

**Introduction**

Patients with symptomatic hip and knee OA may benefit from referral to a physical therapist for evaluation and instruction in appropriate exercises to reduce pain and improve functional capacity. This evaluation may result in provision of assistive devices as appropriate. Referral to a physical therapist was strongly recommended by 100% of the expert panel and 5/5 existing guidelines where referral to physiotherapy was considered. SOR: 89% (95% CI 82-96) (Zhang, et al., 2007)

The bold letter to the left of the heading represents the strength of the evidence presented. A table at the bottom of this document identifies the definition of this letter.

**B Diagnosis**

Recent recommendations suggest the following findings improve the likelihood of a patient presenting with knee OA: Persistent knee pain (+LR 1.67), Morning stiffness (+ LR1.84), Impaired function (+LR 1.50), Crepitus (+LR 2.23), Restricted movement (+LR 4.4), and Bony Enlargement (+LR 11.81). The likelihood of knee OA diagnosis increases with the clustering of these 6 signs and symptoms. (Zhang W., 2010)

**B Prognosis**

There is moderate evidence that basic clinical findings can aide clinicians predicting the likelihood of knee OA progression. The following factors have strong evidence for knee OA progression: older age, presence of OA in multiple joints, and varus deformity measured via radiograph. Higher BMI is a strong predictor of knee OA progression over time (> 3 years). Physical activity or moderate participation in sports is not significantly associated with knee OA progression (strong evidence). (Chapple & Nicholson, 2011)

**A Interventions - Therapeutic Exercise**

There is strong evidence that both strengthening and aerobic exercise can reduce pain and improve function in patients with knee OA (Jamtvedt, Dahm, Christie, Moe, Holm, & Hagen, 2008) (Ottowa, 2005) (Zhang, et al., 2007). To be effective, exercise programs should include advice and education to promote a positive lifestyle change with an increase in physical activity (Roddy, et al., 2005). There is high quality evidence for the use of exercise and weight reduction to reduce pain and improve function in patients with knee OA (Jamtvedt, Dahm, Christie, Moe, Holm, & Hagen, 2008) (Zhang, et al., 2007)

**B Interventions - Manual Therapy**

Clinicians should consider using manual therapy interventions for the knee to improve pain and function. There is moderate evidence to support the use of a multimodal approach to management of knee OA for improving pain and function (WOMAC scores). Combining manual therapy interventions to the knees, hips, lumbar spine, and ankle/foot with exercise is effective for reducing pain in the short and long term. There is weak evidence for the use of manual therapy alone for the treatment of knee OA. (Currier, J, Carrow, & al., 2007), (Deyle, Henderson, & Matekel, Effectiveness of Manual Physical Therapy and Exercise in Osteoarthritis of the Knee: A Randomized, Controlled Trial, 2000), (Deyle,
Interventions- Electrical Stimulation
There is weak evidence to support the use of transcutaneous electrical nerve stimulation (TENS) for pain relief in patients with knee OA. Systematic reviews indicate TENS has demonstrated short term (< 4 weeks) pain relief as measured by visual analogue scale. There is moderate evidence to support the use of TENS for short-term and long-term pain relief, with high-intensity burst modes and AL-TENS being the most effective. Therapists should consider there is limited evidence for the long term benefit of TENS and pain relief and improved function for knee OA. (Philadelphia, 2001) (Fitzgerald & Oatis, 2004) (Jamtveld, Dahm, Christie, Moe, Holm, & Hagen, 2008) (Bjordal & Johnson, 2007) (Zhang, et al., 2007)

Interventions- Ultrasound
There is conflicting evidence regarding the benefits of ultrasound (US) for the management of patients with knee OA. Therapists must consider this conflicting evidence, low powered studies, and lack of evidence for long term benefit when considering use of US for knee OA patients. The use of ultrasound therapy has been found to be effective for decreasing pain in patients with knee OA in the short term (2-4 weeks). Pulsed US appears to be the most effective form of delivery for short term pain relief. (Loyola-Sanchez, Richardson, & MacIntyre, 2010) (Tascioglu & Kuzgun, 2010) (Rutjes & Neusch, 2010) (Philadelphia, 2001)

Interventions- Bracing
Clinicians may consider using bracing interventions for the knee to improve pain and function. There is weak evidence to support the use of bracing for knee OA for improving pain and function. (Brouwer, Van Raaij, Raja, Warden, Pollo)

Interventions- Insoles
Clinicians may consider using wedged insole interventions for the knee to improve pain and function. There are conflicting results from well-designed studies in the literature. The studies examined medially wedged insoles for management of valgus deformity and laterally wedged insoles with subtalar strapping for management of varus deformity. (Baker, Brouwer, Kuroyanagi, Toda, Bennell, Raja, Van Raaij)

Interventions- Taping
Clinicians should consider using patellar taping interventions for the knee to improve pain and function. There is moderate evidence to support the use of patellar taping in patients with patellofemoral OA. The tape should medially glide and correct lateral and anterior to posterior tilt of the patella with two pieces of tape with resultant unloading of the infrapatellar fat pad. (Warden, Crossley, Hinman x2, Hunter)

The level of evidence and strength of the recommendation used to support this guideline is based on the guidelines developed by Guyatt et al. (Guyatt, Rennie, Meade, & Cook, 2008) The strength of evidence system used has also been used in clinical practice guidelines developed for physical therapy practice for neck pain (Childs, Cleland, & Elliot, 2008). Table 1 below defines the level of evidence and Table 2 the strength of evidence for each guideline.
Table 1: Level of Evidence

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>I</td>
<td>Evidence obtained from high-quality randomized controlled trials, prospective studies, or diagnostic studies</td>
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<tr>
<td>II</td>
<td>Evidence obtained from lesser-quality randomized controlled trials, prospective studies, or diagnostic studies (e.g., improper randomization, no blinding, &lt; 80% follow-up)</td>
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<tr>
<td>III</td>
<td>Case controlled studies or retrospective studies</td>
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<tr>
<td>IV</td>
<td>Case series</td>
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<tr>
<td>V</td>
<td>Expert opinion</td>
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Table 2: Strength of Evidence

<table>
<thead>
<tr>
<th>Grades of Recommendation</th>
<th>Strength of Evidence</th>
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<tbody>
<tr>
<td>A</td>
<td>Strong evidence: A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study</td>
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<tr>
<td>B</td>
<td>Moderate evidence: A single high-quality randomized controlled trial or a preponderance of level II studies support the recommendation</td>
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<tr>
<td>C</td>
<td>Weak evidence: A single level II study or a preponderance of level III and IV studies including statements of consensus by content experts support the recommendation</td>
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<tr>
<td>D</td>
<td>Conflicting evidence: Higher-quality studies conducted on this topic disagree with respect to their conclusions. The recommendation is based on these conflicting studies</td>
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<tr>
<td>E</td>
<td>Theoretical/foundational evidence: A preponderance of evidence from animal or cadaver studies, from conceptual models/principles, or from basic sciences/bench research support this conclusion</td>
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<tr>
<td>F</td>
<td>Expert opinion: Best practice based on the clinical experience of the guideline development team</td>
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APPROVAL:

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SMF Medical Director

March 14, 2012
Date

Approval/Revision Summary:

SMF QM/UM Committee Date: 03/14/2012
SPA Steering Committee Date: FYI Only
Works Cited


**Works Cited For Bracing, Taping, and Insoles**


