The Impact of Lower Extremities on the Posture of Wheelchair Users

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Summary

With clinical examples and case reports I'll demonstrate the postural effect the lower extremity (LE) position has on the seated posture and how we can assess and adapt the entire seated solution for LE Range of Motion (ROM).

Aims and Objectives

- Analyze different positions of the lower extremities of hypo and hyper tone (tonic) wheelchair users
- Describe the impact these different positions of the lower extremities will have on posture and skin integrity.
- Discuss at least 3 postural interventions for dealing with common lower extremity positions

Background

Animal studies have shown that muscles which were fixed in a flexed position showed increased contractures of the joints, especially when the bones are still growing. 1,2 In addition, only a limited group of wheelchair users have frequent access to regular therapy to increase or maintain range of motion (ROM).

Therefore, the configuration of the wheelchair needs to be monitored and adapted for the user's LE ROM. If a distal joint is fixed or stable on the foot supports or any other supportive part of the wheelchair, the proximal joint may move if contraction occurs or ROM decreases. Movements of the LEs during wheelchair use will cause postural changes because of this closed chain joint movement3.

Using case reports, this workshop will focus on assessment techniques and practical seating interventions using an evidence-based approach on users with hypo and hyper tonic conditions.

Discussion

Identification and adaptation of LE position during wheelchair use results in decreased sliding, pelvic obliquities, pelvic rotations, scoliosis and the decreased risk of developing pressure ulcers.

References

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2. Trudel G. Uhthoff HK. Brown M. Extent and direction of joint motion limitation after prolonged immobility: an experimental study in the rat. [Journal Article] Archives of Physical Medicine &

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3. Smith, L.K. Weiss E.L. Lehmkuhl L.D. Brunnstrom's clinical Kinesiology. Philadelphia. F.A.Davis, 1996