Study or Subgroup	Operative Events	Total	Non-operative Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
Nistor 1981	2	45	0	60	14.7%	6.63 [0.33, 134.80]	1981
Cetti 1993	2	56	0	55	17.2%	4.91 [0.24, 100.05]	1993
Schroeder 1997	2	13	0	15	15.9%	5.71 [0.30, 109.22]	1997
Moller 2001	1	59	0	53	17.9%	2.70 [0.11, 64.89]	2001
Twaddle 2007	0	25	0	25		Not estimable	2007
Metz 2008	0	42	0	41		Not estimable	2008
Nilsson-Helander 2010	2	49	0	48	17.2%	4.90 [0.24, 99.48]	2010
Willits 2010	5	72	0	72	17.1%	11.00 [0.62, 195.34]	2010
Total (95% CI)		**361**		**369**	**100.0%**	**5.93 [1.76, 19.94]**	
Total events	14		0				

Heterogeneity: $Chi^2 = 0.45$, df = 5 (P = 0.99); $I^2 = 0\%$
Test for overall effect: Z = 2.88 (P = 0.004)

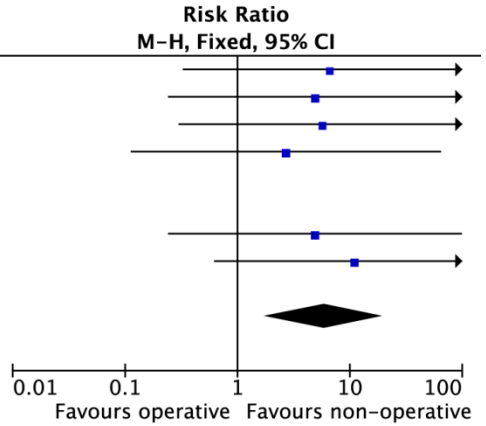

Fig. E-1
Prevalence of wound infection associated with operative and nonoperative treatment. M-H = Mantel-Haenszel test, CI = confidence interval, and df = degrees of freedom.

Study or Subgroup	Open Events	Total	Percutaneous Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
Schroeder 1997	0	13	0	15		Not estimable	1997
Lim 2001	2	33	1	33	100.0%	2.00 [0.19, 21.00]	2001
Gigante 2008	0	20	0	20		Not estimable	2008
Aktas 2009	0	20	0	20		Not estimable	2009
Total (95% CI)		**86**		**88**	**100.0%**	**2.00 [0.19, 21.00]**	
Total events	2		1				

Heterogeneity: Not applicable
Test for overall effect: Z = 0.58 (P = 0.56)

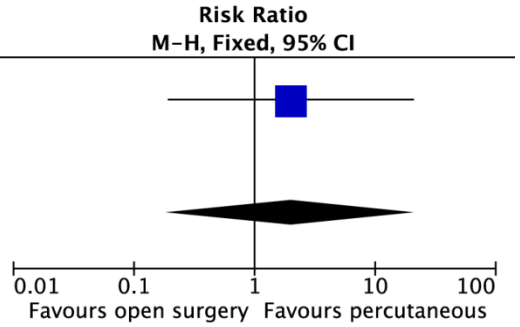

Fig. E-2
Prevalence of rerupture associated with open surgery and percutaneous surgery. M-H = Mantel-Haenszel test, and CI = confidence interval.

TABLE E-1 Trials Excluded from the Meta-Analysis[18]*

Study	Reason for Exclusion
Bhattacharyya 2009[27]	Prospective cohort study comparing open end-to-end repair in the first cohort with the Achillon device for mini open repair in the second cohort
Cáceres 2005[28]	Conference abstract with limited data and unclear methodology. We have been unable to get a response from the authors
Ceccarelli 2007[29]	Nonrandomized study with two successive cohorts treated with percutaneous technique and with a minimally invasive technique for Achilles tendon repair
Cetti 1994[30]	Comparison of mobilization strategies after ATR
Coombs 1981[31]	Conference abstract with limited data and unclear methodology. We have been unable to get a response from the authors
Häggmark 1986[32]	Retrospective study comparing operative with nonoperative treatment
Helgeland 1997[33]	Retrospective study comparing operative with nonoperative treatment
Kakiuchi 1995[34]	Comparison of open plus percutaneous repair with open repair alone. Excluded because of inadequate method of randomization
Kangas 2003[35]	Comparison of mobilization strategies after ATR
Kerkhoffs 2002[36]	Comparison of mobilization strategies after ATR
Kern 1996[37]	Nonrandomized study with minimal reporting of outcomes
Maffulli 2003[38]	Comparison of mobilization strategies after ATR
Majewski 2000[39]	Comparison of open "end to end repair" with percutaneous repair and nonoperative intervention. Limited data because of early termination of control group because of high recurrence rate (continuation of the control group was felt to be ethically unacceptable); no allocation concealment (personal communication with the author)
Paes 1985[40]	Retrospective study comparing two surgical techniques
Petersen 2002[25]	Comparison of mobilization strategies after ATR
Saleh 1992[24]	Comparison of mobilization strategies after ATR
Sölveborn 1994[41]	Noncomparative study of immediate free motion after surgical repair
Steele 1993[42]	Retrospective study comparing two surgical techniques
Thermann 1995-2000[43]	Nonrandomized comparative study of operative and nonoperative treatment at two hospitals in Hannover, Germany. Multiple publications
van der Linden-van der Zwaag 2004[44]	Retrospective, quasi-randomized study
Weber 2003[45]	Retrospective study comparing operative with nonoperative treatment
Wellner 1990[46]	Retrospective study comparing two surgical techniques

*ATR = Achilles tendon reconstruction.

TABLE E-2 Scoring System for Assessing Trial Methodology*

Item	
1	Method of randomization. Was there clear concealment of allocation? Score 3 if allocation clearly concealed Score 2 if there was a possible chance of disclosure prior to allocation Score 1 if the method of allocation concealment or randomization was not stated or was unclear Score 0 if allocation concealment was clearly not concealed such as those using quasi-randomization (e.g., even or odd date of birth)
2	Were the inclusion and exclusion criteria clearly defined? (1 = yes, 0 = no)
3	Were the treatment and control groups adequately described at entry, and if so were the groups well matched or appropriate covariate adjustment made? (1 = yes, 0 = no)
4	Were the attending surgeons experienced at both treatment methods prior to commencement of the trial? (1 = yes, 0 = no)
5	Were the care programs other than trial options identical? (1 = yes, 0 = no)
6	Were the outcome measures clearly defined in the text with a definition of any ambiguous terms encountered? (1 = yes, 0 = no)
7	Were the outcome assessors blind to assignment status? (1 = yes, 0 = no)
8	Were the outcomes of patients who withdrew or were excluded after allocation described and included in an intention-to-treat analysis? (1 = yes, 0 = no)
9	Was the timing of the outcome measures appropriate? (A minimum of 12 months follow-up for all surviving patients with active follow-up at set periods) (1 = yes, 0 = no)
10	Were less than 5% of patients lost to follow-up? (1 = yes, 0 = no or not stated)
11	Was sequence generation random and unpredictable? (1 = yes, 0 = no)

*Maximum score = 13. Higher score indicates better methodology. Reproduced, with permission, from: Higgins JPT, Green S, editors. Cochrane handbook for systematic reviews of interventions version 5.0.0 (updated February 2008). Oxford, United Kingdom: The Cochrane Collaboration; 2008.

TABLE E-3 Methodology Scores for Trials Included in This Cochrane Review*

Study/Item	Aktas[4] 2007	Aktas[5] 2009	Cetti[6] 1993	Gigante[7] 2008	Lim[8] 2001	Metz[9] 2008	Möller[10] 2001	Mortensen[11] 1992	Nilsson-Helander[12] 2010	Nistor[13] 1981	Pajala[14] 2009	Schroeder[15] 1997	Twaddle[16] 2007	Willits[17] 2010
1. Randomization method	1	1	1	2	0	3	3	3	3	0	3	1	3	3
2. Inclusion/exclusion criteria	0	1	1	1	1	1	1	1	1	0	1	1	1	1
3. Description of groups	0	1	1	0	0	1	1	0	1	1	1	0	1	1
4. Prior surgical experience	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5. Identical care programs	1	1	1	0	0	0	1	1	1	0	1	1	1	1
6. Clear outcome measures	1	1	1	1	1	1	1	1	1	1	1	0	1	1
7. Blinded assessment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Intention-to-treat analysis	0	NA	NA	0	NA	NA	1	0	0	0	NA	0	1	0
9. Appropriate follow-up	0	1	1	1	0	1	1	0	1	1	1	0	1	1
10. Loss to follow-up	1	1	1	1	1	1	1	0	0	1	1	0	0	0
11. Sequence generation	0	0	1	0	0	1	1	1	1	0	1	0	1	1
Total	4	7	8	6	3	10	11	7	10	4	10	3	10	10

*Maximum score = 13. NA = not available.

TABLE E-4 Operative and Nonoperative Techniques Used in the Included Trials*

Trial	Operative Intervention	Nonoperative Intervention
Cetti[6]	Open end-to-end repair plus equinus cast non-weight-bearing for 6 weeks	Cast treatment only for 8 weeks (4 weeks equinus non-weight-bearing, 4 weeks neutral weight-bearing)
Metz[9]	Bunnell-type suture through proximal tendon end, passed percutaneously to the lateral calcaneus. 7 weeks in cast: 1 week in equinus position, 4 weeks in semi-equinus position, and 2 weeks in neutral	Cast in equinus for 1 week, then functional bracing (Vacoped, Germany). First 2 weeks in 30° plantar flexion, then 2 weeks at 15°, then in a dynamic mode from neutral to 30° plantar flexion
Möller[10]	Open end-to-end repair plus functional brace for 8 weeks	Cast treatment only for 8 weeks (4 weeks equinus, 4 weeks neutral)
Nilsson-Helander[12]	Open end-to-end suture using modified Kessler technique and 1/0 PDS suture. Paratenon also repaired. Postoperatively as per nonoperative intervention	Below-knee cast with the foot in equinus position for 2 weeks, followed by an adjustable brace for subsequent 6 weeks
Nistor[13]	Open end-to-end repair plus cast for 6-9 weeks	Cast treatment only for 8 weeks (4 weeks equinus, 4 weeks semi-equinus) and heel raise for 4 weeks
Schroeder[15]	Open repair: single or double Kessler suture. Postoperatively as per nonoperative intervention	Immobilized in a special boot with a 3-cm heel raise for 4 weeks followed by gradual reduction in heel size over the following 4 weeks
Twaddle[16]	Open repair: posteromedial incision, nonabsorbable 2/0 Krackow-type core whip stitch with paratenon repair. Postoperatively as per nonoperative intervention	Hanging equinus plaster cast for 10 days then converted to a 20° splint to be removed for 5 minutes an hour for 4 weeks, then brought to neutral until 6 weeks. At 6 weeks allowed to bear weight in splint with crutches and to remove splint at night. At 8 weeks encouraged to wean from crutches, and physiotherapy supervised strengthening and stretching started when able to perform single leg raise
Willits[17]	Two no. 2 nonabsorbable sutures placed across the tear in a Krackow-type stitch pattern. Additional absorbable sutures at tear site to re-appose any remaining tendon ends as needed. Paratenon repaired. Plaster backslab in 20° plantar flexion for 2 weeks. Postoperatively as per nonoperative intervention	Removable below-knee orthosis with 2-cm heel lift with “accelerated functional rehab program”

*PDS = polydioxanone.

TABLE E-5 Operative Techniques Used by Aktas, Gigante, Lim, and Schroeder

Trial	Percutaneous Technique	Open Technique
Aktas[5]	Achillon suture system	Krackow end-to-end suture
Gigante[7]	Modified Ma and Griffith technique using Tenolig system	Modified Kessler core suture plus interrupted sutures
Lim[8]	Modified Ma and Griffith technique involving 6 or 8 stab incisions	Modified Kessler core suture plus interrupted sutures
Schroeder[15]	Modified Ma and Griffith technique	Single or double Kessler suture

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