Determinants of Walking Activity in Children and Adolescents with Myelomeningocele

Susan Rethlefsen, Nicole Mueske, Carmel Diamant, Deirdre Ryan, Alexander Van Speybroeck, Tishya Wren

OBJECTIVES
- Walking is a common mode of physical activity.
- Obesity is on the rise in children and adolescents, and is exacerbated in youth with disabilities such as myelomeningocele (MM).
- Identification of walking activity determinants can help direct interventions to overcome barriers to walking and guide expectations of walking.

PURPOSE:
- To Investigate potential demographic, anthropometric, clinical and surgical determinants of walking activity in children and adolescents with MM.

METHODS
- Prospective cohort study
- 52 ambulatory children with MM
  - 21 female; age 10.0 SD 2.5 years; range 6-13
- Anthropometrics, surgical history, MM lesion level (x-ray), self-reported hours of TV watching
- Percent body fat, percent lean tissue (whole body dual energy x-ray absorptiometry)
- Average number of steps per day from StepWatch Activity Monitor (worn for 1 week)
- Regression to assess predictors of steps per day
  - Variables with p≤0.10 in univariate analysis were considered for inclusion in the multivariate
  - Predictors: sex, age, height, weight, body mass index (BMI), percent body fat, percent lean tissue, lesion level, presence of shunt, hours/day of TV watching, brace use, assistive device use, previous orthopaedic surgery

RESULTS
Univariate:
- Steps related to female sex, younger age, lower BMI
- Steps related to more hours of TV watching, use of braces, use of assistive devices (AD), higher lesion level, presence of shunt, more surgeries

Multivariate:
- Steps per day related to assistive device use and house of watching TV

CONCLUSIONS/SIGNIFICANCE
- Walking activity in children and adolescents with MM was best predicted by use of assistive devices and amount of time spent watching TV.
- Since assistive devices are likely necessary when used, interventions targeting reduction of sedentary time may be most effective in increasing physical activity in youth with MM.