

Walkers, Wheels & Mobility:

Aligning Mobility Goals with Quality of Life for Children with Spina Bifida

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Learning Objectives

- Learner will understand when to recommend specific mobility-related equipment to promote quality of life for patients with Spina Bifida.
- Learner will understand when to recommend specific recreation/leisure equipment to promote quality of life for patients with Spina Bifida.



Definition of Mobility

- Ability of a person to move within his/her environment & community.
- Can be achieved by a variety of methods.
- Potential for mobility is defined by the neurological level and motor function.
- May change with age especially as physical & social demands increase.

(Spina Bifida Association, *Mobility Guidelines*, 2023)



Benefits of Mobility

- Contracture management
- Exercise: cardiovascular-respiratory effects
- Strength effects and endurance
- Community engagement/household mobility
- Bone density
- Bowel and bladder evacuation
- Facilitates ability to perform self-care activities
- Pressure reduction/redistribution

(Spina Bifida Association, *Mobility Guidelines*, 2023)



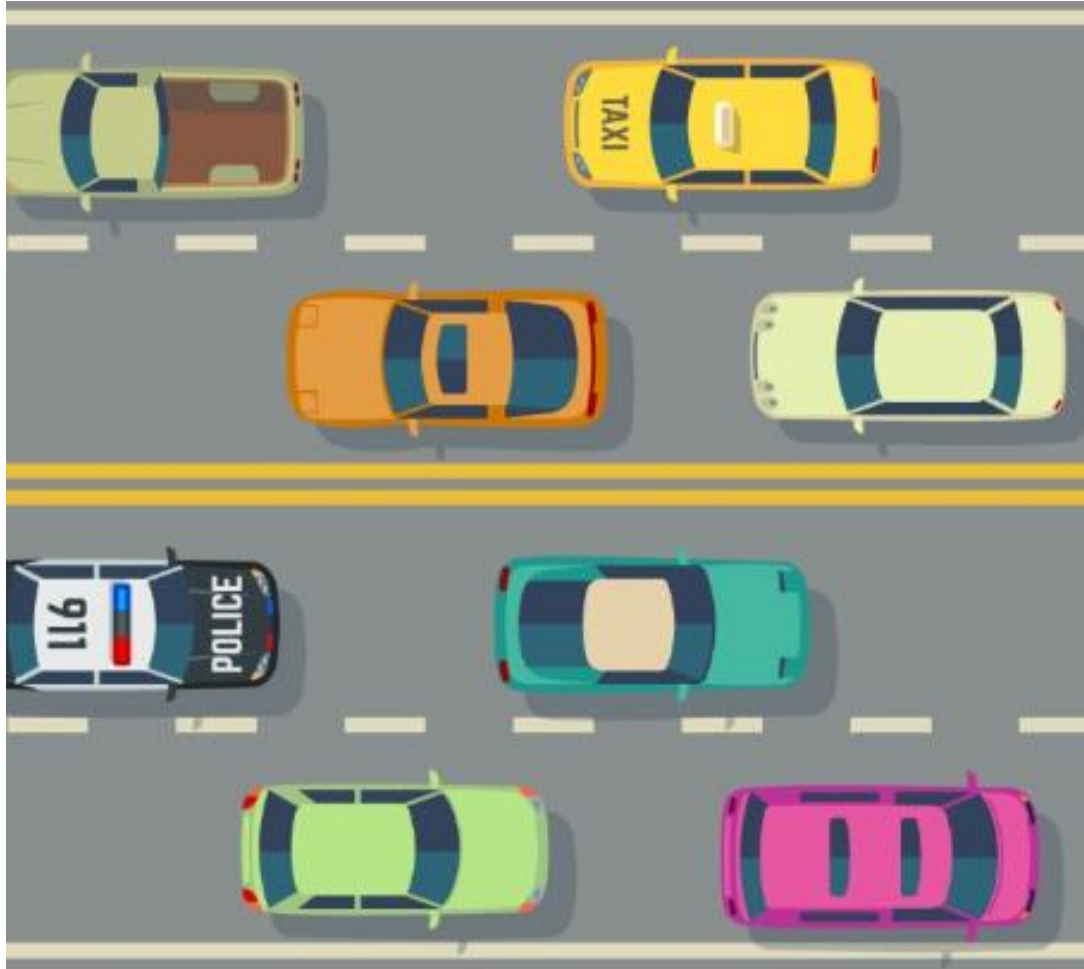
Quality of Life (QOL) & Mobility

- Definition of QOL:
 - “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations and concerns.”
- Because QOL is based on an individual’s perception, it is important to acknowledge that the definition varies from person to person.
- Other factors that affect the definition:
 - A person’s values
 - A person’s priorities
 - A person’s environment
- The overall goal of Mobility is to allow an individual to move from point A to point B, throughout their day, to independently participate in daily life & recreational activities.
- Ideally, we want them to conserve energy so that they can enjoy & participate in those activities.

(Spina Bifida Association, *Quality of Life Guidelines*, 2023)



How did you arrive at the conference today?



- Best for individuals to have multiple tools in their Mobility toolbox



Types of Mobility Devices

- Braces or orthotics
 - Named for the joint they cross, ie:
AFO=ankle-foot-orthosis
 - Commonly used braces for children with Spina Bifida:
 - AFO's, KAFO's, HKAFO's & RGO's
- Assistive Devices
 - Forearm crutches, reverse walkers and gait trainers



Manual Wheelchairs & Power Assist Devices

- Manual Wheelchairs (MWC's)
 - Folding
 - Rigid
- Power Assist Devices
 - Hand rim controlled
 - Joystick controlled
 - Tiller controlled



Power Wheelchairs

- Power Wheelchairs (PWC's)
 - Mid wheel vs Front wheel



Meet our friend Alicya



Neurological Level of Lesion & Anticipated Mobility

- Thoracic/upper lumbar level (L1):
 - Walking at this level is not common, and mobility is typically at a wheelchair level. There is no quadriceps function.
 - Household/therapeutic ambulation requires the use of a hip-knee-ankle-foot orthosis (HKFO) or reciprocating gait orthosis (RGO). Standing may be achieved using passive or dynamic standers.
- Mid to high lumbar level (L2-L3):
 - Mobility is predominantly using a wheelchair for community distances although those with an L3 level (quadriceps function) have more ability to use a mixed pattern of assisted ambulation and a wheelchair.
 - Hip flexion is present.
 - No gluteus medius/maximus function is present.
 - Ambulation requires ankle-foot orthoses (AFO) or knee-foot orthoses (KAFO) and usually crutches or a walker.

(Spina Bifida Association, *Mobility Guidelines*, 2023)



Neurological Level of Lesion & Anticipated Mobility Cont'd

- Lower lumbar (L4-L5):
 - Fair to good ambulation potential for both household and community.
 - Use of AFOs is common, and an individual may use forearm crutches to improve gait pattern.
 - May use a wheelchair for long distances or sports participation.
 - Foot dorsiflexion is present
- Sacral level:
 - Ability to ambulate but may need orthoses.
 - May involve nerve injury of the cauda equina, so there may be sparing of some distal motor and sensory function (e.g., foot plantarflexion may be present).

(Spina Bifida Association, *Mobility Guidelines*, 2023)



Choosing the Right Mobility Device can Unlock More Energy and More Life

Current Adaptive Sports for individuals with Spina Bifida or spinal cord injuries:

- Soccer
- Tennis
- Track and Field
- Wheelchair Basketball
- Adaptive shooting
- Adaptive snow skiing
- Adaptive water skiing
- Power Soccer
- Adaptive Kayaking
- CrossFit
- Weightlifting
- Wheelchair Rugby
- Wheelchair softball
- Wheelchair Tennis
- Adaptive Cycling
- Golf
- Sit Volleyball
- Pickleball
- Wheelchair Softball
- Wheelchair Football

How Recreational Activities Support Quality of Life

- Physical Wellbeing
- Psychological/Emotional Wellbeing
- Cognitive Skills
- Social Skills and Social Wellbeing
- Leisure Experience
- Independence and Life skills
- Participation & Community Integration
- Identity, Purpose, and Meaning



Just because you can, does not mean you should.

- Is it enjoyable?
- Does it fit their lifestyle?
 - Things to consider:
 - Resources
 - Culture
 - Goals
 - Barriers
 - Interests

Specific equipment for rec/leisure/sports...

- Sports wheelchairs
 - Basketball
 - Golf
 - Football
 - Track and field
 - Baseball
 - Football
 - Rugby



Specific equipment for rec/leisure/sports...

- Bikes
 - Foot Cycles
 - Hand and Foot Cycles
 - Hand Cycles
 - Recumbent Foot
 - The Mantis (balance bikes)
 - Accessories



Specific equipment for rec/leisure/sports...

- Fat Wheels- Like training wheels but "Cooler"
 - For standard bikes
 - Small, Large, and adult sizes



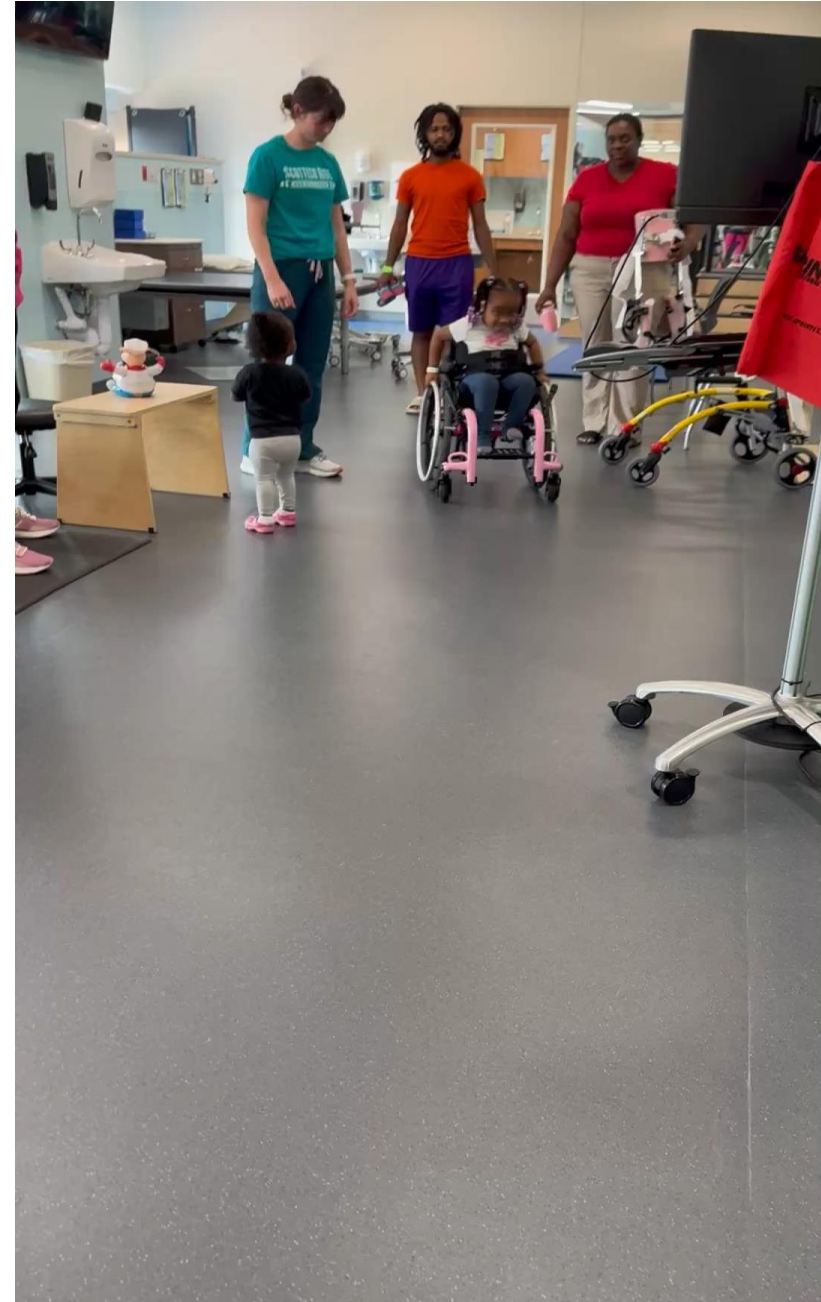
Resources for Sports Wheelchairs and Adaptive bikes

- Ambucs and Amtrykes
 - www.ambucs.org
- Freedom Concepts
 - Chill-Out Chair: <https://youtu.be/jrRcMfCduRw>
 - Adaptive Bikes: <https://youtu.be/tHYbAMskVLE>
 - The Mantis: <https://youtu.be/ByL-f57-RDU?si=4sO-EX4yOZcQgQBK>
- Challenged Athletes Foundation
- Be an Angel
- Fat Wheels
 - www.fatwheels.com



Take Away Message

- It is best for the individual with Spina Bifida to have many diverse types of ways to move their body that allows them to participate and interact with their world as fully and independently as possible.



Questions???



References

- Spina Bifida Association. (2023). *Guidelines for the care of people with spina bifida: Mobility*. <https://www.spinabifidaassociation.org/wp-content/uploads/2025/08/MobilityJan2024.pdf>
- Spina Bifida Association. (2023). *Guidelines for the care of people with spina bifida: Quality of life*. [Spina Bifida Association PDF](#)
- Spina Bifida Association. (2023). *Guidelines for the care of people with spina bifida: Physical activity*. <https://www.spinabifidaassociation.org/wp-content/uploads/2025/08/Physical-ActivityJan2024.pdf>

Thank You!!!

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