Update for Chapter 11: Does exercise help or harm in osteoarthritis of the knee?
Robert J Petrella

Search strategy
Computer assisted search using Medline search systems from the last search (January 2000). Randomised controlled trials and systematic reviews were screened to identify references not contained in the main search. The MeSH headings and textwords of osteoarthritis or arthritis and knee (MeSH), exercise or physical training (textword) were used.

<table>
<thead>
<tr>
<th>Study Group</th>
<th>Design</th>
<th>Intervention</th>
<th>Length</th>
<th>Duration</th>
<th>Intensity</th>
<th>Outcome</th>
<th>Evidence Level</th>
<th>Outcome Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas</td>
<td>RCT</td>
<td>Theraband strength</td>
<td>24 months with 8 home visits</td>
<td>24 months</td>
<td>Not addressed</td>
<td>WOMAC</td>
<td>Intent to treat, blinded assessor</td>
<td></td>
</tr>
<tr>
<td>Topp</td>
<td>RCT</td>
<td>Isometric and dynamic strengthening</td>
<td>16 weeks</td>
<td>16 weeks</td>
<td>1-3 times per week supervised</td>
<td>WOMAC</td>
<td>Uncertain blinding</td>
<td></td>
</tr>
<tr>
<td>Fransen</td>
<td>RCT</td>
<td>Resistance and aerobic exercise</td>
<td>8 weeks</td>
<td>8 weeks</td>
<td>Not addressed</td>
<td>WOMAC</td>
<td>Intent to treat, unblended assessor</td>
<td></td>
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<tr>
<td>Baker</td>
<td>RCT</td>
<td>Strengthening</td>
<td>16 weeks</td>
<td>16 weeks</td>
<td>12 home visits</td>
<td>WOMAC</td>
<td>Intent to treat, unblended assessor</td>
<td></td>
</tr>
<tr>
<td>Kuptniratsaikul</td>
<td>Cluster randomization</td>
<td>Resistance</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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</tr>
</tbody>
</table>

References:

**Patient type**
No new information regarding patient type—still best evidence for patients with mild to moderate osteoarthritis. No evidence on severe osteoarthritis and no data for prevention of osteoarthritis.

**Exercise type**
More studies have now established resistance exercise as an important consideration in addition to aerobic. Further, intensity of exercise intensity has been addressed and has been found that there is no difference between high or low intensity in patient outcomes. Finally, the importance of utilizing the primary care and home environment has been addressed in large, long-term studies establishing encouraging effect sizes. Interestingly, using allied staff including physiotherapists may not be important while using patient prompters including pedometers can increase overall activity levels among patients with knee osteoarthritis as has been observed in other patient groups.

**Effect size**
Effect sizes for exercise was comparable regardless of setting (ie home, exercise facility or individual therapy) and ranged from 0.39-0.27.

**Key findings**
No new studies have suggested a change in exercise recommendations for mild/moderate osteoarthritis as set out in the recent EULAR Recommendations 2003. More studies support this recommendation. Some studies continue to use non-standardized outcomes making comparisons difficult. In a recent Cochrane Review of exercise recommendations for hip and knee osteoarthritis, no new evidence was found from the publication of the authors’ last review of this topic. Indeed, of 17 studies meeting methodological criteria for their inclusion, only one study by Petrella and Bartha (2000) was observed to have attained a maximum score of 5/5 for methodological quality. This supports the ongoing need for
attention for methodological rigour among investigators in osteoarthritis of the knee.