IMC=Intermediate Care Unit; n=sample size

Table 14. Data for clinical outcomes for each study trialling an ERP intervention to improve recovery from upper abdominal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Chen 2017 ² (Gastrectomy)	Delirium incidence (%)	43	2.3		43	18.6				OR: 0.1 (0.01 to 0.87)		<.05
Chen 2017 ² (Gastrectomy)	LOS (days)	43	12 (median)	9.5 to 12.5 (IQR)	43	18 (median)	9.5 to 26.5 (IQR)	12.0 (3.8)	18.0 (13.0)	-0.62 (-1.06 to -.19)	-6.0 (-10.1 to -1.88)	<.01
Chen 2017 ² (PD)	Delirium incidence (%)	25	8.0		21	28.6				OR: 0.22 (0.04 to 1.22)		.07
Chen 2017 ² (PD)	LOS (days)	25	16 (median)	10 to 22 (IQR)	21	25.5 (median)	13 to 38 (IQR)	16.0 (9.4)	25.5 (19.9)	-0.63 (-1.22 to -.03)	-9.5 (-18.5 to -.49)	<.05
Jones 2013 ³⁷	Postop LOS (days)	46	4 (median)	3 to 5 (IQR)	45	7 (median)	6 to 8 (IQR)	4.0 (1.5)	7.0 (1.5)	-1.96 (-2.46 to -1.46)	-3.0 (-3.64 to -2.36)	<.001
Jones 2013 ³⁷	Readmissions (n)	46	2		45	0						.16
Jones 2013 ³⁷	Mortality (n)	46	1		45	1						1.0
Jones 2013 ³⁷	Total liver complications (n)	46	10		45	8				OR: 1.28 (0.46 to 3.62)		.64
Jones 2013 ³⁷	Patients with liver complications (%)	46	15		45	11				OR: 1.43 (0.41 to 4.91)		.57
Jones 2013 ³⁷	Number of general complications (n)	46	4		45	20				OR: 0.12 (0.04 to 0.39)		<.001
Jones 2013 ³⁷	Patients with general complications (n)	46	3		45	12				OR: 0.2 (0.05 to 0.75)		<.05
Kapritsou	LOS (days)	29	5.93	2.49	34	11.91	5.52			-1.36	-5.98	<.001

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
2017 ³⁸										(-1.91 to -.81)	(-8.20 to -3.76)	
Kapritsou 2017 ³⁸	Total complications (n)	29	7		34	7				OR: 0.32 (0.11 to 0.94)		<.05
Tanaka 2017 ³⁹	Allowed day of discharge (days)	73	5 (median)	5 to 7 (IQR)	69	7 (median)	5 to 9.5 (IQR)	5.7 (1.5)	7.2 (3.4)	-.57 (-.91 to -.24)	-1.5 (-2.37 to -.63)	<.001
Tanaka 2017 ³⁹	Postop LOS (days)	73	9 (median)	8 to 10 (IQR)	69	10 (median)	9 to 11.5 (IQR)	9.0 (1.5)	10.2 (1.9)	-.68 (-1.02 to -.34)	-1.2 (-1.73 to -.60)	<.001
Tanaka 2017 ³⁹	Readmissions <30 days (%)	73	1.40		69	1.40				OR: 1 (0.06 to 16.46)		1.0
Tanaka 2017 ³⁹	Patients with C-D grade C2 complications (%)	73	19.2		69	31.9				OR: 0.51 (0.23 to 1.1)		.08
Tanaka 2017 ³⁹	Patients with C-D grade C3 complications (%)	73	4.1		69	14.5				OR: 0.25 (0.07 to 0.96)		<.05

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). LOS=Length of stay; SD=Standard deviation; CI=Confidence interval; PD=Pancreaticoduodenectomy; OR=Odds Ratio; C-D=Clavien-Dindo; n=sample size

Table 15. Data for patient-reported outcomes for each study trialling an ERP intervention to improve recovery from upper abdominal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Jones 2013 ³⁷	Time to being medically fit for discharge (days)	46	3	3-4	45	6	6-7	3.3 (0.8)	6.3 (0.8)	-3.92 (-4.63 to -3.21)	-3.0 (-3.32 to -2.68)	<.001
Jones 2013 ³⁷	EQ-5D (Area Under Curve)	46	37.2		45	35.6						
Kapritsou 2017 ³⁸	Pain (VAS 0-10)	29	6.44	2.76	34	5.86	2.91			.2 (-.29 to .7)	.58 (-.86 to 2.02)	.42
Kapritsou 2017 ³⁸	Behavioral Pain Scale (VAS 0-10)	29	2.09	2.3	34	2.31	2.14			-.1 (-.6 to .4)	-.22 (-1.34 to .90)	.70
Kapritsou 2017 ³⁸	Sadness (VAS 0-10)	29	4.59	2.27	34	4.39	3.17			.07 (-.42 to .57)	.2 (-1.21 to 1.61)	.78
Kapritsou 2017 ³⁸	Stress (VAS 0-10)	29	5.13	2.66	34	4.32	3.41			.26 (-.24 to .76)	.81 (-.75 to 2.37)	.30
Kapritsou 2017 ³⁸	Optimism (VAS 0-10)	29	7.72	2.22	34	7.27	2.68			.18 (-.31 to .68)	.45 (-.80 to 1.70)	.48
Kapritsou 2017 ³⁸	Cortisol (ng/ml)	29	39.64	16.93	34	34.76	16.93			.29 (-.21 to .79)	4.88 (-3.68 to 13.4)	.26
Kapritsou 2017 ³⁸	ACTH (pg/m)	29	37.51	86.43	34	36.15	84.18			.02 (-.48 to .51)	1.36 (-41.7 to 44.4)	.95
Kapritsou 2017 ³⁸	NPY (ng/ml)	29	0.9	0.24	34	0.75	0.36			.48 (-.02 to .99)	.15 (-.01 to .31)	.07
Tanaka 2017 ³⁹	Passage of first flatus (day)	73	2 (median)	1 to 2 (IQR)	69	2 (median)	1 to 3 (IQR)	1.7 (0.8)	2.0 (1.5)	-.28 (-.61 to .05)	-.33 (-.73 to .06)	.09
Tanaka 2017 ³⁹	Passage of first stool (day)	73	3 (median)	2 to 5 (IQR)	69	4 (median)	3 to 5 (IQR)	3.3 (2.3)	4.0 (1.5)	-.34 (-.68 to -.01)	-.67 (-1.31 to -.02)	<.05
Tanaka 2017 ³⁹	Serum concentration of total protein on POD 7 (g/dl)	73	6.2 (median)	5.9 to 6.6 (IQR)	69	6.1 (median)	5.6 to 6.5 (IQR)	6.2 (0.5)	6.1 (0.7)	.27 (-.06 to .6)	.17 (-.04 to .37)	.10
Tanaka 2017 ³⁹	Serum transthyretin	73	16.3 (median)	13.6 to 18.4	69	13.5 (median)	11.1 to 15.9	16.1 (3.6)	13.5 (3.6)	.72 (.38 to 1.06)	2.6 (1.39 to 3.81)	<.001

Study	Outcome (units)	Intervention			Comparator			Intervention Imputed Mean (SD)	Comparator Imputed Mean (SD)	<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
	concentration on POD7 (mg/dl)			(IQR)			(IQR)					
Tanaka 2017 ³⁹	Weight loss, one week post-surgery (ratio of postop to pre-op weight)	73	0.962 (median)	0.955 to 0.976 (IQR)	69	0.957 (median)	0.947 to 0.967 (IQR)	1.0 (0)	1.0 (0)	.45 (.12 to .78)	.007 (.002 to .012)	<.01
Tanaka 2017 ³⁹	Weight loss, one month post- surgery (ratio of postop to pre-op weight)	73	0.951 (median)	0.928 to 0.971 (IQR)	69	0.937 (median)	0.919 to 0.959 (IQR)	1.0 (0)	0.9 (0)	.38 (.05 to .71)	.011 (.001 to .02)	<.05

Standardised (Cohen's *d*) and non-standardised mean differences with 95% confidence intervals were calculated from means and SDs (imputed where necessary). P-values are from independent samples t-tests. VAS=Visual Analogue Scale; ACTH=Adrenocorticotrophic Hormone; NPY=Neuropeptide Y; POD=Postoperative Day; n=sample size

Table 16. Data for all effectiveness outcomes for the one study trialling a Prehabilitation intervention to improve recovery after upper abdominal surgery. Reported values are presented (mean and standard deviation (SD) unless indicated), as well as imputed means and SD where calculated.

Study	Outcome (units)	Intervention			Comparator			Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance					
Dunne 2016 ⁴⁰	LOS (days)	19	5 (median)	4 to 6 (IQR)	15	5 (median)	4.5 to 7 (IQR)	5.0 (1.6)	5.5 (2)	-.28 (-.96 to .4)	-.5 (-1.77 to .77)	.43
Dunne 2016 ⁴⁰	Duration of stay in critical care (days)	19	1 (median)	1 to 2 (IQR)	15	1.5 (median)	1 to 2 (IQR)	1.3 (0.8)	1.5 (0.8)	-.21 (-.89 to .47)	-.17 (-.74 to .40)	.55
Dunne 2016 ⁴⁰	Patients with complications <30 days (n)	19	8		15	7				OR: 0.83 (0.21 to 3.25)		.79
Dunne 2016 ⁴⁰	Readmissions (n)	19	4		15	0						.06
Dunne 2016 ⁴⁰	Oxygen uptake at anaerobic threshold (ml per kg per min)	19	11.9	2.2	16	9.4	1.1			1.4 (.65 to 2.15)	2.5 (1.27 to 3.73)	<.001
Dunne 2016 ⁴⁰	Oxygen uptake at peak (ml per kg per min)	19	18.9	4.7	16	16.0	3.5			.69 (.01 to 1.38)	2.9 (.00 to 5.80)	<.05
Dunne 2016 ⁴⁰	Oxygen pulse at anaerobic threshold (ml/beat)	19	9.3	2.2	16	7.3	1.7			1.01 (.3 to 1.71)	2.0 (.63 to 3.37)	<.01
Dunne 2016 ⁴⁰	Oxygen pulse at peak (ml/beat)	19	11.3	2.2	16	9.5	2.0			.85 (.16 to 1.55)	1.8 (.34 to 3.26)	<.05
Dunne 2016 ⁴⁰	Peak work rate (W)	19	130.0	34.0	16	117.0	28.0			.41 (-.26 to 1.09)	13.0 (-8.69 to 34.7)	.23
Dunne 2016 ⁴⁰	Heart rate reserve (beats/min)	19	58.0	23.0	16	55.0	22.0			.13 (-.53 to .8)	3.0 (-12.6 to 18.6)	.70
Dunne 2016 ⁴⁰	SF-36: Physical health subscale (raw score)	19	66.0	27.0	16	56.0	15.0			.45 (-.23 to 1.12)	10.0 (-5.43 to 25.4)	.20
Dunne 2016 ⁴⁰	SF-36: Mental health subscale	19	75.0	24.0	16	61.0	25.0			.57 (-.11 to 1.25)	14.0 (-2.89 to 30.9)	.10

Study	Outcome (units)	Intervention			Comparator			Intervention	Comparator	<i>d</i> or OR (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance	Imputed Mean (SD)	Imputed Mean (SD)			
	(raw score)											
Dunne 2016 ⁴⁰	SF-36: QoL subscale (raw score)	19	73.0	23.0	16	59.0	21.0			.63 (-.05 to 1.32)	14.0 (-1.27 to 29.3)	.07
Dunne 2016 ⁴⁰	HR: Oxygen uptake at anaerobic threshold (ml per kg per min)	9	11.9	2.2	8	9.4	1.1			1.41 (.33 to 2.49)	2.5 (.66 to 4.34)	<.05
Dunne 2016 ⁴⁰	HR: Oxygen uptake at peak (ml per kg per min)	9	18.9	4.7	8	16	3.5			.69 (-.29 to 1.68)	2.9 (-1.43 to 7.23)	.17
Dunne 2016 ⁴⁰	HR: Oxygen pulse at anaerobic threshold (ml/beat)	9	9.3	2.2	8	7.3	1.7			1.01 (-.01 to 2.03)	2.0 (-.05 to 4.05)	.06
Dunne 2016 ⁴⁰	HR: Oxygen pulse at peak (ml/beat)	9	11.3	2.2	8	9.5	2.0			.85 (-.15 to 1.85)	1.8 (-.38 to 3.98)	.10
Dunne 2016 ⁴⁰	HR: Peak work rate (W)	9	130.0	34.0	8	117	28.0			.41 (-.55 to 1.38)	13.0 (-19.5 to 45.5)	.41
Dunne 2016 ⁴⁰	HR: Heart rate reserve (beats/min)	9	58.0	23.0	8	55.0	22.0			.13 (-.82 to 1.09)	3.0 (-20.3 to 26.3)	.79
Dunne 2016 ⁴⁰	SF-36: Physical health subscale, HR (raw score)	9	66.0	27.0	8	56.0	15.0			.45 (-.52 to 1.42)	10.00 (-13.0 to 33.0)	.37
Dunne 2016 ⁴⁰	SF-36: Mental health subscale, HR (raw score)	9	75.0	24.0	8	61.0	25.0			.57 (-.4 to 1.55)	14.0 (-11.3 to 39.3)	.26
Dunne 2016 ⁴⁰	SF-36: QoL subscale, HR (raw score)	9	73.0	23.0	8	59.0	21.0			.63 (-.35 to 1.61)	14.0 (-8.88 to 36.9)	.21

Study	Outcome (units)	Intervention			Comparator			Intervention		Comparator		p
		n	Estimate	Variance	n	Estimate	Variance	Imputed Mean (SD)	Imputed Mean (SD)	<i>d</i> or OR (95% CI)	Mean change (95% CI)	

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of Stay; HR=High Risk subgroup; SF-36=Short Form 36; W=Watts; SD=Standard Deviation; CI=Confidence Interval; QoL=Quality of Life; n=sample size

Table 17. Data for clinical outcomes for each study trialling an ERP intervention to improve recovery from pelvic surgery. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Number experiencing complications (n)	25	6		25	14		OR: 0.25 (0.07 to 0.83)		<.05
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Postop LOS (days)	25	3.60	1.22	25	6.72	0.94	-2.9 (-3.73 to -2.12)	-3.1 (-3.70 to -2.50)	<.001
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Readmissions (n)	25	2		25	1		OR: 2.09 (0.18 to 24.62)		.55
Jensen 2015 ⁴³	LOS (days)	50	8 (median)	3 to 30 (range)	57	8 (median)	4 to 55 (range)			
Jensen 2015 ⁴³	Patients with no complications (%)	50	40		57	40		OR: 1 (0.46 to 2.17)		1.0
Jensen 2015 ⁴³	Patients with 1 complications (%)	50	16		57	30		OR: 0.44 (0.17 to 1.14)		.09
Jensen 2015 ⁴³	Patients with 2 complications (%)	50	18		57	10		OR: 1.98 (0.64 to 6.1)		.23
Jensen 2015 ⁴³	Patients with 3 complications (%)	50	12		57	5		OR: 2.59 (0.6 to 11.21)		.19
Jensen 2015 ⁴³	Patients with 4 complications (%)	50	8		57	7		OR: 1.16 (0.27 to 4.89)		.84
Jensen 2015 ⁴³	Patients with 5 complications (%)	50	4		57	2		OR: 2.04 (0.2 to 21.03)		.54
Jensen 2015 ⁴³	Patients with 6 complications (%)	50	2		57	2		OR: 1 (0.07 to 15.07)		1.0
Jensen 2015 ⁴³	Patients with 7 complications (%)	50	0		57	4				.15
Jensen 2015 ⁴³	Readmission <30 days (%)	50	30		57	23		OR: 1.43 (0.6 to 3.4)		.41
Jensen 2015 ⁴³	Mortality <90 days (%)	50	6		57	7		OR: 0.85 (0.18 to 3.99)		.84

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of stay; SD=Standard deviation; CI=Confidence interval; Postop=Postoperative; n=sample size

Table 18. Data for patient-reported outcomes for each study trialling an ERP intervention to improve recovery from pelvic surgery. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Time to first deflation or defecation (days)	25	0.76	0.66	25	1.16	0.62	-.61 (-1.18 to -.05)	-.4 (-.76 to -.04)	<.05
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Satisfaction with length of stay: too short (n)	25	3		24	2				
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Satisfaction with length of stay: just right (n)	25	21		24	20				
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Satisfaction with length of stay: too long (n)	25	1		24	2				
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Satisfaction with general perioperative course - quality as presumed (n)	25	8		24	11				
Gralla 2007 ⁴¹ / Magheli 2011 ⁴²	Satisfaction with general perioperative course - quality better than presumed (n)	25	17		24	13				
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score <90 days 0 (n)	50	40		57	40				
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score <90 days 1	50	18		57	26				
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score <90 days 2 (n)	50	18		57	9				
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score	50	16		57	14				

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> (95% CI)	Mean change (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
	<90 days 3 (n)									
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score <90 days 4 (n)	50	2		57	4				
Jensen 2015 ⁴³	Maximum grade Clavien–Dindo score <90 days 5 (n)	50	6		57	7				
Jensen 2015 ⁴³	Time to passage of first flatus (days)	50	1 (median)		57	2 (median)				
Jensen 2015 ⁴³	Time to passage of first stool (days)	50	4 (median)		57	4 (median)				
Jensen 2015 ⁴³	Reported pain VAS: 0 (%)	50	72		57	79				
Jensen 2015 ⁴³	Reported pain VAS; 1- 3 (%)	50	12		57	14				
Jensen 2015 ⁴³	Reported pain VAS: 4- 5 (%)	50	10		57	7				
Jensen 2015 ⁴³	Reported pain VAS: 6 or above (%)	50	6		57	0				

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs, imputed where necessary. P-values are from independent samples t-tests. CI=Confidence Interval; SD=Standard Deviation; VAS=Visual Analogue Scale; n=sample size

Table 19. Data for all outcomes for studies trialling interventions to improve recovery from vascular surgery. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Muehling 2009 ⁴⁴ , ERP	Postoperative ventilation required (n)	49	3		50	16		OR: 0.11 (0.02 to 0.55)		<.01
Muehling 2009 ⁴⁴ , ERP	LOS on ICU (hours)	49	20 (median)	14 to 336 (range)	50	32 (median)	12 to 293 (range)			
Muehling 2009 ⁴⁴ , ERP	Day of discharge (postop day)	49	10 (median)	6 to 49 (range)	50	11 (median)	8 to 45 (range)			
Muehling 2009 ⁴⁴ , ERP	Duration of I.V. fluid (days)	49	2 (median)	1 to 40 (range)	50	5 (median)	2 to 16 (range)			
Muehling 2009 ⁴⁴ , ERP	Time to full enteral feeding (hours)	49	5 (median)	4 to 40 (range)	50	7 (median)	4 to 22 (range)			
Muehling 2009 ⁴⁴ , ERP	Time to first defecation (hours)	49	2 (median)	1 to 4 (range)	50	2 (median)	1 to 5 (range)			
Muehling 2009 ⁴⁴ , ERP	Incidence of complications (%)	49	16		50	36		OR: 0.35 (0.12 to 1.02)		.05
Muehling 2009 ⁴⁴ , ERP	Deaths (n)	49	0		50	0				
Muehling 2009 ⁴⁴ , ERP	Readmission <30 days (n)	49	0		50	0				
Muehling 2011 ⁴⁵ , ERP	Development of SIRS (%)	49	28		50	50		OR: 0.39 (0.17 to 0.9)		<.05
Muehling 2011 ⁴⁵ , ERP	Occurrence of organ failure (%)	49	16		50	36		OR: 0.34 (0.13 to 0.88)		<.05
Partridge 2017 ⁴⁶ , PACP	LOS (days)	85	3.32		91	5.53				
Partridge 2017 ⁴⁶ , PACP	New comorbid diagnoses made at assessment (%)	101	63.40		100	5		OR: 32.91 (12.28 to 88.24)		<.001
Partridge 2017 ⁴⁶ , PACP	Incidence of postoperative delirium (%)	85	11		91	24		OR: 0.39 (0.17 to 0.9)		<.05

Study, intervention	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Partridge 2017 ⁴⁶ , PACP	Fall (%)	85	2		91	8		OR: 0.23 (0.04 to 1.28)		.07
Partridge 2017 ⁴⁶ , PACP	Cardiac complications (%)	85	8		91	27		OR: 0.24 (0.09 to 0.58)		<.01
Partridge 2017 ⁴⁶ , PACP	Pulmonary complications (%)	85	9		91	14		OR: 0.61 (0.23 to 1.57)		.30
Partridge 2017 ⁴⁶ , PACP	Infective complications (%)	85	16		91	27		OR: 0.51 (0.25 to 1.08)		.08
Partridge 2017 ⁴⁶ , PACP	Bowel and bladder complications (%)	85	33		91	55		OR: 0.4 (0.22 to 0.74)		<.01
Partridge 2017 ⁴⁶ , PACP	Postoperative vascular surgery related issues (%)	85	7		91	11		OR: 0.61 (0.21 to 1.76)		.36
Partridge 2017 ⁴⁶ , PACP	Discharge timed get up and go (seconds)	85	18.9	1.8	91	20.1	11.6	-.14 (-.44 to .15)	-1.2 (-3.71 to 1.31)	.35
Partridge 2017 ⁴⁶ , PACP	Discharge gait speed (m.s ⁻¹)	85	0.7	0.3	91	0.7	0.2	.0 (-.3 to .3)	0 (-.08 to .08)	1.0
Partridge 2017 ⁴⁶ , PACP	Postoperative blood transfusion (units infused)	85	0.3	0.7	91	1	3.7	-.26 (-.56 to .04)	-.7 (-1.51 to .11)	.09
Partridge 2017 ⁴⁶ , PACP	Discharge to higher care (%)	85	5		91	13		OR: 0.38 (0.13 to 1.1)		.07
Partridge 2017 ⁴⁶ , PACP	Readmission to hospital within 30 days (%)	85	18		91	11		OR: 1.95 (0.86 to 4.42)		.10
Partridge 2017 ⁴⁶ , PACP	Level 2/3 care used immediately after surgery (%)	85	31		91	43		OR: 0.6 (0.32 to 1.11)		.10

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data, imputed where necessary. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; ERP=Enhanced Recovery Protocol; PACP=Preoperative Assessment and Care Plan; LOS=Length of Stay; SD=Standard deviation; CI=Confidence interval; SIRS= Systemic Inflammatory Response Syndrome; ICU=Intensive Care Unit; n=sample size

Table 20. Data for all outcomes for studies trialling interventions to improve recovery from thoracic surgery. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study	Outcome (units)	Intervention			Comparator			OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Muehling 2008 ⁴⁷	Postoperative ventilation required (%)	27	3.7		28	7.1		OR: 0.5 (0.04 to 5.91)		.58
Muehling 2008 ⁴⁷	LOS on ICU (hours)	30	1 (median)	1 to 33 (range)	28	1 (median)	1 to 12 (range)			
Muehling 2008 ⁴⁷	Day of discharge (postop day)	30	11 (median)	8 to 33 (range)	28	11 (median)	7 to 34 (range)			

Standardised (Cohen's d) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data).

OR=Odds Ratio; LOS=Length of Stay; SD=Standard deviation; CI=Confidence interval; ICU=Intensive Care Unit; n=sample size

Table 21. Data for all outcomes from the study trialling an intervention to improve recovery for patients undergoing various tumour removal surgeries. Reported values are presented (mean and standard deviation (SD) unless indicated).

Study	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
Hempenius 2013 ⁴⁸	Incidence of delirium (%)	117	9.4		129	14.3		OR: 0.62 (0.28 to 1.37)		.24
Hempenius 2013 ⁴⁸	Severity of delirium (Score on DRS-R-98)	117	9 (median)	3 to 30 (range)	129	15 (median)	5 to 29 (range)			
Hempenius 2013 ⁴⁸	Length of hospital stay (days)	117	8 (median)	1 to 135 (range)	129	8 (median)	1 to 44 (range)			
Hempenius 2013 ⁴⁸	Patients experiencing >1 complication (%)	117	33.1		129	28.6		OR: 1.24 (0.72 to 2.12)		.45
Hempenius 2013 ⁴⁸	Mortality (%)	117	7.9		129	3		OR: 2.77 (0.82 to 9.42)		.09
Hempenius 2013 ⁴⁸	Care dependency score (raw score)	112	72.29	8.92	124	73.53	9.08	-.14 (-.39 to .12)	-1.24 (-3.55 to 1.07)	.29
Hempenius 2013 ⁴⁸	Mini Mental State Examination (raw score)	87	26.68	2.97	92	26.33	3.91	.10 (-.19 to .39)	.35 (-.68 to 1.38)	.50
Hempenius 2013 ⁴⁸	SF-36 Physical function subscale (% same or better than baseline)	117	22.8		129	23.2				
Hempenius 2013 ⁴⁸	SF-36 Social function subscale (% same or better than baseline)	117	44.7		129	45.6				
Hempenius 2013 ⁴⁸	SF-36 Role Physical subscale (% same or better than baseline)	117	36		129	30.4				
Hempenius 2013 ⁴⁸	SF-36 Role Emotional subscale (% same or better than baseline)	117	48.2		129	59.2				
Hempenius 2013 ⁴⁸	SF-36 Mental Health subscale (% same or better than baseline)	117	62.3		129	56.8				
Hempenius 2013 ⁴⁸	SF-36 Vitality	117	37.7		129	39.2				

Study	Outcome (units)	Intervention			Comparator			<i>d</i> or OR (95% CI)	Mean difference (95% CI)	p
		n	Estimate	Variance	n	Estimate	Variance			
2013 ⁴⁸	subscale (% same or better than baseline)									
Hempenius 2013 ⁴⁸	SF-36 Bodily pain subscale (% same or better than baseline)	117	50		129	32.8				
Hempenius 2013 ⁴⁸	SF-36 General Health subscale (% same or better than baseline)	117	58.8		129	54.4				
Hempenius 2013 ⁴⁸	SF-36 Health Change subscale (% same or better than baseline)	117	64.9		129	72.0				
Hempenius 2013 ⁴⁸	Return to pre-operative living situation (%)	117	67.3		129	79.1		OR: 0.54 (0.31 to 0.97)		<.05
Hempenius 2013 ⁴⁸	Patients with increased domestic help (%)	117	18.4		129	26.6		OR: 0.62 (0.34 to 1.14)		.12
Hempenius 2013 ⁴⁸	Patients with increased care assistance (%)	117	57.5		129	60.0		OR: 0.9 (0.54 to 1.51)		.70
Hempenius 2013 ⁴⁸	Patients with increased informal care (%)	111	36.3		124	30.3		OR: 1.31 (0.77 to 2.24)		.32
Hempenius 2016 ⁴⁹	Readmissions <3 months (%)	117	22.9		129	18.3		OR: 1.33 (0.71 to 2.47)		.37

Standardised (Cohen's *d*) and non-standardised mean differences with 95% and confidence intervals were calculated from means and SDs for continuous data. Odds ratios and 95% confidence intervals were calculated for dichotomous data. P-values are from independent samples t-tests (for continuous data) or z-scores (for dichotomous data). OR=Odds Ratio; LOS=Length of Stay; SD=Standard deviation; CI=Confidence interval; OR=Odds Ratio; DSRS-98=Delirium Rating Scale - Revised – 98; SF-36=Short Form 36; n=sample size

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