INTRODUCTION

• Pregnant women experience physiological alterations that impact the way they move on a daily basis.\(^1,2\)
  - Walking is a common task affected by physical changes during pregnancy and can be problematic for some women typically during the third trimester.\(^1,3\)
  - Gait adaptations such as reduced step length or gait velocity may compensate for physical changes which affect postural stability or cause pelvic pain.\(^1,4\)
  - The GAITRite™ system is an instrumented walkway that quantifies spatial and temporal parameters of ambulation.
  - Gait measurements can be obtained to identify deviations and monitor progress in a clinical setting.

PURPOSE

• To evaluate the effect of simulated pregnancy on gait patterns using the GAITRite™ system.
  - This project is a component of work on methodology for pregnancy studies in the Motor Control Laboratory.

METHODS

• Participants: 18 healthy young individuals (23±1 year) participated in this study (73.9 ± 13.9 kg;1.7 ± 0.5 m).
• Protocol: Participants walked at a preferred pace over a GAITRite™ instrumented walkway (Figure 1). Individuals performed 5 trials in a normal condition and five trials in a simulated pregnancy condition by wearing a 10.5-kg pregnancy vest (Figure 2).
• Analysis: Trials were averaged. Paired t-tests compared means for the two conditions. An alpha level of 0.05 detected significance.

RESULTS

• There was no difference (Figure 3) in gait velocity between the simulated pregnancy condition (138.5 ± 20.5 cm/s) and the normal condition (139.9 ± 18.5 cm/s).
  - However, step length was shorter (Figure 4) in the simulated pregnancy condition (71.3 ± 7.1 cm) compared to the normal condition (73.5 ± 5.7 cm).
  - Individuals demonstrated a higher cadence (P=0.006) in the simulated pregnancy condition (115.8 ± 8.9 steps/min) compared to the normal condition (113.4 ± 9.0 steps/min).
  - Individuals spent a smaller percentage of the gait cycle in single support (Figure 5) in the simulated pregnancy condition (35.4 ± 1.2%) compared to the normal condition (36.3 ± 1.1%).

DISCUSSION

• Step length decreases in pregnant conditions due to the anteriorly shifted center of mass, and may be compounded by the associated lumbopelvic interplay.\(^3,5\)
  - Our results suggest healthy participants in a condition of simulated pregnancy may compensate for reduced step length by increasing cadence to maintain a consistent gait velocity. Our results are consistent with longitudinal research on pregnancy,\(^5,6\) although other authors reported decreases in velocity and cadence.\(^2,4\)
  - The reduced percentage of single support during the gait cycle in pregnancy conditions may be due to balance requirements to counteract the increased body mass.\(^2,6\)
  - The GAITRite™ system is a feasible method of collecting gait parameters for future work with pregnant women.

REFERENCES