

Common Risks	Potential Associated Injuries	Rotatruck Impact
Force	Exertion of excessive force can cause a variety of injuries.	<p>The Rotatruck substantially reduces the force required by an operator compared to a standard two wheel hand truck across a range of typical actions including:</p> <ul style="list-style-type: none"> • Load pull back and parking. • Combined balancing and pushing of the load. • Mounting a kerb or getting over an obstruction • Balancing and rotating the load in confined spaces
Repetition	Excessive repetition of movement can irritate tendons and increase pressure on nerves.	<p>The Rotatruck reduces repetition and exertion including:</p> <ul style="list-style-type: none"> • The need to frequently park and pull back when: <ul style="list-style-type: none"> • Partially unloading • Entering doorways and lift entries • Traffic light or other waits • Reducing the number of loads due to ability to carry more load with less effort • Reducing the need to continuously operate balancing • Reduces the need to change direction to reverse over kerbs
Awkward Postures	Positions that stretch physical limits can compress nerves and irritate tendons.	<p>The Rotatruck reduces:</p> <ul style="list-style-type: none"> • The bending required when pulling back and parking to reduced effort requirement. • Turning/reversing involved in negotiating kerbs. • Bending and leaning back required to get up a kerb. The load is levered with bent legs and straight back. • The twisting while balancing the load with one hand when entering no self closing doors.
Static Postures	Positions that must held for long periods of time can restrict blood flow and damage muscles.	<p>When transporting a load over soft, uneven or uncertain terrain, an operator for a traditional hand truck will often tilt it back further for load security and ease of pushing. This moves the centre of gravity requiring the operator to take more of the load activating muscles in a static position for an extended period of time. The Rotatruck can be balanced over the rear wheel in a safe inclined position for these types of terrain reducing the need for the operator to substantially support the load.</p>
Quick Motions	Increased speed or acceleration when bending and twisting can increase the amount of force exerted on the body.	<p>This is often required for heavy loads. The Rotatruck allows more control over applied effort and speed due to the reduced force required. Also, due to its self supporting ability it does not require the operator to respond to quick adjustments in the case of obstructions.</p>
Compression/Contact Stress	Grasping sharp edges (like tool handles) can concentrate force on small areas of the body, reduce blood flow and nerve transmission, and damage tendons.	<p>Further to 'static posture', handling heavy loads over periods using the relatively small handles of a hand truck to support it, can place considerable pressure and stress on hands and fingers. The Rotatruck limits this issue by mostly eliminating the need by the operator to carry or support the load.</p>
Recovery Time	Inadequate recovery time due to overtime, lack of breaks and failure to vary tasks can leave insufficient time for tissue repair.	<p>The Rotatruck reduces the risk of injuries and also the risk of aggravation and injury and the time to recover by minimising effort and repetition of tasks required.</p>
Vibrations	Excessive vibrations from tools can decrease blood flow, damage nerves and contribute to muscle fatigue. Whole body vibrations can affect skeletal muscles and cause low back pain.	<p>Not applicable.</p>
Cold Temperatures	Working in cold temperatures can adversely affect coordination and manual dexterity, potentially causing a worker to use more force than necessary to perform the task.	<p>The reduction in effort required of an operator limits these negative impacts in cold temperatures.</p>

Source: Lista International, adapted from "Ergonomics: The study of work, U.S Department of labour, occupational Safety and Health Administration, ISHA 3125, 2000".