

VIP 2 Clinical Justification

Pressure Injury

This product supports the combined use of **tilt-in-space** and **recline** functions. It redistributes sitting pressure points over a larger surface area and stabilizes the pelvis, achieving optimal pressure relief and reducing the risk of **shear injury**. Simultaneously, the **elevating legrests along with positioning** help relieve lower limb edema, maintain tissue oxygenation, and preserve skin integrity.

Tilt-in-Space + Recline Function:

- 1. Achieving optimal gluteal pressure relief** — Tilt or recline alone only transfers or redistributes partial pressure. When tilt-in-space and recline simultaneously reach maximum angles, body weight is redistributed from the small area of the ischial tuberosities to the larger surface areas of the back and head, minimizing gluteal pressure.
Critical pressure-relief angles: 35° tilt+ 100° recline.
- 2. Complete elimination of shear injury risk** — Recline alone causes skin to slide against the surface causing friction (shear).
Solution: First execute tilt-in-space to shift the center of gravity posteriorly, positioning the pelvis deep into the seat, then perform recline. This prevents the body from sliding forward, minimizing shear forces on the skin.
Risk of recline: Recline alone increases sacral pressure and generates strong shear forces from body sliding, which is the primary cause of deep tissue injury (DTI).

3. Resolving lower extremity edema (with elevating legrests) —

Prolonged sitting causes poor venous return in the lower extremities. The combination enables the user's feet to be elevated over heart level, improving lower extremity circulation. Adequate tissue oxygenation reduce the risk of skin necrosis and breakdown.

To prevent pressure injuries, always follow this sequence:

When reclining — First activate tilt-in-space → then activate recline.

When returning upright — First return recline → then return tilt-in-space.

Summary: This combination is the optimal choice for users who cannot reposition independently, have thin skin, or have early-stage pressure injuries (erythema).

Accessory / Feature	Clinical Application for Amputation
<p>Tilt-in-Space & Recline</p>	<p>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.</p> <p>Recline combined with tilt-in-space positioning enables caregivers to effectively perform cleaning and nursing care.</p> <p>Not only transfers partial hip pressure to the back, also distributes back pressure to maximize pressure relief.</p> <p>Effectively reduces symptoms caused by orthostatic hypotension, especially suitable for long-term bedridden users.</p> <p>Combined with articulating elevating legrests, the lower limbs can be positioned above heart level to promote lymph circulation and reduce lower extremity edema.</p>

<p>Selectable Seat Width</p>	<p>Provides precise seat width to ensure pelvic support, maintaining seating stability.</p> <p>16"-18" range ensures approximately 1-2 finger-widths of clearance between each thigh and the side guard after seating, reducing shear and pressure.</p> <p>Therapists can balance user body size with doorway width constraints. For example, if the user's body measurement allows, choosing 16" over 18" can improve maneuverability in narrow indoor spaces (e.g., bathroom doors).</p>
<p>Selectable Seat Depth</p>	<p>Proper seat depth effectively transfers part of the body weight from the hip to the thigh, reducing risks of forming pressure points.</p> <p>Proper seat depth helps the user sit securely and comfortably by minimizing movement on the seat, which reduces pressure and shear forces.</p>
<p>Tension Adjustable Seat</p>	<p>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.</p> <p>By loosening the rear tension straps to create a profile which the front seat is higher than the rear seat, risks of forward sliding can be reduced without using the tilt-in-space function.</p>
<p>Tension Adjustable Backrest</p>	<p>The tension-adjustable backrest allows loosening of straps corresponding to thoracic kyphosis, increasing the contact surface area and thereby distributing pressure.</p> <p>Tightening the straps at the lumbar region creates a built-in lumbar support, helping maintain the physiological spinal curvature and delaying fatigue.</p> <p>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.</p>

<p>Adjustable Headrest</p>	<p>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.</p>
<p>Height Adjustable Armrest</p>	<p>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.</p>
<p>Detachable Armrest</p>	<p>With the armrests removed, the wheelchair seat surface aligns seamlessly with the bed surface or transfer board. This provides a clear pathway for lateral transfer, significantly reducing collision and secondary injury during transfers.</p> <p>With the armrests fully removed, caregivers can get close to the user's trunk. This eliminates lumbar spine stress caused by lifting at a distance, improving caregiving efficiency and safety. In recline position, removable armrest enables lateral supine transfer.</p>
<p>Articulating Elevating Legrest</p>	<p>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.</p> <p>Angle adjustable to support the entire leg, reduce pain, postural deformity, or enable surgical wound healing.</p> <p>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.</p> <p>When combined with the recline function, increasing the knee joint angle adjustment to reduce forward sliding in sitting position.</p>

Angle & 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.
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.

