karma A Better Wheelchair, A Better Fit

VIP 2 Clinical Justification

Activity Intolerance

Activity intolerance is a state in which an individual has insufficient physiologic or psychological energy to endure or complete required or desired daily activities. This can be a result of many condition including bed-ridden, malnutrition, post-surgery, accute pain, mental condition, etc..

For users experiencing fatigue-related activity intolerance, the **tilt** function provides repositioning without active movement. In addition, by reducing the need to maintain an upright posture, **tilt and recline** help decrease fatigue in the trunk and neck muscles.

Intolerance can result from musculoskeletal pain caused by muscle imbalance, joint contractures, or stiffness. The **recline** function helps by controlling the speed of postural change, reducing joint pressure, and accommodating posterior pelvic tilt deformities, improving comfort and alignment.

Postural hypotension may develop when transitioning from lying to sitting, particularly in bed-ridden users. The **stepless recline** function enables users to return safely to a reclined or supine position to alleviate symptoms and allows gradual adjustment to different angles, supporting safer positional change.

For users who have difficulty performing independent pressure relief, **tilt and recline** redistribute pressure away from the pelvis and trunk, reducing the risk of pressure injuries. These functions also support proper postural alignment and help prevent forward sliding.

Users with activity intolerance often face challenges with transfers. **Removable armrests and legrests** provide the necessary clearance to support independent or assisted sitting transfers. Additionally, **recline and elevating legrests** can be used to facilitate fully assisted lying transfers when required.

Tilt and recline functions improve caregiver access during personal care, positioning, and clinical tasks by allowing the user to be positioned in safer and more manageable postures.

Accessory / Feature	Clinical Application for Amputation
Tilt-in-Space & Recline	Tilt-in-space first, then recline. Tilting allows gravity to stabilize the pelvis in the seat before opening the recline angle. This eliminates shear force between the skin and the backrest during recline, ensuring skin integrity. Recline combined with tilt-in-space positioning enables caregivers to effectively perform cleaning and nursing care. Not only transfers partial hip pressure to the back, also distributes back pressure to maximize pressure relief. Effectively reduces symptoms caused by orthostatic hypotension, especially suitable for long-term bedridden users. Combined with articulating elevating legrests, the lower limbs can be positioned above heart level to promote lymph circulation and reduce lower extremity edema.

0° ~ 35° Tilt-in-Space	When tilt-in-space reaches 30°, the pressure under ischial tuberosity is significantly reduced and redistributed to the back. Reducing the risk of pressure injury. Tilt-in-space reduces spasticity and provides stable sitting positioning. Through tilt-in-space, gravity naturally settles the pelvis into the seat, preventing forward sliding in the sitting position, thereby reducing the risk of pressure injury caused by shear force on the skin and reducing the physical burden on caregivers who would otherwise need to frequently reposition the user.
0° ~30° Recline	30° backrest recline adjustment accommodates the user's hip joint angle limitations, ensuring stable and comfortable sitting positioning. The recline function evenly distributes partial ischial pressure to the back, improving blood circulation beneath the ischial tuberosities.
Tension Adjustable Seat	Tension straps can be re-tightened at any time. This resolves hammock effect caused by fabric fatigue, ensuring the seat surface maintains proper rigidity to keep the pelvis in a balanced position. Tension straps can be re-tightened at any time. This resolves hammock effect caused by fabric fatigue, ensuring the seat surface maintains proper rigidity to keep the pelvis in a balanced position.
Tension Adjustable Backrest	The tension-adjustable backrest allows loosening of straps corresponding to thoracic kyphosis, increasing the contact surface area and thereby distributing pressure. Tightening the straps at the lumbar region creates a built-in lumbar support, helping maintain the physiological spinal curvature and delaying fatigue. The tension-adjustable backrest can be re-tightened at any time as the fabric stretches, ensuring the backrest consistently provides effective support rigidity and maintains correct seated posture.

Adjustable Headrest	The three-piece design provides wide area support that stably supports the occiput, effectively distributing occipital pressure. The laterals wing can be adjusted inward for unilateral support on the affected side, while the wing on the unaffected-side remains open to preserve the visual field. This provides stable support and range of motion during head positioning.
Height Adjustable Armrest	Armrests with adjustable height ensure the elbows are comfortably supported at 90 degrees of flexion. This not only stabilizes the trunk but also provides a stable platform for users to perform pressure relief through push-ups.
Articulating Elevating Legrest	Articulating elevating leg rests, combined with tilt and recline functions, allow the user's lower extremities to be elevated above heart level. This promotes lymphatic circulation and helps reduce edema. Angle adjustable to support the entire leg, reduce pain, postural deformity, or enable surgical wound healing. The legrests can swing outward, inward, or also be removed creating front clearance. This allows the user to stand with feet firmly on the ground, or enables caregivers to support the user at closer range, significantly reducing fall risk. When combined with the recline function, increasing the knee joint angle adjustment to reduce forward sliding in sitting position.
Angle and Depth Adjustable Footplate	Depth adjustable footplate ensures the footplate surface is precisely positioned beneath the feet. Combined with angle adjustment, full sole contact distributes plantar pressure and provides stable support. Angle and depth adjustments ensure the footplate maintains the most natural positioning regardless of footwear, preventing reflex or muscle tone caused by improper positioning.
Calf Strap	The calf strap prevents the foot slipping out of the footplate caused by changes in muscle tone, vibration, or positioning.

Rigidifying Push Bar	Caregivers can select the most natural grip based on their shoulder width for pushing. This resolves the pushing burden caused by excessively wide push handles, aligning with a natural pushing posture.
Gas Strut	Using gas strut to provide a stable speed of postural change ensures no sensation of sudden drop during postural changes, reducing anxiety for both the user and caregiver, and avoiding indirect risks such as triggering reflex. Stepless adjustment positions the user at the most suitable angle, providing adequate support while also allowing the user maximum independent mobility.
Attendant Brake	The attendant brake decelerates or stops the wheelchair, enhancing safety and convenience during caregiving.
Anti-Tipper	Anti-tipper provide the protection during sudden center-of-gravity shifts, preventing the wheelchair from tipping over.

The clinical recommendations provided in this document are for professional therapists' reference only and should not replace individualized clinical assessment. The actual prescription should be determined by healthcare professionals based on the user's physical functions, home environment, and individual needs. Karma Medical reserves the right to change product specifications.

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