

Utilising pelvic positioning belts to maximise function

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Summary

Stabilising the pelvis is key to optimising distal function, but are we overprescribing belts unnecessarily and can this impact a child's function? This poster provides an evidence-informed guide to clinical decision-making when prescribing pelvic positioning belts.

Aims & Objectives

Using a biomechanical approach to the seated posture, together with a clear understanding of the client's individual needs, this poster aims to guide the prescriber in choosing the optimum pelvic positioning belt to maximising function.

Background

It is generally acknowledged that the pelvis is the building block to optimum seated posture. In order to stabilise the pelvis, we traditionally look to a combination of posterior, inferior, anterior, lateral medial and distal supports. Whilst all of these planes of support are equally important, their use varies from each presenting case. However, a near constant amongst all seating systems is the use of pelvic positioning belts (PPBs).

In terms of adjustability, PPBs offer endless configurations. The shape, size and position of the belt, as well as the angle of pull and number of attachment points, are all adaptable, and it is the clinician's responsibility to determine the most appropriate choice for their client, based on their presenting needs. With considerable reliance placed on the PPB to maintain stability and, with it being the one consistent support mechanism of a seating system interacted with by all involved in a child's care, the risks of inconsistent and inappropriate belt positioning can quickly result in undesirable postures.

What we did

A review of 110 seating systems and wheelchairs throughout the UK and Ireland during 2017-2018 for children aged 2 to 18 revealed a lack of knowledge and understanding as to the reasoning behind PPB choice, with prescriptions often the result of personal opinion and preference. In many cases this led to over-prescription or, more often, over use of supports by non-clinical staff, with associated reduction in head, trunk and upper limb function, despite the existence of studies which relate PPB to function (Cimolin et al. 2013, Siekman 2013).

Based on the anatomy and physiology of the seated posture combined with best practice in postural seating (Lange 2008, Stickney & Story 2011, Siekman 2013), a decision tree was generated to guide choice and application of PPBs to maximise active function. The Segmental Assessment of Trunk Control (SATCo) provided an initial objective measure of functional ability. When combined with a knowledge of individual impairment such as pelvic rotation or obliquity together, and the individual client goals such as lateral stability or active reach, the use of, for example, a 2-point at a 70-degree angle to increase reach or a 4-point belt to control rotation is expounded.

Discussion

The poster will offer a single-point-of-reference regarding set-up and prescription of PPBs in seating systems for children. It will guide clinical decision making to reduce over-prescription and ensure child active participation.

References

Cimolin, V. et al., 2013. *Comparison of two pelvic positioning belt configurations in a pediatric wheelchair*. *Assistive technology*, **25**(4), pp. 240-246.

Lange, M., 2008. *The Pelvis: using secondary supports in positioning* [online]. *Mobility Management*. 08 July. [Online]. Available from: <https://mobilitymgmt.com/articles/2008/07/01/the-pelvis-using-secondary-supports-in-positioning.aspx>

Siekman, A., 2013. *The influence of belt use on reach and push function in active wheelchair users* [presentation]. *International Seating Symposium*. 8th March 2013. [Online]. Available from: http://www.iss.pitt.edu/ISS2013/ISS2013Program/SD2/PS06/PS602/ISS2013_Handout_PS6_2.pdf

Stickney, B. and Story, M., 2011. *Controlling the pelvis – a practical guide* [Lecture]. *Canadian Seating & Mobility Conference*. 18th February 2011. [Online]. Available from: http://www.csmc.ca/docs/archives/2011_archive/ws/W09%20-%20CONTROLLING%20THE%20PELVIS%20-%20A%20PRACTICAL%20GUIDE.pdf

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