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## C13: Addressing complex spinal deformities with a continuous postural management approach in sitting

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### Learning objectives:

1. List 3 risk factors/complications for poor postural management
2. Refer 2 biomechanical principles to take in consideration when addressing clients with complex postural needs
3. Describe 3 pros and cons of custom contoured seating systems

### Session description:

A rigid back support is often recommended to provide back support for wheelchair occupants with spinal cord and other neurological injuries and disorders. The cushion forms a close fit to the shape of the occupant's back; the rigid frame provides a stable base of the support for the spinal column. However, rigid back supports are often not user-adjustable and are based on measurements collected during an evaluation for a wheelchair (Crytzer, 2016), thus, may not accommodate those with postural deformities such as neuro-muscular scoliosis, bony deformity and/or scar tissue from scoliosis surgery or extreme lumbar lordosis or thoracic kyphosis (Alm, 2003).

Dealing with complex postural needs may require applying intimate surface contact to areas of the body which are contoured (Waugh, 2013). Contoured seating conforms to the shape of the body, allowing for more contact with the seating surface and providing increased support and control, especially for those with complex deformities. There are several advantages as it addresses clinical objectives better than planar contoured seating; it has greater surface area contact which creates increased stability, alignment, and skin protection and it's easy to maintain (Waugh, 2013). Its disadvantages are also documented. Cook and Hussey (2002) underpins its limited ability to allow for growth of the individual, difficulty with transfers and its lack of dynamic properties as the individual is held in a fixed posture.

Individuals with complex spinal deformities may experience progressing changes of their seating posture as a direct or indirect consequence of a disease. In both cases, biological or skeletal changes may arise along the process that if not addressed may become progressive and tending to reinforce deviations and asymmetrical postures.

Delivering customisable solutions, capable of meeting current body presentations as well as being readjusted to meet clients postural changes over time, is then absolutely vital! Not just to reassure the seating intervention goals but also to comply with funding sources who require seating systems to last for years.

This session will cover the biomechanics behind complex spinal deformities, analyse the pro's and con's of custom contoured seating and outline adjustable, sustainable and flexible methods of delivering a continuous postural solution throughout the process.

### Content references:

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