Prevention of pressure ulcers among people with spinal cord injury: a systematic review.

Objectives: To evaluate the literature on the effectiveness of bed and wheelchair positioning and repositioning in the prevention of pressure ulcers (PUs) in both the spinal cord injury (SCI) and non-SCI populations.

Results: We identified 2820 publications, of which 49 met inclusion criteria. Of these publications, the subject population was 2834 (923 persons with SCI, 717 persons without SCI, and 1194 healthy control subjects). Among studies examining pressure related to position or repositioning in bed or sitting, procedures for measuring skin pressure and metabolism were highly variable by anatomic location, measurement technique, outcome measure, study site, participant characteristics, and description of position/turning for bed and seated interventions. Numerous factors can influence tissue interface pressures, and no prospective studies had been performed to determine a causal relationship between interface pressure and skin breakdown. Several studies suggest that skin response to pressure differs between subjects with and without SCI. Conflicting results and insufficient evidence for optimal bed and seated positioning and turning and pressure relief maneuvers to prevent PUs in both SCI and non-SCI populations were limiting factors.

Conclusions: Although there is no clear optimal positioning or turning frequency in bed, the evidence suggests avoiding the 90° lateral position because of high pressures and PU risk over the trochanters. During sitting, pressures are linearly redistributed from the sitting area during recline and tilt; however, reclining carries with it an increased risk of shear forces on this skin. The evidence does not support conclusive guidelines on positioning or repositioning techniques for PU prevention in bed or during sitting. We conclude that PU risk is highly individualized, with the SCI population at a higher risk, which demands flexible PU prevention strategies for bed/seated positioning and pressure relief maneuvers. Education has and will remain our most powerful ally to thwart this pervasive public health problem.