

Sickness absence after carpal tunnel release: a systematic review of the literature¹

by Lisa Newington, MSc,² Martin Stevens, LLB, David Warwick, MD, Jo Adams, PhD,⁴
Karen Walker-Bone, PhD

1. *Appendices*
2. *Correspondence to: Lisa Newington, MRC Lifecourse Epidemiology Unit (University of Southampton), Southampton General Hospital (MP 95), Tremona Road, Southampton, SO16 6YD, UK. [E-mail: ln@mrc.soton.ac.uk]*

APPENDIX A. Search Strategy (Medline)

Population:

carpal tunnel syndrome/
carpal tunnel.mp.
median neuropathy/
median neuropath*.mp.
median nerve entrap*.mp.
median nerve compress*.mp.
median nerve imping*.mp.

AND

general surgery/ or orthopaedics/ or surgery, plastic/
surg*.mp.
release.mp.
decompression, surgical/
decompression.mp.
epineurotomy.mp.
operat*
postoperat*.mp.
post operat*.mp.

Intervention/Comparator:

No particular search terms will be defined to ensure that no interventions/comparators are missed

AND

Outcomes:

return to work/
return to work.mp.
sick leave/
sick*.mp.
absenteeism/
absen*.mp.
time off work.mp.
work/
work*.mp.
convalescence/
convales*
employ*.mp
occupations/
occupation*
time factors/
time.mp.
function*.mp.
treatment outcomes/

outcome*.mp

APPENDIX B. Data extraction form

Sickness absence after carpal tunnel release				
STUDY IDENTIFICATION				
Reviewer	Study number	Year	Primary author	Journal
STUDY DETAILS				Location in text
Study design (study type)				
Location (country)				
Source of participants & method of recruitment				
N assessed for eligibility				
Total N randomized/enrolled				
PARTICIPANT CHARACTERISTICS				Location in text
Method of CTS diagnosis (mark all that apply)		☐ Phalen's test ☐ Tinel's test ☐ History of symptoms ☐ Nerve conduction studies ☐ Other (please state)		
Key inclusion criteria				
Key exclusion criteria				
Bilateral/unilateral CTS		☐ Bilateral CTS patients only ☐ Unilateral CTS patients only ☐ Mixture ☐ Unclear ☐ Other (please state)		
INTERVENTION(S) & COMPARATOR(S)				Location in text
Group 1			N	
Description of CTR technique		☐ Open traditional incision ☐ Open mini-incision ☐ Endoscopic (☐ one port / ☐ two port) ☐ Other (please state) ☐ General anesthetic ☐ Regional block / local anesthetic ☐ Other (please state)		
Description of intervention if separate from CTR technique				
Post-op management		☐ Bulky dressings (when removed?) ☐ Splint or cast (when removed?) ☐ Removal of sutures (when?) ☐ Rehab Please select ☐ Unclear ☐ Other (please state)		

Advice about RTW / function	☐ Advice about function (what and who by) ☐ Advice about return to work (what and who by) ☐ Not mentioned / unclear	
Age (mean, SD)		
Male/female	Male = Female = ☐ Not specified	
Pre-op CTS severity	☐ Boston/Levine/Levine-Katz/carpal tunnel questionnaire General score: Symptom severity score (SSS): Functional status score (FSS): ☐ Not reported	
Number of workers in grp 3		
Insurance status of workers	☐ Workers' compensation – number: ☐ Insurance – number: ☐ Sick pay – number: ☐ No funding – number: ☐ Other funding for sick leave	
Occupational classification & numbers		
Group 2		N
Description of CTR technique	☐ Open traditional incision ☐ Open mini-incision ☐ Endoscopic (☐ one port / ☐ two port) ☐ Other (please state) ☐ General anesthetic ☐ Regional block / local anesthetic ☐ Other (please state)	
Description of intervention if separate from CTR technique		
Post-op management	☐ Bulky dressings (when removed?) ☐ Splint or cast (when removed?) ☐ Removal of sutures (when?) ☐ Rehab Please select ☐ Unclear ☐ Other (please state)	
Advice about RTW / function	☐ Advice about function (what and who by) ☐ Advice about return to work (what and who by) ☐ Not mentioned / unclear	
Age (mean, SD)		
Male/female	Male = Female = ☐ Not specified	
Pre-op CTS severity	☐ Boston/Levine/Levine-Katz/carpal tunnel questionnaire General score: Symptom severity score (SSS): Functional status score (FSS): ☐ Not reported	
Number of workers in grp 3		

Insurance status of workers	☐ Workers' compensation – number: ☐ Insurance – number: ☐ Sick pay – number: ☐ No funding – number: ☐ Other funding for sick leave (please state)	
Occupational classification & numbers		
Group 3 (if applicable)		N
Location in text		
Description of CTR technique	☐ Open traditional incision ☐ Open mini-incision ☐ Endoscopic (☐ one port / ☐ two port) ☐ Other (please state) ☐ General anesthetic ☐ Regional block / local anesthetic ☐ Other (please state)	
Description of intervention if separate from CTR technique		
Post-op management	☐ Bulky dressings (when removed?) ☐ Splint or cast (when removed?) ☐ Removal of sutures (when?) ☐ Rehab Please select ☐ Unclear ☐ Other (please state)	
Advice about RTW / function	☐ Advice about function (what and who by) ☐ Advice about return to work (what and who by) ☐ Not mentioned / unclear	
Age (mean, SD)		
Male/female	Male = Female = ☐ Not specified	
Pre-op CTS severity	☐ Boston/Levine/Levine-Katz/carpal tunnel questionnaire General score: Symptom severity score (SSS): Functional status score (FSS): ☐ Not reported	
Number of workers in grp 3		
Insurance status of workers	☐ Workers' compensation – number: ☐ Insurance – number: ☐ Sick pay – number: ☐ No funding – number: ☐ Other funding for sick leave (please state)	
Occupational classification & numbers		
OUTCOMES		Location in text
Mark all outcomes recorded for this study: ☐ Return to work timescale ☐ Return to work schedule/process ☐ Number of drop outs/losses to follow-up		

☐ Complications ☐ Patient-reported measures of CTS symptoms ☐ Patient-reported measures of hand/wrist function ☐ Return to ADL timescale/quality ☐ Quality of life measure (eg SF36/SF12) ☐ Strength (eg grip/pinch) ☐ Sensation (eg Semmes-Weinstein monofilaments /2-point discrimination) ☐ Neurophysiology (eg nerve conduction/EMG) ☐ Cost Study primary outcome(s):											
Primary review outcome: Return to work time point											Location in text
Term used in text (eg sick leave, time to RTW etc)											
Definition of measure (eg time from surgery to return to full duties etc)											
Method of data collection (eg patient self-report etc)											
Time point(s) at which outcome is reported											
Plan for RTW measure for bilateral cases		☐ Bilateral – simultaneous surgery counted as one case ☐ Bilateral – staged CTR: RTW reported for each hand ☐ Bilateral – staged CTR: RTW reported for one hand ☐ Bilateral patients excluded ☐ Unclear ☐ Other (please state)									
Hand dominance, side of surgery and RTW (please select all that apply)		☐ Hand dominance discussed ☐ Hand dominance in relation to side of surgery ☐ Hand dominance in relation to surgery & RTW ☐ Unclear ☐ Other (please state)									
RESULTS: return to work time point											
Grp 1 N work ers	Grp 1 Mean/ median	Grp 1 SD/IQR	Grp 2 N work ers	Grp 2 Mean/ median	Grp 2 SD/IQR	Time point	Type of effect estimate	Low CI	Up CI	p- value	Location in text and nature of measure
Other outcomes for RTW and/or details on the RTW process Group 1 Group 2											
Grp 1 N work ers	Grp 1 Mean/ median	Grp 1 SD/IQR	Grp 3 N work ers	Grp 3 Mean/ median	Grp 3 SD/IQR	Time point	Type of effect estimate	Low CI	Up CI	p- value	Location in text and nature of measure
Other outcomes for RTW and/or details on the RTW process Group 3											

Grp 2 N work ers	Grp 2 Mean/ median	Grp 2 SD/IQR	Grp 3 N work ers	Grp 3 Mean/ median	Grp 3 SD/IQR	Time point	Type of effect estimate	Low CI	Up CI	p- value	Location in text and nature of measure

APPENDIX C. Risk of bias assessments for included studies

I. Randomized controlled trials

<i>Randomized controlled trials</i>	Sequence generation	Allocation concealment	Participant blinding	Outcome blinding –	Outcome data – time	Selective reporting	Other	Summary rating
Agee 1992	High	Unclear	High	High	Unclear	Unclear	Unclear	High
Atroshi 2006	Low	Low	High	Low	Low	Low	Low	Low
Bhattacharya 2004	Low	Low	High	High	High	High	Low	High
Brown 1993	Low	Low	High	High	Low	Low	Low	Unclear
Bruser 1999	Low	Unclear	High	High	Unclear	Unclear	Unclear	Unclear
Cellocco 2009	Low	Low	High	High	Unclear	Unclear	Low	Unclear
Cook 1995	Unclear	Unclear	High	High	Unclear	Unclear	Unclear	Unclear
Ferdinand 2002	Low	Low	High	High	Low	Low	Unclear	Unclear
Finsen 1999	Unclear	High	High	High	Unclear	Unclear	Low	High
Foulkes 1994	High	High	High	High	High	High	Unclear	High
Jacobsen 1996	Unclear	Unclear	High	Unclear	Low	Unclear	Low	Unclear
Jugovac 2002	Low	Low	High	High	Low	Unclear	Unclear	Unclear
Larsen 2013	Low	Low	High	High	Low	Unclear	Low	Unclear
Provinciali 2000	Low	Low	High	High	Unclear	Low	Unclear	Unclear
Saw 2003	Low	Low	High	High	Low	Unclear	Low	Unclear
Sennwald 1995	Low	Low	High	High	Unclear	Unclear	Unclear	Unclear
Tian 2007	Unclear	Unclear	High	High	Unclear	Unclear	High	High
Trumble 2002	Low	Unclear	High	High	Unclear	High	Low	High

 Low risk of bias
  Unclear risk of bias
  High risk of bias

Participant blinding was excluded from the summary score due to the difficulty of blinding participants in surgical trials. Studies were rated at low risk of bias if rated 'low' for all remaining domains; high risk of bias if rated 'high' for two additional domains; and 'unclear' for other scoring patterns. RTW return to work.

II. Case control studies

<i>Case control study</i>	Confounding	Participant selection	Measurement of intervention	Missing data	Measurement of RTW	Selective reporting	Summary rating
Atroshi 2015							



Low risk of bias



Moderate risk of bias



Serious risk of bias

RTW return to work.

III. Cohort studies

<i>Cohort studies</i>	Confounding	Participant selection	Classification of intervention	Departures from intervention	Missing data	Measurement of RTW	Selective reporting	Summary rating
Prospective studies								
Becker 2012								
Bekkelund 2001								
Brown 1992								
Carmona 1998								
Chaise 2004								
Cha 2016								
Cowan 2012								
Dickson 2014								
Futami 1995								
Gimeno 2005								
Goodman 1993								
Hallock 1995								
Hansen 2009								
Karlsson 1997								
Manktelow 2004								
Nagle 1996								
Nesbitt 2006								
Palmer 1993								
Ratzon 2005								
Seitz 2013								
Retrospective studies								
Adams 1994				N/A				
Bitar 2002				N/A				
Braun 1994				N/A				
Braun 1999				N/A				
Chrostowski 1994				N/A				
De Kesel 2008				N/A				
Duche 2010				N/A				
Fehringer 2002				N/A				
Gibbs 1996				N/A				
Huracek 2001				N/A				
Kerr 1994				N/A				
Ketchum 2004				N/A				
Lyll 2002				N/A				
McDonough 1993				N/A				
Parot-Schinkel 2011				N/A				
Waislak 2007				N/A				
Weber 2005				N/A				

 Low risk of bias	 Moderate risk of bias	 Serious risk of bias	 Critical risk of bias	 No information
--	---	--	---	--

Cohort studies were rated at low risk of bias if the study scored 'low' for all domains; moderate if they scored at least 'moderate' for all domains; serious if they scored serious in one or more domain; and critical if they scored critical in one or more domain. RTW return to work; N/A not applicable.

APPENDIX D. Study characteristics and reported return to work times

I. Randomized controlled trials

Study	Compensation or insurance type	Work type	Number of workers	CTR procedure and study group	Time to return to work (days)				Risk of bias
					Median	Mean	Range	SD	
Agee 1992 USA (23)	Workers' compensation	NR	10	Open	78	-	-	-	High
	No workers' compensation		20		45.5	-	-	-	
	Combined		30		46.5	-	-	-	
	Workers' compensation	NR	11	Endoscopic	71	-	-	-	
	No workers' compensation		38		16.5	-	-	-	
	Combined		49		25	-	-	-	
Atroshi 2006 Sweden (27)	State insurance	NR	6	Open (on sick-leave before CTR)	37	76	14-174 ^A	74	Low
			59	Open (not on sick-leave before CTR)	28	33	23-44 ^A	19	
		NR	10	Endoscopic (on sick-leave before CTR)	51	84	25-200 ^A	62	
			53	Endoscopic (not on sick-leave before CTR)	28	28	17-39 ^A	16	
		Blue collar work	95	Open and endoscopic	36	44	-	36	
		White collar work	27	Open and endoscopic	21	19	-	14	
Bhattacharya 2004 UK (32)	NR	NR	26 ^B	Bilateral open (2.5cm incision)	14	-	<7-42	-	High
			26 ^B	Bilataeral knifelight (endoscopic)	14	-	<7-42	-	
Brown 1993 USA & Sweden (39)	Mixed	NR	40	Open (3.5-4.5cm incision)	28	-	-	-	Unclear
			41	Endoscopic (two ports)	14	-	-	-	
Bruser 1999 Germany (61)	NR	NR	38	Open (2.5cm incision)	21	18	-	-	Unclear
			42	Open (4.5cm incision)	18	19	-	-	
Cellocco 2009 Italy (40)	NR	NR	103 ^B	Open	-	25	23-29	-	Unclear
			82 ^B	Knifelight (endoscopic)	-	17	15-18	-	
Cook 1995 USA (18)	Mixed	Light duties	25 ^B	Open (splint)	-	24	-	-	Unclear
		Full duties	25 ^B		-	27	-	-	
		Light duties	25 ^B	Open (no splint)	-	15	-	-	
		Full duties	25 ^B		-	17	-	-	
Ferdinand 2002 UK (33)	NR	NR	14	Bilateral open and endoscopic	26.5	31	11-70	17	Unclear
Finsen 1999 Norway (41)	State insurance	NR	19	Open (splint)	42	-	-	-	High
			28	Open (no splint)	42	-	-	-	
Foulkes 1994 USA (42)	NR	NR	8 ^B	Open (standard procedure)	53	-	1-180	-	High
			15 ^B	Open with epineurotomy	59	-	14-120	-	
Jacobsen 1996 Sweden (43)	No workers' compensation	NR	16 ^C	Open	19	19	0-42	10	Unclear
			16 ^C	Endoscopic (two ports)	19.5	17	0-31	9	

Jugovac 2002	NR	NR	36	Open (2.5cm incision)	-	15	5-45	-	Unclear
Croatia (62)			36	Open (long incision)	-	30	10-60	-	
Larsen 2013	State insurance	NR	23	Open (3cm incision)	16	-	-	-	Unclear
Denmark (26)			17	Open (7cm incision)	20	-	-	-	
			16	Endoscopic (one port)	7	-	-	-	
Provinciali 2000	No workers' compensation	NR	50 ^B	Open (therapy-led rehabilitation)	-	32	-	11	Unclear
Italy (63)			50 ^B	Open (home exercise programme)	-	43	-	13	
Saw 2003	NR	NR	42	Open	-	26	-	14	Unclear
UK (44)			43	Endoscopic (one port)	-	18	-	11	
Sennwald 1995	NR	NR	22 ^B	Open	-	42	-	-	Unclear
Switzerland (64)			25 ^B	Endoscopic (one port)	-	24	-	-	
Tian 2007	NR	NR	30 ^B	Open	-	28	-	-	High
China (45)			32 ^B	Endoscopic (one port)	-	12	-	-	
Trumble 2002	Mixed	NR	49	Open	38		14-84		High
USA (46)			53	Endoscopic (one port)	18		3-56		

^A Interquartile range; ^B number of workers not explicitly stated; ^C reported as number of hands, rather than number of individuals.
NR not reported; CTR carpal tunnel release; RTW return to work; SD standard deviation.

II. Case control study

Study	Compensation or insurance type	Work type	Number of workers	CTR procedure and study group	Time to return to work (days)				Risk of bias
					Median	Mean	Range	SD	
Atroshi 2015 Sweden (14)	State insurance	NR	1121	CTR procedure not reported (female)	35	44	27-45 ^A	44	Low
			408	CTR procedure not reported (male)	41	52	28-50 ^A	65	

^A Interquartile range; NR not reported; CTR carpal tunnel release.

III. Cohort studies

Study	Compensation or insurance type	Work type	No. of Workers	CTR procedure and study group	Time to return to work (days)				Risk of bias
					Median	Mean	Range	SD	
PROSPECTIVE COHORT STUDIES									
Becker 2012 & Cowan 2012 USA (15, 16)	No workers' compensation	All work types (modified duties)	66	Open (short incision)	-	12	0-90	16	Moderate
		All work types (normal duties)			-	19	0-90	22	
		Desk-based (modified duties)	34	Open (short incision)	-	7	0-49	11	
		Desk-based (normal duties)			-	10	0-90	17	
		Non-desk-based (modified duties)	32	Open (short incision)	-	18	0-90	20	
		Non-desk-based (normal duties)			-	30	3-90	23	
		Part-time (modified duties)	13	Open (short incision)	-	15	0-56	18	
		Part-time (normal duties)			-	34	0-90	33	
		Full-time (modified duties)	52	Open (short incision)	-	10	0-49	11	
		Full-time (normal duties)			-	14	0-60	14	
Bekkelund 2001 Norway (48)	Workers' compensation	NR	106	Open (all participants)	42	-	<7-365	-	Low
			71	Open (female)	49	-	<7-365	-	
			35	Open (male)	42	-	<7-84	-	
Brown 1992 USA (19)	NR	NR	149 ^A	Endoscopic (one port)	-	16	-	-	Critical
			152 ^A	Endoscopic (two ports)	-	15	-	-	
Carmona 1998 USA (49)	Mixed	NR	59	CTR procedure not reported	35	-	-	-	Moderate
Chaise 2004 France (67)	Mixed	Non-manual work (self-employed)	18	Biportal CTR without an endoscope	-	11	-	-	Moderate
		Non-manual work (private sector)	23		-	21	-	-	
		Non-manual work (civil servant)	28		-	49	-	-	
		Manual work (self-employed)	69	Biportal CTR without an endoscope	-	29	-	-	
		Manual work (private sector)	67		-	42	-	-	
		Manual work (civil servant)	28		-	63	-	-	
	State insurance	Self-employed	75	Biportal CTR without an endoscope	-	17	-	-	
		Private sector employee	70		-	31	-	-	
		Civil servant or comparable	46		-	56	-	-	
	Workers' compensation	Self-employed	12	Biportal CTR without an endoscope	-	34	-	-	
		Private sector employee	20		-	46	-	-	
		Civil servant	10		-	72	-	-	
	Cha 2016 Korea (28)	No workers' compensation	NR	52	Open CTR with delay	-	9	-	
			100	Immediate open CTR	-	15	-	2	
Dickson 2014 UK (34)	NR	All work types	23	Bilateral open (simultaneous procedures)	-	20	-	-	Serious
		Non-manual work	16		-	18	-	-	

		Manual work	7		-	24	-	-	
		All work types	14	Bilateral open (staged procedures)	-	33	-	-	
		Non-manual work	9		-	29	-	-	
		Manual work	5		-	42	-	-	
Futami 1995	NR	NR	3	Open	-	49	-	-	Serious
Japan (36)			3	Endoscopic (one port)	-	42	-	-	
Gimeno 2005	NR	NR	197	CTR procedure not reported	Report return to work rates and self-reported levels of functioning				Low
USA (69)									
Goodman 1993	NR	NR	44	CTR procedure not reported (RTW policy)	-	6	-	-	Serious
USA (21)			23	CTR procedure not reported (standard care)	-	29	-	-	
Hallock 1995	Mixed	NR	39 ^B	Open	-	46	-	37	Serious
USA (53)			25 ^B	Endoscopic (two port)	-	40	-	19	
	Workers' compensation	NR	25 ^B	Open	-	60	-	38	
			20 ^B	Endoscopic (two port)	-	46	-	15	
Hansen 2009	State insurance	NR	75	Endoscopic (one port)	-	20	-	14	Moderate
Denmark (29)									
Karlsson 1997	NR	NR	50 ^A	Open	32	-	7-84	-	Serious
Sweden (55)			24 ^A	Open with TCL lengthening	42	-	21-154	-	
Manktelow 2004	Workers' compensation	NR	772	Endoscopic	-	92	-	-	Moderate
Canada (25)									
Nagle 1996	Workers' compensation	All work types	92	Endoscopic	-	57	0-256	-	Moderate
USA (59)		Sedentary work	13		-	35	1-151	-	
		Light work	10		-	41	15-79	-	
		Light-repetitive work	21		-	51	9-152	-	
		Medium manual work	21		-	59	4-144	-	
		Heavy manual work	14		-	101	0-256	-	
	No workers' compensation	All work types	199	Endoscopic	-	22	0-153	-	
		Sedentary work	56		-	17	0-153	-	
		Light work	62		-	25	1-143	-	
		Light-repetitive work	21		-	21	2-67	-	
		Medium manual work	25		-	27	1-74	-	
		Heavy manual work	13		-	22	1-75	-	
Nesbitt 2006	No workers' compensation	NR	12 ^A	Bilateral endoscopic (simultaneous)	-	18	-	-	Serious
USA (37)	Mixed	NR	31 ^A	Bilateral endoscopic (staged 1-3 weeks)	-	60	-	-	
			28 ^A	Bilateral endoscopic (staged >3 weeks)	-	42	-	-	
Palmer 1993	Combined	NR	41 ^A	Open	-	44	4-142	38	Serious
USA (60)	Workers' compensation		26 ^A		-	51	10-142	33	
	No workers' compensation		15 ^A		-	27	4-138	38	
	Combined	NR	70 ^A	Endoscopic (one port)	-	21	1-66	13	

	Workers' compensation		39 ^A		-	30	8-66	11	
	No workers' compensation		11 ^A		-	11	1-21	6	
	Mixed	NR	62 ^A	Endoscopic (two ports)	-	28	1-77	17	
	Workers' compensation		36 ^A		-	35	12-79	15	
	No workers' compensation		26 ^A		-	20	1-77	16	
Ratzon 2005 Israel (17)	NR	NR	50	Open	Report return to work rates and predictive factors for RTW time				Moderate
Seitz 2013 USA (30)	Workers' compensation	NR	18	Open (3-3.5cm incision)	-	36	-	-	Serious
	No workers' compensation		25		-	16	-	-	
	Workers' compensation	NR	16	Open with TCL lengthening	-	24	-	-	
	No workers' compensation		24		-	9	-	-	
RETROSPECTIVE COHORT STUDIES									
Adams 1994 USA (47)	Workers' compensation	NR	191	CTR procedure not reported	-	113	-	-	Moderate
Bitar 2002 USA & Sweden (65)	Workers' compensation	NR	34	Open (USA)	-	72	-	42	Moderate
	No workers' compensation	NR	47 ^A	Open (USA)	-	57	-	37	
			42 ^A	Open (Sweden)	-	36	-	23	
Braun 1994 USA (24)	Workers' compensation	NR	49	CTR procedure not reported (normal NCS)	-	160	-	-	Moderate
			74	CTR procedure not reported (abnormal NCS)	-	148	-	-	
			25	CTR procedure not reported (no NCS)	-	126	-	-	
Braun 1999 USA (66)	NR	NR	63 ^A	CTR procedure not reported (lawyer involved)	-	168	-	-	Serious
			162 ^A	CTR procedure not reported (no lawyer)	-	140	-	-	
Chrostowski 1994 USA (20)	No workers' compensation	NR	19 ^A	Open	-	40	28-42	-	Serious
			16 ^A	Endoscopic (one port)	-	12	0-14	-	
De Kesel 2008 Belgium (50)	State insurance	Employed	92 ^B	Open and endoscopic (one port)	-	36	-	24	Moderate
		Self-employed	15 ^B		-	23	-	24	
		Non-manual work	35 ^B		-	27	-	20	
		Light manual work	49 ^B		-	36	-	20	
		Heavy manual work	22 ^B		-	42	-	34	
Duche 2010 France (51)	NR	NR	178	Open (2-3cm incision)	-	35	7-42	-	Serious
			136	Open with Canaletto™ implant	-	21	<7-56	-	
Fehringer 2002 USA (35)	Workers' compensation	NR	28	Bilateral endoscopic (simultaneous surgery)	114	115	35-263	-	Moderate
	No workers' compensation	NR	20		15	36	7-137	-	
	Mixed	Light duties	48		13	18	7-107	-	
		Normal duties			63	82	7-263	-	
	Workers' compensation	NR	32	Bilateral endoscopic (staged surgery)	109	126	17-408	-	
	No workers' compensation	NR	16		78	80	19-224	-	
	Mixed	Light duties	48		22	34	10-163	-	
		Normal duties			92	113	17-408	-	

Gibbs 1996	Mixed	NR	26 ^B	Open	-	4	1->1003	-	Serious
USA (52)			10 ^B	Endoscopic	-	14	1-91	-	
Huracek 2001	NR	NR	59 ^A	Bilateral open (simultaneous surgery)	-	39	-	-	Serious
Switzerland (54)			66 ^A	Open (staged surgery if bilateral n=9)	-	48	-	-	
Kerr 1994	Workers' compensation	NR	41	Open	-	50	-	-	Serious
USA (56)	Private insurance		31		-	38	-	-	
	Workers' compensation		41	Endoscopic (two ports)	-	47	-	-	
	Private insurance		31		-	22	-	-	
Ketchum 2004	Mixed	NR	7	Open (3cm incision)	-	75	-	11	Critical
USA (68)			57	Open (with flexor tenosynovectomy)	-	84	-	29	
Lyall 2002	Workers' compensation	Full duties	58	Open immediate or delayed surgery	-	64	11-356	-	Serious
USA (57)		One-handed activities			-	23	4-83	-	
		Two-handed activities			-	50	11-160	-	
McDonough 1993	Mixed	NR	28	Open	-	50	11-103	-	Serious
USA (58)	Workers' compensation		14		-	56	31-103	-	
	Mixed		27	Endoscopic	-	29	4-67	-	
	Workers' compensation		10		-	32	4-67	-	
Parot-Schinkel 2011	Mixed	NR	851	Open	60	-	-	-	Moderate
France (22)									
Wasiak 2007	Workers' compensation	NR	1410	Open	34	85	-	174	Moderate
USA (31)			287	Endoscopic	27	62	-	131	
Weber 2005	Mixed	NR	92 ^A	Bilateral open (simultaneous surgery)	23	-	-	-	Serious
USA (38)			16 ^A	Bilateral open (staged surgery)	42	-	-	-	

^A Number of workers not explicitly stated; ^B reported as number of hands, rather than number of individuals.

NR not reported; CTR carpal tunnel release; RTW return to work; SD standard deviation; TCL transverse carpal ligament.

