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NARAT PICHAIYONGVONGDEE: COMPARISON OF STANDING BALANCE PERFORMANCE, PROPRIOCEPTION AND MUSCLE STRENGTH BETWEEN WOMEN WITH AND WITHOUT SYMPTOMATIC KNEE OSTEOARTHRITIS. THESIS ADVISORS: CHANUT AKAMANON, B.Sc., M.A., PREECHA RUGPOLMUANG, MD., JITHVAREE KHAMDEJ, B.Sc., M.Sc. (PHYSIOTHERAPY). 178p. ISBN 974-664-726-1.

Osteoarthritis (OA), a joint disease affecting articular cartilage and soft tissue, is frequently found at the knee joint of Thai adults. It was uncertain whether proprioceptive deficits and weakness of knee muscles coexisted with poor standing balance in OA patients. The purpose of this study was to compare balance control ability as measured by the SMART Balance Master System, knee proprioceptive sense and muscle strength of knee flexor and extensor groups between females with and without symptomatic knee osteoarthritis, aged range 40-60 years. Percentage of maximum stability and sway velocity from Sensory Organization Test (SOT), sway velocity from the center target test, on-axis velocity and directional control from rhythmic weight shift left/right and measured variables from the limits of stability test, error angle from the proprioception test and knee muscle strength values were compared between these two groups. Results of balance test revealed statistically significant differences ($p<0.05$) between these two groups on the percentage of maximum stability on an eyes closed condition and the sway velocity on eyes closed with sway-referenced support surface condition of SOT. For rhythmic weight shift left/right and limits of stability tests, significant differences were found only in the on-axis velocity of the fast speed pacing and reaction time to the right-back target, respectively. Results of proprioceptive and muscle strength tests revealed significant differences ($p<0.05$) on the error angle at 60 degrees of knee flexion, and knee flexor and extensor muscles, respectively. From these results, it was probable that proprioceptive deficits and weakness of knee muscles could lead to poorer balance control in the OA group when compared with the controls. It is recommended that physical therapists should be aware of these impairments and provide appropriate assessment and treatment accordingly.