### Analysis 1.2. Comparison 1 Figure-of-eight bandage versus Arm sling. Outcome 2 Pain: Duration of painkiller consumption (days).

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage</th>
<th>Arm sling</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean(SD)</td>
<td>N Mean(SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoofwijk 1988</td>
<td>74 2.6 (1.3)</td>
<td>78 1.8 (1.4)</td>
<td>--</td>
<td>0.80 (0.34, 1.26)</td>
</tr>
</tbody>
</table>

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)
### Analysis 1.3. Comparison 1 Figure-of-eight bandage versus Arm sling, Outcome 3 Shoulder function: number of participants with 'good function'.

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage</th>
<th>Arm sling</th>
<th>Risk Ratio [M-H:95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoofwijk, 1988</td>
<td>73/74</td>
<td>72/76</td>
<td>1.00 [0.94, 1.06]</td>
</tr>
</tbody>
</table>

Analysis 1.4. Comparison 1 Figure-of-eight bandage versus Arm sling, Outcome 4 Recovery: time to clinical fracture consolidation (weeks).

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage</th>
<th>Arm sling</th>
<th>Mean(D)</th>
<th>Mean Difference [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoofwijk, 1988</td>
<td>74</td>
<td>78</td>
<td>38 (1)</td>
<td>0.20 [-0.10, 0.50]</td>
</tr>
</tbody>
</table>
## Analysis 1.5. Comparison I Figure-of-eight bandage versus Arm sling, Outcome 5 Time to return to previous activities

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage N</th>
<th>Mean (SD)</th>
<th>Arm sling N</th>
<th>Mean (SD)</th>
<th>Mean Difference</th>
<th>N(Needed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resumption of school/work (in weeks)</td>
<td>60</td>
<td>3.6 (2.3)</td>
<td>65</td>
<td>3.5 (2.5)</td>
<td>0.1 (0.74, 0.94)</td>
<td></td>
</tr>
<tr>
<td>Hoekruck 1988</td>
<td>52</td>
<td>5 (1.9)</td>
<td>52</td>
<td>5.6 (2.6)</td>
<td>-0.6 (-1.48, 0.28)</td>
<td></td>
</tr>
</tbody>
</table>

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)
Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults

Comparison: 1 Figure-of-eight bandage vs Arm sling

Outcome: 5 Time to return to previous activities

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage</th>
<th>Arm sling</th>
<th>Mean (SD) arm sling</th>
<th>Mean Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoofwijk 1988</td>
<td>52</td>
<td>52</td>
<td>4.6 (2.4)</td>
<td>-0.4 (0.020)</td>
</tr>
</tbody>
</table>

Analysis 1.6. Comparison 1 Figure-of-eight bandage versus Arm sling. Outcome 6 Cosmetic appearance: good result post fracture healing.

Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults

Comparison: 1 Figure-of-eight bandage versus Arm sling

Outcome: 6 Cosmetic appearance. Good result post fracture healing

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage</th>
<th>Arm sling</th>
<th>Risk Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoofwijk 1988</td>
<td>4674</td>
<td>4678</td>
<td>1.01 (0.77, 1.31)</td>
</tr>
</tbody>
</table>
### Analysis 1.7. Comparison 1 Figure-of-eight bandage versus Arm sling, Outcome 7 Patient dissatisfaction with course of treatment.

**Review:** Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** I Figure-of-eight bandage versus Arm sling

**Outcome:** 7 Patient dissatisfaction with course of treatment

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage n/N</th>
<th>Arm sling n/N</th>
<th>Risk Ratio M-H Fixed 95% CI</th>
<th>Risk Ratio M-H Random 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson 1987</td>
<td>9/34</td>
<td>2/27</td>
<td>3.57 [0.89, 15.18]</td>
<td></td>
</tr>
</tbody>
</table>

Favours figure of eight  Favours arm sling

### Analysis 1.8. Comparison 1 Figure-of-eight bandage versus Arm sling, Outcome 8 Radiographic outcome: unchanged or improved fracture position on healing.

**Review:** Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** I Figure-of-eight bandage versus Arm sling

**Outcome:** 8 Radiographic outcome: unchanged or improved fracture position on healing

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Figure-of-eight bandage n/N</th>
<th>Arm sling n/N</th>
<th>Risk Ratio M-H Fixed 95% CI</th>
<th>Risk Ratio M-H Random 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson 1987</td>
<td>31/34</td>
<td>23/27</td>
<td>1.07 [0.89, 1.29]</td>
<td></td>
</tr>
</tbody>
</table>

Favours arm sling  Favours figure-of-eight bandage
### Analysis 2.1. Comparison of Low-intensity pulsed ultrasound versus Placebo, Outcome 1: Pain Visual analogue scale (0 (no pain) to 10 (worst pain)).

Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults.

Comparison: 2 Low-intensity pulsed ultrasound versus Placebo.

Outcome: 1 Pain Visual analogue scale (0 (no pain) to 10 (worst pain)).

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LIPUS</th>
<th></th>
<th>Placebo</th>
<th></th>
<th>Mean Difference</th>
<th>Mean Difference</th>
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<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubbart 2008</td>
<td>52</td>
<td>3.51 (1.56)</td>
<td>49</td>
<td>3.55 (1.37)</td>
<td>0.04 [-0.61, 0.69]</td>
<td></td>
</tr>
</tbody>
</table>

Favours LIPUS

### Analysis 2.2. Comparison of Low-intensity pulsed ultrasound versus Placebo, Outcome 2: Pain Number of painkillers (tablets/28 days).

Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults.

Comparison: 2 Low-intensity pulsed ultrasound versus Placebo.

Outcome: 2 Pain Number of painkillers (tablets/28 days).

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LIPUS</th>
<th></th>
<th>Placebo</th>
<th></th>
<th>Mean Difference</th>
<th>Mean Difference</th>
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<tbody>
<tr>
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<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubbart 2008</td>
<td>52</td>
<td>37.21 (12.97)</td>
<td>49</td>
<td>32.88 (5.353)</td>
<td>4.33 [-4.67, 23.33]</td>
<td></td>
</tr>
</tbody>
</table>

Favours control

Favours LIPUS
### Analysis 2.3. Comparison 2 Low-intensity pulsed ultrasound versus Placebo, Outcome 3 Recovery: time to clinical fracture consolidation (days).

**Review:** Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** 2 Low-intensity pulsed ultrasound versus Placebo

**Outcome:** 3 Recovery: time to clinical fracture consolidation (days)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LIPUS N</th>
<th>Mean (SD)</th>
<th>Placebo N</th>
<th>Mean (SD)</th>
<th>Mean Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubbert 2008</td>
<td>47</td>
<td>26.77 (13.19)</td>
<td>45</td>
<td>27.09 (13.89)</td>
<td>-0.32 [-5.85, 5.21]</td>
</tr>
</tbody>
</table>

### Analysis 2.4. Comparison 2 Low-intensity pulsed ultrasound versus Placebo, Outcome 4 Time to return to previous activities.

**Review:** Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** 2 Low-intensity pulsed ultrasound versus Placebo

**Outcome:** 4 Time to return to previous activities

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LIPUS N</th>
<th>Mean (SD)</th>
<th>Placebo N</th>
<th>Mean (SD)</th>
<th>Mean Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Resumption of household activities (days)</td>
<td>Lubbert 2008</td>
<td>52</td>
<td>9.38 (6.2)</td>
<td>49</td>
<td>12.24 (9.9)</td>
</tr>
<tr>
<td>2 Resumption of professional work (days)</td>
<td>Lubbert 2008</td>
<td>52</td>
<td>17 (10.8)</td>
<td>49</td>
<td>15.05 (10.38)</td>
</tr>
<tr>
<td>3 Resumption of sport (days)</td>
<td>Lubbert 2008</td>
<td>52</td>
<td>24.17 (6.77)</td>
<td>49</td>
<td>26.64 (4.75)</td>
</tr>
</tbody>
</table>

---

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)  
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### Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** Low-intensity pulsed ultrasound vs. placebo

**Outcome:** Time to return to previous activities

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LPU S</th>
<th>Placebo</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N/95% CI</td>
<td>N/95% CI</td>
</tr>
<tr>
<td>1 Resumption of household activities (days)</td>
<td>52</td>
<td>9.38 (2.92)</td>
<td>49</td>
<td>12.24 (3.99)</td>
</tr>
</tbody>
</table>

### Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults

**Comparison:** Low-intensity pulsed ultrasound vs. placebo

**Outcome:** Time to return to previous activities

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LPU S</th>
<th>Placebo</th>
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<td>N</td>
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<tr>
<td>2 Resumption of professional work (days)</td>
<td>52</td>
<td>17 (1.08)</td>
<td>49</td>
<td>13.05 (10.38)</td>
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---

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)

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Analysis 2.5. Comparison 2 Low-intensity pulsed ultrasound versus Placebo, Outcome 5 Adverse events and subsequent surgery.

Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults
Comparison: 2 Low-intensity pulsed ultrasound versus Placebo
Outcome: 5 Adverse events and subsequent surgery

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>UPLUS n/N</th>
<th>Placebo n/N</th>
<th>Risk Ratio M-H (95% CI)</th>
<th>Risk Ratio M-H (95% CI)</th>
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</thead>
<tbody>
<tr>
<td>1 Number with skin irritation</td>
<td>Lubbert 2008 1/52</td>
<td>1/49</td>
<td>0.94 [0.06, 14.65]</td>
<td>0.94 [0.06, 14.65]</td>
</tr>
<tr>
<td>2 Number who had surgical procedure</td>
<td>Lubbert 2008 6/52</td>
<td>5/49</td>
<td>1.13 [0.57, 2.27]</td>
<td>1.13 [0.57, 2.27]</td>
</tr>
</tbody>
</table>

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review) 38
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### Apêndice

#### Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)

**Comparison:** 2 Low-intensity pulsed ultrasound vs Placebo

**Outcome:** Adverse events and subsequent surgery

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>LIPUS n/N</th>
<th>Placebo n/N</th>
<th>Risk Ratio M-H Fixed 95% CI</th>
<th>Risk Ratio M-H Fixed 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Number with skin irritation</td>
<td>Lubbert 2008 1/152</td>
<td>1/49</td>
<td>0.94 [0.64, 1.40]</td>
<td></td>
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<table>
<thead>
<tr>
<th>Review: Conservative interventions for treating middle third clavicle fractures in adolescents and adults</th>
<th>Comparison: 2 Low-intensity pulsed ultrasound vs Placebo</th>
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<tbody>
<tr>
<td>Study or subgroup</td>
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<td>Placebo n/N</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>2 Number who had surgical procedure</td>
<td>Lubbert 2008 6/52</td>
<td>5/49</td>
</tr>
</tbody>
</table>
APPENDICES

Appendix 1. Search strategies

MEDLINE

The Cochrane Library
#1 MeSH descriptor Clavicle, this term only
#2 clavici* or collarbone:ti,ab,kw
#3 (#1 OR #2)
#4 MeSH descriptor Fracture Healing, this term only
#5 MeSH descriptor Fracture Fixation explode all trees
#6 MeSH descriptor Fractures, Bone explode all trees
#7 (fracture*:ti,ab,kw)
#8 (#4 OR #5 OR #6 OR #7)
#9 (#3 AND #8)

EMBASE
1. clavicle
2. (clavici or collarbone).tw.
3. er/i-2
4. exp Fracture Healing/ or exp
   Fracture Treatment/ or exp
   Fracture/
5. fracture$.tw.
6. er/i-5
7. and/i-6
8. Clinical trial/
9. Randomized controlled trial/
10. Randomization/
11. Single blind procedure/
12. Double blind procedure/
13. Crossover procedure/
14. Placebo/
15. Randomized controlled trial$.tw.
16. References
17. Random allocation.tw.
18. Randomly allocated.tw.
19. Allocated randomly.tw.
20. (allocated adj2 random).tw.
22. Double blind$tw.
23. ((treble or triple) adj blind$).tw.
25. Prospective study/
26. er/i-8/25

Conservative interventions for treating middle third clavicle fractures in adolescents and adults (Review)
27. Case study/
29. Abstract report/ or letter/
30. or/27-29
31. 26 not 30
32. limit 31 to human
33. and/7,32

LILACS
Mb: Clavicle OR Tw clavicle OR Tw collarbone [Palavras] AND Mb: Fracture healing OR Mb: Fracture fixation OR Mb: Fractures OR Tw fractures [Palavras] and (/Pt: randomized controlled trial OR Pt: controlled clinical trial OR Mb: Randomized controlled trials OR Mb: Random allocation OR Mb: Double-blind method OR Mb: Single-blind method) AND NOT (Ct: animals AND NOT (Ct: human and Ct: animal)) OR (Pt: clinical trial OR Ex: E05,318,760,535$ OR (Tw: clinical$ AND (Tw: trial$ OR Tw: ensai$ OR Tw: ensai$ OR Tw: experiencia$ OR Tw: investiga$)) OR ((Tw: simples$ OR Tw: simple$ OR Tw: duplos$ OR Tw: dobles$ OR Tw: triplic$ OR Tw: blind$ OR Tw: cego$ OR Tw: cegos$ OR Tw: mask$ OR Tw: mascar$)) OR Mb: placebo OR Tw: placebo$ OR (Tw: random$ OR Tw: random$ OR Tw: casual$ OR Tw: caso$ OR Tw: azar$ OR Tw: aleatorio$) OR Mb: Research design) AND NOT (Ct: animals AND NOT (Ct: human and Ct: animal)) OR (Ct: comparative study OR Ex: E05,337$ OR Mb: Follow-up studies OR Mb: Prospective studies OR Tw: control OR Tw: prospec$ OR Tw: volunt$ OR Tw: volunt$ AND NOT (Ct: animals AND NOT (Ct: human and Ct: animal))

HISTORY
Review first published: Issue 2, 2009

27 March 2008 Amended Converted to new review format.

CONTRIBUTIONS OF AUTHORS
The first drafts of this review were prepared by ML, JB and RA. The search strategy was developed, in liaison with the Trials Search Co-ordinator, by ML and RA. ML wrote to the study authors for additional information, and entered data into RevMan. ML, RA and JB performed screening of search results, assessed methodological quality, extracted data, and analysed and interpreted the data. All authors commented on and approved the final version of the review.

DECLARATIONS OF INTEREST
None known.
SOURCES OF SUPPORT

Internal sources

- Universidade Federal de São Paulo, Brazil.

External sources

- No sources of support supplied

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

To search ongoing and recently completed trials, we included the WHO International Clinical Trial Registry.
Apêndice 4. Revisão publicada – Surgical interventions for treating acute fractures or non-union of the middle third of the clavicle (Review)

Surgical interventions for treating acute fractures or non-union of the middle third of the clavicle (Review)

Lenza M, Belloti JC, Gomes dos Santos JB, Matsumoto MH, Faloppa F

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2009, Issue 4

http://www.thecochranelibrary.com
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Surgical interventions for treating acute fractures or non-union of the middle third of the clavicle (Review)

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