

Nu Digest

Introduction to Complex Rehab Technology Wheelchair Systems

By Susan Johnson Taylor, OTR/L

Audience: Intended for clinicians, wheelchair users and other interested parties with limited/basic knowledge of Assistive Technology.

Complex Rehab Technology (CRT) products augment or replace function, providing support surfaces and mobility bases that enable an individual to participate in everyday life to whatever extent they are capable.

These medically necessary and individually-configured products are designed to meet the unique needs of individuals with disabilities. They include complex power wheelchair systems, highly configurable manual wheelchairs, adaptive seating systems, alternative positioning systems and other specialized mobility devices. Every product requires the individual to have an evaluation, fitting, and training which involves configuration, adjustment or programming of the device so as to best enable the individual to accomplish tasks safely and engage in their environments as independently as possible. These products assist individuals with dealing with their daily physical, functional and cognitive challenges.

Disabilities that result in impairments and limitations that can lead to the necessity of CRT typically result from congenital disorders, progressive or degenerative neuromuscular diseases, or from injury, trauma or illness. Typical diagnoses include cerebral palsy (CP);

multiple sclerosis (MS); muscular dystrophy (MD), ALS; traumatic brain injury (TBI); spinal cord injury (SCI); and spina bifida.

To establish the need for CRT products and services, an individual participates in an evaluation, during which immediate and anticipated medical, functional and physical needs are identified by an interdisciplinary clinical team and an Assistive Technology Professional (ATP).

A Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) certified ATP analyzes the needs of individuals with disabilities, assists in the selection of the appropriate equipment, and trains the consumer on how to properly use the specific equipment. The ATP certification recognizes those who have reached an internationally accepted standard of knowledge in assistive technology and who demonstrate a commitment to provide only the highest ethical standards of practice.

The need for CRT products and services typically includes physical skills, functional skills, activities of daily living (ADLs), instrumental activities of daily living (IADLs), functional mobility, home/school/work accessibility and transportation. Trial equipment is used to determine which pieces of equipment will most successfully meet those identified needs. Positioning of an individual's body is accomplished

through seating components. These components will vary widely based on the individual needs of the client. Since every Complex Rehab Technology device is configured to an individual, there is no one mobility base or seating system configuration that is appropriate for an individual. The customized Complex Rehab Technology solutions that address these issues may include adjustable back upholstery, planar seat and back cushions, custom contoured seat and back cushions, lateral thoracic supports, anterior truck supports, head supports and upper and lower extremity support devices. Those seating components are attached to a manual or powered wheelchair base. The wheelchair base may include powered or manual features that allow the individual or a caregiver to change positions in space to accommodate for absent or impaired physical skills such as the inability to perform a pressure relief.

Advanced electronics allow custom programming according to individual physical, perceptual and cognitive abilities, as well as allowing those who are unable to use a standard joystick to drive a powered wheelchair.

Complex Rehab Technology devices are valuable tools that allow individuals with complex physical needs to participate in everyday life to whatever extent is possible.

Complex Rehab Technology vs. Standard Mobility

Complex Power Wheelchair Systems

- Intended for permanent or progressive diagnoses
- Advanced electronics and controls
- Individual seating & positioning
- Accommodates orthopedic issues
- Provides pressure management
- Ventilator accommodation

Standard Power Wheelchair Systems

- Intended for ambulatory limitations
- Basic joystick drive ONLY
- NO positioning
- NO orthopedic accommodations
- Provides NO pressure management
- NO ventilator accommodation



About the Author

Susan Johnson Taylor, OTR/L is an occupational therapist who has been practicing in the field of seating and wheeled mobility for 35 years, primarily at the Rehabilitation Institute of Chicago. Susan has published and presented nationally and internationally, has consulted on product development for manufacturers, and has actively participated in a variety of research studies at the Northwestern Sensory Motor Performance Program. Susan is both a member and fellow with RESNA, and in the past has served on the Board of Directors. She is a member of the RESNA /ANSI Wheelchair Standards Committee and the Clinician's Task Force. Susan joined the Numotion clinical education team in 2015 as the Manager of Training and Education.