

An SR and meta-analysis by Tanaka et al. (2016) compared exercise therapy to control interventions.[\[51\]](#) The review included 28 RCTs (n=2,991). The authors reported a greater benefit of exercise therapy on total distance walked at six months and on time spent walking at eight weeks. However, there was significant heterogeneity of exercise type and exercise program among the RCTs.

A key limitation of the SRs is the use of pooled estimated effects.[\[49\]](#) This method provides insight into the overall effects of exercise on pain and function but does not explain potential differences between different types of exercise programs. Thus, there was insufficient evidence to recommend any specific exercise intervention over another. There was no reported harm associated with any specific type of exercise.

Despite general consistency in the evidence supporting exercise for knee and hip OA, patient and provider preferences vary somewhat. The patient focus group expressed support for exercises under the guidance of a physical therapist and stressed the importance of receiving care in convenient settings. Barriers include the time commitment and perception among some patients that exercise will increase pain. From a provider standpoint, there may be uncertainty about making specific recommendations concerning frequency, intensity, duration, resistance, and type of exercise, as there is a wide variety of potentially suitable interventions. Patient adherence to home-based exercise programs is also a concern.[\[49\]](#)

Type of Exercise

The Work Group determined that various exercise therapy approaches are effective for the management of OA of the hip and knee. However, there was insufficient evidence to recommend one specific type of exercise therapy over any other type for the management of hip or knee OA.

Dong et al. (2018) conducted an SR of aquatic versus land-based exercise for knee OA, which included eight RCTs.[\[52\]](#) No statistically significant differences were observed between the two types of therapies in reducing pain or improving physical function, quality of life, or symptoms among adults with knee OA. An SR and meta-analysis by Beumer et al. (2016), which included 19 RCTs, indicated both land-based and water-based exercise programs were superior to a control intervention for pain relief in the short-term (<3 months) but indicated no statistically significant differences between different types of exercise therapy.[\[50\]](#)

Other RCTs compared different types of exercise therapy and found similar results. Gomiero et al. (2018) performed an RCT of 64 patients with knee OA comparing sensory-motor training to resistance training.[\[53\]](#) Both resistance training and sensory-motor training led to statistically significant reductions in pain and improved function. However, there were no statistically significant differences in pain or functional capacity between the two groups.

An RCT by Bennell et al. (2014) compared neuromuscular exercise with quadriceps strengthening among 100 patients with knee OA.[\[54\]](#) Both groups showed significant reductions in pain and improvement in physical function, but no statistically significant difference between groups on pain or physical function. Wang et al. (2016) performed an RCT of 39 patients with knee OA, which compared quadriceps strengthening exercises performed on a vibration platform (whole-body vibration) with quadriceps strengthening alone.[\[55\]](#) This study found no statistically significant differences between the groups in pain or physical function measured at 16 weeks. Another RCT, Vincent et al. (2019), compared eccentric