

# ADAPTIVE CRAWLER? DEVELOPMENT

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**Research Problem:** During the time frame of crawling, infants typically independently interact with their environment and with their parents in order to perform certain developmental tasks. However, infants with spina bifida are unable to crawl, which hampers their ability to independently explore their environment, putting them at a developmental disadvantage. Research shows physical, cognitive, and psychosocial impairments tend to hamper children with spina bifida, and the parent-child interaction is affected.

**Purpose:** Although many devices have been developed to assist in the mobility of children with disabilities, no devices have been developed or tested that facilitate the mobility of an infant with spina bifida during the time frame crawling typically occurs. The purpose of this pilot study is to examine the effect of an Adaptive Crawler? , developed by the researcher, on independent mobility, physical, cognitive, and psychosocial development and on the parent-infant relationship of infants with spina bifida aged 6-12 months.

**Method.** A quasi-experimental design with repeated measures will be used to evaluate the effectiveness of using the Adaptive Crawler? , by infants with spina bifida age 6-12 months on their independent mobility, physical, cognitive, and psychosocial development, and on the parent-infant relationship. Eight infants will be entered into the experimental group at age 6 months. A convenience sample of eight 12-month old infants with spina bifida will serve as the control group. Data on physical (gross motor/fine motor abilities), cognitive, and psychosocial development, and on parent-child relationship will be collected prior to, and at 2, 4, and 6 months after the initiation of the Adaptive Crawler? for infants and parents in the experimental group. Data on the same variables will be collected from infants in the control group on one visit by the researcher when the infants are 12 months old. Demographic and clinical data will be collected at the onset of the infant and parent's participation in the study.

**Analysis.** Descriptive statistics will be used to examine demographic and clinical data. Repeated measures ANOVA will be used to evaluate change over time for physical, cognitive, and psychosocial development, and the parent-infant relationship for the experimental group. Multivariate analysis of variance will be used to examine differences between groups in the same outcome variables.