

Physical Activity Patterns in Men and Women Within the First Six Months Following Anterior Cruciate Ligament Reconstruction

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BACKGROUND

- Physical activity (PA) is integral to better knee joint health and quality of life for individuals that have undergone anterior cruciate ligament reconstruction (ACLR)
- ACLR is linked to osteoarthritis and recurrent knee injury¹
- Individuals with symptoms post-ACLR who spent more time in moderate to vigorous physical activity (MVPA) reported higher quality of life²
- Females about 1-year post-ACLR have lower odds of meeting national PA guidelines as compared to healthy women – a finding not shared by men post-ACLR³
- Since PA is linked to better outcomes in recovery post-ACLR, and females who have undergone ACLR are less likely to meet national PA guidelines, it is important to understand if difference occurs during rehabilitation to aid in sex-specific intervention development

PURPOSE

To determine the behavioral activity patterns developed during the first 6-month period post-ACLR between men and women.

METHODS

- Enrollment Criteria: primary ACLR with bone patellar tendon bone or quadriceps autografts
- Participants wore an ActiGraph GT9X Link accelerometer on their hip for 7 days (Valid Wear = at least 4 days total, 1 weekend day, 600 min. per day)
 - Wear time Validation: Choi et al.⁴
 - Cut Point Definition: Troiano et al.⁵
- Primary Outcomes: Daily minutes spent in MVPA at 2-months, 4-months, and 6-months post-ACLR
- Statistical Analysis:
 - Mixed method, repeated measures analysis of variance to compare daily time spent in MVPA over time and between men and women
 - Bonferroni Post Hoc Testing for statistically significant main effects and interactions



Figure 1: Acigraph Link hip placement for PA assessment

RESULTS

Individuals spend more time participating in moderate to vigorous physical activity at 6 months compared to 2 and 4 months post-ACLR regardless of sex.

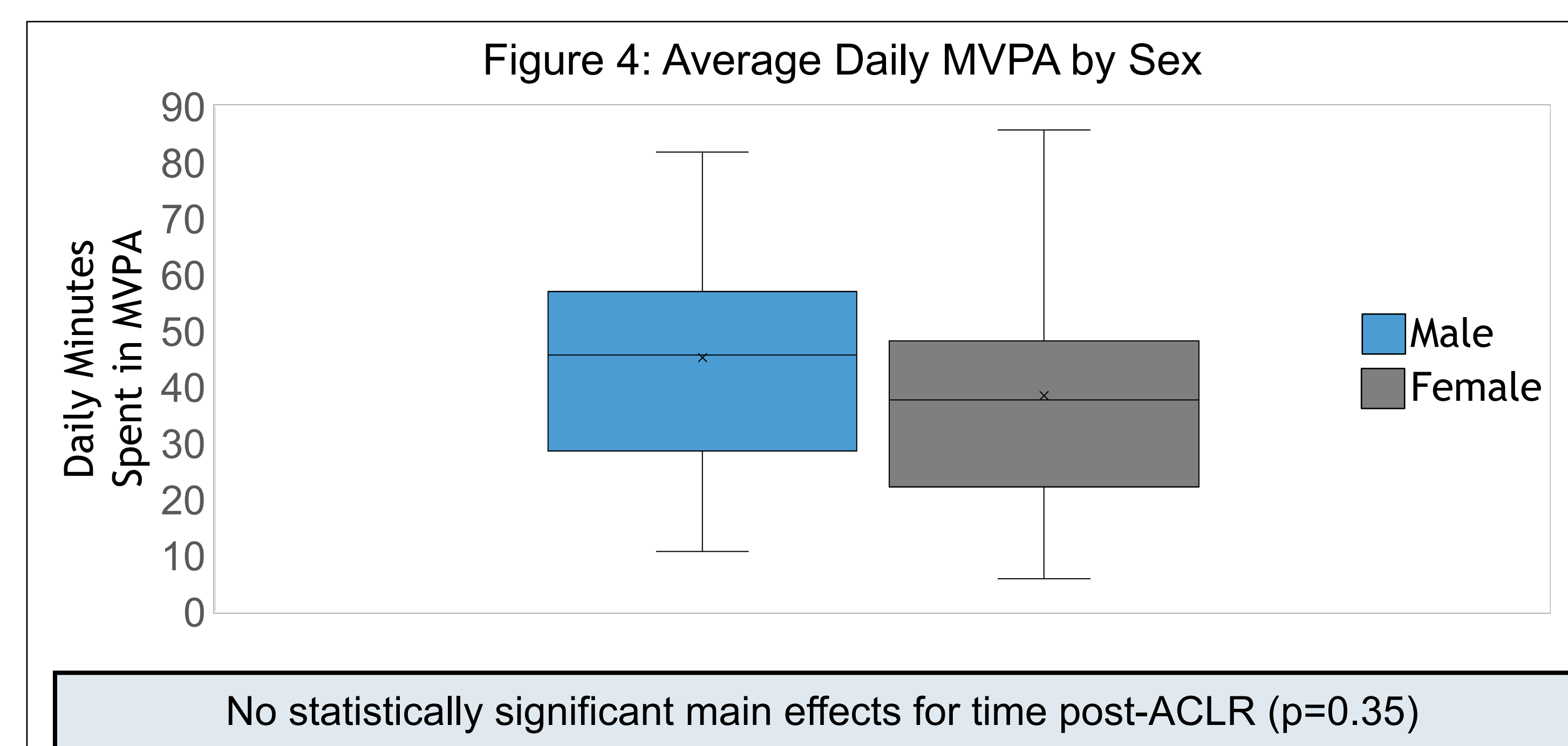
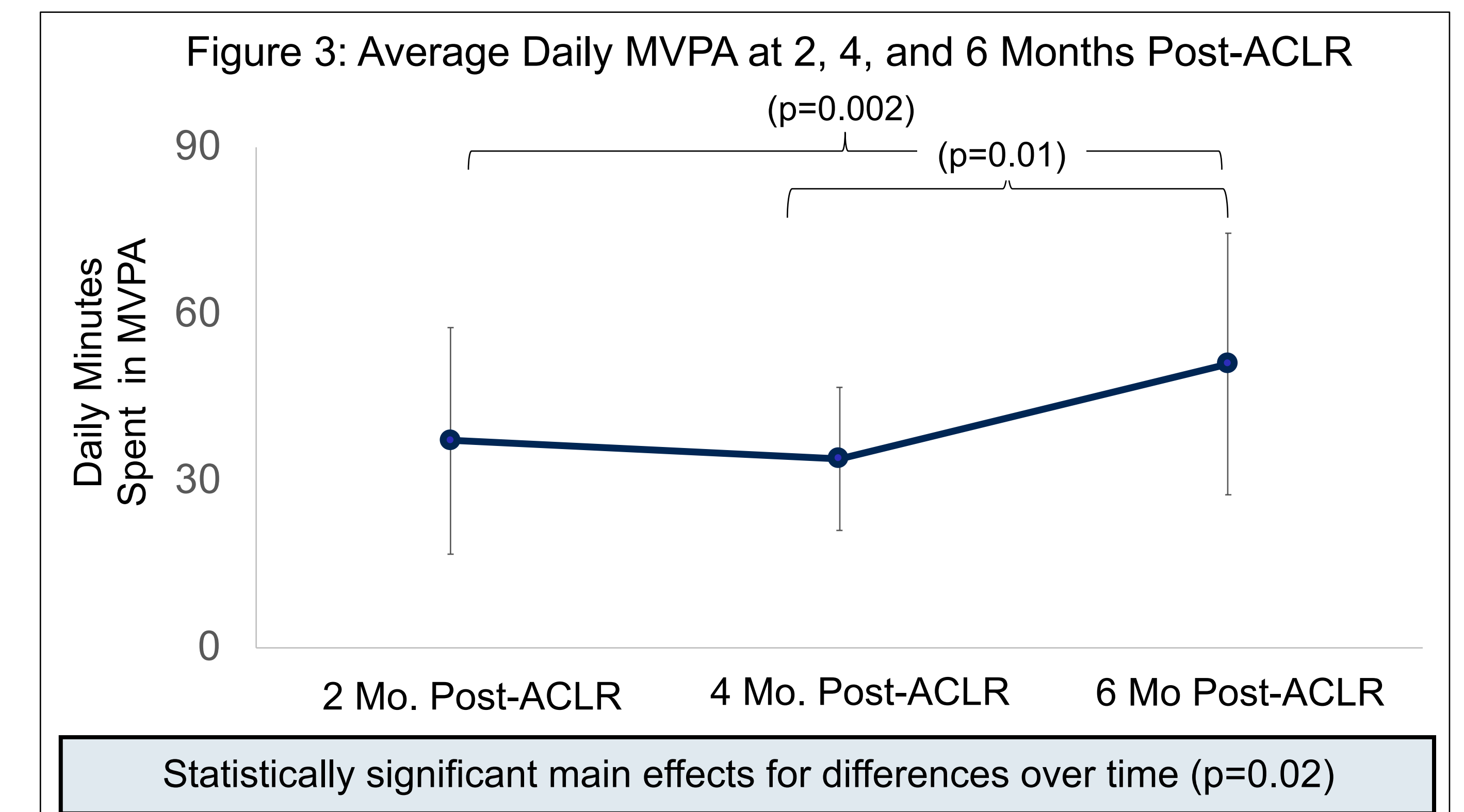
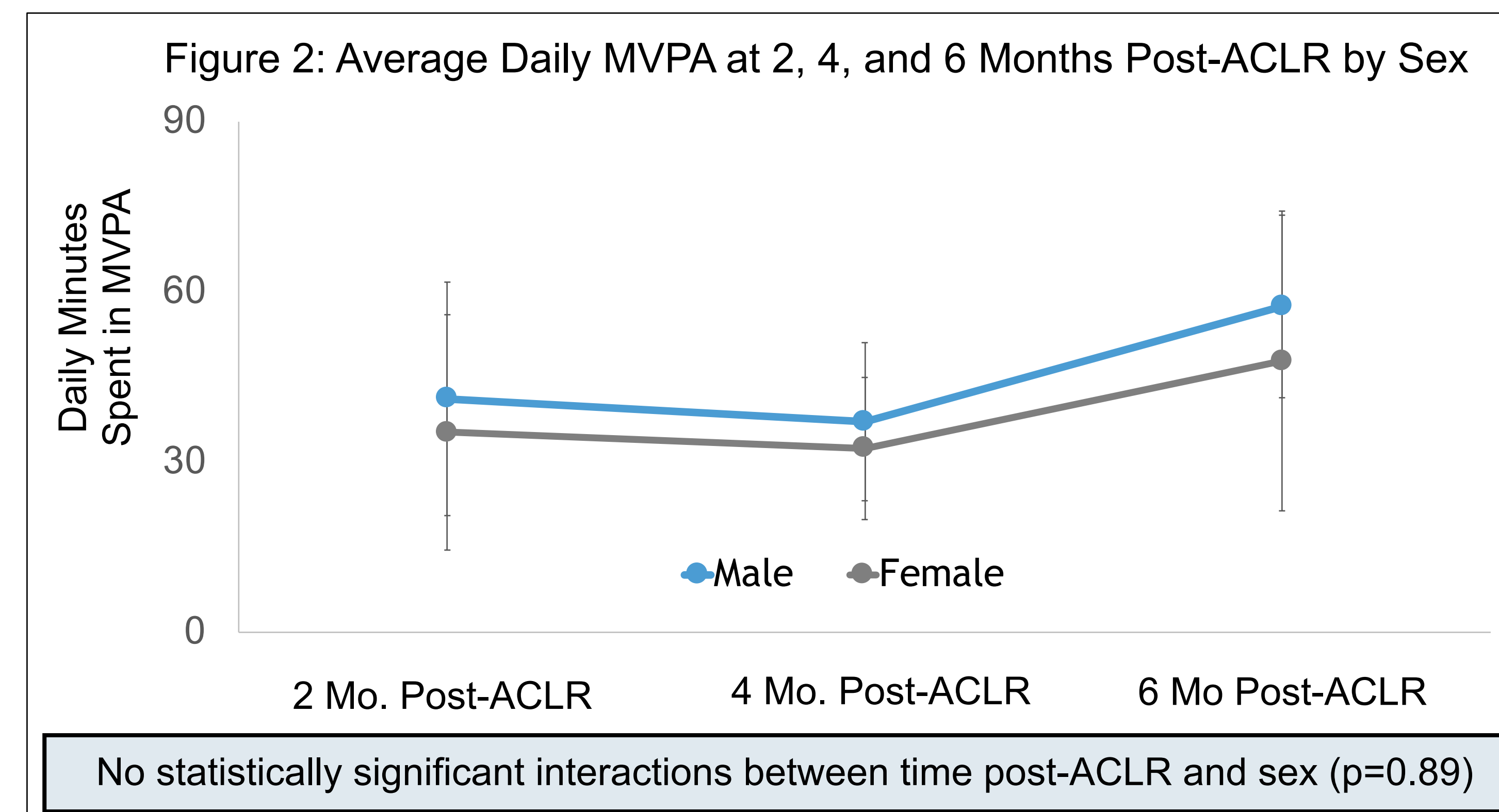


Table 1. Participant Demographics and Outcomes by Sex

	Total	Male	Female
Participants (N)	21	7	14
Age (Years)	20.38 ± 4.13	19.29 ± 3.82	20.93 ± 4.30
BMI (kg/m²)	24.55 ± 4.50	26.06 ± 6.21	23.79 ± 3.39
MVPA 2mo (min)	37.21 ± 20.37	41.15 ± 20.58	35.24 ± 20.74
MVPA 4mo (min)	33.97 ± 12.86	37.13 ± 13.93	32.40 ± 12.53
MVPA 6mo (min)	51.04 ± 23.51	57.44 ± 16.09	47.83 ± 26.42

DISCUSSION

- There were no significant differences in MVPA between men and women during first six months of recovery indicating that differences in MVPA between sex may develop following physician clearance to return to sport.
- Future longitudinal studies should determine when the differences in MVPA begin to occur to determine timely and effective intervention strategies.
- The effects of low MVPA on knee joint health and symptoms in the first four months post-ACLR remain unclear, and more research is needed to determine optimal levels of physical activity during surgical recovery.

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