A JUSTIFICATION GUIDE FOR LETTERS OF MEDICAL NECESSITY

HELIO KIDS

_____ will utilize this Helio Kids ultralightweight manual wheelchair for many age appropriate ADLs as well as mobility within multiple environments. Because children are not just mini adults, age appropriate ADLs include play, emerging mobility skills and participation, along with function. Taking into account how many environments a child encounters in a short period of time and how their positioning should be looked at in a 24-hour period, they often require multiple positioning and mobility devices in order to fully participate.

Because of this, and due to a child's tendency toward periods of rapid growth, it is a necessity to have a wheelchair frame and seating system with adjustability. The Helio Kids comes with a FREE Growth Kit within the first 5 years of wheelchair ownership (of original owner). This is important to allow the wheelchair to be fit to _____ how their measurements dictate today, and not have to GROW INTO the wheelchair. If the wheelchair is built too wide initially, it will be inefficient and could cause long term musculoskeletal injuries as the UEs are not placed in an optimal position. If the wheelchair is built too deep initially, it could cause _____ to slide, limiting access to rear wheels and lead to unwanted postural changes. Selecting the Depth Adjustable Back option will help to ensure seat depth is optimized throughout the lifetime of the wheelchair. Proper fit is one way to set up a child for success while utilizing a manual wheelchair as evidence shows many children cannot independently propel a manual wheelchair.[1]

Benefits of selecting the Helio Kids ultralightweight manual wheelchair for _____ include a rigidized folding system for improved overall efficiency. The Helio Kids is the only pediatric folding wheelchair with design and engineering of the frame including a one-piece side frame and symmetrical, oval crossbrace which promote improved propulsion efficiency due to less movement within the frame itself.

Additional benefits of the Helio Kids for _____ include an adjustable rear axle position, in 1/4" or 0.64 cm increments both horizontally and vertically for optimum rear wheel positioning for maximum propulsion efficiency. Without this ability to adjust the rear wheels, _____ will be unable to move the wheelchair throughout their environment(s).

- ☐ Home
- ☐ School
- ☐ Community

The horizontal adjustments (Center of Gravity, COG) of the rear wheel can allow _____to better access the rear wheels and protect UE joints when they are moved as forward as possible without compromising stability, as stated by the evidence.[2,3,4]

The vertical adjustments (COG) of the rear wheel can allow_____ to better access the rear wheels and improve biomechanics of a propulsion stroke by allowing them to be positioned within the wheelchair and not just ON the wheelchair. This vertical adjustment can create a seat slope, where the rear of the seat is lower than the front of the seat, allowing gravity to assist _____ in maintaining an upright trunk position for improved independence with ADLs and participation as well as to decrease overall fatigue.

_____ requires camber in their wheelchair to assist them with maneuverability, access to the rear wheels, easier turning, and to increase overall lateral stability.

The customization of seat width, seat depth, rear axle position (COG), rear seat to floor height and camber, together can provide optimal positioning for propulsion and function for _____. This is individually measured to meet what _____ needs now, and the growth adaptability of the Helio Kids will allow for that to continue for the lifetime of the wheelchair.

CARBON FIBER

_____ requires an even lighter material that standard aluminum. _____ will benefit from carbon fiber because it is exceptionally lightweight as well as very strong. Their pain, spasticity and weakness make it difficult to even propel the aluminum ultralightweight manual wheelchair. The vibration damping quality of carbon fiber can eliminate a large portion of the everyday vibration that is transmitted up to _____ which can help to decrease pain, increase energy, and decrease the number of spasms.

What makes the Helio Kids an exceptional choice is that it is made of carbon fiber. _____ requires an even lighter material than standard aluminum because of challenges related to their primary and secondary diagnoses of _____. Carbon fiber also has a very high strength to weight ratio, allowing the chair to be exceptionally durable while still being extremely lightweight. This will benefit _____ and allow the wheelchair to be less % of their overall body weight, more than many other pediatric wheelchairs on the market. The Helio Kids exceptional durability will only benefit _____, knowing how active children are in multiple environments and needing their wheelchairs to remain in excellent working condition over time.

(See CF Justification sheet)

COMPONENTS

The following section details wheelchair components that are essential in making _____ independent and efficient in their environment to perform MRADLs.

TIE DOWN
WC19 TRANSIT TIE DOWN WITH Q'STRAINT BELT SHORT BELT
WC19 TRANSIT TIE DOWN WITH Q'STRAINT BELT LONG BELT
· To utilize public transportation
· Q'straint belt can be attached to in vehicle system
· For transportation IN the wheelchair
WC19 TRANSIT TIE DOWN WITHOUT BELT
· To utilize public transportation
· For transportation IN the wheelchair
VISION PACKAGE
· High contrast components at point of contact including footrest latches, T armrest button cap, 6" push to lock extension and rubber inserts on Newton composite angle adjustable footplates.
CASTER OPTIONS
PNEUMATIC CASTERS
· Softer ride to help to control pain and spasticity
NEWTON ULTRACASTERS COMPOSITE OR ALUMINUM
· For use in multi-terrain environments
· Material of tire is softer
· Smoother ride to potentially help control pain
· Aluminum hub material for added durability
· Aluminum red sleeve between metal bearings and metal hub ensures easier bearing maintenance
CASTER PIN LOCKS
· Locks caster position so it won't move during transfer
CARBON FIBER FROG LEGS SUSPENSION FORKS
· Provides additional shock absorption
· Provides increased comfort to ride
FOOTREST OPTIONS
HIGH MOUNT FOOTPLATE ATTACHED TO HANGER
· For a shorter lower leg length to allow foot to sit on footplate
ELEVATING LEGREST WITH CALF PAD
· For support of lower extremity with potential orthopedic condition not allowing knee flexion
· For support of lower extremity with pain with knee flexion
· For support of lower extremity with pain with foot in dependent position

FOOTPLATE OPTIONS

	FOOTPLATE: NEWTON ANGLE ADJUSTABLE COMPOSITE
	• For full foot coverage/support to match user foot position
	• Lightweight with rubber grips, can individually remove rubber nipples for adding hardware for positioning straps
	FOOTPLATE: NEWTON ANGLE ADJUSTABLE ALUMINUM
	• For full foot coverage/support to match user foot position
	• More robust and heaviest option, has slits for adding positioning straps

	FOOTPLATE: ONE PIECE ADJUSTABLE ANGLE FLIP UP ALUMINUM
	• Will "rigidize" front hangers on folding chair
	• Flip up completely out of the way for transfers
	FOOTPLATE: NEWTON ANGLE ADJUSTABLE CARBON FIBER
	• For full foot coverage/support to match user foot position
	• Very strong but super lightweight with rubber grips, no additional holes for mounting positioning straps except for heel loop
	FOOTPLATE: ONCE PIECE ADJUSTABLE ANGLE FLIP UP ALUMINUM
	• Will "rigidize" front hangers on folding chair
	• Flip up completely out of the way for transfers
	FOOTPLATE: ONCE PIECE ADJUSTABLE ANGLE FLIP CARBON FIBER
	• Will "rigidize" front hangers on folding chair
	• Flip up completely out of the way for transfers
	• Lightest option in this category
	CALF STRAP
	• To provide posterior support to the calf region
	• Will be used anteriorly to the lower leg to prevent legs from falling off the footplates toward the front of the wheelchair
	BODYPOINT AEROMESH PADDED CALF STRAP
	• To provide posterior support to the calf region
	• Will be used anteriorly to the lower leg to prevent legs from falling off the footplates toward the front of the wheelchair
	• Padding to prevent skin breakdown and for improved tolerance to user

SWING AWAY RESIDUAL LIMB SUPPORT

	RESIDUAL LIMB SUPPORT
	• Will provide targeted support to residual limb
	• Adjustable in many directions for best fit

PUSH HANDLE OPTIONS

	FOLD DOWN PUSH HANDLES
	• To allow for handles to be out of the way for transport especially in smaller spaces
	• To prevent user being "pushed" by someone when not necessary or not wanted
	CLAMP ON HEIGHT ADJUSTABLE PUSH HANDLES
	• To allow for user to be pushed at times with caregivers of different heights
	• To allow for push handles to be placed completely out of the way when desired

	STROLLER HANDLE
	• To allow for higher access for caregiver to push wheelchair
	• Rigidizes the back canes on an upholstery back
	NEWTON FOLDING STABILIZER BAR
	• Can provide rigidizing for a folding wheelchair, especially with upholstery back
	• Easily can allow for chair to still fold

BACK UPHOLSTERY

	BACK UPHOLSTERY TENSION ADJUSTABLE
	• Option for mild postural support
	• Allow wheelchair to fold down without extra step of removing rigid back support

ONE ARM DRIVE

	ONE ARM DRIVE WITH ALUMINUM HANDRIM
	• Allow wheelchair to be "steered" with one upper extremity
	• Has two standard aluminum handrims
	ONE ARM DRIVE WITH PLASTIC COATED INNER HANDRIM
	• Allow wheelchair to be "steered" with one upper extremity
	• Inner handrim with plastic coating for extra "grip and friction"

REAR WHEEL OPTIONS

	MAG
	• Limited to no maintenance
	• May be required by some institutions
	NEWTON GRAVITY ULTRALIGHT WHEEL
	• Increased efficiency and lighter weight than standard
	SPINERGY SPOX
	• Good balance of lightweight wheel and stability
	SPINERGY LX
	• Minimal spokes
	• Reach through access to underneath wheelchair from the side if necessary
	SPINERGY CLX
	• High stiffness
	• Responsive
	• Low weight, high strength to weight ratio

TIRE OPTIONS - SOLID

	SOFT URETHANE 1 3/8" (3.5 cm) **– LOW TREAD**
	• Designed to be fully puncture proof and low maintenance
	• Wears at a slower rate compared to pneumatics
	• Higher tensile strength allowing it to carry heavier loads
	• No maintenance requirements
	SOFT URETHANE 1 3/8" (3.5 cm) **– MEDIUM TREAD**
	• Designed to be fully puncture proof and low maintenance

TIRE OPTIONS - PNEUMATIC

	PNEUMATIC 1 3/8" (3.5 cm)
	· Lower rolling resistance than solid tires
	· The right amount of tire pressure can offer a softer ride over bumpy surfaces and provide that tactile grip for wet surfaces
	PNEUMATIC WITH AIRLESS INSERT 1 3/8" (3.5 cm)
	· Designed to be fully puncture proof and low maintenance
	· Increased traction compared to solid tires
	· Softer ride than solid tires due to air tire
	· No maintenance requirements
	· Heaviest tire option
	PNEUMATIC HP 1" (2.5 cm) **– LOW TREAD, PUNCTURE RESISTANT – SpeedLite**
	· Dual layer for extremely high puncture resistance
	· High pressure achieves the least rolling resistance
	PNEUMATIC HP 1" (2.5 cm) **– MEDIUM TREAD, PUNCTURE RESISTANT – TrailBlazer**
	· Dual layer for extremely high puncture resistance
	· High pressure achieves the least rolling resistance
	· Increased traction compared to low tread option

HANDRIMS

	ALUMINUM BLACK HARD ANODIZED
	· Dark colored anodization to seal the rim to prevent oxidation
	PLASTIC COATED
	· Higher friction than standard for increased grip and energy transfer
	· Wider diameter than standard, doesn't require as much of a pincer grasp
	HIGH FRICTION COATED
	· High friction for high energy transfer
	· Less diameter than plastic coated
	NEWTON AIR GRIP
	· High friction for high energy transfer
	· Same diameter as aluminum anodized
	NATURAL FIT
	· Oval aluminum ergonomic handrim
	· May help decrease symptoms of carpal tunnel or other overuse injuries common in persons who use manual wheelchairs
	· Allows a dual surface for propulsion and braking
	· Add thumb piece to close the gap between the handrim and wheel rim to enhances the ergonomic grip
	SIMI H
	· Oval hard aluminum anodized ergonomic handrim with high friction silicone strip
	· May allow hand to stay in contact with handrim even when wet
	· May help decrease symptoms of carpal tunnel or other overuse injuries

	NOVA H
	• Oval hard aluminum anodized ergonomic handrim with high friction grip
	• May allow hand to stay in contact with handrim even when wet
	• May help decrease symptoms of carpal tunnel or other overuse injuries
	OPTIMUM H
	• Heart shaped hard aluminum anodized ergonomic handrim with built in thumb groove
	• May help decrease symptoms of carpal tunnel or other overuse injuries

ASSEMBLY POSITION OF HANDRIM (FOR ALUMINUM ANODIZED, NEWTON AIRGRIP)

	NARROW HANDRIM POSITION WITH CUT
	• Custom more narrow position with decreased space between handrim and wheel
	• Decreases overall width of wheelchair for doorway access
	• May be more comfortable for grip for person using the wheelchair
	SUPER NARROW HANDRIM
	• Custom most narrow position with very minimal space between handrim and wheel
	• Decreases overall width of wheelchair to its most narrow with still having a handrim attached for doorway access
	• Will not allow fingers/hands to get stuck between handrim and wheel
	• May be appropriate for pediatric client who grabs tires, can help get them used to handrim at the same time

THUMB PIECE SELECTION FOR SURGE, SURGE LT, AND NATURAL FIT

	STANDARD GRIP
	• Has a powder coating and no friction
	• Enhances ergonomic position of hand combined with handrim to potentially decrease symptoms of overuse injuries and carpal tunnel syndrome
	SUPER GRIP
	• Has an advanced copolymer coating with high friction surface
	• Enhances ergonomic position of hand combined with handrim to potentially decrease symptoms of overuse injuries and carpal tunnel syndrome

AXLE

	QUAD RELEASE AXLE
	• Limited hand function may impair ability to release the standard push button on quick release
	• This small circular lever will allow individual to disengage axle
	AMPUTEE AXLE PLATE
	• When the rear axle needs to be placed more posterior than standard most rearward most often when not enough weight is available onto the front of the wheelchair.

REAR WHEEL CAMBER - 0° AND 3° - NO CHARGE

	6 DEGREE JUSTIFY
	• This high degree of camber may help increase lateral stability and maneuverability for person using the wheelchair

WHEEL LOCK

	6" (15 cm) **REMOVABLE EXTENSION HANDLE FOR PUSH TO LOCK**
	• Will allow for better access to reach wheel locks
	• Decreased strength in UE requires the longer lever arm for easier engagement and disengagement of lock
	• Often appropriate for geriatrics and pediatrics

	ALUMINUM PUSH TO LOCK WITH EXTENSION
	• Will allow for better access to reach wheel locks

	NEWTON GRADE AID PUSH TO LOCK
	• Integrated anti-roll back to assist with up a graded surface without having to always maintain hand contact with rear wheel
	6" (15 cm) **REMOVABLE EXTENSION HANDLE FOR PULL TO LOCK AND GRADE AID**
	• Will allow for better access to reach wheel locks
	• Decreased strength in UE requires the longer lever arm for easier engagement and disengagement of lock
	SCISSORS LOCK
	• Remains under the seat rail and out of the way of hands to prevent potential injuries to fingers from propulsion strokes
	ATTENDANT LOCK
	• Wheelchair user is unable to independently or safely engage wheel locks
	• User prematurely disengages wheel locks prior to transfers
	UNILATERAL WHEEL LOCK PULL TO LOCK
	• Only one UE is able to be used to engage wheel lock, due to weakness, paralysis or limb loss
	ARMREST OPTIONS
	HEIGHT ADJUSTABLE T ARMREST
	• Height adjustment to ensure proper positioning for UE and shoulder while seated in the wheelchair
	• T Armrest for most stability for push up with transfers or repositioning
	10" (25 cm) **DESK LENGTH ARMPAD**
	• Allows for getting closer access to surfaces for ADLs
	14" (36 cm) **FULL LENGTH ARMPAD**
	• Allows for getting closer access to surfaces for ADLs
	LOCKING FLIP-UP ARMREST
	• Flip back to allow for lateral transfers, potentially use of transfer board
	• For repositioning
	14" (36 cm) **FULL LENGTH ARMPAD – GEL OVATION (PAIR)**
	• Gel armpad may provide pressure relief for pain
	• May be required for skin protection on elbows and forearms
	SIDE GUARDS
	PLASTIC SIDE GUARDS (REMOVABLE)
	• Protection to LEs including skin from moisture from wheels
	• Maintaining midline position
	• Can remove for transfers or other functional activities
	CARBON FIBER SIDE GUARDS (REMOVABLE)
	• Extreme lightweight
	• Protection to LEs including skin from moisture from wheels
	• Maintaining midline position
	• Always maintains position regardless of functional tasks or wheelchair use

	SWING-AWAY ANTI-TIPPER
	• Can be used unilaterally on standard weight capacity wheelchairs, or bilaterally on HD wheelchair models
	• Allow user in wheelchair to independently swing tipper under the chair for transfers or traversing curbs
	• Allow caregiver in wheelchair to independently swing tipper under the chair for transfers or traversing curbs
	• Has built in tip-assist
	TIP ASSIST
	• Mounts directly into the frame
	• Will allow caregiver to press down with foot to tip wheelchair user over a small obstacle or up a curb
	CANE AND CRUTCH HOLDER
	• Mounts onto back of wheelchair to hold a cane or pair of crutches
	OXYGEN TANK HOLDER
	• Mounts onto back of wheelchair to hold an oxygen tank
	SPOKE GUARDS
	• Plastic guard that clips to spokes in 4 places to hold in place
	• Blocks spokes and prevents fingers or other objects from being caught in spokes

REFERENCES:

1- Rodby-Bousquet, E., Paleg, G., Casey, J., Wizert, A., & Livingstone, R. (2016). Physical risk factors influencing wheeled mobility in children with cerebral palsy: A cross-sectional study. BMC Pediatrics, 16(1). https://doi.org/10.1186/s12887-016-0707-6

2- DiGiovine, C., Rosen, L., Berner, T., Betz, K., Roesler, T., & Schmeler, M. (2022). RESNA position on the application of ultralight manual wheelchairs (Position Paper).

3- Joseph Ott, Holly Wilson-Jene, Alicia Koontz & Jonathan Pearlman (2022) Evaluation of rolling resistance in manual wheelchair wheels and casters using drum-based testing, Disability and Rehabilitation: Assistive Technology, 17:6, 719-730, DOI: 10.1080/17483107.2020.1815088

4- Paralyzed Veterans of America Consortium for Spinal Cord Medicine (PVACSCM). (2005). Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals. The Journal of Spinal Cord Medicine, 28(5), 433-470.

REFERENCES:

1- Rodby-Bousquet, E., Paleg, G., Casey, J., Wizert, A., & Livingstone, R. (2016). Physical risk factors influencing wheeled mobility in children with cerebral palsy: A cross-sectional study. BMC Pediatrics, 16(1). https://doi.org/10.1186/s12887-016-0707-6

2- DiGiovine, C., Rosen, L., Berner, T., Betz, K., Roesler, T., & Schmeler, M. (2022). RESNA position on the application of ultralight manual wheelchairs (Position Paper).

3- Joseph Ott, Holly Wilson-Jene, Alicia Koontz & Jonathan Pearlman (2022) Evaluation of rolling resistance in manual wheelchair wheels and casters using drum-based testing, Disability and Rehabilitation: Assistive Technology, 17:6, 719-730, DOI: 10.1080/17483107.2020.1815088

4- Paralyzed Veterans of America Consortium for Spinal Cord Medicine (PVACSCM). (2005). Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals. The Journal of Spinal Cord Medicine, 28(5), 433-470.