

# A Review of Infant Use of Powered Mobility

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## Background

In addition to self-locomotion, mobility promotes perceptual, cognitive<sup>2</sup>, social, & language development in infants.<sup>2,14</sup>

Lack of mobility experience may impede development in children with motor impairment.

Powered mobility devices, which often use a joystick as a means of control<sup>5</sup>, help those with mobility impairment to be integrated into their environment, thus increasing their participation.

The purpose of this review was to explore what is known about the development of powered mobility control in very young children.



Author	Participants	Measurements	Results
Butler <sup>1</sup>	Six children 23-38 months with lower extremity impairments	Use of the wheelchairs were observed every 10 days	It took an average of 1-3 weeks for the children to become independently mobile
Chen, Ragonesi, Galloway, & Agrawal <sup>3</sup>	Five toddlers with a mean age of 29.6 months were in the control group and were given a typical PMD to navigate a path with obstacles	Training and test trials were observed on the participants' ability to navigate obstacles	Much training was needed in order to be successful in maneuvering through the course, it took approximately ten trials to navigate the course
Dunaway, Montes, O'Hagen, Sproule, De Vivo, & Petra <sup>4</sup>	Six children 16-23 months old with spinal muscular atrophy or congenital muscular dystrophy	The Power Mobility Skills Checklist (PMSC)	It took an average of 7.9 months for the children to proficiently operate the wheelchair based on the PMSC
Jones, McEwen, & Neas <sup>8</sup>	14 children 14-30 months with mobility impairments	The Wheelchair Skills Checklist	Only four of the children were able to complete all of the items on the checklist
Lynch, Ryu, Agrawal, & Galloway <sup>10</sup>	One seven-month old with spina bifida over the course of 5 months	Directional driving and open exploration trials conducted 3-4 times/week looked at joystick activation, path length, and percent-directed driving success	The infant could use the joystick, but could only drive in a straight line
Stansfield, Dennis, Altman Smith, & Larin <sup>13</sup>	Nine typically developing infants between 5-10 months	Driving data was analyzed using ELAN annotation software	The infants were able to move the wheelchair forward, but not side to side

## Discussion

There is a discrepancy between researchers as to how driving should be assessed and when it is feasible to give clients a power mobility device.

Researchers have not collected data to analyze the various capabilities and strengths toddler drivers have at various ages. Therefore, there is not sufficient research that guides therapists in deciding when a joystick-controlled mobility device is appropriate.

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