

Achieving Optimal Toilet Positioning for People with Disabilities

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Fostering independence in toileting is a game-changer, especially for a child with disabilities. Not only does it increase opportunities for participation in the home, school and community, but has continued benefits throughout their lifespan.

There are numerous resources addressing toileting schedules, use of visuals and positive reinforcement to improve successful toileting outcomes. However, equally important is the discussion around how transfers and comfortable and supportive positioning while on the toilet can make or break a situation, particularly for an individual with multiple disabilities.

For a child with multiple physical challenges, toileting has often been regarded as an interruption to daily activities and an added burden. New thinking about health and disability, however, has recast toileting as a critical intervention and an opportunity to teach meaningful skills. These skills, happily, are within reach for nearly every child. Provided with the right environmental modifications and positioning aids, most children can improve toileting skills to experience increased community participation and independence levels.

Building on the Child's Strengths

In 2001 the World Health Organization introduced a new framework for classifying health and disability: the [International Classification of Functioning, Disability and Health](#) (ICF). Rather than focus on the limiting factors of a disability, the ICF considers what the individual can do.

Within this framework, the goal of intervention is to build on the individual's current level of functioning, increasing participation in activities of daily living and engagement with the wider community.¹

In cases where the disability imposes constraints on body functions or structures, the ICF advocates for external supports to overcome the limitations. Also known as contextual factors, external supports range from environmental modifications to the use of adaptive equipment and personal support systems.

These contextual factors can make a particularly big difference in toileting. As therapists, we need to ask how we can best help children with disabilities to use the toilet for effective bowel and bladder elimination. We also need to provide opportunities for active participation and increased independence in toileting routines.

In 2012, Rosenbaum and Porter introduced the "F-Words for Childhood Disability" to parallel the ICF: Fitness, Function, Friendships, Family, Fun and Future. These words serve to direct interventions at the level of the child. When considering toileting, perhaps the most important word is Future. Providing supports and opportunities to build toileting skills today will have profound positive impact on a child's future.²

The Importance of Position

In the Western world, sitting on a raised toilet is standard practice. However, before the middle of the nineteenth century, chair-like toilets were reserved for royalty and

Achieving Optimal Toilet Positioning for People with Disabilities

people with disabilities.³ Everyone else used the squatting posture to perform their bodily functions. According to on-going research, squatting is an effective position for toileting. Squatting relaxes the puborectalis muscle, straightens the rectum, and works with gravity for faster, easier, and more complete elimination.³⁻⁷ Research also notes that in populations that practice this positioning, there is significantly less incidence of constipation and bowel diseases.^{3, 8-10} In addition, participating in a squatting-based exercise program reduced urinary and fecal incontinence in a group of school-aged children.¹¹

Many children with physical disabilities may never achieve any type of positioning for toileting without significant and appropriate supports. Nevertheless, because this population experiences higher rates of constipation and incontinence,^{12, 13} we can use what we know to provide the best possible positioning options for better toileting outcomes. Before we do, however, it is essential to consider the challenging step that takes place before toileting: transfer.

Meeting the Transfer Challenge

Transfers on and off the toilet are central to the toileting routine, and help build independence. Parents and caregivers are concerned about their child's future and ability to be independent in self-care, especially as they grow older and larger.^{14, 15} Nevertheless they often discontinue their child's toileting routine because supporting or lifting their child onto the toilet is too time-consuming, strenuous or unsafe.^{14, 16} Performance of the sit-to-stand activity is closely linked to the ability to toilet, perform self-care and mobilize.¹⁴ With increased task-specific practice opportunities, a child or adult with multiple disabilities can learn to participate in transfers on and off the toilet with increased independence and efficiency.¹⁷⁻²⁰ For example, a vertical changing table or padded table can help children who are non-ambulatory or minimally weight-bearing to perform a pull-to-stand transfer and provide

body-weight support while caregivers adjust the clothing and roll a commode in from behind. In this way, daily transfers to the toilet become opportunities to practice sit-to-stand and weight-bearing skills at the same time. This reflects the ICF's concept of improving activities and participation levels with environmental modification and reduces the manual lifting by the caregiver.

Giving children opportunities to practice and participate in toileting transfers, if begun early enough, results in improved performance over time.^{14, 20} The MOVE™ Program provides an excellent framework for special education teachers, physical and occupational therapists, and parents to build these skills.²⁰ (Contact [MOVE International](#) to learn more about upcoming trainings.)

Positioning Goals for Children with Disabilities

The next step after transfer involves toilet positioning. Adaptations are usually necessary to accommodate deformities, muscle tone, and lack of postural control while ensuring that the child is stable, comfortable, and positioned optimally for effective elimination. With poor positioning, children with disabilities may not be able to completely empty their bowel and bladder, putting them at an increased risk for urinary tract infections, constipation and other complications.²¹

Providing a feeling of stability on the toilet is key to this process.²¹⁻²³ If children are well positioned and balanced in sitting, they will also be relaxed, which allows the abdominal muscles to relax.^{23, 24} If children are continuously fighting to maintain an upright posture on the toilet, they will be unable to relax and concentrate on the toileting task at hand.^{23, 24} This feeling of instability may be one of the primary reasons children with severe disabilities resist sitting on the toilet.²² The use of adaptive toileting chairs can help create an environment of stability and allow a child to comfortably maintain balance without fear of falling off the toilet.^{16, 21-24}

Achieving Optimal Toilet Positioning for People with Disabilities

What constitutes an effective adaptive toileting chair? The recommended basics include a firm base of support with the feet planted, good back support, and a grab-bar or other handhold in front.²²⁻²⁵ As with active sitting, a forward positioning of the shoulders and upper extremities (as when holding onto or leaning against an anterior support) facilitates better head and trunk control and stability.²⁴⁻²⁸ Moreover, where possible, the lower extremities should be positioned with the knees slightly higher than the hips, facilitating better bowel and bladder elimination.^{5-7, 24, 29, 30} This positioning most closely mimics the ideal and natural squatting position. For children with extensor tone or poor postural control, additional seat-to-back angle adjustments or other external support systems may be necessary.

In addition to feeling stable and relaxed on a toilet, the child also needs to feel comfortable. Children with disabilities often need more time to complete the toileting task.²¹ Nancie R. Finnie, in her book *Handling the Young Child with Cerebral Palsy at Home*, notes that because of their physical disabilities, children with cerebral palsy will take longer to find their balance on the toilet, relax, and then understand what is expected of them.²⁴ Therapists working in school-based settings report that children with disabilities may sit anywhere from five to 45 minutes in order to fully empty their bowel and bladder. Obviously, with extended toileting sessions like this, comfort is key. This comfort can be provided via padding on weight-bearing surfaces or contoured supports.

Equipment Availability

Despite the importance of positioning and comfort, finding the right equipment to meet these requirements presents challenges. Past literature on adaptive positioning toilet systems, although limited,^{16, 25} indicated a lack of appropriate and accommodative equipment for children with disabilities.^{16, 23, 25, 31} Ostensjo, in looking at the use of assistive devices, environmental modifications, and

everyday activities in 95 children with cerebral palsy, noted that parents of the children mostly reported the “need of a more appropriate aid” when describing their child’s toileting or bathing equipment.³¹ This perhaps explains why researchers noted that toileting and bathing equipment in the home was often left unused. At the same time, most of these children were still using briefs and laxatives after the age of four, indicating that the difficulty in finding an effective toileting chair was a barrier to healthy bowel and bladder elimination.³¹

In another study, Pivato interviewed parents about the toileting habits and needs of their children who had extensive physical challenges. The majority of respondents reported that they had discontinued their child’s toileting routines due to a lack of appropriate supportive seating arrangements.¹⁶ This carried over into a lack of toileting supports in the community and school. Lifting and transferring children onto the toilet was frequently reported as another hurdle to toilet training.¹⁴⁻¹⁶ The researchers concluded that if the right equipment were available, and lifting and transfers could be made easier, more people with severe disabilities would have better chances at becoming toilet trained.¹⁶

While this continues to be true under some circumstances, recent advances in technology have since provided an array of active and participatory transfer solutions and adaptive toileting devices to meet the transfer and positioning needs for children with multiple disabilities.

Conclusion

Viewing toileting as an opportunity to enhance skills, independence and participation in the community as opposed to a daily interruption is a welcome development for children with disabilities. The key to maximizing toileting as an opportunity is to make toileting easier and more effective, which along with toileting routines and schedules, requires attention to improved methods of transfer and positioning. Adaptive toileting chairs can facilitate both –

Achieving Optimal Toilet Positioning for People with Disabilities

yet the design of such chairs has, until recently, fallen short in optimizing the child's position and comfort. With proper technique and good positioning options, most children with disabilities can learn effective toileting and thus achieve more fulfilling, independent lives and a healthier future.

Please refer to the addendum on page 6 of this document for an example of achieving optimal positioning with adaptive hygiene and toileting equipment.

References

1. World Health Organization. International Classification of Functioning Disability and Health (ICF). <https://www.who.int/classifications/international-classification-of-functioning-disability-and-health>. Accessed June 2022.
2. Rosenbaum P, Gorter JW. The 'F-words' in childhood disability: I swear this is how we should think! *Child Care Health Dev.* 2012; 38(4):457-463. doi:10.1111/j.1365-2214.2011.01338.x.
3. Isbit J. Health benefits of the natural squatting position. Nature's Platform. Available at: http://www.naturesplatform.com/health_benefits.html. Accessed September 2022.
4. Rad S. Impact of ethnic habit on defecographic measurements. *Arch Iranian Med.* 2002; 5(2):115-7.
5. Modi RM, Hinton A, Pinkhas D, Groce R, Meyer MM, Balasubramanian G, et al. Implementation of a defecation posture modification device - Impact on bowel movement patterns in healthy subjects. *J Clin Gastroenterol.* 2019; 53(3):216-9. doi:10.1097/MCG.0000000000001143.
6. Sikirov D. Comparison of straining during defecation in three positions: Results and implications for human health. *Dig Dis Sci.* 2003; 48(7):1201-5. doi:10.1023/a:1024180319005
7. Tashiro D, Nakahara M, Kitajima E, Haraguchi K. The effects of a defecation posture, supported by the upper limbs, on respiratory function. *J Phys Ther Sci.* 2020; 32(5):332-6. doi:10.1589/jpts.32.332
8. Dimmer C, Martin B, Reeves N, Sullivan F. Squatting for the prevention of haemorrhoids. *Townsend Letter for Doctors and Patients.* 1996; 159:66-70.
9. Burkitt DP. Hiatus hernia: is it preventable? *Am J Clin Nutr.* 1981; 34(3):428-31. doi:10.1093/ajcn/34.3.428
10. Sethi, S. Squatting: A Forgotten Natural Instinct to Prevent Hemorrhoids! *Am J Gastroenterol.* 2010; 105:S142.
11. Garcia-Fernandez A, Petros EP. A four month squatting-based pelvic exercise regime cures day/night enuresis and bowel dysfunction in children aged 7-11 years. *Cent European J Urol.* 2020; 73(3):307-14. doi:10.5173/ceju.2020.0044.
12. Robertson J, Baines S, Emerson E, Hatton C. Prevalence of constipation in people with intellectual disability: A systematic review. *J Intellect Dev Dis.* 2018; 43(4):392-406. doi:10.3109/13668250.2017.1310829
13. Vande Velde S, Van Renterghem K, Van Winkel M, De Bruyne R, Van Biervliet S. Constipation and fecal incontinence in children with cerebral palsy. Overview of literature and flowchart for a stepwise approach. *Acta Gastroenterol Belg.* 2018; 81(3):415-418.
14. Chaovalit S, Dodd KJ, Taylor NF. Impaired sit-to-stand is perceived by caregivers to affect mobility and self-care in children with cerebral palsy who had moderate to severe mobility limitations: A mixed methods analysis. *Dev Neurorehabil.* 2023; 26(1): 10-17. doi:10.1080/17518423.2022.2133186
15. Black L, Shaunfield S, Labellarte P, Gaebler-Spira D, Foster C. Physical and environmental barriers to mobility and participation in children with medical

Achieving Optimal Toilet Positioning for People with Disabilities

- complexity: A qualitative study. *Clin Pediatr*. 2022; 61(10):717-26. doi:10.1177/00099228221099097
16. Pivato E. Breaching the last frontier: dignity and the toileting issue for persons with multiple and severe disabilities. *Developmental Disabilities Bulletin*. 2009; 37(1):153-64.
 17. Schmidt RA, Lee TD, Winstein C et al. Motor control and learning: a behavioral emphasis. 6th ed. Champaign (IL): Human Kinetics; 2018.
 18. Carr JH, Shepherd RB. Neurological rehabilitation: optimizing motor performance. Philadelphia (US): Churchill Livingstone; 2011.
 19. Hubbard IJ, Parsons MW, Neilson C, Carey LM. Task-specific training: evidence for and translation to clinical practice. *Occup Ther Int*. 2009; 16(3-4):175-89. doi:10.1002/oti.275
 20. Bidabe DL. MOVE Hygiene and Toileting Program. Bakersfield, CA: Kern County Superintendent of Schools; 2009.
 21. Sansome A. Bladder and bowel management in physically disabled children. *Pediatr Child Health*. 2011; 21(10):454-58. doi:10.1016/j.paed.2011.02.002.
 22. Bettison S. Toilet Training to Independence for the Handicapped: A Manual for Trainers. Springfield, IL: CC Thomas; 1982.
 23. Lee DF, Ryan S, Polgar JM, Leibel G. Consumer-based approaches used in the development of an adaptive toileting system for children with positioning problems. *Phys Occup Ther Pediatr*. 2002; 22(1):5-24.
 24. Finnie NR. Handling the Young Child with Cerebral Palsy at Home. 3rd ed. Woburn, MA: Butterworth-Heinemann; 1997: 173-9.
 25. Rigby PJ, Ryan SE, Campbell KA. Effects of adaptive seating devices on the activity performance of children with cerebral palsy. *Arch Phys Med Rehabil*. 2009; 90:1389-95. doi:10.1016/j.apmr.2009.02.013.
 26. Stavness C. The effect of positioning for children with cerebral palsy on upper-extremity function. *Phys Occup Ther Pediatr*. 2006; 26:39-53.
 27. Myhr U, von Wendt L. Improvement of functional sitting position for children with cerebral palsy. *Dev Med Child Neurol*. 1991; 33:246-56. doi: 10.1111/j.1469-8749.1991.tb05114.x.
 28. Dunaway A, Snyder S, LaRosa ME. Adaptive Toileting for Children Who Have Cerebral Palsy. Tucson, AZ: Therapy Skill Builders; 1998.
 29. Harris D, Gilpin M. Toilet Teaching with Your Child: A Parent's Guide. London, ON: Thames Valley Children's Treatment Center; 1994.
 30. Miezio PM. Parenting Children with Disabilities: A Professional Resource for Physicians and Guide for Parents. New York, NY: Marcel Dekker, Inc; 1983.
 31. Ostensjo S, Carlberg EB, Vollestad NK. The use and impact of assistive devices and other environmental modifications on everyday activities and care in young children with cerebral palsy. *Disabil Rehabil*. 2005; 27(14):849-61. doi:10.1080/09638280400018619.

Achieving Good Toilet Positioning with the Rifton HTS

To meet the need for a good adaptive hygiene and toileting system, Rifton’s product designers created the HTS. Drawing on input from hundreds of therapists around the world, they included features to meet all the needs outlined in this article. The following chart provides details on these features and benefits:

Key Features of the Rifton HTS

Benefit	Description
Optimal Toilet Positioning	<p>With the footboard adjusted for well-supported feet, tilt-in-space slightly posterior, backrest tilting trunk slightly forward and good anterior support, the HTS achieves an ideal forward-leaning toileting position.</p> <p>An adjustable footrest provides the recommended base of support for the feet and can be raised to position the knees slightly higher than the hips if appropriate for better elimination.</p> <p>An anterior support into which a client can lean or brace their upper extremities adds stability and comfort.</p> <p>A combination of accessories such as laterals and hip guides can add stability.</p> <p>The backrest angle adjustment and tilt-in-space allows clients with severe disabilities and presentations of hypotonia and spasticity to be positioned well and comfortably, allowing for relaxation and improved elimination.</p> <p>The footboard, abductor and ankle straps encourage optimal abduction.</p>
Comfort	<p>The weight-bearing surfaces of the HTS are contoured and padded with polyurethane foam allowing a child to sit with comfort for longer toileting sessions.</p> <p>For additional comfort and improved pressure distribution, there is the option of a supportive closed cell foam pad with an “egg-crate” construction underneath to take the pressure off sensitive areas.</p>
Transfer	<p>Transfer to and from the HTS is facilitated through the tilt-in-space feature. By tilting the chair anteriorly and moving the footboard back, a client can be assisted with transfers into and out of the toileting position.</p> <p>Swing-away laterals and easy armrest removal facilitates a smooth lateral transfer.</p>
Hygiene	<p>A unique open-back toilet seat option makes hygiene care much easier, while the client is still seated.</p> <p>An improved splash-control deflector component reduces mess and spray.</p>
Community Use	<p>The HTS can be used with a portability base. This base, along with the HTS toilet seat, can be packed into a canvas tote bag and taken on family excursions, providing increased opportunities for participation within the community.</p>
Growth	<p>The HTS is designed to accommodate growth.</p> <p>Adjustments for seat depth, backrest height and commode height are easy and tool-free.</p>