**Appendix Table F13. Strength of evidence of differences in outcomes with physical therapy interventions for adults with knee OA**

| **Physical therapy interventions** | **Outcomes** | **Author, year** | **Studies, subjects** | **Risk of bias** | **Directness** | **Consistency** | **Statistical heterogeneity** | **Precision** | **Strength of the association** | **Evidence** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Diathermy | Disability<6 weeks | Callaghan, 2005175Fukuda, 2011205Laufer, 2005242Akyol, 2010155 | Studies: 4; Subjects: 259 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Disability6-13 weeks | Laufer, 2005242Akyol, 2010 155 | Studies: 2; Subjects: 143 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Pain<6 weeks | Callaghan, 2005 175Fukuda, 2011 205Laufer, 2005242Akyol, 2010155 | Studies: 4; Subjects: 259 | High | Direct | Inconsistent | Yes | Imprecise | Moderate | Low |
| Diathermy | Pain6-13 weeks | Cetin, 2008178Laufer, 2005242Akyol, 2010155 | Studies: 3; Subjects: 183 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Function composite< 6 weeks | Fukuda, 2011205Laufer, 2005242Akyol, 2010155 | Studies: 3; Subjects: 229 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Diathermy | Function composite6-13 weeks | Cetin, 2008178Laufer, 2005242Akyol, 2010155 | Studies: 3; Subjects: 183 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Function joint < 6 weeks | Laufer, 2005242Akyol, 2010155 | Studies: 2; Subjects: 143 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Function joint 6-13 weeks | Laufer, 2005242Akyol, 2010155 | Studies: 2; Subjects: 143 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Gait function < 6 weeks | Callaghan, 2005175Laufer, 2005242Akyol, 2010155 | Studies: 3; Subjects: 173 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Diathermy | Gait function 6-13 weeks | Cetin, 2008178Laufer, 2005242Akyol, 2010155 | Studies: 3; Subjects: 183 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Estim vs. exercise | Pain < 6 weeks | Cheing, 2002181Durmus, 2007193 | Studies: 2; Subjects: 81 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Estim vs. exercise | Gait function < 6 weeks | Cheing, 2004182Durmus, 2007193 | Studies: 2; Subjects: 81 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Ed | Pain 6-13 weeks | Shakoor, 2007288Keefe, 2004233Farr, 201010 | Studies: 3; Subjects: 429 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Ed | Pain >26 weeks | Farr, 201010Messier, 2004330 | Studies: 2; Subjects: 511 | High | Direct | Consistent | No | Precise | NA | Low |
| Exercise proprioception | Pain 6-13 weeks | Weng, 2009319 Lin, 2009247 Tsauo, 2008313 | Studies: 3; Subjects: 198 | High | Direct | Inconsistent | Yes | Imprecise | Moderate | Low |
| Exercise proprioception | Function composite 6-13 weeks | Weng, 2009319 Lin, 2009247 Tsauo, 2008313 | Studies: 3; Subjects: 198 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise proprioception | Gait function 6-13 weeks | Jan, 2008228 Lin, 2009247 Tsauo, 2008313 | Studies: 3; Subjects: 181 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Orthotics | Gait function < 6 weeks | Hinman, 2009218 Maly, 2002253 Kerrigan, 2002234 Kuroyanagi, 2007241 | Studies: 4; Subjects: 101 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Orthotics | Function composite < 6 weeks | Toda, 2005303 Bar-Ziv, 2010163 | Studies: 2; Subjects: 138 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Elastic subtalar strapping | Function composite 6-13 weeks | Toda, 2001304 Toda, 2004307 Toda, 2008305 | Studies: 3; Subjects: 246 | High | Direct | Consistent | No | Imprecise | Small | Low |
| Massage | Function composite 6-13 weeks | Yip, 2008325 Ko, 2009236 | Studies: 2; Subjects: 94 | High | Direct | Consistent | No | Imprecise | Moderate | Low |
| Estim | Disability 6-13 weeks | Garland, 2007207 Selfe, 2008287 | Studies: 2; Subjects: 98 | Low | Direct | Consistent | No | Imprecise | NA | Moderate |
| Estim | Pain < 6 weeks | Taylor, 1981297 Law, 2004243 Cheing, 2002181 Selfe, 2008287 Itoh, 2008224 Pietrosimone, 2009276 Grimmer, 1992211 | Studies: 7; Subjects: 301 | High | Direct | Consistent | No | Imprecise | Moderate | Low |
| Estim | Pain 6-13 weeks | Cheing, 2002181 Cetin, 2008178 Itoh, 2008224 Gaines, 2004206 Garland, 2007207 Selfe, 2008287 Talbot, 2003295 | Studies: 7; Subjects: 304 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Estim | Pain 13-26 weeks | Gaines, 2004206 Talbot, 2003295 | Studies: 2; Subjects: 76 | High | Direct | Consistent | No | Imprecise | Moderate | Low |
| Estim | Global assessment 6-13 weeks | Selfe, 2008287 Garland, 2007207 | Studies: 2; Subjects: 98 | Low | Direct | Consistent | No | Imprecise | Small | Low |
| Estim | Function composite 6-13 weeks | Cetin, 2008178 Garland, 2007207 Selfe, 2008287 | Studies: 3; Subjects: 138 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Estim | Function joint < 6 weeks | Selfe, 2008287 Grimmer, 1992211 | Studies: 2; Subjects: 100 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Estim | Function joint 6-13 weeks | Garland, 2007207 Selfe, 2008287 | Studies: 2; Subjects: 98 | Low | Direct | Consistent | No | Imprecise | NA | Moderate |
| Estim | Gait function < 6 weeks | Yurtkuran, 1999327 Cheing, 2004182 Law, 2004244 Pietrosimone, 2010277 | Studies: 4; Subjects: 191 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Estim | Gait function 6-13 weeks | Cetin, 2008178 Cheing, 2004182 Talbot, 2003295 | Studies: 3; Subjects: 164 | High | Direct | Consistent | No | Imprecise | NA | Low |
| Estim | Strength 120 degree extension 6-13 weeks | Cetin, 2008178 Talbot, 2003295 | Studies: 2; Subjects: 118 | Medium | Direct | Inconsistent | No | Imprecise | NA | Low |
| Estim | Strength 60 degree extension 6-13 weeks | Cetin, 2008178 Cheing, 2004182 | Studies: 2; Subjects: 146 | High | Direct | Consistent | No | Imprecise | Moderate | Low |
| Exercise aerobic | Disability < 6 weeks | Deyle, 2000189 Aglamis, 2008154 | Studies: 2; Subjects: 117 | High | Direct | Inconsistent | Yes | Imprecise | Large | Low |
| Exercise aerobic | Disability 6-13 weeks | Yip, 2007324 Yip, 2008326 Kovar, 1992238 Deyle, 2000189 Bautch, 1997165 Peloquin, 1999274 Keefe, 2004233 Aglamis, 2008154 | Studies: 8; Subjects: 739 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise aerobic | Disability 13-26 weeks | Yip, 2007324 Yip, 2008326 | Studies: 32 Subjects: 277 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| exercise aerobic | Disability >26 weeks | Yip, 2008326 Sullivan, 1998331 Rejeski, 2002280 Ettinger, 1997195 | Studies: 4; Subjects: 806 | High | Direct | Consistent | No | Precise | Small | Low |
| Exercise aerobic | Psychological disability 6-13 weeks | An, 2008157 Peloquin, 1999274 Keefe, 2004233 Aglamis, 2008154 | Studies: 4; Subjects: 271 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise aerobic | Pain <6 weeks | Messier, 2004330 Aglamis, 2008154 | Studies: 2; Subjects: 137 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise aerobic | Pain 6-13 weeks | Yip, 2007324 Yip, 2008326 Kovar, 1992238 An, 2008157 Messier, 1997332 Talbot, 2003294 Bautch, 1997165 Peloquin, 1999274 Keefe, 2004233 Farr, 201010 Hay, 2006214 Aglamis, 2008154 | Studies: 12; Subjects: 1242 | High | Direct | Inconsistent | Yes | Precise | Small | Low |
| Exercise aerobic | Pain 13-26 weeks | Yip, 2007324 Yip, 2008326 Talbot, 2003294 Messier, 2004330 Messier, 1997332 Hay, 2006214 | Studies: 6; Subjects: 953 | High | Direct | Consistent | No | Precise | NA | Low |
| Exercise aerobic | Pain >26 weeks | Ettinger, 1997195 Farr, 201010 Yip, 2008326 Hay, 2006214 Sullivan, 1998331 Messier, 2004330 | Studies: 6; Subjects: 1221 | High | Direct | Consistent | No | Precise | Small | Low |
| Exercise aerobic | Function composite 6-13 weeks | Jan, 2009226 An, 2008157 Hay, 2006214 | Studies: 3; Subjects: 351 | Medium | Direct | Inconsistent | Yes | Imprecise | Large | Low |
| Exercise aerobic | Function composite >26 weeks | Hay, 2006214 Messier, 2004330 Ettinger, 1997195 | Studies: 3; Subjects: 826 | Medium | Direct | Inconsistent | Yes | Precise | NA | Low |
| Exercise aerobic | Gait function < 6 weeks | Messier, 1997332 Deyle, 2000189 Aglamis, 2008154 | Studies: 3; Subjects: 220 | High | Direct | Consistent | No | Imprecise | Small | Low |
| Exercise aerobic | Gait function 6-13 weeks | Peterson, 1993333 Jan, 2009226 An, 2008157 Deyle, 2000189 Messier, 1997332 Talbot, 2003294 Peloquin, 1999274 Aglamis, 2008154 | Studies: 8; Subjects: 632 | High | Direct | Consistent | No | Precise | Moderate | Low |
| Exercise aerobic | Gait function13-26 weeks | Messier, 1997332 Talbot, 2003294 Messier, 2004330 | Studies: 3; Subjects: 459 | High | Direct | Consistent | No | Precise | Small | Low |
| Exercise aerobic | Gait function >26 weeks | Focht, 2005334 Ettinger, 1997195 | Studies: 2; Subjects: 609 | Medium | Direct | Consistent | No | Precise | Moderate | Low |
| Exercise aerobic | Health perception 6-13 weeks | An, 2008157 Aglamis, 2008154 | Studies: 2; Subjects: 62 | High | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise aerobic | Health perception >26 weeks | Sullivan, 1998331 Yip, 2008326 Rejeski, 2002280 | Studies: 3; Subjects: 513 | High | Direct | Consistent | No | Precise | NA | Low |
| Exercise aquatic  | Disability 6-13 weeks | Rooks, 2006283 Lund, 2008250 | Studies: 2; Subjects: 99 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise aquatic  | Disability 13-26 weeks | Patrick, 2001273 Lund, 2008250 | Studies: 2; Subjects: 303 | Medium | Direct | Consistent | No | Imprecise | Small | Low |
| Exercise aquatic  | Pain 6-13 weeks | Rooks, 2006283 Lund, 2008250 | Studies: 2; Subjects: 99 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise aquatic  | Pain 13-26 weeks | Patrick, 2001273 Lund, 2008250 | Studies: 2; Subjects: 303 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise aquatic  | QL 13-26 weeks | Patrick, 2001273 Lund, 2008250 | Studies: 2; Subjects: 303 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise aquatic  | Function composite 6-13 weeks | Rooks, 2006283 Lund, 2008250 | Studies: 2; Subjects: 99 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise strength | Disability 6-13 weeks | Schilke, 1996285 Kuptniratsaikul, 2002240 Doi, 2008192 Lund, 2008250 | Studies: 4; Subjects: 606 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Exercise strength | Disability 13-26 weeks | Baker, 2001160 Lund, 2008250 Kuptniratsaikul, 2002240 | Studies: 3; Subjects: 490 | Medium | Direct | Consistent | No | Precise | Small | Low |
| Exercise strength | Disability >26 weeks | Kuptniratsaikul, 2002240 Ettinger, 1997195 | Studies: 2; Subjects: 687 | Medium | Direct | Inconsistent | Yes | Precise | NA | Low |
| Exercise strength | Pain 6-13 weeks | Swank, 2011293 Schilke, 1996285 Kuptniratsaikul, 2002240 Gur, 2002212 Jan, 2008227 Cheing, 2002181 Weng, 2009319 Doi, 2008192 Lin, 2009247 Lund, 2008250 Borjesson, 1996170 Lim, 200820 Bennell,167 | Studies: 13; Subjects: 1404 | High | Direct | Inconsistent | Yes | Precise | Moderate | Low |
| Exercise strength | Pain 13-26 weeks | Baker, 2001160 Topp, 2002310 Lund, 2008250 Kuptniratsaikul, 2002240 | Studies: 4; Subjects: 592 | Medium | Direct | Consistent | No | Precise | Small | Low |
| Exercise strength | Pain >26 weeks | Ettinger, 1997195 Kuptniratsaikul, 2002240 Weng, 2009319 | Studies: 3; Subjects: 786 | Medium | Direct | Inconsistent | Yes | Precise | Moderate | Low |
| Exercise strength | QL 6-13 weeks | Doi, 2008192 Lund, 2008250 | Studies: 2; Subjects: 194 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Exercise strength | Function composite 6-13 weeks | Jan, 2008227 Weng, 2009319 Lin, 2009247 Lim, 200820 Lund, 2008250 Bennell, 2010167 | Studies: 6; Subjects: 521 | Medium | Direct | Inconsistent | Yes | Precise | Large | Low |
| Exercise strength | Function composite 13-26 weeks | Baker, 2001160 Lund, 2008250 Topp, 2002310 | Studies: 3; Subjects: 200 | Medium | Direct | Consistent | No | Imprecise | Small | Low |
| Exercise strength | Function composite >26 weeks | Weng, 2009319 Ettinger, 1997195 | Studies: 2; Subjects: 394 | Medium | Direct | Inconsistent | Yes | Imprecise | Large | Low |
| Exercise strength | Gait function 6-13 weeks | Kuptniratsaikul, 2002240 Gur, 2002212 Jan, 2008227 Cheing, 2004182 Lin, 2009247 Borjesson, 1996170 Lim, 200820 Bennell,167 Swank, 2011293 | Studies: 9; Subjects: 958 | High | Direct | Inconsistent | Yes | Precise | Small | Low |
| Exercise strength | Gait function13-26 weeks | Topp, 2002310 Kuptniratsaikul, 2002240 | Studies: 2; Subjects: 494 | Medium | Direct | Consistent | No | Precise | Small | Low |
| Exercise strength | Gait function>26 weeks | Kuptniratsaikul, 2002240 Ettinger, 1997195 | Studies: 2; Subjects: 687 | Medium | Direct | Consistent | No | Precise | Small | Low |
| PEMF | Pain < 6 weeks | Ay, 2009159 Thamsborg, 2005298 | Studies: 2; Subjects: 145 | Low | Direct | Consistent | No | Imprecise | NA | Moderate |
| PEMF | Function composite < 6 weeks | Ay, 2009159 Thamsborg, 2005298 | Studies: 2; Subjects: 145 | Low | Direct | Consistent | No | Imprecise | NA | Moderate |
| Tai Chi | Disability 6-13 weeks | Lee, 2009245 Brismee, 2007171 | Studies: 2; Subjects: 85 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Tai Chi | Disability 13-26 weeks | Brismee, 2007171 Song, 2010292 | Studies: 2; Subjects: 123 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Tai Chi | Pain 6-13 weeks | Lee, 2009245 Brismee, 2007171 | Studies: 2; Subjects: 85 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Tai Chi | Function composite 6-13 weeks | Lee, 2009245 Brismee, 2007171 | Studies: 2; Subjects: 85 | Medium | Direct | Consistent | No | Imprecise | Small | Low |
| Tai Chi | Function joint 6-13 weeks | Lee, 2009245 Brismee, 2007171 | Studies: 2; Subjects: 85 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Ultrasound | Disability < 6 weeks | Tascioglu, 2010296 Ozgonenel, 2009270 | Studies: 2; Subjects: 157 | Medium | Direct | Consistent | No | Imprecise | NA | Low |
| Ultrasound | Pain < 6 weeks | Tascioglu, 2010296 Ozgonenel, 2009270 | Studies: 2; Subjects: 157 | Medium | Direct | Inconsistent | Yes | Imprecise | Moderate | Low |
| Ultrasound | Pain 6-13 weeks | Huang, 2005223 Huang, 2005222 Cetin, 2008178 | Studies: 3; Subjects: 200 | Medium | Direct | Consistent | No | Imprecise | Moderate | Low |
| Ultrasound | Pain >26 weeks | Huang, 2005223 Huang, 2005222 | Studies: 2; Subjects: 160 | Medium | Direct | Consistent | No | Imprecise | Moderate | Low |
| Ultrasound | Function composite 6-13 weeks | Huang, 2005223 Huang, 2005222 Cetin, 2008178 | Studies: 3; Subjects: 200 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Ultrasound | Function composite >26 weeks | Huang, 2005222 Huang, 2005223 | Studies: 2; Subjects: 160 | Medium | Direct | Consistent | No | Imprecise | Large | Low |
| Ultrasound | Gait function < 6 weeks | Tascioglu, 2010296 Ozgonenel, 2009270 | Studies: 2; Subjects: 157 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Ultrasound | Gait function 6-13 weeks | Huang, 2005223 Huang, 2005222 Cetin, 2008178 | Studies: 3; Subjects: 200 | Medium | Direct | Inconsistent | Yes | Imprecise | Large | Low |
| Ultrasound | Gait function >26 weeks | Huang, 2005222 Huang, 2005223 | Studies: 2; Subjects: 160 | Medium | Direct | Inconsistent | Yes | Imprecise | Large | Low |
| Exercise aquatic vs. aerobic | Pain 6-13 weeks | Lund, 2008250 Wyatt, 2001322 | Studies: 2; Subjects: 110 | Medium | Direct | Inconsistent | Yes | Imprecise | NA | Low |
| Laterally vs. neutrally wedged insole | Function composite 6-13 weeks | Maillefert, 2001252 Toda, 2008305  | Studies: 2; Subjects: 383 | Medium | Direct | Consistent | No | Imprecise | NA | Low |