Fysiotherapie bij degeneratieve RC letsel
Blok 8b SCHcombi cursus

door Gerard Koel, FT / MT / MSc / docent
INHOUD

1. Epidemiologie en beloop RC letsels
2. Signs & symptoms van RC letsels
3. FT handelen & de effectiviteit bij RC letsels
4. Prognostische factoren


A systematic review and pooled analysis of the prevalence of rotator cuff disease with increasing age

Teun Teunis, MD, Bart Lubberts, BSc, Brian T. Reilly, BSc, David Ring, MD, PhD*

Orthopaedic Hand and Upper Extremity Service, Massachusetts General Hospital–Harvard Medical School, Boston, MA, USA
1329 records excluded

Inclusion
- Rotator cuff defects

Exclusion
- Case-reports
- Pre-clinical studies
- Meeting abstracts
- Review

153 records excluded

Inclusion
- Lesions reported by age
- English language

Exclusion
- Fractures
- Infections
- Neoplasms
- Rheumatoid arthritis

Figure 1  Flow chart of study selection.
Figure 2  Histogram of rotator cuff abnormalities by age group across all studies.

2 / 3 van de personen met een beschadigde RC: GEEN SCHOUDERPIJN = a-symptomatisch

1 / 3 van de personen met een beschadigde RC: WEL PERIODEN MET SCHOUDERPIJN


**Plus presentaties SECEC congress**

**Milaan September 2015.**
COMPARING SURGICAL REPAIR WITH CONSERVATIVE TREATMENT FOR DEGENERATIVE ROTATOR CUFF TEARS: A RANDOMIZED CONTROLLED TRIAL

Okke Lambers Heerspink, Jos van Raay, Rinco Koorevaar, Pepijn van Eerden, Esther van 't Eljet, Inge van den Akker-Scheek, Ron Diercks
# RESULTS

<table>
<thead>
<tr>
<th>One year follow up</th>
<th>Surgery n=20</th>
<th>Conservative n=25</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Murley (CMS)</td>
<td>81.9 (15.6)</td>
<td>73.7 (18.4)</td>
<td>0.08</td>
</tr>
<tr>
<td>DSST</td>
<td>11.0 (2.8)</td>
<td>9.7 (3.6)</td>
<td>0.13</td>
</tr>
<tr>
<td>VAS pain</td>
<td>2.2 (1.9)</td>
<td>3.2 (1.6)</td>
<td>0.04</td>
</tr>
<tr>
<td>VAS disability</td>
<td>2.1 (1.7)</td>
<td>3.5 (2.3)</td>
<td>0.02</td>
</tr>
</tbody>
</table>
RESULTS

Retear rate at one year follow up: 73.3%
Jay Keener ‘from the States’ met 6 – 10 % re-tears !!
So not everything from the USA is more and bigger.

At SECEC in Milano 2015 the 8 – 9 years follow-up.
Tear size increase versus CS

28 → CS=75 p.

8 → CS=72 p.

8 → CS=58 p.
<table>
<thead>
<tr>
<th></th>
<th>&lt;2 cm (n=36)</th>
<th>≥2 cm (n=8)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant score</td>
<td>74</td>
<td>58</td>
<td>0.03</td>
</tr>
<tr>
<td>(points)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASES score</td>
<td>81</td>
<td>65</td>
<td>0.05</td>
</tr>
<tr>
<td>(points)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS pain</td>
<td>1.9</td>
<td>4.3</td>
<td>0.02</td>
</tr>
<tr>
<td>(cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dus:
- Langzaam toenemende RC rupturen  >> weinig relevante en significante veranderingen
- Sterk toenemende RC rupturen (>2cm) >> wel relevante en significante veranderingen
Conclusion

• The majority of unrepaired RCTs increased in tear size over an 8-year period
• Increases were moderate in most cases
• Correlation to an inferior clinical outcome was only found for cases with large increases (18%)
Signs & symptoms van RC letsels


Leidt een RC ruptuur tot verlies van spierkracht?

Grotere rupturen wel!

Vijf factoren die samenhangen met het ontstaan van SchouderPijn bij RC letsels.
Verwachting patiënt over effectiviteit FT bepaalt de kans op chirurgie!

Figure 1 Survival plot of surgery-free probability stratified by patient expectations regarding physical therapy with a 5 indicating high expectations that rehab will lead to improvement, and lower scores indicating lower expectations.

Is het belangrijk dat een patiënt vertrouwen heeft in de FT aanpak? **JA!!**

En hoe gaan we dat doen? Deels: samenwerken in een SN! Met SDM relevantie FT ‘uitleggen’.
Patients with atraumatic orthopaedic conditions typically present with pain, and that pain often correlates with the severity of the disorder. This does not appear to be the case with rotator cuff tears as our data suggest that there is no relationship between pain severity and rotator cuff tear severity.

There are abundant data to suggest that the relationship between pain and rotator cuff tears is not robust. Nonoperative treatment of symptomatic, atraumatic, full-thickness rotator cuff tears is successful in approximately 75% of patients.
Results - Enlargement Analysis

<table>
<thead>
<tr>
<th></th>
<th>Cable intact (n=43)</th>
<th>Cable Disrupted (n=25)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>8.0 [6.0] mm</td>
<td>19.0 [11.0] mm</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td><strong>Distance to LHB</strong></td>
<td>10.0 [5.0] mm</td>
<td>0.0 [0.0] mm</td>
<td></td>
</tr>
<tr>
<td><strong>F/u duration</strong></td>
<td>4.8 [3.0] yrs</td>
<td>3.6 [2.2] yrs</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Enlargement</strong></td>
<td>7.0 [8.0] mm</td>
<td>9.0 [5.0] mm</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anterior Enl</td>
<td>5.0 [9.0]</td>
<td>0.0 [0.0]</td>
<td></td>
</tr>
<tr>
<td>Posterior Enl</td>
<td>4.0 [7.0]</td>
<td>9.0 [5.0]</td>
<td></td>
</tr>
<tr>
<td>Anterior only</td>
<td>16 (37%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Posterior only</td>
<td>16 (37%)</td>
<td>24 (96%)</td>
<td></td>
</tr>
<tr>
<td>Bidirectional</td>
<td>11 (26%)</td>
<td>1 (4%)</td>
<td></td>
</tr>
</tbody>
</table>
## TABLE II Comparison of Variables Between Asymptomatic and Symptomatic Sides (N = 160)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Asymptomatic Side (N = 98)</th>
<th>Symptomatic Side (N = 62)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration for all shoulders in group† (mm)</td>
<td>- 0.38 ± 1.3</td>
<td>0.21 ± 1.6</td>
<td>0.01‡</td>
</tr>
<tr>
<td>Non-controls§</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migration† (mm)</td>
<td>- 0.28 ± 1.3</td>
<td>0.26 ± 1.6</td>
<td>0.03‡</td>
</tr>
<tr>
<td>Tear length† (mm)</td>
<td>12.0 ± 9.0</td>
<td>14.9 ± 13</td>
<td>0.19#</td>
</tr>
<tr>
<td>Tear width† (mm)</td>
<td>11.6 ± 6.8</td>
<td>14.0 ± 9.6</td>
<td>0.15#</td>
</tr>
<tr>
<td>Tear area† (mm²)</td>
<td>189 ± 304</td>
<td>310 ± 502</td>
<td>0.15#</td>
</tr>
<tr>
<td>Tear location category**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infraspinatus, or supraspinatus and infraspinatus</td>
<td>10 (14%)</td>
<td>19 (32%)</td>
<td>0.01‡</td>
</tr>
<tr>
<td>Supraspinatus</td>
<td>63 (86%)</td>
<td>40 (68%)</td>
<td></td>
</tr>
</tbody>
</table>

*The p values were derived, with an unpaired t test or chi-square test, in a comparison of the asymptomatic and symptomatic sides. †The values are given as the mean and standard deviation. ‡The p value indicates significance (p < 0.05). §Non-controls indicate shoulders in which a rotator cuff tear was demonstrated by ultrasound. #The p value was derived with an unpaired t test with use of log-transformed data. **The values are given as the number of shoulders with the percentage in parentheses.

Duidelijke toename afwijkingen ≠ klinische symptomatologie.


Voldoende externe evidentie.
Geen ‘last’ van actuele Cochrane reviews.

Interventions for shoulder pain
Sally Green, Rachelle Buchbinder, A Forbes

Reason for withdrawal from publication
Reason for withdrawal:

The review has been split into seven reviews that will be/have been published as.

Geen ‘last’ van actuele Cochrane reviews.
Patients with atraumatic orthopaedic conditions typically present with pain, and that pain often correlates with the severity of the disorder. This does not appear to be the case with rotator cuff tears as our data suggest that there is no relationship between pain severity and rotator cuff tear severity.

There are abundant data to suggest that the relationship between pain and rotator cuff tears is not robust.

**Nonoperative treatment of symptomatic, atraumatic, full-thickness rotator cuff tears is successful in approximately 75% of patients.**
FT handelen bij RC letsels

- Primair SAPS / RC letsel: *bron van nocisensoriek & oorzaak in subacromiaal gelegen weefsels.*
- Secundair SAPS / RC letsel: *bron van nocisensoriek in subacromiaal gelegen weefsels; oorzaak elders!*
  - GH
  - ST
  - CWK / TWK
  - Rompstabiliteit
  - Onderste extremiteiten
- Mentale factoren (zelfvertrouwen, lef, realistisch)
- Chronische pijnsyndroom (sensitisatie)


Wat doen FT’en?
Herstel van het krachtenkoppel in het frontale vlak.
Wat doen FT’en?
Herstel van het krachtenkoppelpel in het frontale vlak.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Odds ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impingement sign</td>
<td>8.62</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Intramuscular tendon</td>
<td>4.42</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Range of motion in external rot.</td>
<td>3.69</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Muscle atrophy</td>
<td>2.28</td>
<td>P = 0.024</td>
</tr>
</tbody>
</table>

Table III. Statistical analysis of odds ratios of four factors (Tanaka / Itoi, 2010).
Results

- 169 patients were prospectively enrolled with a full-thickness posterosuperior rotator cuff tear
  - 429 total patients diagnosed during the study period
  - 260 not enrolled – 7 declined; 185 unable to be enrolled due to scheduling conflicts with study coordinator; 68 excluded
- 8% Workers compensation Claim
- 45% active smokers
- 21% female; 79% male
- Average age at diagnosis – 62 years
- Average BMI – 30 kg/m²
Results

- **Outcome Scores**
  - Mean VAS pain – 4.8
  - Mean VAS function – 5.6
  - Mean SST – 4.4
  - Mean ASES – 47.5

- **Tear Severity**
  - Mean tear size (AP width) – 2.7 cm
  - Mean tear retraction – 2.4 cm
### Worse (Lower) MCS = Worse shoulder PROs

<table>
<thead>
<tr>
<th>Patient Reported</th>
<th>SF-36 MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder Score</td>
<td>PCC</td>
</tr>
<tr>
<td>VAS Shoulder Pain</td>
<td>-0.476</td>
</tr>
<tr>
<td>VAS Shoulder Function</td>
<td>-0.332</td>
</tr>
<tr>
<td>SST</td>
<td>0.367</td>
</tr>
<tr>
<td>ASES Score</td>
<td>0.505</td>
</tr>
</tbody>
</table>
Multivariate regressions with tear size

<table>
<thead>
<tr>
<th>Variable</th>
<th>VAS Pain R</th>
<th>VAS Pain p</th>
<th>VAS Function R</th>
<th>VAS Function p</th>
<th>ASES Score R</th>
<th>ASES Score p</th>
<th>SST R</th>
<th>SST p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.03</td>
<td>0.299</td>
<td>0.12</td>
<td>0.628</td>
<td>0.06</td>
<td>0.758</td>
<td>-0.04</td>
<td>0.138</td>
</tr>
<tr>
<td>Female</td>
<td>0.57</td>
<td>0.267</td>
<td>-0.64</td>
<td>0.179</td>
<td>-3.56</td>
<td>0.350</td>
<td>-0.35</td>
<td>0.545</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>0.06</td>
<td>0.102</td>
<td>0.05</td>
<td>0.128</td>
<td>0.66</td>
<td>0.011</td>
<td>-0.11</td>
<td>0.004</td>
</tr>
<tr>
<td>Medical</td>
<td>0.16</td>
<td>0.117</td>
<td>0.01</td>
<td>0.961</td>
<td>-1.23</td>
<td>0.098</td>
<td>-0.12</td>
<td>0.296</td>
</tr>
<tr>
<td>Comorbidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>-0.34</td>
<td>0.651</td>
<td>1.38</td>
<td>0.050</td>
<td>1.10</td>
<td>0.845</td>
<td>-1.28</td>
<td>0.130</td>
</tr>
<tr>
<td>Smoker</td>
<td>0.64</td>
<td>0.120</td>
<td>0.25</td>
<td>0.519</td>
<td>-1.10</td>
<td>0.719</td>
<td>-0.61</td>
<td>0.185</td>
</tr>
<tr>
<td>SF-36 MCS</td>
<td>-0.09</td>
<td>&lt;0.001</td>
<td>-0.07</td>
<td>&lt;0.001</td>
<td>0.79</td>
<td>&lt;0.001</td>
<td>0.09</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Tear Size</td>
<td>0.02</td>
<td>0.887</td>
<td>0.34</td>
<td>0.008</td>
<td>1.94</td>
<td>0.059</td>
<td>-0.28</td>
<td>0.070</td>
</tr>
</tbody>
</table>
Conclusion

- Patient mental health (MCS) has the strongest association with patient reported shoulder pain, function and shoulder specific outcomes in patients with full-thickness rotator cuff tears.
- Tear severity is associated with shoulder function only.
- Further research required to understand the affects of mental health on improvement in pain, function and outcomes after surgical and nonoperative treatment.
The impact of faulty posture on rotator cuff tears with and without symptoms

Atsushi Yamamoto, MD, PhDa,⁎, Kenji Takagishi, MD, PhDa, Tsutomu Kobayashi, MD, PhDb, Hitoshi Shitara, MD, PhDb, Tsuyoshi Ichinose, MD, PhDb, Eiji Takasawa, MDb, Daisuke Shimoyama, MDb, Toshihisa Osawa, MD, Phdc

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bDepartment of Physical Therapy, Takasaki University of Health and Welfare, Takasaki, Gunma, Japan
cDepartment of Orthopaedic Surgery, National Hospital Organization, Takasaki General Medical Center, Takasaki, Gunma, Japan
A. Ideal alignment.
B. Kyphotic-lordotic posture
C. Flat-back posture
D. Sway-back posture
<table>
<thead>
<tr>
<th>Posture</th>
<th>With RCT (n = 93)</th>
<th>Without RCT (n = 286)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal</td>
<td>5 (2.9%)</td>
<td>167 (97.1%)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Kyphotic-lordotic</td>
<td>27 (34.2%)</td>
<td>52 (65.8%)</td>
<td></td>
</tr>
<tr>
<td>Flat-back</td>
<td>37 (45.7%)</td>
<td>44 (54.3%)</td>
<td></td>
</tr>
<tr>
<td>Sway-back</td>
<td>24 (51.1%)</td>
<td>23 (48.9%)</td>
<td></td>
</tr>
</tbody>
</table>

RCT, rotator cuff tear; SST, Simple Shoulder Test; ER, external rotation.
Afronding / conclusies

- De degeneratieve RC ruptuur betreft een belangrijke risicofactor voor SchouderPijn
- Het is een uitdaging om rupturen at-risk goed te monitoren en te behandelen
- Het blijft belangrijk diagnostische en evaluatieve klinische tests te onderscheiden
- De degeneratieve RC ruptuur is een thema dat SDM van patiënt – chirurg – FT vereist