

11. SWACSM Abstract

Quality of Knee Strengthening Exercises Performed at Home Deteriorates After One Week

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ABSTRACT

Current clinical practice guidelines for physical therapy (PT) post-total knee arthroplasty (TKA) recommend supervised postoperative PT; this recommendation is based on research demonstrating that more direct supervision from a physical therapist yields improved mobility, balance, and overall quality-of-life, relative to less supervision. Supervised post-operative PT is not always feasible due to non-availability of a licensed physical therapist, lack of health insurance, and/or other factors. Consequently, patients often perform post-TKA PT exercises without supervision. **PURPOSE:** To compare the quality (determined via the ability to replicate lower extremity kinematics recommended by a physical therapist) of post-TKA PT exercises in healthy older adults (1) immediately after instruction from a physical therapist and (2) one week later, without feedback from or supervision of a licensed physical therapist. **METHODS:** 19 participants (age [y] 63.1 ± 8.6 , mass [kg] 76 ± 15 , height [m] 1.7 ± 0.1) performed four post-TKA exercises on two different days, seven days apart. The first day involved direct supervision from a physical therapist, and the second day did not. The exercises were knee flexion, straight leg raise, "V" in supine position, and hip abduction in side lying position. High-speed videography was used to track 3D lower-extremity joint angles for all exercises on both days. The therapist observed and, when necessary, corrected the exercises during the first day. A repeated measures t-test was used to compare joint kinematics between visits. **RESULTS:** Participants exhibited 4° and 5° more knee flexion during straight leg raise ($p < 0.01$) and "V in" ($p = 0.00$) exercises on the second day, respectively, relative to the first day. Also, during the "V in" exercise, participants exhibited 34° more internal rotation ($p < 0.01$), and 29° less ($p < 0.01$) internal rotation during the "V out" exercise on the second day relative to the first day. **CONCLUSION:** One-time direct supervision from a physical therapist is not enough to ensure proper performance of PT exercises, post-TKA, seven days later, without the direct supervision of a licensed physical therapist. Other methods need to be explored with the intent of improving performance of post-TKA PT performed without direct supervision of a physical therapist.