Poster: DP06



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Background

- Non-ambulatory children have an increased incidence of secondary muscle and bone impairments.
- Deficits in trunk control are correlated to GMFCS level, gross motor plateaus, and ability to practice upright control and transitions.
- Traditional positioning devices restrict freedom of movement. Activity and practice with upright control is needed for bone and muscle health, motor learning, and cognitive development.
- A device like the Sit to Stand Box can promote practice of upright control, weight bearing, weight shifting, and transitions from sit to stand for nonambulatory children.



Objectives

Describe our experience building boxes for use in the home setting and share parent responses to using this type of device.

Topics include:

- Simple, Cardboard, and Combined Cardboard/PVC designs for building STS boxes
- Material resources 2.
- Examples of custom adaptations 3 including grab bars, foot straps, adjusting bolster height, sensory and play space modifications, detachable posterior surrounds
- Video examples of children using sit to 4. stand boxes in home and school settings
- Parent experiences using the device at 5. home

Simple STS (GMFCS III)



Cardboard STS (GMFCS IV-V)



Cardboard/PVC STS (GMFCS IV-V)



Build Your Own Sit to Stand Box: Promoting Movement Transitions for Children with GMFCS Levels III to V.

Sit to Stand Boxes



- Parent 1: "...haven't seen any detrimental effects... what I have seen is an opportunity [for] my son [to] occasionally stand on his own and move, which I think is fantastic."
- Parent 2: "[It's] a way for him to work on... not just like his core [but] strengthening his muscles and his legs and using them."
- Parent 3: "I would describe the sit to stand box as being something that... promotes good hip alignment while allowing the child to be independent."















Surround





Velcro Attachment



Toys



Sensory Board

Results

- 15 children with an age range of 9 months to 10 years old and GMFCS levels III-V participated in this functional positioning project. These children were exposed to one of the three different STS boxes. Boxes were provided in the home for 11 children and in educational settings for 4 children. Parents indicated that children enjoyed being in the box and they felt that the STS was beneficial for their child's musculoskeletal development and facilitated independent movement transitions and play. Parents commented on the low cost of materials, ease of construction, increased independence, and strength and alignment improvements.
- STS Box instructions and videos at: https://l.ead.me/hartford-ped-lab



Conclusions

• STS boxes are a cost effective and functional design for children with GMFCS levels III-V. The designs from this project require further research to better prescribe individual design elements including adaptations to maximize function and play, long term study of impact of positioning with STS boxes on musculoskeletal development and secondary impairments, study of impact on quality of life including communication, and participation in home and school.

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