

THE EFFECT OF KNEE PAIN AND KNEE OSTEOARTHRITIS ON BALANCE AND FUNCTION

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PURPOSE: To assess the relative impact of knee osteoarthritis and knee pain on balance and function in adults over 55 years. **RELEVANCE:** Measures of Balance (postural sway)¹ and physical function² have been shown to deteriorate in subjects with symptomatic knee OA. However the relative influence of pain and radiographic changes on these measures has yet to be established. **SUBJECTS:** 142 community subjects were purposively recruited and assigned to one of four groups based on the presence or absence of radiographic OA and knee pain. **METHODS:** Radiographic changes were scored using the Kellgren & Lawrence system and pain was assessed by two verbal questions taken from the NHANES (National Health and Nutrition Examination Survey) and a visual analogue scale. Postural sway was measured using the Balance Performance Monitor in bipedal standing under two conditions (eyes open and closed). Function was assessed using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). **ANALYSIS:** Non-parametric tests (Kruskal Wallis and Mann Whitney-U) were used to assess differences in Postural Sway and WOMAC scores between groups. Correlations between the two measures were calculated using the Spearman's rho non-parametric test. **RESULTS:** No significant differences in postural sway were found between the four groups. Significant differences in function were found between all groups. Subjects with knee pain, regardless of the presence of structural changes had significantly greater disability than normal subjects and subjects with structural changes without pain. Increased disability in subjects with knee pain was associated with increased measures of postural sway ($r = 0.39, p < 0.01$). **DISCUSSION:** The presence of knee pain has a greater influence than the presence of structural changes in determining the functional ability in older adults. As with previous studies there were indications of reduced balance in subjects with knee OA compared to normal subjects. However the data collected by the BPM did not consistently reveal a significant difference between the four subjects groups and was therefore unable to determine whether structural changes or knee pain had a greater influence on postural sway. Perhaps more precise tools would reveal the exact nature of the relationships.

References

1. Hassan B.S., Mockett S., Doherty M. (2001) Static postural sway, proprioception and maximal voluntary contraction in patients with knee osteoarthritis and normal control subjects. *Annals of the Rheumatic Diseases*, 6(6): 612-8.
2. Miller, M. E., Rejeski, W. J., Messier, S. P., Loeser, R. F. (2001) Modifiers of change in physical functioning in older adults with knee pain: the Observational Arthritis Study in Seniors (OASIS). *Arthritis & Rheumatism* 45(4): 313-9