Appendices

Appendix 1. Search terms and strategies
Appendix 2. Risk of bias criteria and operationalization of items
Appendix 3. The GRADE approach to evidence synthesis and operationalization of criteria items
Appendix 4. Summary of risk of bias assessments among the included trials
Appendix 5. Supplementary tables and figures: summary of characteristics of the studies, prediction intervals, exploration of statistical heterogeneity (meta-regression), treatment effects for the other comparisons, and funnel plots (inspection of publication bias)

Overview online Tables

- Table A. Summary of clinical and treatment characteristics
- Table B. Summary of the 95% prediction intervals for all comparisons: SMT vs. recommended therapies, non-recommended therapies, sham SMT, and SMT as adjuvant therapy
- Table C & D. Results of meta-regression for SMT vs. recommended therapies for the outcomes, pain and functional status

Overview online Figures

- Fig. A to F. Forest plots for all other comparisons
    - Fig. A & B. SMT vs. non-recommended therapies for the outcomes pain and functional status
    - Fig. C & D. SMT vs. sham for the outcomes pain and functional status
    - Fig. E & F. SMT as adjuvant therapy for the outcomes pain and functional status
- Fig. G & H. Funnel Plots, SMT vs. recommended therapies for the outcomes pain and functional status

Appendix 1: Search terms and strategies

1 CENTRAL and MEDLINE search strategies.

CENTRAL Search Strategy

CENTRAL

Last searched May 4, 2018. Lines 5, 8, 10, and 16 were truncated and line 30 was added.

#1 MeSH descriptor: [Back Pain] explode all trees

#2 dorsalgia

#3 backache

#4 MeSH descriptor: [Low Back Pain] explode all trees

#5 lumb* next pain or coccyx or coccydynia or sciatic*or spondylosis

#6 MeSH descriptor: [Spine] explode all trees

#7 MeSH descriptor: [Spinal Diseases] explode all trees

#8 lumbago or discitis or disc near herniat*

#9 spinal fusion

#10 facet near joint*

#11 MeSH descriptor: [Intervertebral Disk] explode all trees

#12 postlaminectomy

#13 arachnoiditis

#14 failed near back

#15 MeSH descriptor: [Cauda Equina] explode all trees

#16 lumb*near vertebra*

#17 spinal near stenosis

#18 slipped near (disc* or disk*)

#19 degenerat* near (disc* or disk*)

#20 stenosis near (spine or root or spinal)

#21 displace* near (disc* or disk*)

#22 prolap* near (disc* or disk*)

#23 MeSH descriptor: [Sciatic Neuropathy] explode all trees

#24 back disorder*

#25 back near pain

#26 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25

#27 MeSH descriptor: [Musculoskeletal Manipulations] explode all trees

#28 MeSH descriptor: [Chiropractic] explode all trees

#29 MeSH descriptor: [Osteopathic Medicine] explode all trees

#30 MeSH descriptor: [Orthopedics] explode all trees

#31 manip*

#32 osteopath*

#33 chiropract*

#34 #27 or #28 or #29 or #30 or #31 or #32 or #33

#35 #26 and #34

#36 #35 in Trials

#37 #35 Publication Year from 2014 to 2016, in Trials

2014 search

#1 MeSH descriptor: [Back Pain] explode all trees

#2 dorsalgia

#3 backache

#4 MeSH descriptor: [Low Back Pain] explode all trees

#5 lumbar next pain OR coccyx OR coccydynia OR sciatica OR spondylosis

#6 MeSH descriptor: [Spine] explode all trees

#7 MeSH descriptor: [Spinal Diseases] explode all trees

#8 lumbago OR discitis OR disc near degeneration OR disc near prolapse OR disc near herniation

#9 spinal fusion

#10 spinal neoplasms

#11 facet near joints

#12 MeSH descriptor: [Intervertebral Disk] explode all trees

#13 postlaminectomy

#14 arachnoiditis

#15 failed near back

#16 MeSH descriptor: [Cauda Equina] explode all trees

#17 lumbar near vertebra*

#18 spinal near stenosis

#19 slipped near (disc* or disk*)

#20 degenerat* near (disc* or disk*)

#21 stenosis near (spine or root or spinal)

#22 displace* near (disc* or disk*)

#23 prolap* near (disc* or disk*)

#24 MeSH descriptor: [Sciatic Neuropathy] explode all trees

#25 sciatic*

#26 back disorder*

#27 back near pain

#28 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27

#29 MeSH descriptor: [Musculoskeletal Manipulations] explode all trees

#30 MeSH descriptor: [Chiropractic] explode all trees

#31 MeSH descriptor: [Osteopathic Medicine] explode all trees

#32 manip*

#33 osteopath*

#34 chiropract*

#35 #29 or #30 or #31 or #32 or #33 or #34

#36 #28 and #35

#37 #36 Publication Year from 2012 to 2014, in Trials

2012 search. Added line 24.

#1 MeSH descriptor Back Pain explode all trees

#2 dorsalgia

#3 backache

#4 MeSH descriptor Low Back Pain explode all trees

#5 (lumbar next pain) or (coccyx) or (coccydynia) or (sciatica) or (spondylosis)

#6 MeSH descriptor Spine explode all trees

#7 MeSH descriptor Spinal Diseases explode all trees

#8 (lumbago) or (discitis) or (disc near degeneration) or (disc near prolapse) or (disc near herniation)

#9 spinal fusion

#10 spinal neoplasms

#11 facet near joints

#12 MeSH descriptor Intervertebral Disk explode all trees

#13 postlaminectomy

#14 arachnoiditis

#15 failed near back

#16 MeSH descriptor Cauda Equina explode all trees

#17 lumbar near vertebra*

#18 spinal near stenosis

#19 slipped near (disc* or disk*)

#20 degenerat* near (disc* or disk*)

#21 stenosis near (spine or root or spinal)

#22 displace* near (disc* or disk*)

#23 prolap* near (disc* or disk*)

#24 MeSH descriptor Sciatic Neuropathy explode all trees

#25 sciatic*

#26 back disorder*

#27 back near pain

#28 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27)

#29 MeSH descriptor Musculoskeletal Manipulations explode all trees

#30 MeSH descriptor Chiropractic explode all trees

#31 MeSH descriptor Osteopathic Medicine explode all trees

#32 manip*

#33 osteopath*

#34 chiropract*

#35 (#29 OR #30 OR #31 OR #32 OR #33 OR #34)

#36 (#28 AND #35)

#37 (#36), from 2011 to 2012

2011 search. Line 6 was removed in 2012.

#1 MeSH descriptor Back Pain explode all trees

#2 dorsalgia

#3 backache

#4 MeSH descriptor Low Back Pain explode all trees

#5 (lumbar next pain) or (coccyx) or (coccydynia) or (sciatica) or (spondylosis)

#6 MeSH descriptor Sciatica explode all trees

#7 MeSH descriptor Spine explode all trees

#8 MeSH descriptor Spinal Diseases explode all trees

#9 (lumbago) or (discitis) or (disc near degeneration) or (disc near prolapse) or (disc near herniation)

#10 spinal fusion

#11 spinal neoplasms

#12 facet near joints

#13 MeSH descriptor Intervertebral Disk explode all trees

#14 postlaminectomy

#15 arachnoiditis

#16 failed near back

#17 MeSH descriptor Cauda Equina explode all trees

#18 lumbar near vertebra*

#19 spinal near stenosis

#20 slipped near (disc* or disk*)

#21 degenerat* near (disc* or disk*)

#22 stenosis near (spine or root or spinal)

#23 displace* near (disc* or disk*)

#24 prolap* near (disc* or disk*)

#25 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24)

#26 MeSH descriptor Musculoskeletal Manipulations explode all trees

#27 MeSH descriptor Chiropractic explode all trees

#28 MeSH descriptor Osteopathic Medicine explode all trees

#29 manip*

#30 osteopath*

#31 chiropract*

#32 (#26 OR #27 OR #28 OR #29 OR #30 OR #31)

#33 (#25 AND #32), from 2009 to 2011

MEDLINE and MEDLINE In-Process & Other Non-Indexed Citations

Last searched May 4, 2018. Line 3 was added and lines 15, 16 and 20 were revised. The same strategy was used for MEDLINE In-Process & Other Non-Indexed Citations but there were no date limits applied.

1. randomized controlled trial.pt.
2. controlled clinical trial.pt.
3. pragmatic clinical trial.pt.
4. randomized.ab.
5. placebo.ab,ti.
6. drug therapy.fs.
7. randomly.ab,ti.
8. trial.ab,ti.
9. groups.ab,ti.
10. or/1-9
11. (animals not (humans and animals)).sh.
12. 10 not 11
13. dorsalgia.ti,ab.
14. exp Back Pain/
15. (backache or back pain).ti,ab.
16. (lumb$ adj3 pain).ti,ab.
17. coccyx.ti,ab.
18. coccydynia.ti,ab.
19. sciatica.ti,ab.
20. expsciatic neuropathy/
21. spondylosis.ti,ab.
22. lumbago.ti,ab.
23. exp low back pain/
24. or/13-23
25. exp Manipulation, Chiropractic/
26. exp Manipulation, Orthopedic/
27. exp Manipulation, Osteopathic/
28. exp Manipulation, Spinal/
29. exp Musculoskeletal Manipulations/
30. exp Chiropractic/
31. manipulation.mp.
32. manipulate.mp.

33. exp Orthopedics/
34. exp Osteopathic Medicine/
35. or/25-34
36. 12 and 24 and 35
37. limit 36 to yr=2014-2016
38. limit 36 to ed=20141211-20160429
39. 37 or 38

2012, 2014, 2016, 2018 search for MEDLINE. MEDLINE In-Process & Other Non-Indexed Citations was added to the strategy in 2014, 2016, 2018 and the same strategy was used except no date limits were applied.

1. randomized controlled trial.pt.
2. controlled clinical trial.pt.
3. randomized.ab.
4. placebo.ab,ti.
5. drug therapy.fs.
6. randomly.ab,ti.
7. trial.ab,ti.
8. groups.ab,ti.
9. or/1-8
10. (animals not (humans and animals)).sh.
11. 9 not 10
12. dorsalgia.ti,ab.
13. exp Back Pain/
14. backache.ti,ab.
15. (lumbar adj pain).ti,ab.
16. coccyx.ti,ab.
17. coccydynia.ti,ab.
18. sciatica.ti,ab.
19. sciatic neuropathy/
20. spondylosis.ti,ab.
21. lumbago.ti,ab.
22. exp low back pain/
23. or/12-22
24. exp Manipulation, Chiropractic/
25. exp Manipulation, Orthopedic/
26. exp Manipulation, Osteopathic/
27. exp Manipulation, Spinal/
28. exp Musculoskeletal Manipulations/
29. exp Chiropractic/
30. manipulation.mp.
31. manipulate.mp.
32. exp Orthopedics/
33. exp Osteopathic Medicine/
34. or/24-33
35. 11 and 34 and 23
36. limit 35 to yr=2012-2014
37. limit 35 to ed=20120718-20141211
38. 36 or 37

2011 search

1. randomized controlled trial.pt.
2. controlled clinical trial.pt.
3. randomized.ab.
4. placebo.ab,ti.
5. drug therapy.fs.
6. randomly.ab,ti.
7. trial.ab,ti.
8. groups.ab,ti.
9. or/1-8
10. (animals not (humans and animals)).sh.
11. 9 not 10
12. dorsalgia.ti,ab.
13. exp Back Pain/
14. backache.ti,ab.
15. (lumbar adj pain).ti,ab.
16. coccyx.ti,ab.
17. coccydynia.ti,ab.
18. sciatica.ti,ab.
19. sciatic neuropathy/
20. spondylosis.ti,ab.
21. lumbago.ti,ab.
22. exp low back pain/
23. or/12-22
24. exp Manipulation, Chiropractic/
25. exp Manipulation, Orthopedic/
26. exp Manipulation, Osteopathic/
27. exp Manipulation, Spinal/
28. exp Musculoskeletal Manipulations/
29. exp Chiropractic/
30. manipulation.mp.
31. manipulate.mp.
32. exp Orthopedics/
33. exp Osteopathic Medicine/
34. or/24-33
35. 11 and 34 and 23
36. 2009$.ed.
37. 2010$.ed.
38. 2011$.ed.
39. 36 or 37 or 38
40. 40 35 and 39

2 EMBASE and CINAHL strategies.

MEDLINE Search Strategy

EMBASE

Last searched May 4, 2018. The study design filter was revised and lines 27 and 29 were revised and line 34 was added.

1. Randomized Controlled Trial/
2. Controlled Clinical Trial/
3. Controlled Study/
4. Double Blind Procedure/
5. Single Blind Procedure/
6. Randomization/
7. crossover procedure/
8. placebo/
9. random$.ti,ab.
10. placebo.ti,ab.
11. allocat$.ti,ab.
12. assign$.ti,ab.
13. blind$.ti,ab.
14. (clinic$ adj25 (study or trial)).ti,ab.
15. (controlled adj7 (study or design or trial)).ti,ab.
16. (crossover or cross-over).ti,ab.
17. factorial$.ti,ab.
18. (compare or comparing or compared or comparison or comparative).ti,ab.
19. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).mp.
20. or/1-19
21. exp animals/ or exp invertebrate/ or animal experiment/ or animal model/ or animal tissue/ or animal cell/ or nonhuman/
22. human/ or normal human/ or human cell/
23. 21 and 22
24. 21 not 23
25. 20 not 24
26. dorsalgia.mp.
27. (back pain or backache).mp.
28. exp BACKACHE/
29. (lumb$ adj3 pain).mp.
30. coccyx.mp.
31. coccydynia.mp.
32. sciatica.mp.
33. exp ISCHIALGIA/
34. sciatica/
35. spondylosis.mp.
36. lumbago.mp.
37. exp Low back pain/
38. or/26-37
39. exp CHIROPRACTIC/
40. exp Orthopedic Manipulation/
41. exp Manipulative Medicine/
42. exp Osteopathic Medicine/
43. manipulation.mp.
44. manipulate.mp.
45. exp Orthopedics/
46. osteopathy.mp.

47. or/39-46
48. 25 and 38 and 47
49. limit 48 to yr=2014-2016
50. limit 48 to em=201449-201617
51. 49 or 50

2014, 2016, 2018 strategy. Line 31 was revised and the animal filter (lines 32-36) were updated.

1. Clinical Article/
2. exp Clinical Study/
3. Clinical Trial/
4. Controlled Study/
5. Randomized Controlled Trial/
6. Major Clinical Study/
7. Double Blind Procedure/
8. Multicenter Study/
9. Single Blind Procedure/
10. Phase 3 Clinical Trial/
11. Phase 4 Clinical Trial/
12. crossover procedure/
13. placebo/
14. or/1-13
15. allocat$.mp.
16. assign$.mp.
17. blind$.mp.
18. (clinic$ adj25 (study or trial)).mp.
19. compar$.mp.
20. control$.mp.
21. cross?over.mp.
22. factorial$.mp.
23. follow?up.mp.
24. placebo$.mp.
25. prospectiv$.mp.
26. random$.mp.
27. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).mp.
28. trial.mp.
29. (versus or vs).mp.
30. or/15-29
31. 14 or 30
32. exp animals/ or exp invertebrate/ or animal experiment/ or animal model/ or animal tissue/ or animal cell/ or nonhuman/
33. human/ or normal human/ or human cell/
34. 32 and 33
35. 32 not 34
36. 31 not 35
37. dorsalgia.mp.
38. back pain.mp.
39. exp BACKACHE/
40. (lumbar adj pain).mp.

41. coccyx.mp.
42. coccydynia.mp.
43. sciatica.mp.
44. exp ISCHIALGIA/
45. spondylosis.mp.
46. lumbago.mp.
47. exp Low back pain/
48. or/37-47
49. exp CHIROPRACTIC/
50. exp Orthopedic Manipulation/
51. exp Manipulative Medicine/
52. exp Osteopathic Medicine/
53. manipulation.mp.
54. manipulate.mp.
55. exp Orthopedics/
56. osteopathy.mp.
57. or/49-56
58. 36 and 48 and 57
59. limit 58 to yr=2012-2014
60. limit 58 to em=201228-201449
61. 59 or 60

2012 strategy

1. Clinical Article/
2. exp Clinical Study/
3. Clinical Trial/
4. Controlled Study/
5. Randomized Controlled Trial/
6. Major Clinical Study/
7. Double Blind Procedure/
8. Multicenter Study/
9. Single Blind Procedure/
10. Phase 3 Clinical Trial/
11. Phase 4 Clinical Trial/
12. crossover procedure/
13. placebo/
14. or/1-13
15. allocat$.mp.
16. assign$.mp.
17. blind$.mp.
18. (clinic$ adj25 (study or trial)).mp.
19. compar$.mp.
20. control$.mp.
21. cross?over.mp.
22. factorial$.mp.
23. follow?up.mp.
24. placebo$.mp.
25. prospectiv$.mp.
26. random$.mp.

27. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).mp.
28. trial.mp.
29. (versus or vs).mp.
30. or/15-29
31. 14 and 30
32. human/
33. Nonhuman/
34. exp ANIMAL/
35. Animal Experiment/
36. 33 or 34 or 35
37. 32 not 36
38. 31 not 36
39. 37 and 38
40. 38 or 39
41. dorsalgia.mp.
42. back pain.mp.
43. exp BACKACHE
44. (lumbar adj pain).mp.
45. coccyx.mp.
46. coccydynia.mp.
47. sciatica.mp.
48. exp ISCHIALGIA/
49. spondylosis.mp.
50. lumbago.mp.
51. exp Low back pain/
52. or/41-51
53. exp CHIROPRACTIC/
54. exp Orthopedic Manipulation/
55. exp Manipulative Medicine/
56. exp Osteopathic Medicine/
57. manipulation.mp.
58. manipulate.mp.
59. exp Orthopedics/
60. osteopathy.mp.
61. or/53-60
62. 40 and 52 and 61
63. limit 62 to yr='2011 - 2013'
64. limit 62 to em=201112-201228
65. 63 or 64

2011 strategy

1. Clinical Article/
2. exp Clinical Study/
3. Clinical Trial/
4. Controlled Study/
5. Randomized Controlled Trial/
6. Major Clinical Study/
7. Double Blind Procedure/
8. Multicenter Study/

9. Single Blind Procedure/
10. Phase 3 Clinical Trial/
11. Phase 4 Clinical Trial/
12. crossover procedure/
13. placebo/
14. or/1-13
15. allocat$.mp.
16. assign$.mp.
17. blind$.mp.
18. (clinic$ adj25 (study or trial)).mp.
19. compar$.mp.
20. control$.mp.
21. cross?over.mp.
22. factorial$.mp.
23. follow?up.mp.
24. placebo$.mp.
25. prospectiv$.mp.
26. random$.mp.
27. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).mp.
28. trial.mp.
29. (versus or vs).mp.
30. or/15-29
31. 14 and 30
32. human/
33. Nonhuman/
34. exp ANIMAL/
35. Animal Experiment/
36. 33 or 34 or 35
37. 32 not 36
38. 31 not 36
39. 37 and 38
40. 38 or 39
41. dorsalgia.mp.
42. back pain.mp.
43. exp BACKACHE/
44. (lumbar adj pain).mp.
45. coccyx.mp.
46. coccydynia.mp.
47. sciatica.mp.
48. exp ISCHIALGIA/
49. spondylosis.mp.
50. lumbago.mp.
51. exp Low back pain/
52. or/41-51
53. exp CHIROPRACTIC/
54. exp Orthopedic Manipulation/
55. exp Manipulative Medicine/
56. exp Osteopathic Medicine/
57. manipulation.mp.
58. manipulate.mp.

59. exp Orthopedics/
60. osteopathy.mp.
61. or/53-60
62. 40 and 52 and 61
63. 2009$.em.
64. 2010$.em.
65. 2011$.em.
66. 63 or 64 or 65
67. 62 and 66

CINAHL

Last searched May 4, 2018. Lines 32, 33, 34 and 42 were revised.

S62 S60 OR S61

S61 S59 AND EM 20141211-20160429

S60 S59 Limiters - Published Date: 20141201-20160431

S59 S49 and S58

S58 S50 or S51 or S52 or S53 or S54 or S55 or S56 or S57

S57 (MH 'Osteopathy+')

S56 (MH 'Orthopedics')

S55 (MH 'Manual Therapy+')

S54 manipulat*

S53 (MH 'Manipulation, Osteopathic')

S52 (MH 'Manipulation, Orthopedic')

S51 (MH 'Manipulation, Chiropractic')

S50 (MH 'Chiropractic+')

S49 S28 and S48

S48 S35 or S43 or S47

S47 S44 or S45 or S46

S46 'lumbago'

S45 (MH 'Spondylolisthesis') OR (MH 'Spondylolysis')

S44 (MH 'Thoracic Vertebrae')

S43 S36 or S37 or S38 or S39 or S40 or S41 or S42

S42 lumb* N2 vertebra

S41 (MH 'Lumbar Vertebrae')

S40 'coccydynia'

S39 'coccyx'

S38 'sciatica'

S37 (MH 'Sciatica')

S36 (MH 'Coccyx')

S35 S29 or S30 or S31 or S32 or S33 or S34

S34 lumb* N5 pain

S33 lumb* W1 pain

S32 'backache' or back pain

S31 (MH 'Low Back Pain')

S30 (MH 'Back Pain+')

S29 'dorsalgia'

S28 S26 NOT S27

S27 (MH 'Animals')

S26 S7 or S12 or S19 or S25

S25 S20 or S21 or S22 or S23 or S24

S24 volunteer*

S23 prospectiv*

S22 control*

S21 followup stud*

S20 follow-up stud*

S19 S13 or S14 or S15 or S16 or S17 or S18

S18 (MH 'Prospective Studies+')

S17 (MH 'Evaluation Research+')

S16 (MH 'Comparative Studies')

S15 latin square

S14 (MH 'Study Design+')

S13 (MH 'Random Sample')

S12 S8 or S9 or S10 or S11

S11 random*

S10 placebo*

S9 (MH 'Placebos')

S8 (MH 'Placebo Effect')

S7 S1 or S2 or S3 or S4 or S5 or S6

S6 triple-blind

S5 single-blind

S4 double-blind

S3 clinical W3 trial

S2 'randomi?ed controlled trial*'

S1 (MH 'Clinical Trials+')

2011, 2012, 2014, 2016, 2018 strategy. In 2011 and 2012, the entry date filter was not used.

S62 S60 OR S61

S61 S59 AND EM 20120718-20141211

S60 S59 Limiters - Published Date: 20120701-20141231

S59 S49 and S58

S58 S50 or S51 or S52 or S53 or S54 or S55 or S56 or S57

S57 (MH 'Osteopathy+')

S56 (MH 'Orthopedics')

S55 (MH 'Manual Therapy+')

S54 manipulat*

S53 (MH 'Manipulation, Osteopathic')

S52 (MH 'Manipulation, Orthopedic')

S51 (MH 'Manipulation, Chiropractic')

S50 (MH 'Chiropractic+')

S49 S28 and S48

S48 S35 or S43 or S47

S47 S44 or S45 or S46

S46 'lumbago'

S45 (MH 'Spondylolisthesis') OR (MH 'Spondylolysis')

S44 (MH 'Thoracic Vertebrae')

S43 S36 or S37 or S38 or S39 or S40 or S41 or S42

S42 lumbar N2 vertebra

S41 (MH 'Lumbar Vertebrae')

S40 'coccydynia'

S39 'coccyx'

S38 'sciatica'

S37 (MH 'Sciatica')

S36 (MH 'Coccyx')

S35 S29 or S30 or S31 or S32 or S33 or S34

S34 lumbar N5 pain

S33 lumbar W1 pain

S32 'backache'

S31 (MH 'Low Back Pain')

S30 (MH 'Back Pain+')

S29 'dorsalgia'

S28 S26 NOT S27

S27 (MH 'Animals')

S26 S7 or S12 or S19 or S25

S25 S20 or S21 or S22 or S23 or S24

S24 volunteer*

S23 prospectiv*

S22 control*

S21 followup stud*

S20 follow-up stud*

S19 S13 or S14 or S15 or S16 or S17 or S18

S18 (MH 'Prospective Studies+')

S17 (MH 'Evaluation Research+')

S16 (MH 'Comparative Studies')

S15 latin square

S14 (MH 'Study Design+')

S13 (MH 'Random Sample')

S12 S8 or S9 or S10 or S11

S11 random*

S10 placebo*

S9 (MH 'Placebos')

S8 (MH 'Placebo Effect')

S7 S1 or S2 or S3 or S4 or S5 or S6

S6 triple-blind

S5 single-blind

S4 double-blind

S3 clinical W3 trial

S2 'randomi?ed controlled trial*'

S1 (MH 'Clinical Trials+')

3 PEDro, ICL, and PubMed search strategies.EMBASE Search Strategy

PEDro

Last searched May 4, 2018. The method section was left blank and the New record since field was used instead of the Published since field.

Therapy: Stretching, mobilisation manipulation massage

Problem: pain

Body Part: Lumbar spine, sacroiliac joint or pelvis

Method: left blank

New record added since: 11/12/2014 (dd/mm/yyyy)

2012, 2014, 2016, 2018 strategy

Therapy: Stretching, mobilisation manipulation massage

Problem: pain

Body Part: Lumbar spine, sacroiliac joint or pelvis

Method: clinical trial

Published since: 2011

2011 strategy

Therapy: Stretching, mobilisation manipulation massage

Problem: pain

Body Part: Lumbar spine, sacroiliac joint or pelvis

Method: clinical trial

Added to database since June 1, 2009

ICL

Last searched May 4, 2018

S1 , Publication Type:Clinical Trial

S2 , Publication Type:Controlled Clinical Trial

S3 , Publication Type:Randomized Controlled Trial

S4 All Fields:random* OR All Fields:placebo* AND All Fields:sham*

S5 All Fields:clinical trial OR All Fields:controlled trial

S6 All Fields:double blind OR All Fields:double-blind

S7 All Fields:single blind OR All Fields:single-blind

S8 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* AND All Fields:sham* OR All Fields:clinical trial OR All Fields:controlled trial OR All Fields:double blind OR All Fields:double-blind OR All Fields:single blind OR All Fields:single-blind

S9 Subject:\'Back\' OR Subject:\'Back Pain\' OR Subject:\'Low Back Pain\'

S10 Subject:\'Lumbosacral Region\' OR Subject:\'Lumbar\' OR Subject:\'Lumbar Vertebrae\'

S11 All Fields:back pain OR All Fields:lumbago OR All Fields:sciatica

S12 Subject:\'Back\' OR Subject:\'Back Pain\' OR Subject:\'Low Back Pain\' OR Subject:\'Lumbosacral Region\' OR Subject:\'Lumbar\' OR Subject:\'Lumbar Vertebrae\' OR All Fields:back pain OR All Fields:lumbago OR All Fields:sciatica

S13 Subject:\'Manipulation, Chiropractic\' OR Subject:\'Manipulation, Lumbar\' OR Subject:\'Manipulation, Joint\'

S14 Subject:\'Manipulation, Orthopedic\' OR Subject:\'Manipulation, Osteopathic\' OR Subject:\'Manipulation, Spinal\'

S15 Subject:\'Musculoskeletal Manipulations\' OR All Fields:manip*

S16 Subject:\'Manipulation, Chiropractic\' OR Subject:\'Manipulation, Lumbar\' OR Subject:\'Manipulation, Joint\' OR Subject:\'Manipulation, Orthopedic\' OR Subject:\'Manipulation, Osteopathic\' OR Subject:\'Manipulation, Spinal\' OR Subject:\'Musculoskeletal Manipulations\' OR All Fields:manip*

S17 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* AND All Fields:sham* OR All Fields:clinical trial OR All Fields:controlled trial OR All Fields:double blind OR All Fields:double-blind OR All Fields:single blind OR All Fields:single-blind AND Subject:\'Back\' OR Subject:\'Back Pain\' OR Subject:\'Low Back Pain\' OR Subject:\'Lumbosacral Region\' OR Subject:\'Lumbar\' OR Subject:\'Lumbar Vertebrae\' OR All Fields:back pain OR All Fields:lumbago OR All Fields:sciatica AND Subject:\'Manipulation, Chiropractic\' OR Subject:\'Manipulation, Lumbar\' OR Subject:\'Manipulation, Joint\' OR Subject:\'Manipulation, Orthopedic\' OR Subject:\'Manipulation, Osteopathic\' OR Subject:\'Manipulation, Spinal\' OR Subject:\'Musculoskeletal Manipulations\' OR All Fields:manip*

S18 , Year: from 2014 to 2018

S19 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* AND All Fields:sham* OR All Fields:clinical trial OR All Fields:controlled trial OR All Fields:double blind OR All Fields:double-blind OR All Fields:single blind OR All Fields:single-blind AND Subject:\'Back\' OR Subject:\'Back Pain\' OR Subject:\'Low Back Pain\' OR Subject:\'Lumbosacral Region\' OR Subject:\'Lumbar\' OR Subject:\'Lumbar Vertebrae\' OR All Fields:back pain OR All Fields:lumbago OR All Fields:sciatica AND Subject:\'Manipulation, Chiropractic\' OR Subject:\'Manipulation, Lumbar\' OR Subject:\'Manipulation, Joint\' OR Subject:\'Manipulation, Orthopedic\' OR Subject:\'Manipulation, Osteopathic\' OR Subject:\'Manipulation, Spinal\' OR Subject:\'Musculoskeletal Manipulations\' OR All Fields:manip* AND , Year: from 2014 to 2016

2014 strategy. Lines 4 and 11 were revised.

S1 , Publication Type:Clinical Trial

S2 , Publication Type:Controlled Clinical Trial

S3 , Publication Type:Randomized Controlled Trial

S4 All Fields:random* OR All Fields:placebo* OR All Fields:sham*

S5 All Fields:versus OR All Fields:vs

S6 All Fields:'Clinical Trial' OR All Fields:'controlled trial'

S7 All Fields:'double blind' OR All Fields:double-blind

S8 All Fields:'single blind' OR All Fields:single-blind

S9 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* OR All Fields:sham* OR All Fields:versus OR All Fields:vs OR All Fields:'Clinical Trial' OR All Fields:'controlled trial' OR All Fields:'double blind' OR All Fields:double-blind OR All Fields:'single blind' OR All Fields:single-blind

S10 Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain'

S11 Subject:'Lumbosacral Region' OR Subject:'Lumbar' OR Subject:'Lumbar Vertebrae'

S12 Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain' OR Subject:'Lumbosacral Region' OR Subject:'Lumbar' OR Subject:'Lumbar Vertebrae'

S13 Subject:'Manipulation, Lumbar' OR Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic'

S14 Subject:'Manipulation, Orthopedic' OR Subject:'Manipulation, Osteopathic' OR Subject:'Manipulation, Spinal'

S15 Subject:'Musculoskeletal Manipulations' OR All Fields:manip*

S16 Subject:'Manipulation, Lumbar' OR Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic' OR Subject:'Manipulation, Orthopedic' OR Subject:'Manipulation, Osteopathic' OR Subject:'Manipulation, Spinal' OR Subject:'Musculoskeletal Manipulations' OR All Fields:manip*

S17 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* OR All Fields:sham* OR All Fields:versus OR All Fields:vs OR All Fields:'Clinical Trial' OR All Fields:'controlled trial' OR All Fields:'double blind' OR All Fields:double-blind OR All Fields:'single blind' OR All Fields:single-blind AND Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain' OR Subject:'Lumbosacral Region' OR Subject:'Lumbar' OR Subject:'Lumbar Vertebrae' AND Subject:'Manipulation, Lumbar' OR Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic' OR Subject:'Manipulation, Orthopedic' OR Subject:'Manipulation, Osteopathic' OR Subject:'Manipulation, Spinal' OR Subject:'Musculoskeletal Manipulations' OR All Fields:manip*

S18 , Year: from 2012 to 2014

S19 , Publication Type:Clinical Trial OR , Publication Type:Controlled Clinical Trial OR , Publication Type:Randomized Controlled Trial OR All Fields:random* OR All Fields:placebo* OR All Fields:sham* OR All Fields:versus OR All Fields:vs OR All Fields:'Clinical Trial' OR All Fields:'controlled trial' OR All Fields:'double blind' OR All Fields:double-blind OR All Fields:'single blind' OR All Fields:single-blind AND Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain' OR Subject:'Lumbosacral Region' OR Subject:'Lumbar' OR Subject:'Lumbar Vertebrae' AND Subject:'Manipulation, Lumbar' OR Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic' OR Subject:'Manipulation, Orthopedic' OR Subject:'Manipulation, Osteopathic' OR

Subject:'Manipulation, Spinal' OR Subject:'Musculoskeletal Manipulations' OR All Fields:manip* AND , Year: from 2012 to 2014

2012 strategy

S1 , Publication Type:Clinical Trial

S2 , Publication Type:Controlled Clinical Trial

S3 , Publication Type:Randomized Controlled Trial

S4 All Fields:random* OR All Fields:placebo* OR All Fields:sham*, Publication Type:Randomized Controlled Trial

S5 All Fields:versus OR All Fields:vs

S6 All Fields:'clinical trial' OR All Fields:'controlled trial'

S7 All Fields:double-blind OR All Fields:'double blind'

S8 All Fields:single-blind OR All Fields:'single blind'

S9 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8

S10 Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain'

S11 Subject:'Lumbosacral Region'

S12 Subject:'Lumbar' OR Subject:'Lumbar Vertebrae' OR Subject:'Manipulation, Lumbar'

S13 S10 OR S11 OR S12

S14 Subject:'Manipulation, Lumbar' OR Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic'

S15 Subject:'Manipulation, Orthopedic' OR Subject:'Manipulation, Osteopathic' OR Subject:'Manipulation, Spinal'

S16 Subject:'Musculoskeletal Manipulations' OR All Fields:manip*

S17 S14 OR S15 OR S16

S18 S9 AND S13 AND S17

S19 S18, limit to year=2011-2012

2011 strategy

S1 , Publication Type:Clinical Trial

S2 , Publication Type:Controlled Clinical Trial

S3 , Publication Type:Randomized Controlled Trial

S4 All Fields:random* OR All Fields:placebo* OR All Fields:sham*

S5 All Fields:versus OR All Fields:vs

S6 All Fields:'clinical trial' OR All Fields:'controlled trial'

S7 All Fields:double-blind OR All Fields:'double blind'

S8 All Fields:single-blind OR All Fields:'single blind'

S9 S1 OR S2 OR S3 OR S5 OR S4 OR S6 OR S7 OR S8

S10 Subject:'Back' OR Subject:'Back Pain' OR Subject:'Low Back Pain'

S11 Subject:'Lumbosacral Region'

S12 All Fields:'low back pain' OR All Fields:'Back Pain' OR All Fields:sciatica

S13 Subject:'Lumbar' OR Subject:'Lumbar Vertebrae' OR Subject:'Manipulation, Lumbar'

S14 Subject:'Manipulation, Joint' OR Subject:'Manipulation, Chiropractic' OR Subject:'Manipulation, Orthopedic'

S15 Subject:'Manipulation, Osteopathic' OR Subject:'Manipulation, Spinal' OR Subject:'Musculoskeletal Manipulations'

S16 All Fields:manip*

S17 S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16

S18 S17 AND S9

S19 , Year: from 2009 to 2011

S20 S18 AND S19

PubMed

Last searched May 4, 2018.

((manip* AND (back pain OR lumbago OR sciatica)) AND (pubstatusaheadofprint OR publisher[sb] OR pubmednotmedline[sb]))

2014 strategy.

(((manip*) AND back pain) AND (random*[Title/Abstract] OR placebo*[Title/Abstract] OR trial*[Title/Abstract] OR group*[Title/Abstract])) AND (pubstatusaheadofprint OR publisher[sb] OR pubmednotmedline[sb])

4 ClinicalTrials.gov and WHO ICTRP search strategies. CINAHL Search Strategy

ClinicalTrials.gov

Last searched May 4, 2018

Search terms field: manipulation AND back pain

2014 strategy

Search terms field: spinal manipulation AND back pain

2011 strategy

Condition: back pain

AND

Intervention: manipulation

WHO ICTRP

Last searched May 4, 2018

Basic search: manipulation AND back pain

2014 strategy

Basic search: spinal manipulation AND back pain

2011 strategy

Condition: back pain

AND

Intervention: manipulation

Appendix 2. Risk of bias criteria and operationalization of items as defined by Furlan et al, 2015.

Bias Domain	Source of Bias	Possible Answers
Selection	(1) Was the method of randomization adequate?	Yes/No/Unsure
Selection	(2) Was the treatment allocation concealed?	Yes/No/Unsure
Performance	(3) Was the patient blinded to the intervention?	Yes/No/Unsure
Performance	(4) Was the care provider blinded to the intervention?	Yes/No/Unsure
Detection	(5) Was the outcome assessor blinded to the intervention?	Yes/No/Unsure
Attrition	(6) Was the drop-out rate described and acceptable?	Yes/No/Unsure
Attrition	(7) Were all randomized participants analyzed in the group to which they were allocated?	Yes/No/Unsure
Reporting	(8) Are reports of the study free of suggestion of selective outcome reporting?	Yes/No/Unsure
Selection	(9) Were the groups similar at baseline regarding the most important prognostic indicators?	Yes/No/Unsure
Performance	(10) Were co-interventions avoided or similar?	Yes/No/Unsure
Performance	(11) Was the compliance acceptable in all groups?	Yes/No/Unsure
Detection	(12) Was the timing of the outcome assessment similar in all groups?	Yes/No/Unsure
Other	(13) Are other sources of potential bias unlikely?	Yes/No/Unsure

Operational definitions.

1	A random (unpredictable) assignment sequence. Examples of adequate methods are coin toss (for studies with 2 groups), rolling a dice (for studies with 2 or more groups), drawing of balls of different colors, drawing of ballots with the study group labels from a dark bag, computer-generated random sequence, preordered sealed envelopes, sequentially-ordered vials, telephone call to a central office, and preordered list of treatment assignments.
	Examples of inadequate methods are: alternation, birth date, social insurance/security number, date in which they are invited to participate in the study, and hospital registration number.
2	Assignment generated by an independent person not responsible for determining the eligibility of the patients. This person has no information about the persons included in the trial and has no influence on the assignment sequence or on the decision about eligibility of the patient.
3	Index and control groups are indistinguishable for the patients or if the success of blinding was tested among the patients and it was successful.
4	Index and control groups are indistinguishable for the care providers or if the success of blinding was tested among the care providers and it was successful.
5	Adequacy of blinding should be assessed for each primary outcome separately. This item should be scored "yes" if the success of blinding was tested among the outcome assessors and it was successful or:
	• for patient-reported outcomes in which the patient is the outcome assessor (e.g., pain, disability): the blinding procedure is adequate for outcome assessors if participant blinding is scored "yes"

	• for outcome criteria assessed during scheduled visit and that supposes a contact between participants and outcome assessors (e.g., clinical examination): the blinding procedure is adequate if patients are blinded, and the treatment or adverse effects of the treatment cannot be noticed during clinical examination
	• for outcome criteria that do not suppose a contact with participants (e.g., radiography, magnetic resonance imaging): the blinding procedure is adequate if the treatment or adverse effects of the treatment cannot be noticed when assessing the main outcome
	• for outcome criteria that are clinical or therapeutic events that will be determined by the interaction between patients and care providers (e.g., co-interventions, hospitalization length, treatment failure), in which the care provider is the outcome assessor: the blinding procedure is adequate for outcome assessors if item "4" (caregivers) is scored "yes"
	• for outcome criteria that are assessed from data of the medical forms: the blinding procedure is adequate if the treatment or adverse effects of the treatment cannot be noticed on the extracted data
6	The number of participants who were included in the study but did not complete the observation period or were not included in the analysis must be described and reasons given. If the percentage of withdrawals and drop-outs does not exceed 20% for short-term follow-up and 30% for long-term follow-up and does not lead to substantial bias a "yes" is scored. (N.B. these percentages are arbitrary, not supported by literature).
7	All randomized patients are reported/analyzed in the group they were allocated to by randomization for the most important moments of effect measurement (minus missing values) irrespective of noncompliance and co-interventions.
8	All the results from all pre-specified outcomes have been adequately reported in the published report of the trial. This information is either obtained by comparing the protocol and the report, or in the absence of the protocol assessing that the published report includes enough information to make this judgment.
9	Groups have to be similar at baseline regarding demographic factors, duration and severity of complaints, percentage of patients with neurological symptoms, and value of main outcome measure(s).
10	If there were no co-interventions or they were similar between the index and control groups.
11	The reviewer determines if the compliance with the interventions is acceptable, based on the reported intensity, duration, number and frequency of sessions for both the index intervention and control intervention(s). For example, physiotherapy treatment is usually administered for several sessions; therefore it is necessary to assess how many sessions each patient attended. For single-session interventions (e.g., surgery), this item is irrelevant.
12	Timing of outcome assessment should be identical for all intervention groups and for all primary outcome measures.
13	Other types of biases. For example:
	• When the outcome measures were not valid. There should be evidence from a previous or present scientific study that the primary outcome can be considered valid in the context of the present. • Industry-sponsored trials. The conflict of interest (COI) statement should explicitly state that the researchers have had full possession of the trial process from planning to reporting without funders with potential COI having any possibility to interfere in the process. If, for example, the statistical analyses have been done by a funder with a potential COI, usually "unsure" is scored.

Appendix 3. The GRADE approach to evidence synthesis and operationalization of criteria items

GRADE was used to evaluate the quality of the evidence for each primary outcome.

The quality of evidence is categorized as follows:

- High (⊙⊙⊙⊙): further research is very unlikely to change the confidence in the estimate of effect.
- Moderate (⊙⊙⊙○): further research is likely to have an important impact in the confidence in the estimate of effect.
- Low (⊙⊙○○): further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- Very Low (⊙○○○): any estimate of effect is very uncertain.

The evidence was graded upon the following five domains (i.e. limitations/risk of bias, inconsistency, indirectness, imprecision, publication bias) in the following manner:

1. Limitations/Risk of bias
Limitations in the study design refers to the way in which the various forms of bias may influence the estimates of the treatment effect.

We examined all studies for the following forms of bias:

- Selection bias (random sequence generation, allocation concealment, group similarities at baseline);
- Performance bias (blinding of participants and/or healthcare providers);
- Attrition bias (drop outs and intention-to-treat analysis);
- Detection bias (blinding of the outcome assessors and timing of outcome assessment);
- Reporting bias (selective reporting).

There is evidence that selection bias, specifically concealment of the allocation, and performance bias are most closely associated with treatment effect (Juni 2001; Savovic 2017).Therefore, we considered downgrading the quality of the evidence as follows:

- By one level when the majority of subjects (>50%) came from studies with selection bias (specifically, the allocation concealment was not conducted properly) and performance bias was present;
- By two levels when the majority of subjects (>50%) came from studies with selection bias (specifically the allocation concealment was not conducted properly) and performance bias and bias was present in one or more other category.

2. Inconsistency
Inconsistency refers to an unexplained heterogeneity of results. Widely differing estimates of the treatment effect (i.e. heterogeneity or variability in results) across studies suggest true differences in the underlying treatment effect. Inconsistency may arise from differences in the populations (e.g. patients treated for low-back pain in primary care may demonstrate a different treatment response than those treated in secondary or tertiary care; or those with aspecific low-back pain may demonstrate different effects as opposed to those with radiating pain), differences in the interventions (e.g. high-velocity SMT versus low-velocity SMT), or differences in the timing of the outcome measurements.

We considered downgrading the quality of the evidence as follows:
• By one level: when the heterogeneity or variability in results was large (e.g. I^2 statistic value >50%, representing potentially substantial heterogeneity).
• By two levels: when the heterogeneity or variability in results was large AND there was inconsistency arising from differences in the populations, interventions, or outcomes.

3. Indirectness
Indirectness refers to the generalizability of the findings. Indirectness may be a problem and diminish our confidence if the population, type of intervention, comparator, or outcome in the included randomized trials differs broadly from the research question being addressed in this review.

We considered downgrading the quality of the evidence as follows:
• By one level: when there is indirectness in only one area. For example, when > 50% of the participants were outside the target group (e.g. studies which included a mixed population (acute/subacute/chronic),studies which included a majority of subjects with radiating pain, or the majority of subjects were referred from a secondary or tertiary professional (or setting)).
• By two levels: when there is indirectness in two or more areas.

4. Imprecision
Imprecision refers to limitations in the interpretation of the results when studies include relatively few participants and few events, leading to wide confidence intervals (CIs) surrounding the estimate of the effect, and thus resulting in uncertainty about the treatment effect.

For dichotomous outcomes, we considered imprecision for either of the following two reasons:
a. There is only one study; when there is more than one study, the total number of events is less than 300 (a threshold rule-of-thumb value) (Mueller 2007).
b. The 95% CI around the pooled effect includes both 1) no effect and 2) appreciable benefit or appreciable harm. The threshold for 'appreciable benefit' or 'appreciable harm' is a relative risk reduction (RRR) or relative risk increase (RRI) greater than 25%.

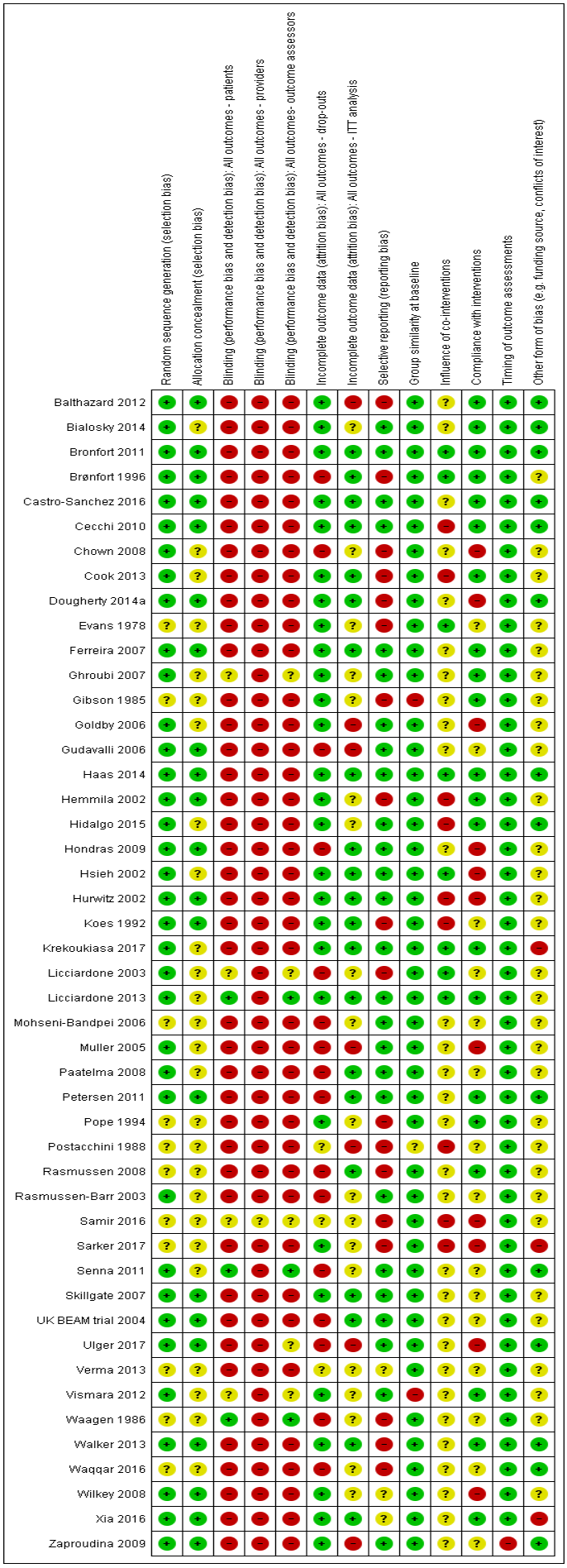
For continuous outcomes, we considered imprecision for either of the following two reasons.
a. There is only one study; when there is more than one study, the total population size is less than 400 (a threshold rule-of-thumb value) (Mueller 2007).
b. The 95% CI includes no effect and the upper or lower confidence limit crosses an effect size of 0.5 or mean difference of 20mm in either direction.

We considered downgrading the quality of the evidence as follows:
• By one level: when there is imprecision due to (a) or (b) for a continuous or dichotomous outcome.
• By two levels: when there is imprecision due to (a) and (b) for a continuous or dichotomous outcome.

5. Publication bias
Publication bias refers to bias introduced as a result of the selective publication of studies, typically leading to an underestimation of the effect from studies demonstrating a 'negative' effect which are under-reported.

We considered downgrading the quality of evidence as follows:

- By one level: when the funnel plot suggests publication bias.



Appendix 4 Risk of bias summary: Summary of authors' judgement on risk of bias items within each included study.

Appendix 5. Supplementary tables and figures: summary of characteristics of the studies, prediction intervals, exploration of statistical heterogeneity (meta-regression), treatment effects for the other comparisons, and funnel plots (inspection of publication bias)

Overview online Tables

- Table A. Summary of clinical and treatment characteristics
- Table B. Summary of the 95% prediction intervals for all comparisons: SMT vs. recommended therapies, non-recommended therapies, sham SMT, and SMT as adjuvant therapy
- Table C & D. Results of meta-regression for SMT vs. recommended therapies for the outcomes, pain and functional status

Overview online Figures

- Fig. A to F. Forest plots for all other comparisons
    - Fig. A & B. SMT vs. non-recommended therapies for the outcomes pain and functional status
    - Fig. C & D. SMT vs. sham for the outcomes pain and functional status
    - Fig. E & F. SMT as adjuvant therapy for the outcomes pain and functional status
- Fig. G & H. Funnel Plots, SMT vs. recommended therapies for the outcomes pain and functional status

Table A. Summary of clinical and treatment characteristics among trials included in the systematic review of SMT for chronic low-back pain

Author	Types of comparisons	Type radiating pain	Duration LBP: According to inclusion criteria	Duration LBP: Current episode for the population	Type manipulator (N=number of manipulators)	Type manipulation	Maximum number treatments SMT allowed and duration
Balthazard 2012	Grp 1: SMT + active exercise Grp 2: detuned ultrasound + active exercise	with or without symptoms in the lower extremity	> 12, but less than 26 wks	not stated, but > 12 wks for the population and less than 26 wks	Physiotherapist (N=1)	Manipulation and MOB	8 over 4-8 wks
Bialosky 2014	Grp 1: SMT Grp 2: standard SMT placebo Grp 3: Enhanced SMT placebo Grp 4: No-treatment control	?	No restriction	median: 16.03 wks	Physiotherapist (N=2)	Manipulation	6 over 2 wks
Bronfort 2011	Grp 1: SMT Grp 2: Supervised exercise Grp 3: Home exercise and advice	with or without symptoms in the lower extremity	At least 6 wks duration	median: 5.0 yrs	Chiropractor (N=9)	Manipulation	Participants were discharged from care if the treating clinician felt that maximum clinical benefit was obtained. 12 wks of care
Brønfort 1996	Grp 1: SMT + strengthening exercises Grp 2: NSAIDs + strengthening exercises Grp 3: SMT + stretching exercises	with or without radiation to one or both legs to the knee	> 6 wks	median: 2.5 yrs	Chiropractor (N = 5)	Manipulation	10 over 5 wks
Castro-Sanchez 2016	Grp 1: SMT Grp 2: functional technique	?	> 3 mo	mean 8 mo	Physiotherapist (N=2)	Manipulation and MOB	3 over 3 wks
Cecchi 2010	Grp 1: SMT	?	> 6 mo	not stated per group, but > 6	Physicians (N=2)	Manipulation and MOB	4-6 over 4-6 wks

	Grp 2: individualized PT (Exercise/MOB/massage/education) Grp 3: Back school			months for the population			
Chown 2008	Grp 1: SMT Grp 2: PT (Ex/education) Grp 3: group exercise	without radiation	> 3 mo	?	Osteopathy & Manipulative therapy (N = ?)	Manipulation or MOB (depending upon grp. assignment)	5 over 3 mo
Cook 2013	Grp 1: Thrust SMT Grp 2: Non-thrust SMT	?	No restriction	range: 30.2 to 37.7 wks	Physiotherapist (N=17)	Manipulation or MOB (depending upon grp. assignment)	1st 2 visit only afterwards clinician was allowed to choose technique they felt most beneficial for the patient
Dougherty 2014a	Grp 1: SMT + negative mCPR; Grp 2: SMT + positive mCPR; Grp 3: Active Exercise therapy + negative mCPR Grp 4: Active Exercise therapy + positive mCPR.	without radiation	> 3mo	range: 138-261 mo	Chiropractor (N=3)	Manipulation and MOB	8 over 4wks
Evans 1978	Grp 1: SMT Grp 2: analgesics	with or without femoral or sciatic radiation	> 3 wks	median: 10 mo	Medical manipulator (N = 1)	Manipulation	3 over 3 wks
Ferreira 2007	Grp 1: SMT Grp 2: general exercise Grp 3: motor control exercise	with or without	> 3 mo	75% > 1 yr	Physiotherapists (N = ?)	MOB or manipulation; Maitland	12 over 8 wks
Ghroubi 2007	Grp 1: SMT Grp 2: sham SMT	without	> 6 mo	range: 16 to 19 mo	Manual or physiotherapist? (N = 1)	Unclear; presumably manipulation?	4 over 4 wks
Gibson 1985	Grp 1: SMT Grp 2: short-wave diathermy Grp 3: placebo diathermy	?	> 2 mo to < 12 mo	range: 4 to 4 ½ mo	Osteopath (N = 1)	Manipulation and MOB	4 over 4 wks
Goldby 2006	Grp 1: SMT	?	> 3 mo	mean: 11.7 yrs	Manual therapist (N = ?)	?	10 over 10 wks?

	Grp 2: spinal stabilization rehabilitation Grp 3: education						
Gudavalli 2006	Grp 1: SMT Grp 2: exercise	with or without radiculopathy	> 3 mo	?	Chiropractor (N = ?)	MOB (flexion-distraction)	16 over 4 wks
Haas 2014	Grp 1: no SMT + 18 tx. light massage Grp 2: 6 tx. SMT + 12 tx. light massage Grp 3: 12 tx. SMT + 6 tx. light massage Grp 4: 18 tx. SMT + no light massage	with or without radiation to the knee	> 3 mo	range: 11.2-12.5 yrs	Chiropractor (N=12)	Manipulation or MOB	18 over 6 wks
Hemmila 2002	Grp 1: SMT Grp 2: PT (electrotherapies/stretching/MOB) Grp 3: home exercises	with or without radiation below knee	> 7 wks	range: 6.8 to 7.5 yrs	Bone-setter (N = 4)	Primarily MOB? No Manipulation	10 over 6 wks
Hidalgo 2015	Grp 1: SMT (Mulligan mobilisation) Grp 2: sham SMT	with of without radiation to the knee	No restriction	63% were chronic, 21% acute, and 16% subacute	Physiotherapist (N=1)	MOB	1 over 2 wks
Hondras 2009	Grp 1: HVLA SMT Grp 2: LVLA SMT Grp 3: standard medical care	Primarily (85%) with or without radiation to the knee	> 4 wks	range: 9.6 to 15.1 yrs	Chiropractor (N = 4)	Manipulation or MOB (flexion-distraction) (depending upon grp. assignment)	12 over 6 wks
Hsieh 2002	Grp 1: SMT Grp 2: back school Grp 3: myofascial therapy Grp 4: myofascial therapy + SMT	With or without leg pain, but no neurological signs	> 3 wks to < 6 mo	range: 10.7 to 11.8 wks	Chiropractor (N = ?)	Manipulation	9 over 3 wks
Hurwitz 2002	Grp 1: SMT Grp 2: medical care Grp 3: medical care + PT (electro/Exercise/MOB/education) Grp 4: SMT + PT (same as PT above)	With or without leg pain	No restriction	58% >3mo	Chiropractor (N = 4)	Manipulation	at discretion of therapist

Koes 1992	Grp 1: SMT Grp 2: PT (exercise/massage) Grp 3: placebo Grp 4: standard medical care	With or without radiation to the knee	> 6 wks	median: 1 yr	Manual therapist (N = 7)	Manipulation and MOB	avg. 5 over 9 wks
Krekoukiasa 2017	Grp 1: SMT Grp 2: sham SMT Grp 3: PT (exercise/electrotherapies/massage)	?	> 3 mo	not stated per group, but > 3 months for the population	Physiotherapist (N=1)	Mobilisation	5 over 5 wks
Licciardone 2003	Grp 1: SMT Grp 2: sham SMT Grp 3: no treatment	With or without sciatica, but no neurological signs	> 3 mo	range: 39% to 63% > 1 yr	Osteopath (N = ?)	Manipulation or MOB	7 over 5 mo
Licciardone 2013	Grp 1: SMT Grp 2: ultrasound	?	> 3 mo	51% to 66% with LBP > 1 yr	Osteopath (N= 15)	Manipulation or MOB	6 over 8 wks
Mohseni-Bandpei 2006	Grp 1: SMT + exercise Grp 2: ultrasound + exercise	?	> 3 mo	range: 31 to 56 mo	Manual therapist (N = 1)	Manipulation (Maitland)	7 over 4 wks?
Muller 2005	Grp 1: SMT Grp 2: acupuncture Grp 3: medication	Without	> 3 mo	range: 4 mo to 45 yrs	Chiropractor (N = 1?)	Manipulation	? - but equal per therapy grp.
Paatelma 2008	Grp 1: SMT Grp 2: McKenzie Grp 3: advice-only.	With or without sciatica	No restriction	> 50% symptoms > 3 mo	Orthopedic manual therapist (N = 1)	Manipulation or MOB	7 over ? wks mean: 6 tx's/grp
Petersen 2011	Grp 1: SMT Grp 2: McKenzie	With or without leg pain	> 6 wks	range 94-97 wks	Chiropractor (N=3)	Manipulation or MOB	max 15 over 12 wks
Pope 1994	Grp 1: SMT Grp 2: massage Grp 3: corset Grp 4: TENS	Without sciatica	3 wks to 6 mo, preceded by 3 wk pain free episode	29% < 6 mo; 35% between 6 mo to 2 yrs; 36% > 2 yrs	Chiropractor (N = 5)	Manipulation	3 or more sessions/wk for 3 wks
Postacchini 1988	Grp 1: SMT Grp 2: medication Grp 3: PT (electrotherapies/massage) Grp 4: bed rest	2 grps. = with and without radiation to knee	SMT = > 9 wks	SMT range: 9 to11 mo	Chiropractor (N = ?)	Manipulation?	12 over 6 wks

	Grp 5: back school Grp 6: placebo gel						
Rasmussen 2008	Grp 1: SMT + exercise Grp 2: exercise alone	With or without radiation to the knee	> 3 mo	range: 8 to 17 mo	Medical manipulator (N = 1?)	Manipulation	3 over 4 wks
Rasmussen-Barr 2003	Grp 1: SMT Grp 2: exercise	With or without radiation to the knee	> 6 wks	90% > 3 mo	Manual therapist (N = ?)	MOB	6 over 6 wks
Samir 2016	Grp 1: Mulligan mobilisation (SMT) + PT (exercise) Grp 2: Maitland mobilisation (SMT) + PT (exercise)	?	> 3 mo	not stated per group, but >3months for the population	Physiotherapist (N=?)	MOB	12 over 1 mo
Sarker 2017	Grp 1: SMT Grp 2: core stability exercise	?	> 3 mo	not stated per group, but >3 months for the population	Physiotherapist? (N=?)	Manipulation	? over 15 days
Senna 2011	Grp 1: Sham SMT Grp 2: No- maintained SMT Grp 3: Maintained SMT	?	> 6 mo	range: 18.4-18.8 mo	Physician (N=?)	Manipulation	12 over 1 mo
Skillgate 2007	Grp 1: SMT Grp 2: standard medical care	?	> 2 wks	range: 72% to 78% > 3 mo	Naprapath (N = 8)	Manipulation or MOB	6 over 6 wks
UK BEAM trial 2004	Grp 1: GP care Grp 2: GP care + exercise Grp 3: GP care + private SMT Grp 4: GP care + NHS SMT Grp 5: GP care + private SMT + exercise Grp 6: GP care + NHS SMT + exercise	(Primarily) with or without radiation to the knee	(Essentially) > 3 wks	59% > 3mo	Chiropractor, osteopath or physiotherapist (N = 84)	Manipulation or MOB	8 over 12 wks
Ulger 2017	Grp 1: SMT Grp 2: spinal stabilization exercise	?	> 3 mo	not stated per group, but > 3 months for the population	Physiotherapist (N=?)	Manipulation or MOB	18 over 6 wks
Verma 2013	Grp 1: SMT + exercise Grp 2: exercise	?	> 3 mo	not stated per group, but > 3	Physiotherapist (N=?)	MOB	8 over 4 wks

				months for the population			
Vismara 2012	Grp 1: SMT + exercise Grp 2: exercise	?	> 6 mo	not stated per group, but > 6 months for the population	Osteopath (N=1)	Manipulation or MOB	10 over 10 wks?
Waagen 1986	Grp 1: SMT Grp 2: sham SMT	With or without radiation to the knee	> 3 wks	range: 2.5 to 2.8 yrs	Chiropractor (N = ?)	Manipulation	6 over 2 wks
Walker 2013	Grp 1: SMT Grp 2 Sham SMT	?	> 1wk	98% had experienced spinal pain for more than 3 months	Chiropractor (N=8)	Manipulation or MOB	2 over 2 wks
Waqqar 2016	Grp 1: Mulligan SMT Grp 2: McKenzie exercise	?	> 4wks	not stated per group, but acute and subacute patients were excluded	Physician? (N=?)	MOB	8 over 4 wks
Wilkey 2008	Grp. 1: SMT Grp.2: hospital pain clinic	With or without radiation to the legs	>3 mo	range: 0.5 to 20 yrs	Chiropractor (N = ?)	Manipulation	16 over 8 wks
Xia 2016	Grp 1: Thrust SMT Grp 2: Non-Thrust SMT Grp 3: Waiting list	With or without radiation to the legs	> 4 wks	71%> 3 mo	Chiropractor (N=4)	Manipulation or MOB	4 over 2 wks
Zaproudina 2009	Grp 1: SMT Grp 2: PT (exercise/massage)	With or without radiation to the legs	> 3 mo	?	Bone-setters (N = ?)	MOB	5 over 10 wks

Footnotes

grp(s) = group(s); HVLA = high-velocity low-amplitude; LVLA = low-velocity low-amplitude; MOB = mobilisation; mCPR = modified clinical prediction rule; PT = physical therapy; TENS = transcutaneous nerve stimulation; wks = week(s); mo = month(s); yr = year(s); ? = unclear/unknown

Table B. Summary of the 95% prediction intervals for all comparisons: SMT vs. recommended therapies, non-recommended therapies, sham and SMT as adjuvant therapy.

Comparison: SMT versus Recommended therapies	
Outcome	95% Prediction interval
Pain at 1 month	95% Prediction interval: -25.7 to 19.3, which is consistent with a moderate clinically-relevant effect in favour of SMT or other recommended therapies.
Pain at 6 months	95% Prediction interval: -10.89 to 4.70, which is consistent with a small non-clinically-relevant effect in favour of SMT or other recommended therapies.
Pain at 12 months	95% Prediction interval: -11.91 to 8.19, which is consistent with a small non-clinically-relevant effect in favour of SMT or other recommended therapies
Functional status at 1 month	95% prediction interval -0.93 to 0.43, which is consistent with a strong clinically-relevant effect in favour of SMT, but also a moderate effect in favour of other recommended therapies.
Functional status at 6 months	95% prediction interval -0.48 to 0.30, which is consistent with a strong clinically-relevant effect in favour of SMT, but also a moderate effect in favour of other recommended therapies.
Functional status at 12 months	95% prediction interval -0.54 to 0.36, which is consistent with a strong clinically-relevant effect in favour of SMT, but also a moderate effect in favour of other recommended therapies.
Comparison: SMT versus Non-recommended therapies	
Outcome	95% Prediction interval
Pain at 1 month	95% Prediction interval: -18.96 to 4.00, which is consistent with a moderate clinically-relevant effect in favour of SMT, but also a small effect in favour of non-recommended therapies.
Pain at 6 months	95% Prediction interval: -21.96 to 6.88, which is consistent with a moderate clinically-relevant effect in favour of SMT, but also a small effect in favour of non-recommended therapies.
Pain at 12 months	95% Prediction interval: could not be calculated
Functional status at 1 month	95% prediction interval -1.18 to 0.36, which is consistent with a strong clinically-relevant effect in favour of SMT, but also a moderate effect in favour of non-recommended therapies.
Functional status at 6 months	95% prediction interval -0.62 to 0.04, which is consistent with a moderate clinically-relevant effect in favour of SMT, but also a small effect in favour of non-recommended therapies.
Functional status at 12 months	95% prediction interval could not be calculated.
Comparison: SMT versus Sham SMT	
Outcome	95% Prediction interval
Pain at 1 month	95% prediction interval: -51.43 to 36.32, which is consistent with a strong clinically-relevant effect in favour of SMT or sham SMT.
Pain at 6 months	95% prediction interval: -64.24 to 66.16, which is consistent with a strong clinically-relevant effect in favour of SMT or sham SMT.
Pain at 12 months	95% prediction interval: could not be calculated

Functional status at 1 month	95% prediction interval: -2.67 to 1.21, which is consistent with a strong clinically-relevant effect in favour of SMT or sham SMT.
Functional status at 6 months	95% prediction interval -2.66 to 2.31, which is consistent with a strong, clinically-relevant effect in favour of SMT or sham SMT.
Functional status at 12 months	95% prediction interval could not be calculated.
Comparison: SMT as adjuvant therapy	
Outcome	95% Prediction interval
Pain at 1 month	95% Prediction interval: -15.17 to 1.31, which is consistent with a moderate clinically-relevant effect in favour of the use of SMT as an adjuvant therapy, but also no appreciable effect in favour of the control therapy.
Pain at 6 months	95% Prediction interval: -54.04 to 40.50, which is consistent with a strong, clinically-relevant effect in favour of the use of SMT as an adjuvant therapy or in favour of the control therapy.
Pain at 12 months	95% Prediction interval: -11.81 to 5.19, which is consistent with a small, non-clinically-relevant effect in favour of the use of SMT as an adjuvant therapy or the control therapy.
Functional status at 1 month	95% prediction interval -1.01 to 0.43, which is consistent with a strong clinically-relevant effect in favour of SMT as an adjuvant therapy, but also a moderate effect in favour of the control therapy.
Functional status at 6 months	95% prediction interval -2.48 to 1.88, which is consistent with a strong clinically-relevant effect in favour of SMT as an adjuvant therapy, but also a strong effect in favour of the control therapy.
Functional status at 12 months	95% prediction interval -1.03 to 0.61, which is consistent with a strong clinically-relevant effect in favour of SMT as an adjuvant therapy, but also a moderate effect in favour of the control therapy.

Table C. Results of meta-regression for SMT vs. recommended therapies for the outcome pain

Pain at 1 month			Initial model I^2 = 92%		
Variable(s)	*N*= 23	*B (95% CI)*	*P-value*	I^2 = 90	R^2 = 6
Country		-2.75 (-12.43 to 6.93)	0.56		
Duration LBP		-7.03 (-16.98 to 2.93)	0.16		
Pain at 3 month			Initial model I^2 = 77%		
Variable(s)	*N*=18	*B (95% CI)*	*P-value*	I^2 = 73	R^2 = 20
multi-modal SMT		5.32 (-1.96 to 12.63)	0.14		
Duration LBP		-3.21 (-10.62 to 4.19)	0.37		
Pain at 6 months			Initial model I^2 = 58%		
Variable(s)	*N*= 17	*B (95% CI)*	*P-value*	I^2 = 30	R^2 = 61
multi-modal SMT		1.56 (-3.46 to 6.59)	0.52		
Duration LBP		-5.51 (-10.59 to -0.42)	0.04		
Pain at 12 months			Initial model I^2 = 69%		
Variable(s)	*N*=14	*B (95% CI)*	*P-value*	I^2 = 26	R^2=97
multi-modal SMT		7.01 (-2.43 to 16.46)	0.13		
Duration LBP		-3.00 (-11.69 to 5.69)	0.46		

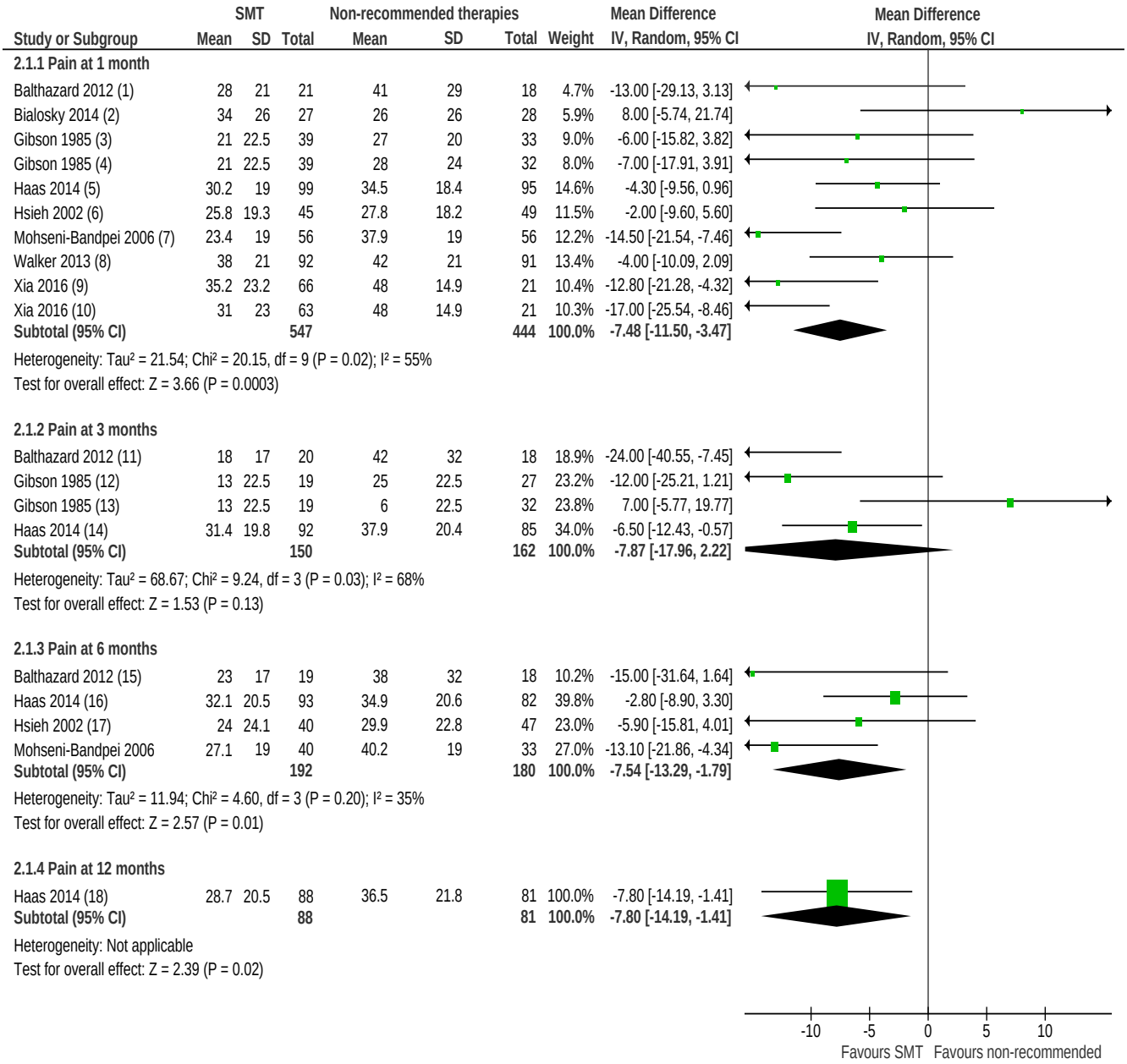
Reference: duration LBP (0 = subacute/chronic; 1 = chronic only); type of clinician (0 = not chiropractor; 1 = chiropractor); multi-modal SMT (0 = SMT alone; 1 = SMT in combination with other (minimal) modalities); Country (0 = North America; 1 = all other continents).

Table D. Results of meta-regression for SMT vs. recommended therapies for the outcome functional status

Functional status at 1 month			Initial model I^2 = 76%		
Variable(s)	*N*= 22	*B (95% CI)*	*P-value*	I^2 = 67	R^2 = 51
multi-modal SMT		0.47 (0.07 to 0.87)	0.03		
Duration LBP		-0.49 (-0.90 to -0.08)	0.02		
Functional status at 3 month			Initial model I^2 = 69%		
Variable(s)	*N*= 20	*B (95% CI)*	*P-value*	I^2 = 62	R^2 = 37
multi-modal SMT		0.36 (0.03 to 0.69)	0.03		
Duration LBP		-0.19 (-0.53 to 0.14)	0.25		
Functional status at 6 months			Initial model I^2 = 50%		
Variable(s)	*N*= 19	*B (95% CI)*	*P-value*	I^2 = 0	R^2 = 87
multi-modal SMT		0.28 (0.06 to 0.49)	0.01		
Duration LBP		-0.21 (-0.42 to 0.00)	0.05		
Functional status at 12 months			Initial model I^2 = 62%		
Variable(s)	*N*= 16	*B (95% CI)*	*P-value*	I^2 = 53	R^2 = 43
Type Clinician		0.24 (-0.07 to 0.55)	0.12		
Duration LBP		-0.19 (-0.53 to 0.14)	0.23		

Reference: duration LBP (0 = subacute/chronic; 1 = chronic only); type of clinician (0 = not chiropractor; 1 = chiropractor); multi-modal SMT (0 = SMT alone; 1 = SMT in combination with other (minimal) modalities); Country (0 = North America; 1 = all other continents).

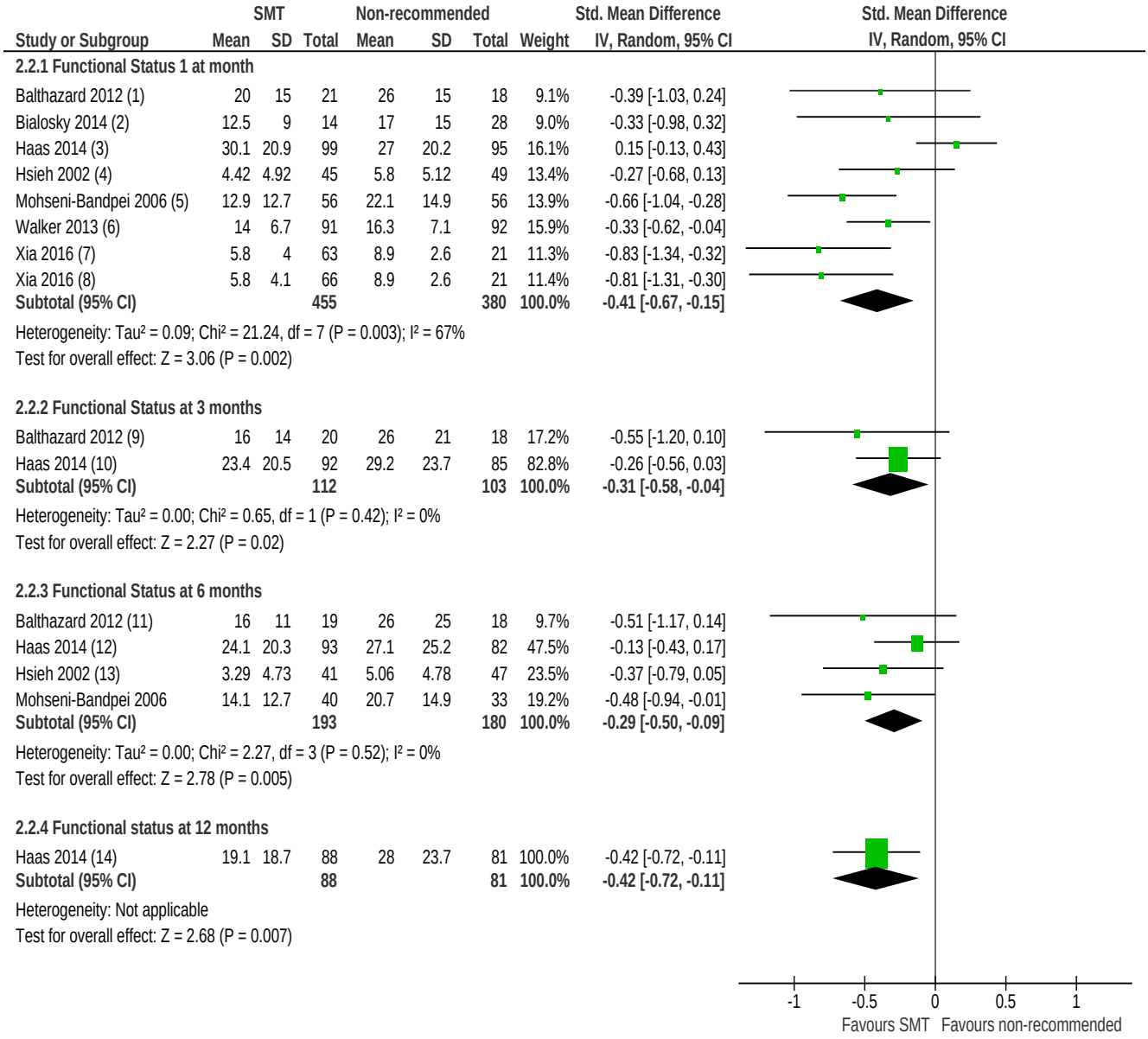
Fig. A. Forest plot for SMT vs. non-recommended therapies for the outcome pain.



Footnotes

(1) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks)
(2) SMT vs. no treatment; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data measured at 2-weeks follow-up.
(3) OMT vs. detuned diathermy; median (range) presented in study - and converted; daytime pain
(4) SMT vs. diathermy; median (range) presented in text - and converted; daytime pain
(5) SMT vs light massage (18 tx's SMT vs. 18 tx's light massage); 1st Follow-up 6 weeks
(6) SMT vs. Myofascial therapy
(7) SMT + exercise vs. Ultrasound + exercise
(8) Chiropractic care vs detuned ultrasound and activator; Follow up 2 weeks.
(9) LVVA ('non-thrust') SMT vs waiting list control; adjusted mean estimates; Follow-up: 3 weeks; CI in the article, SD calculated.
(10) HVLA ('thrust') SMT vs waiting list control; Follow-up: 3 weeks; CI in the article, SD calculated.
(11) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks), 2nd follow up is 3 months after discharge
(12) SMT vs. diathermy; median (range) presented in text - and converted; daytime pain
(13) OMT vs. detuned diathermy; median (range) presented in study - and converted; daytime pain
(14) SMT vs light massage; 2nd Follow-up 12 weeks
(15) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks), 2nd follow up is 6 months after discharge
(16) SMT vs light massage; 4th Follow-up 24 weeks
(17) chiropractic SMT vs. myofascial therapy
(18) SMT vs light massage; 6th Follow-up 52 weeks

Fig. B. Forest plot SMT vs. non-recommended therapies for the outcome functional status



Footnotes

(1) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks); ODI

(2) SMT vs. no treatment; ODI; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data measured at 2-weeks...

(3) SMT vs light massage (18 SMT tx's vs 18 light massage tx's); 1st Follow-up 6 weeks; Von Korff disability scale

(4) HVLA-SMT vs. Myofascial therapy; RMDQ

(5) SMT (Maitland) + exercise vs. ultrasound + exercise; Oswestry

(6) Chiropractic care vs detuned ultrasound and activator; Follow up 2 weeks; Functional rating Index used.

(7) HVLA ('thrust') SMT vs waiting list control; Follow-up: 3 weeks; CI in the article, SD calculated; RMDQ.

(8) LVVA ('non-thrust') SMT vs waiting list control; Follow-up: 3 weeks; CI in the article, SD calculated; RMDQ.

(9) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks), 2nd follow up is 3 months after discharge; ODI

(10) SMT vs light massage; 2nd Follow-up 12 weeks; Von Korff disability scale

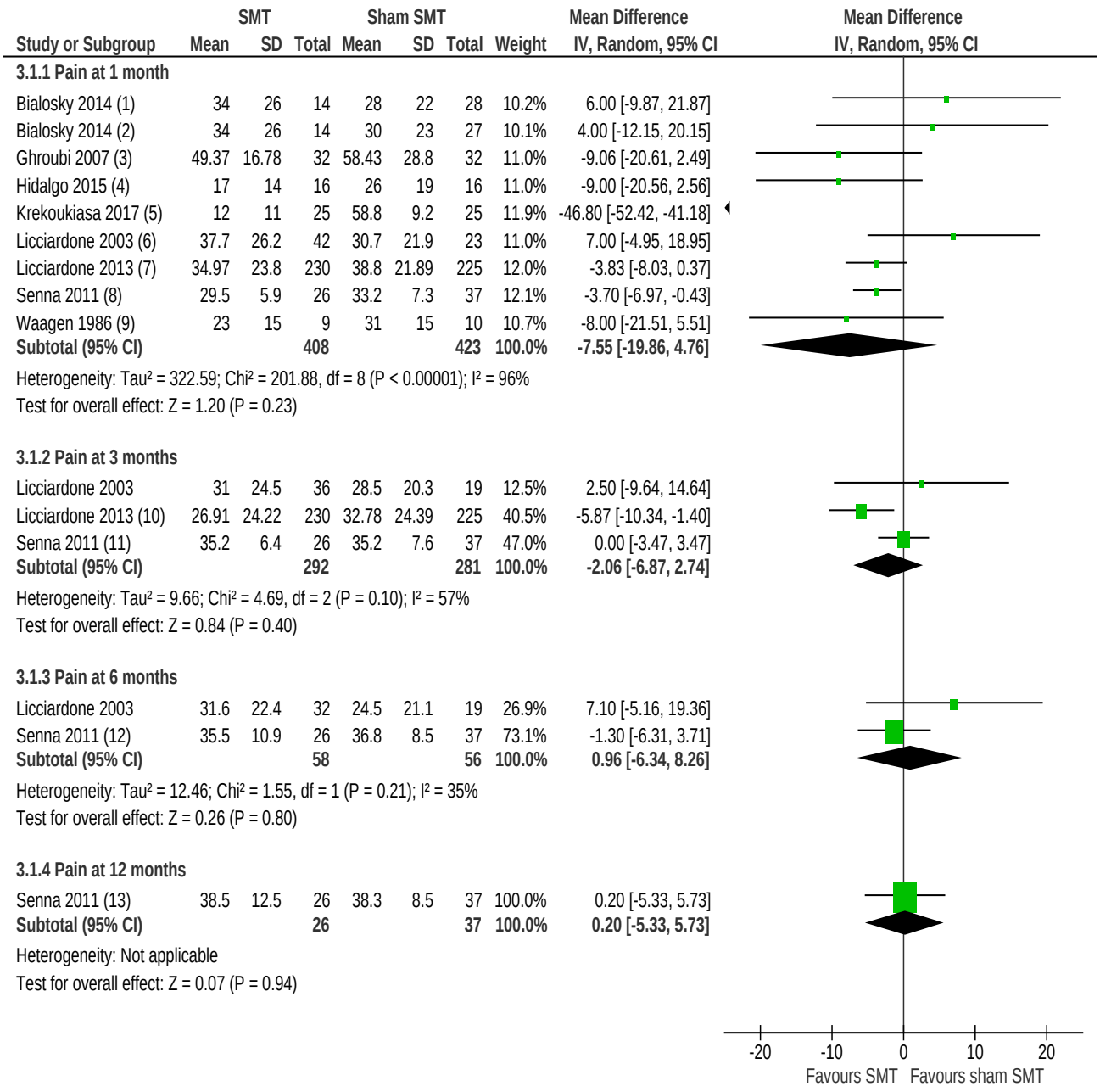
(11) SMT with active excercise vs detuned US with active exercise; 1st Follow up is after discharge (4-8 weeks), 2nd follow up is 6 months after discharge; ODI

(12) SMT vs light massage; 4th Follow-up 24 weeks; Von Korff disability scale

(13) chiropractic SMT vs. myofascial therapy

(14) SMT vs light massage; 6th Follow-up 52 weeks; Von Korff disability scale

Fig. C. Forest plot SMT vs. sham SMT for the outcome pain



Footnotes

(1) SMT vs. Enhanced placebo SMT; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data...

(2) SMT vs. standard placebo SMT; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data measured...

(3) Unclear SMT vs. sham SMT

(4) unpublished data provided by author.

(5) SMT vs Sham SMT

(6) Osteopathic SMT vs. sham SMT

(7) Osteopathic MT vs Sham MT; unpublished data used.

(8) SMT ('non-maintained') vs Sham SMT ('control group'); 1 month follow up; SE converted into SD

(9) Chiropractic/HVLA SMT vs. sham SMT; no measure of variation was presented; SD's presented here are approximated from similar populations

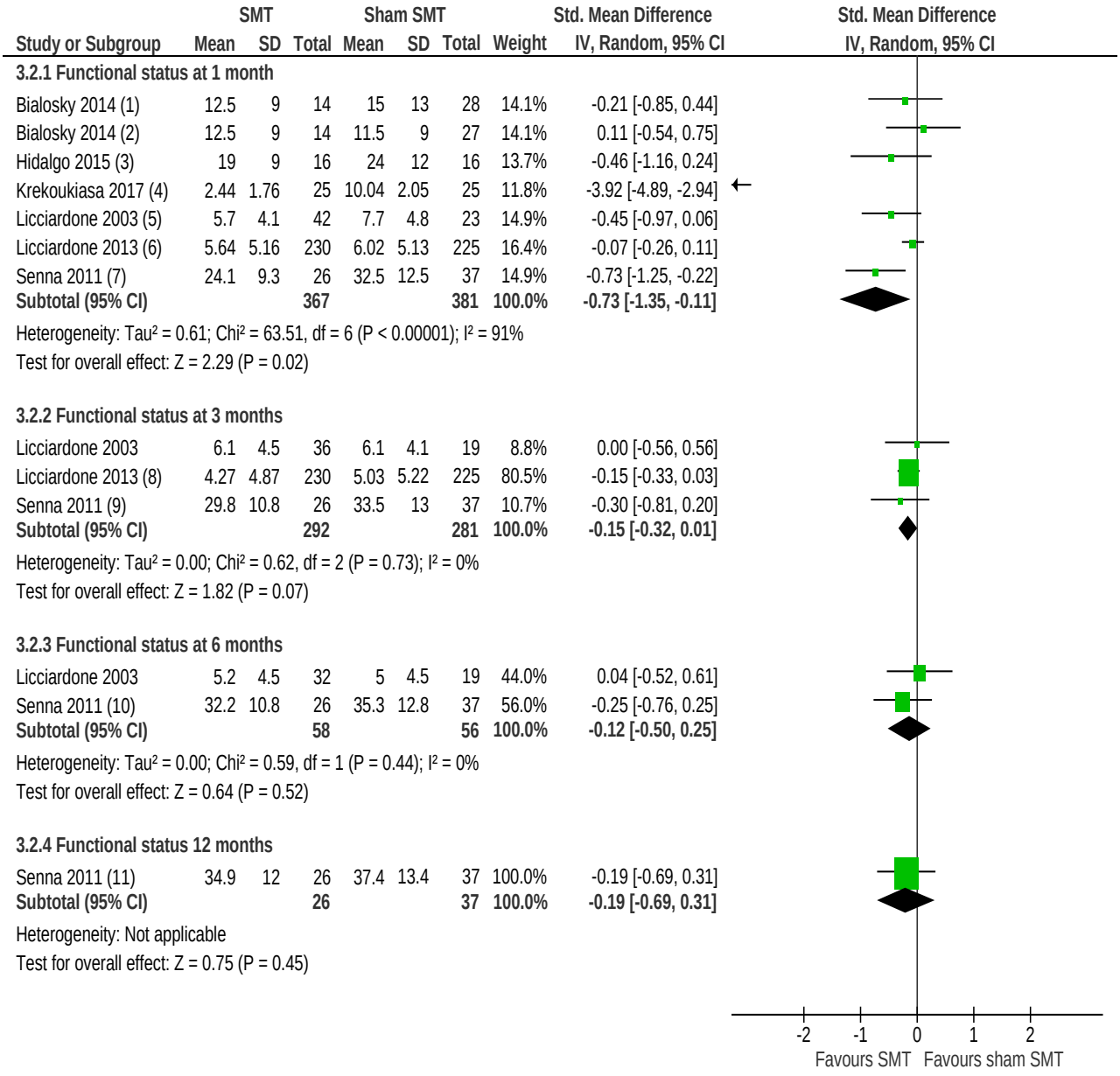
(10) Osteopathic MT vs Sham MT; unpublished data used.

(11) SMT ('non-maintained') vs Sham SMT ('control group'); 2nd Follow-up 4 months; SE converted into SD

(12) SMT ('non-maintained') vs Sham SMT ('control group'); 3rd Follow-up 7 months; SE converted into SD

(13) SMT ('non-maintained') vs Sham SMT ('control group'); 4th Follow-up 10 months; SE converted into SD

Fig. D. Forest plot SMT vs. sham SMT for the outcome functional status



Footnotes

(1) SMT vs. Enhanced placebo SMT; ODI; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data...

(2) SMT vs. standard placebo SMT; ODI; data based upon figures presented in Fig.4; change scores presented and SD's used from baseline; data...

(3) Mulligan mobilisations; 1st follow up 2 weeks; unpublished data provided by author.

(4) SMT vs Sham SMT; Roland Morris disability questionnaire

(5) Osteopathic SMT

(6) Osteopathic MT vs Sham MT; unpublished data used; RMDQ

(7) SMT ('non-maintained') vs Sham SMT ('control group'); 1 month follow up; Oswestry score; SE converted into SD

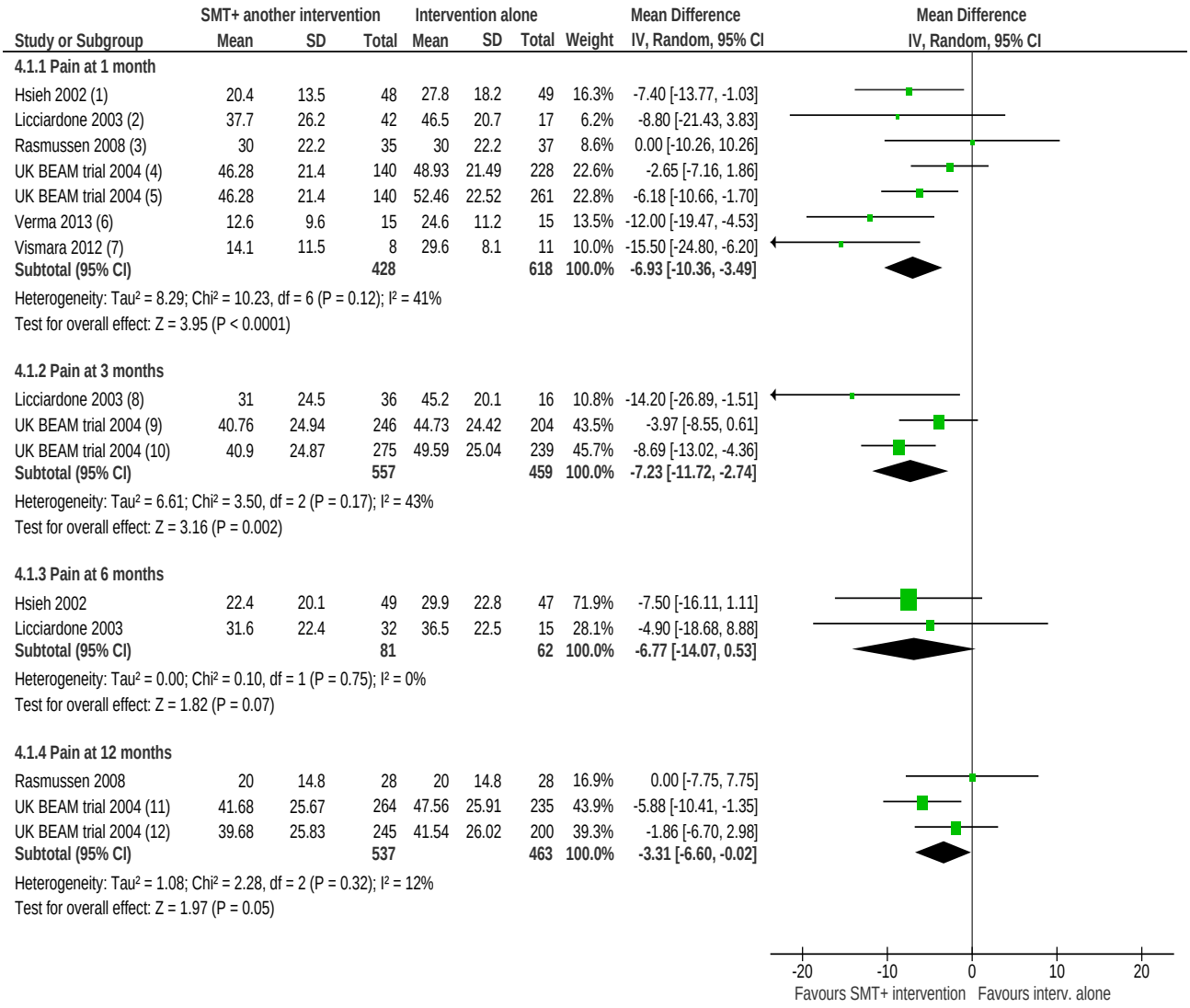
(8) Osteopathic MT vs Sham MT; unpublished data used; RMDQ

(9) SMT ('non-maintained') vs Sham SMT ('control group'); Oswestry score; 2nd Follow-up 4 months; SE converted into SD

(10) SMT ('non-maintained') vs Sham SMT ('control group'); Oswestry score; 3rd Follow-up 7 months; SE converted into SD

(11) SMT ('non-maintained') vs Sham SMT ('control group'); Oswestry score; 4th Follow-up 10 months; SE converted into SD

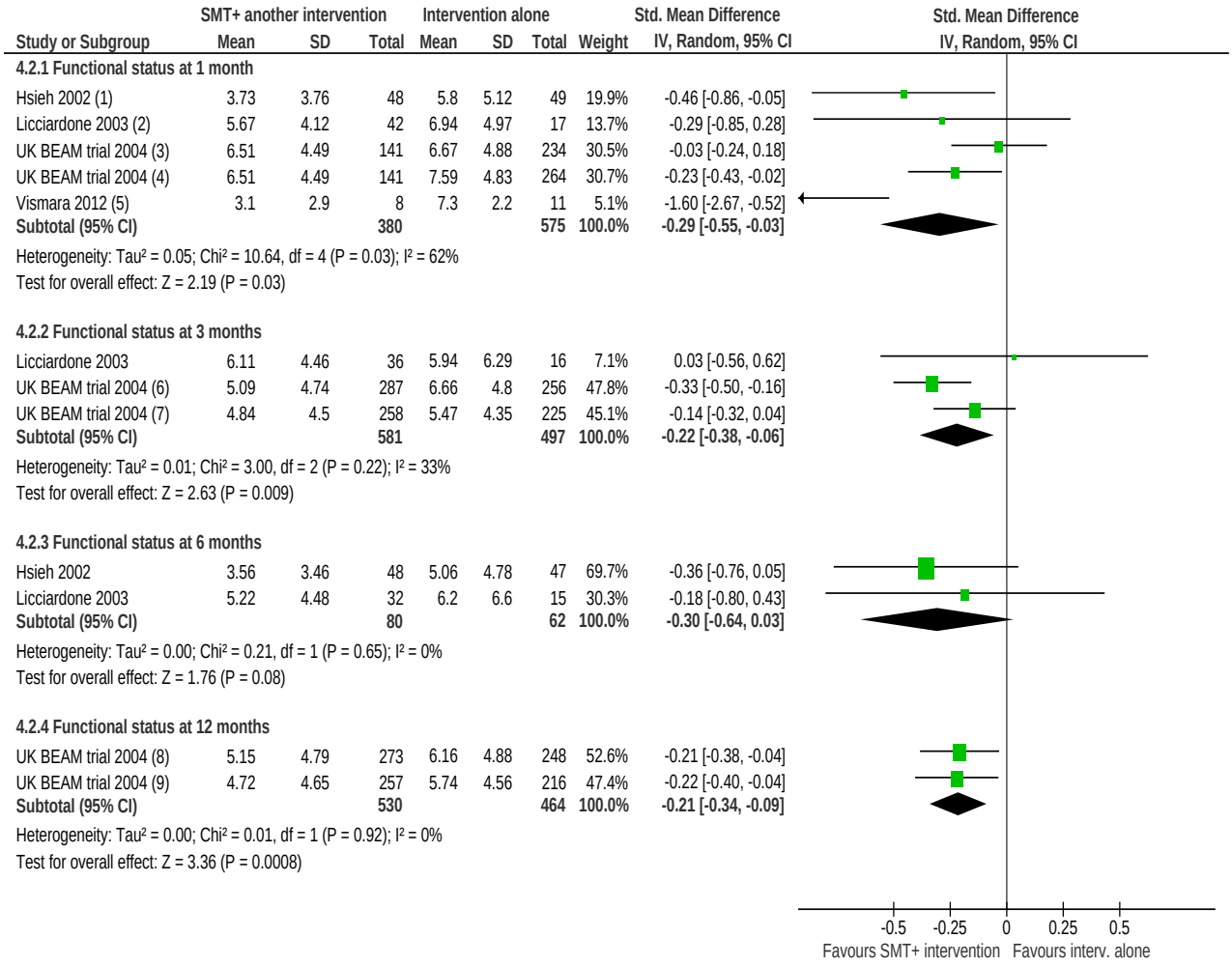
Fig. E. Forest plot SMT as adjuvant therapy for the outcome pain



Footnotes

(1) chiropractic SMT + myofascial therapy vs. myofascial therapy alone
(2) Osteopathic SMT + usual care vs. usual care alone
(3) orthomanual/medical physician SMT + extension exercises vs. extension exercises alone; median (IQR) converted to mean (SD)
(4) Best care + exercise + SMT vs. Best care + exercise; Modified von Korff - pain scale only; Unpublished data
(5) Best care + SMT vs. Best care alone; Modified von Korff - pain scale only; Unpublished data
(6) Mobilisation and exercise vs excercise alone
(7) Osteopathic manipulative treatment with specific exercise vs specific exercise alone
(8) see ref.2
(9) Best care + exercise + SMT vs. Best care + exercise; Modified von Korff - pain scale only
(10) Best care + SMT vs. Best care alone; Modified von Korff - pain scale only
(11) Best care + SMT vs. Best care alone
(12) Best care + exercise + SMT vs. Best care + exercise

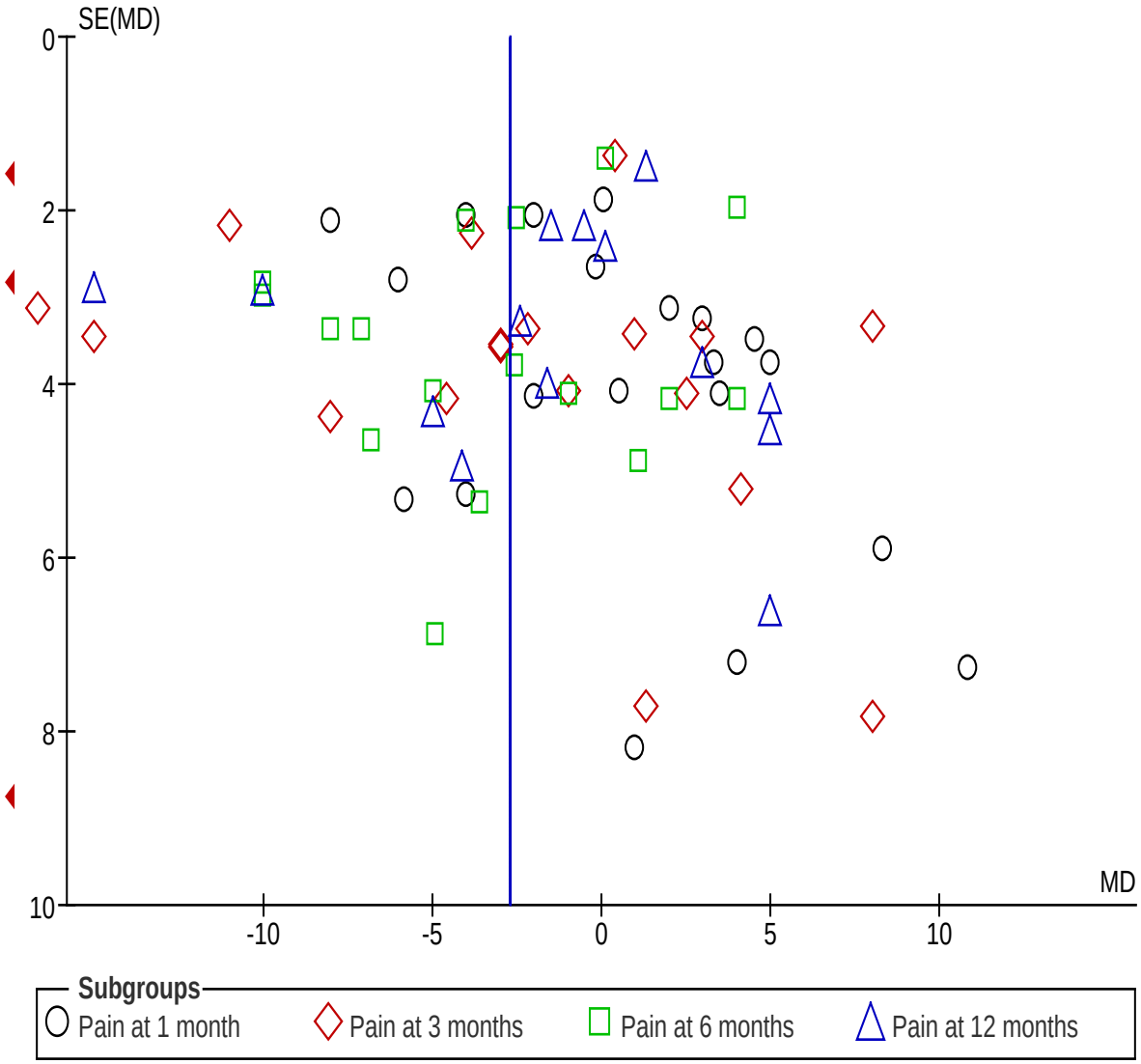
Fig. F. Forest plot SMT as adjuvant therapy for the outcome functional status



Footnotes

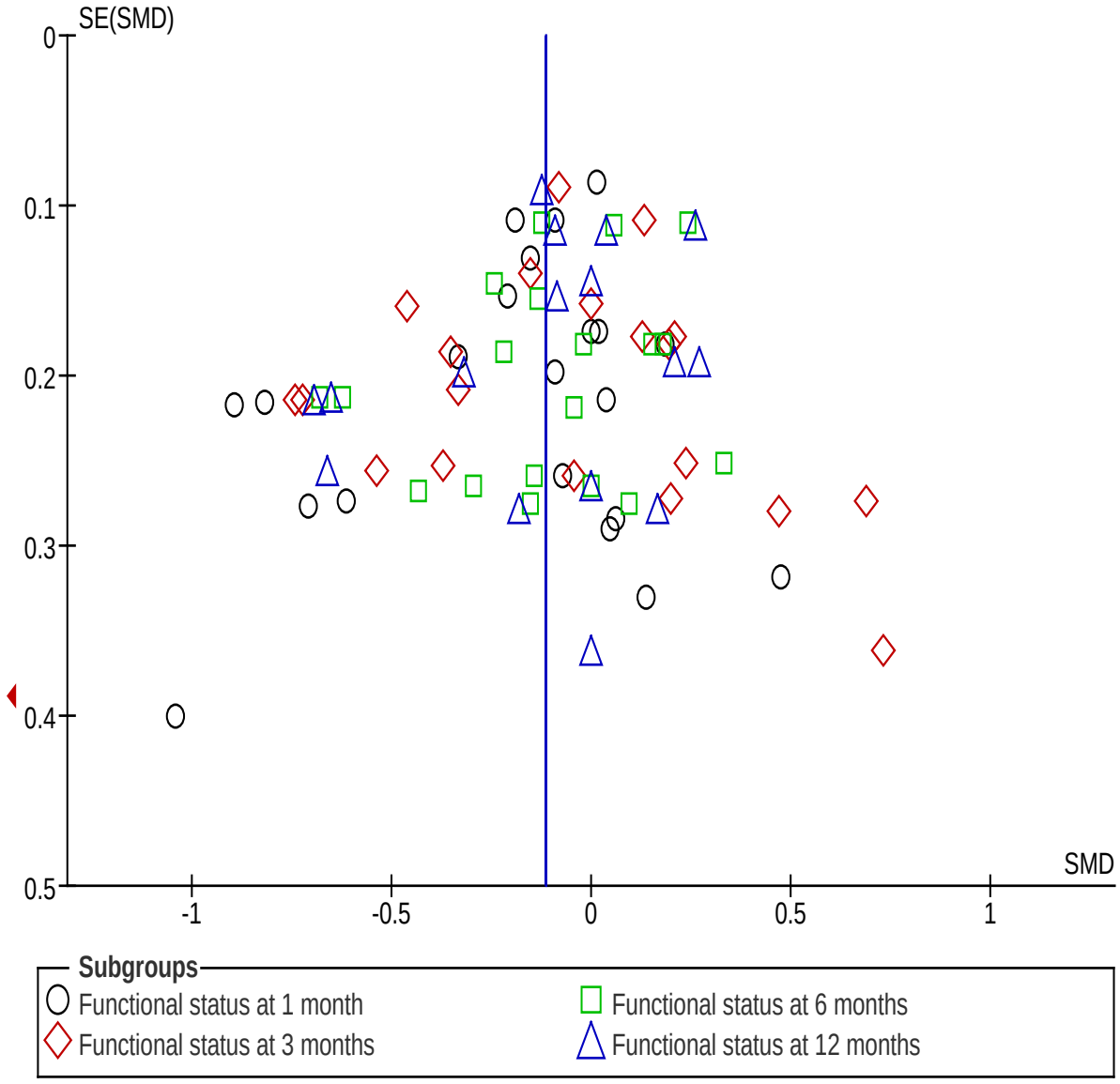
(1) SMT + myofascial therapy vs. myofascial therapy alone; RMDQ
(2) OMT + usual care vs. usual care alone;
(3) Best care + exercise + SMT vs. Best care + exercise; RMDQ; Unpublished data
(4) Best care + SMT vs. Best care alone; RMDQ; Unpublished data
(5) Osteopathic manipulative treatment with specific exercise vs specific exercise alone; RMDQ
(6) Best care + SMT vs. Best care alone; RMDQ
(7) Best care + exercise + SMT vs. Best care + exercise; RMDQ
(8) Best care + SMT vs. SMT alone
(9) Best care + exercise + SMT vs. Best care + exercise

Fig. G. Funnel Plot: SMT vs. recommended therapies for the outcome pain as measured at 1, 3, 6 and 12 months



Negative values favour SMT; positive values favour the recommended intervention.

Fig. H. Funnel Plot: SMT vs. recommended therapies for the outcome functional status as measured at 1, 3, 6 and 12 months



Negative values favour SMT; positive values favour the recommended intervention.