



How Scooot can Promote Independent Mobility in a Home Environment

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Objectives of webinar

- What is the Scoot and who is it appropriate for?
- The physical and developmental benefits of sitting and crawling
- How Scoot is designed to promote improved sitting and crawling and independent mobility
- Case example and treatment strategies on how to promote mobility using the Scoot in it's various configurations

What is the Scoot?

- Scoot is a configurable 3-in-1 mobility rider. It provides a means for self-initiated movement and independence for children with mobility challenges.
- The concept of Scoot came from Cerebra, a UK charity that aims to improve the lives of children with neurological conditions through research, information and support.
- Cerebra then partnered with Firefly to create the Scoot on a larger scale



Who is the Scooot appropriate for?

- Scooot's suitability depends on the child's level of physical development, hip-width and leg-length. It is generally suitable for children aged 2-6 who are assessed at levels I – IV on the Gross Motor Function Classification System (GMFCS).
- Children benefit most from Scooot if they have levels of head and trunk control and an ability to floor sit with limited pelvic support.
- **A child will find it difficult to use Scooot in any configuration if they have limited head and trunk control or sitting ability.**



How Scooot addresses mobility impairments

- The wheels are important in promoting independent mobility in children with strength/balance/coordination impairments
- Having wheels to be mobile in prone if a child is using their arms or legs to move forward helps to facilitate independent mobility and further exploration
- Having wheels to manipulate in sitting allows for independent mobility in sitting
- Scooot's low position makes it a prime independent mobility tool for toddlers to progress social/exploration skills since most toddlers are crawling or walking and manipulating objects they find on the floor or below table height.
- Being at the level where their toys and peers will be not only allows for functional age appropriate play, it also allows for inclusion in toddler/preschooler activities at home and in school.

There are three configurations to Scoot:





Crawl

2-in-1
Scoot

3-in-1
Ride

Firefly created a Scoot Activity Programme for parents to guide them on choosing activities for improving mobility, activity, and participation

The Activity Programme guides activity choices by looking at what stage a child is in as they use the Scoot

| | STAGES | | DATE |
|--|---|--|------|
|  SCOOT |  RIDE | | |
| STAGE 1 | STAGE 1 | Tolerates sitting in Scoot | |
| STAGE 2 | STAGE 2 | Brings hands to wheels but does not produce movement | |
| STAGE 3 | STAGE 3 | Can move Scoot forwards/backwards/both | |
| STAGE 4 | STAGE 4 | Can turn Scoot | |
| STAGE 5 | STAGE 5 | Can use Scoot independently and negotiate obstacles | |
| | STAGES | | DATE |

Who is today's case study?

- 26 month old girl named Jane
- Unremarkable birth history and unremarkable signs on MRI or CT scans
- Family currently doing genetic testing
- Began receiving PT at 12 months secondary to being unable to sit/roll/crawl
- Low tone with poor head control and weak neck and trunk strength and overall gross upper and lower extremity weakness
- Special Thank you to Jane's physical therapist, Karen Livingston for working with Jane and filming her and helping me with this case study!



Physical benefits of sitting

- Continues to strengthen trunk and abdominal muscles that are needed for crawling and standing activities.
- Continues to increase trunk strength and core strength through encouraging a child to maintain an erect posture as they manipulate items in their environment.
- Continues to increase head control and neck strength as a child has more freedom to move their head into different positions in sitting versus lying on their back or stomach.
- Further strengthens upper extremities as a child has more freedom of movement to use their arms to manipulate items in their environment.
- Further improves development of balance as a child has to practice keeping their body in this new upright position as they manipulate items.

Developmental benefits of sitting

- Facilitates progression of social skills because Jane can now interact with their siblings or peers
- Can improve communication skills secondary to proper positioning of trunk to further facilitate speech development



Challenges that can affect sitting:

- Decreased trunk strength
- Decreased neck strength
- Decreased postural awareness-
which is the knowledge of how
one's body is positioned
- Decreased static/dynamic sitting
balance



How the Scooot addresses sitting impairments:

- In the sitting configurations- Scooot's backrest provides some support for those with low tone or decreased but minimally functional trunk strength.
- The standard belt on the Scooot can be used for children with minimal/moderate trunk strength where they are able to lean forward or to the side in a supported chair and then re-erect themselves without assistance.
- For those children with decreased trunk strength and are unable to return to an erect sitting position after leaning forward, the advanced backrest would be a more suitable support for your child as it provides trunk support up to their midback.

Mobility, Activity, and Participation Strategies to promote independent sitting in the *Ride* configuration

- For **Mobility**- we used “hand over hand” facilitation to teach her how to move the wheels to produce movement while in the Scooot
- For **Activity**- the goal activity at this time was for her to improve her sitting balance with reaching and rotating her body
- For **Participation**- we had her try to roll towards toys on the floor by putting them within reach of her hands

Additional strategies for mobility in the Ride configuration

- Strategies for stage 1: Bring attention to the wheels and the function of the wheels
- One of the first steps would be to move the wheels for them so they begin to understand what the movement feels like and then they can try to copy that movement.
- The next step would be to facilitate touching the wheels by using “Hand over Hand” facilitation, which is to guide the child’s hands on the wheels and move them through the motion of grabbing and moving the wheels.
- You can tie flexible toys around the wheels to further attract attention to them- like yarn or rubber bracelets.
- You can also add stickers or paint stripes or any shape on the wheels to make them more visually attractive
- You can also add “bump-dots” which is a suggestion from Firefly’s Activity Programme



Working on sitting balance during feeding activity



Working on sitting balance and mobility during play activity trying to roll towards a toy and touch with her hand or foot.



Hand over hand facilitation to promote moving her hands on the wheels

- Participating in exploration around her home.
- Practicing socializing with her family in a sitting position

- Also working on sitting balance through:
 - rotation to look into cabinets to explore
 - Holding an object in both hands- which requires core strength, upper extremity strength and bimanual coordination skills.



Physical benefits of crawling

- Promotes shoulder /trunk strengthening
- Further facilitates improving head control and neck strength
- Begins to promote whole body movements where the arms and legs begin to work together to produce movement
- Begins progression towards more advanced movement skills of combining movements of her right and left sides in addition to stabilizing her trunk
- Further promotes body awareness and balance training since the body is now moving around her environment and not just remaining in a static position in sitting



Child development benefits of crawling

- The obvious one is independent mobility!
- Facilitates exploration and problem solving
- Facilitates building social skills and interacting with peers, as their peers are now mobile as well



Challenges that can affect crawling:

- Same strength impairments for sitting
- Decreased coordination where it is difficult to combine leg and arm movements to crawl
- Decreased motor planning skills- where it is difficult to produce a desired movement





How Scooot addresses crawling impairments

- Provides support under the trunk and hips for those with strength impairments
- Has wheels to promote easier mobility in prone for those with coordination and strength impairments
- Provides tummy positioning at an appropriate height to work on weight bearing through hips and shoulders and to work on increasing head control when in a supported tummy time (prone) position

Mobility, Activity, and Participation

Strategies to promote independent mobility in the *Crawl* configuration

- For **Mobility**- we placed toys just out of her reach to encourage her to push/crawl towards them
- For **Activity**- the goal activity at this time was for her to reach and interact with a cause and effect toy, or simply to reach and push a toy to manipulate it without assistance
- For **Participation**- we had her try to crawl towards her grandmother who was encouraging her to crawl towards the toys

Additional strategies for mobility in the Crawl configuration

- Strategies for stage 3- Goal is to demonstrate and promote how movement can happen while in Crawl position. These strategies are similar to strategies to promote typical combat crawling as well
- “hand over hand” facilitation to demonstrate how to move forward by moving arms and legs
- Place Scoot at downward angle with back wheels on a slight elevation on a towel roll so that it is easier to move forward with any movement
- If your child has enough grip strength, can have them hold onto a looped rope and try to pull themselves forward while on the Scoot
- Can also bend your child’s knees and provide a support for them to push off your hands to push themselves forward while in the Scoot

Example of promoting mobility by placing toys just out of reach



Example of promoting participation by trying to play with her grandmother

In this clip, Jane begins to progress to Stage 4 in the Crawl configuration-

With head up, uses hands and/or knees and feet to push forwards or backwards



Mobility, Activity, and Participation Strategies to promote independent mobility in the Scoot configuration

- The Mobility, Activity, and Participation strategies in the Scoot configuration can be very similar to those in the Ride configuration, except now your child will be using more leg strategies instead of arm strategies to produce movement.
- To use this configuration, your child's legs must be long enough to touch the floor and they must have enough strength to either straighten or bend their knees against gravity to produce movement while in the Scoot configuration.
- The benefit of the Scoot configuration is that it allows your child to use their legs to produce hip and knee flexion and extension, which are key movements needed for crawling and walking.

Here is a modification of the Scoot configuration, where we left off the bottom leg supports to allow Jane to try to use her feet and arms to produce movement.

Though she can't quite reach the floor to produce movement, she does try to hit toys with her feet, which is a good mobility/participation activity to do in the home, where your child can try to hit a ball or knock pins over while in the Scoot configuration.



How is Jane doing now?

- Jane has been using the Scoot for 2 months
- Prior to using Scoot, she was unable to sit independently on the floor
 - Currently she is able to sit 1-1.5 minutes with small weight shifts, can sit for over a minute without any support now
- Prior to using Scoot, Jane used her arms less for all activities and had decreased arm strength. Now that she is in a functional sitting position more and exploring the house more, Jane is more active during her Occupational Therapy sessions
- The Scoot has really allowed Jane's family to involve her in more activities around the house as it is easier to roll her around the house in a sitting position rather than have to find appropriate supports all around the house if they want to sit her near where her family is engaging in interesting activities.

Here is Jane practicing moving her wheels on the Scoot in the Ride configuration.

This was taken at the session the day before this presentation.



Questions?

