ABSTRACT
Following the transition to parenthood, people often initiate stroller running. While the benefits of physical activity are well established, limited literature exists surrounding the potential disruption in gait and energetic cost caused by stroller running. Three commonly used stroller-pushing methods were investigated to detect potential changes in metabolic cost, speed, and stride length.

METHODS
- Three dominant SR techniques were observed at regular running sites in the Seattle area: 1-Handed, 2-Handed, and Push/Chase.
- 16 Subjects (M = 10, F = 6) ran using each of these SR techniques to compare metabolic and kinematic behavior.
- Subjects had minimal SR experience prior to the study, but were regular runners.
- Subjects ran 800m at a self-selected speed for each SR condition, plus non-SR control.
- Stroller included 16kg of mass (2-yr-old size) (Fig. 2).
- Mobile respirometer (Oxycon Mobile) and chest strap HR monitor (Polar) used to collect metabolic data (Fig. 1).
- Repeated-measures ANOVA used to compare differences between conditions.

RESULTS
- Significant decrease in speed (p=0.001; Fig 3) and stride length (p=0.0003; Fig 4) between non-SR and all SR conditions (Fig. 3).
- No significant decrease in metabolic cost (p = 0.080) or heart rate (p = 0.393) between non-SR and all SR conditions (Table 2).
- Two-Handed showed the smallest change in speed and stride length (Fig. 3).
- Data suggest pushing methods further influence energetic cost (Fig. 4).
- Males and Females showed similar speed (p = 0.807) and stride length (p = 0.595) selection patterns across SR conditions.

CONCLUSION
- The relationship between running speed, body mass, and energetic cost suggests that a decrease in speed will generally result in a decrease in energy expenditure.
- We found that stroller running significantly decreased running speed. However, we found no significant decrease in metabolic cost.
- Thus, our findings suggest that running while pushing a stroller is more energetically costly than running independently.
- The significantly shorter stride length suggests that stroller running disrupts normal running gait.
- Developed a model to predict energetic cost for a given pushing method, body weight, and running speed (Fig. 4).
- Model suggests 5% increase in cost for 2-Hands, 6% increase for 1-Hand, and 8% increase for Push/Chase compared to Non-SR.
- Findings suggest individuals should consider implementing different pushing methods depending on specific fitness needs.

INTRODUCTION
- Parents initiate Stroller Running (SR) as it provides opportunities for them to exercise near the child.
- Benefits of physical activity are well documented, including increases in cardiorespiratory fitness and decreased body fat.[1,2]
- There is a positive relationship between energetic cost (per unit time) and running speed.[3,4]
- Limited primary literature exists surrounding the topic of Stroller Running and energetic cost.[4,5]
- We test the hypothesis that stroller running is more energetically costly than running independently and that various pushing methods influence energetic cost.

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REFERENCES