

autonomous pressure relieving aids for wheelchair patients (Ramot)**code:** 8-2011-265[Amit GEFEN](#), T.A.U Tel Aviv University, Engineering, Bio-Medical Engineering**Technology**

Anti-pressure-ulcer non-powered wheelchair cushion with means for sensory compensation to stimulate frequent postural changes in patients with paraplegia. The patient-activated wheelchair cushion shifts the sensory mechano-stimulations that provoke movement to an anatomical site which is sensitive to such stimulations (above the spinal cord injury (SCI) level).

Background and Description

In situations with lack of sensation, it is unnatural for patients with SCI to change postures. Psychological factors (embarrassment or shame of being dependent on a clock, vibrator or the like), particularly while in a social setting, contribute to the lack of cooperation to follow guidelines. A substitute to the missing sensation of discomfort (or pain) would contribute to making postural changes more natural for SCI patients and hence, would increase patient cooperation. Active cushions attempt to resolve the problem of lack of patient cooperation by cyclically inflating cells or pockets within the cushion to cause insensitive patients to periodically change postures. These cushions are expensive, noisy, require an electromechanical system which is connected to a power source (e.g. a battery) to work, and most importantly, they change the posture without any patient feedback

Advantages

- (i) Physiological - loads are relieved in sites which were previously highly loaded (as opposed to arbitrary sites)
- (ii) Psychological - the patient feels that he or she are controlling the process, rather than being moved like an object
- (iii) Technological - No external power source, cushion material completely self-contained

Patent Status

Provisional patent application. Ramot is seeking partners for prototype development, testing and commercialization.

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