

## THE RELATIONSHIP BETWEEN ACTIVITY BEHAVIOUR AND BLADDER DYSFUNCTION AMONG OLDER ADULTS.

### Hypothesis / aims of study

Urinary incontinence (UI) and other urinary symptoms are common and impact on daily life. Different studies have shown contradictory results on the association between physical activity behaviour and lower urinary tract symptoms (LUTS). There however seems to be a trend in some studies towards less severe urinary symptoms being associated with walking and moderate physical activity. Other studies have shown no association between physical activity and urinary symptoms. Therefore the relationship between activity behaviour and bladder dysfunction needs to be further determined.

Our aim was to investigate relationships between objectively measured physical activity/inactivity behaviour in older adults with different forms of bladder dysfunction. These included UI, urgency urinary incontinence (UUI), stress urinary incontinence (SUI) and the lower urinary tract symptom of nocturia.

### Study design, materials and methods

The study analysed cross-sectional data from the American National Health And Nutrition Examination Survey (NHANES) database cycle 2005-2006. We included male and female participants aged 60 and above. Urinary symptoms were assessed using self-reported questionnaires. Physical activity and inactivity behaviour were measured objectively with a physical activity monitor (PAM) which participants were asked to wear on the hip during waking hours for seven days. Those who wore it for 5 days or more were included. Since the PAM was not waterproof, swimming and other watersport activities were not measured. In this first phase of data analysis the activity behaviour was divided into three categories: sedentary behaviour (physical inactivity), low intensity physical activity (LIPA) and moderate and vigorous physical activity (MVPA). Independent t-tests were performed to investigate the relationship between objectively measured physical activity/inactivity behaviour and self-reported UI, UUI and SUI and also nocturia. Analyses were completed using IBM SPSS, version 23.

### Results

A total of 10,348 people participated in the NHANES cycle of 2005-2006. Excluding people under 60, those with missing urinary symptom questionnaires, participants who had not worn a PAM or where invalid data had been obtained, resulted in complete data for a total of 959 participants: 51.8% were male and 48.2% female. The mean age of the participants was 71.2 years. The distribution of racial ethnicity was as follows; 61.5 % non-hispanic white, 15.5% mexican american, 19.4 % non-hispanic black, 1.7% other hispanic and other race (including multi racial) was 1.9 %. Urinary incontinence (urine leakage a few times a week or more) was reported by 22.3 % of the participants. Nocturia (getting up one time or more during the night to urinate) was experienced by 80.5 %. Urgency UI (leakage before reaching the toilet) was reported by 31.7 %. Stress UI (leakage during physical activities) was reported by 28.2% of the participants.

Independent t-tests showed there was no relationship between UI overall and amount of time spent in any category of physical activity, however the amount of physical inactivity was approaching statistical significance ( $t = -1.789$ ,  $df = 954$ ,  $P = 0.074$ ). When different types of UI were analysed, there was a significant difference between the amount of moderate to vigorous exercise objectively measured and those reporting UUI ( $t = -2.587$ ,  $df = 761$ ,  $P = 0.010$ ) as well as SUI ( $t = -2.895$ ,  $df = 581$ ,  $P = 0.004$ ). There was no association between physical inactivity/activity and nocturia.

### Interpretation of results

Earlier studies have suggested physical activity is correlated with reduced prevalence of urinary incontinence. No studies have been reported where physical activity and physical inactivity have been objectively measured by a PAM and previous studies have relied on self-reported physical activity behaviour, known to be an inaccurate source of data. Our results confirm that among older adults a higher percentage of the waking day spent in moderate and vigorous physical activity is associated with less reported urgency urinary incontinence and stress urinary incontinence overall.

### Concluding message

Evidence from a large dataset of older adults with bladder dysfunction suggests increased moderate to vigorous physical activity is associated with reduced urgency urinary incontinence and stress urinary incontinence.

### Disclosures

**Funding:** NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** Information was acquired from already ethically approved database. **Helsinki:** Yes **Informed Consent:** Yes