

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Pressure Offloading Cushions for Positioning Chairs: Clinical Evidence and Guidelines

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Research Questions

1. What is the clinical evidence regarding the prevention of pressure ulcers while using pressure offloading seating cushions on positioning chairs for patients with limited mobility?
2. What are the evidence-based guidelines regarding the prevention of pressure ulcers while using pressure offloading seating cushions on positioning chairs for patients with limited mobility?

Key Findings

No relevant clinical evidence was identified regarding the prevention of pressure ulcers while using pressure offloading seating cushions on positioning chairs for patients with limited mobility. In addition, no relevant evidence-based guidelines were identified.

Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD), and CINAHL databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2013 and December 12, 2018. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Adult patients who have limited mobility (in long-term care or other settings)
Intervention	Pressure offloading cushions (e.g., Roho, Vicair) for positioning chairs (e.g., Broda chair)
Comparator	Q1: No pressure offloading cushion; Non-pressure offloading cushions (pressure reduction cushion); Padding packages Q2: No comparator
Outcomes	Q1: Pressure ulcers, skin integrity, frequency of repositioning Q2: Evidence-based guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, or evidence-based guidelines were identified regarding the prevention of pressure ulcers while using pressure offloading seating cushions on positioning chairs for patients with limited mobility.

References of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Non-Randomized Studies

Population Insufficiently Defined

1. Freeto T, Mitchell SJ, Bogie KM. Preliminary development of an advanced modular pressure relief cushion: testing and user evaluation. *J Tissue Viability*. 2018 Feb;27(1):2-9.
[PubMed: PM28343746](#)
2. Mendes PVB, Gradim LCC, Silva NS, Allegretti ALC, Carrizo DCM, Cruz D. Pressure distribution analysis in three wheelchairs cushions of subjects with spinal cord injury. *Disabil Rehabil Assist Technol*. 2018 Apr 18:1-6.
[PubMed: PM29667522](#)
3. Call E, Hetzel T, McLean C, Burton JN, Oberg C. Off loading wheelchair cushion provides best case reduction in tissue deformation as indicated by MRI. *J Tissue Viability*. 2017 Aug;26(3):172-179.
[PubMed: PM28532968](#)
4. Peko Cohen L, Gefen A. Deep tissue loads in the seated buttocks on an off-loading wheelchair cushion versus air-cell-based and foam cushions: finite element studies. *Int Wound J*. 2017 Dec;14(6):1327-1334.
[PubMed: PM29024413](#)

Intervention Insufficiently Defined – Type of Chair Undefined

5. Brienza D, Vallely J, Karg P, Akins J, Gefen A. An MRI investigation of the effects of user anatomy and wheelchair cushion type on tissue deformation. *J Tissue Viability*. 2018 Feb;27(1):42-53.
[PubMed: PM28431799](#)
6. Crane B, Wininger M, Call E. Orthotic-style off-loading wheelchair seat cushion reduces interface pressure under ischial tuberosities and sacrococcygeal regions. *Arch Phys Med Rehabil*. 2016 Nov;97(11):1872-1879.
[PubMed: PM27132160](#)
7. Kovindha A, Kammuang-Lue P, Prakongsai P, Wongphan T. Prevalence of pressure ulcers in Thai wheelchair users with chronic spinal cord injuries. *Spinal Cord*. 2015 Oct;53(10):767-771.
[PubMed: PM25939607](#)

Intervention Insufficiently Defined – Type of Cushion Undefined

8. Meaume S, Marty M, Colin D. Prospective observational study of single- or multi-compartment pressure ulcer prevention cushions: PRESCAROH project. *J Wound Care*. 2017 Sep 2;26(9):537-544.
[PubMed: PM28880757](#)
9. Wu GA, Bogie KM. Effects of conventional and alternating cushion weight-shifting in persons with spinal cord injury. *J Rehabil Res Dev*. 2014;51(8):1265-1276.
[PubMed: PM25629607](#)

Alternative Intervention

10. Bartley C, Stephens M. Evaluating the impact of WaterCell® Technology on pressure redistribution and comfort/discomfort of adults with limited mobility. *J Tissue Viability*. 2017;26(2):144-149.
[PubMed: PM122827533](#).

Guidelines and Recommendations – Type of Cushion Undefined

11. National Institute for Health and Care Excellence. Pressure ulcers (*Quality standard QS89*); 2015 Jun:
<https://www.nice.org.uk/guidance/qs89> Accessed 2018 Dec 17.
12. Qaseem A, Mir TP, Starkey M, Denberg TD. Risk assessment and prevention of pressure ulcers: a clinical practice guideline from the American College of Physicians. *Ann Intern Med*. 2015 Mar 3;162(5):359-69.
[PubMed: PM25732278](#)
13. National Institute for Health and Care Excellence. Pressure ulcers: prevention and management. (*Clinical guideline CG179*); 2014 Apr:
<https://www.nice.org.uk/guidance/cg179> Accessed 2018 Dec 17
14. Houghton PE, Campbell KE and CPG Panel. Canadian best practice guidelines for the prevention and management of pressure ulcers in people with spinal cord Injury: a resource handbook for clinicians; 2013 Feb:
http://onf.org/system/attachments/168/original/Pressure_Ulcers_Best_Practice_Guideline_Final_web4.pdf Accessed 2018 Dec 17