**An investigation into the effect of lower limb exercise programme on objectively measured physical activity in individuals with knee osteoarthritis.**

Jimmy Molyneux¹, Lee Herrington², Alex Clarke-Cornwell², Richard Jones²

¹Bridgewater Community Foundation National Health Trust, ²University Of Salford

Osteoarthritis (OA) is one of the leading causes of pain and disability. Exercise has been recommended as a core treatment for OA. Previous studies have shown that adults with symptomatic knee OA take between 4000-6700 steps per day, which is less than the recommended 7000 steps a day for developing and maintaining function. Therefore, the purpose of this study was to investigate whether an exercise programme changed activity atttributes such as length of time walking, standing, stepping, sitting, energy expenditure, and transitions, in individuals diagnosed with knee OA. Individuals radiologically and clinically diagnosed (American College of Rheumatology (ARC)) with knee OA were recruited to the study. Participants completed an 8-session lower limb exercise programme over a 4-week period. Activity data were collected using an activPAL activity monitor for 7 days at baseline and again 6-weeks after the programme. Measurements included sitting time, standing time, walking time, stepping, energy expenditure and transitions. Data were analysed using paired sample t-tests. Forty-three participants (24 female; 19 male) completed the programme with a mean age of 64.36 (SD 8.92) years (14 kellgren-lawrence (KL) grade 2; 14 KL grade 3; 10 KL grade 4 and 5 ARC criteria). Walking times significantly increased on average from 8.1 hours, (SD 2.6) to 8.7 hours (SD 3), (p=0.03). Stepping time significantly increased on average from 37457, (SD 14505) to 40834, (SD 16299), (p=0.03). Consequently, the average steps per day increased from 7491 to 8166. Energy expenditure significantly increased on average from 166.5 hours, (SD 8.6) to 169.5 hours, (SD 7.4), (p=0.03). Significant results were only seen during weekdays, not at weekends. Our clinically significant findings demonstrate that a lower limb exercise programme increases objectively measured physical activity attributes and mobility in OA patients, therefore having a greater impact on developing and maintaining function.