

RESEARCH REPORT POSTER DISPLAY**Number: 14-01****Physiotherapy 2007;93(S1):S443****Tuesday 5 June 14:00
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REPOSITION ACCURACY AND COORDINATION OF THE LOWER EXTREMITY IN SUBJECTS WITH KNEE OSTEOARTHRITIS. Wang T^{1,2}, He H¹, Shih Y¹, Chen W^{1,2}, Yen L²; ¹Faculty of Physical Therapy, National Yang-Ming University, Taipei, Taiwan. ²Department of Rehabilitation Medicine, Cheng-Hsin Rehabilitation Medical Center, Taipei, Taiwan

PURPOSE: The purposes of this study were 1) to compare the lower extremity (LE) proprioception and coordination between subjects with knee osteoarthritis (OA) and their matched controls; 2) to determine the relationships between the LE proprioception and coordination and their related factors; 3) to determine the relationships between the LE proprioception, coordination and physical function. **RELEVANCE:** Although proprioceptive and coordination training become more popular when treating subjects with knee OA, there have been few clinical methods to evaluate the neuromuscular control ability of the entire lower limb. In addition, the factors which affect the proprioception and coordination of the entire LE are not clear. **PARTICIPANTS:** Forty-two participants (7 males, 35 females; mean age=61.76±8.24 yrs) with knee OA and 42 age- and gender-matched healthy volunteers (7 males, 35 females; mean age=61.62±10.81 yrs) participated in this study. **METHODS:** After an initial evaluation, all subjects were tested by the Functional Squat System (Monitored Rehab System B.V., 2031 CW Haarlem, The Netherlands) for quantifying their LE proprioception and coordination. Pain was recorded using a numerical rating scale during each test for subjects with knee OA. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) disability score was also obtained for the OA group. Five times sit-to-stand test, timed up and go test, and nine-step stair climbing and descending test were used to assess the physical function for both groups. **ANALYSIS:** Two-way mixed ANOVAs with pairwise comparisons were used to determine the between- and within-group differences in all study parameters. Stepwise multiple regressions were used to explore the relationships between the related factors and the LE proprioception or coordination parameters. Pearson's correlation coefficients were used to determine the relationships between LE proprioception or coordination parameters and physical function. The level of statistical significance for each test was set at $\alpha < 0.05$. **RESULTS:** Results of this study showed that subjects with knee OA demonstrated decreased coordination than their matched controls both in the affected and unaffected limbs, but no statistical differences were found between the affected and unaffected limbs in the knee OA group. However, the LE proprioceptive reposition accuracy was not significantly different between the patient and the control groups. There were no significant differences in all LE proprioceptive testing parameters for either leg in the knee OA group. Resistance, testing limb position, stair climbing and descending activity, knee range of motion, body mass index, and exercise habit were found to be significant factors related to the LE proprioception of patients with knee OA. Resistance, movement phase, age, BMI, exercise habit, radiographic status, knee range of motion, and disability score were found to be significant factors related to the coordination in subjects with knee OA. Physical function tests were found to be associated with the LE coordination parameters in the control group. **CONCLUSIONS:** Using this testing equipment, we found subjects with knee OA exhibited motor control deficits both in their affected and unaffected limbs. **IMPLICATIONS:** Rehabilitation program for knee OA should include neuromuscular control training for increasing the LE proprioception and coordination in both the affected and unaffected legs. **KEYWORDS:** proprioception, coordination, knee osteoarthritis, testing. **FUNDING ACKNOWLEDGEMENTS:** The work was supported by a grant from the National Science Council, the Executive Yuan, Taiwan (NSC93-2213-E-010-012). **CONTACT:** tjwang@ym.edu.tw

ETHICS COMMITTEE: Institutional Review Board, Cheng-Hsin Rehabilitation Medical Center, Taipei, Taiwan