

The Upper Limbs and Head

CareFlex

THE SEATING CHALLENGES SERIES

SEATING CHALLENGES OF THE UPPER LIMBS

Function and independence are a key objective in improving quality of life. Use of the upper limbs is vital to successful performance of tasks and participation in activities of daily living.[1] Once effective stabilisation at the pelvis is achieved, the upper limbs are freed from their load bearing role.[2]

Upper limb support is essential to prevent drag and relieve stress on neck and shoulder muscles. Upper limb support is not there to support the trunk; support should start at the pelvis, ensuring pelvic stability and optimum trunk alignment is achieved. Without first achieving this, the individual may rely on the upper limbs for stability, gripping the chair with their hands or digging their elbows in to the sides of the chair. Consequently, function and independence will be affected as their upper limbs have lost freedom of movement and become confined to a load-bearing role.

Upper limb support is also important for pressure distribution as the arms take 2% of the person's body weight[3] when they are at rest in sitting; it is therefore important in reducing the risk of pressure injury.

How can the upper limbs be supported?

Upper limb support is an integral part of specialist seating prescription, and seating solutions can include:

- Armrests to fully support the upper limbs and offer stability to perform standing transfers.
- Trays to provide anterior support whilst encouraging participation in activities and occupation.
- Postural management supports for fixed deformities, such as v-shape cushions.
- The need for transfer arms should also be considered as they may be indicated for users who complete side transfers in and out of the chair.



SEATING CHALLENGES OF THE HEAD

An appropriate seating system that addresses an individual's head position can help provide an optimum posture for respiratory and circulatory function.[4] An upright sitting position with the head supported can also facilitate a normal swallowing pattern[5] and improve components of eating and drinking behaviour[6] by maintaining good head alignment. Appropriate head support is also essential for comfort and energy management.

Good head positioning is essential for optimum physiological function and safety but it is also vital for achieving the best position for interaction with the outside world; it can assist orientation and
socialisation. A stable posture can help an individual engage more fully in social activities at home, school or work, and as part of the community.[7]

How can the head be supported?

The aim is for the head and neck to be upright and in midline as much as is achievable. When prescribing head support as an integral part of the specialist seating system, the following must be considered:

- Breathing efficiency
- Eating and drinking ability and safety
- Social interaction and engagement
- Energy management

As some head supports can be restrictive, careful consideration is also needed of the user's comfort and preferences; this can be a very fine balance with optimum postural management. Head supports can include:



- An ultra soft pillow that conforms to the shape of the individual's head to provide a higher level of comfort.
- A more profiled headrest can offer the contouring needed for greater support at the shoulders, neck and head.
- Support can also be more bespoke whereby memory foam lining with the sides cut away for unobstructed sight and hearing can provide full cranial support without impacting on social interaction, such as an in-line headrest.
- A kyphotic posture can significantly affect the user's ability to achieve alignment with contact at the back of the chair; in these cases an articulating or multi-adjustable back may be indicated.

NB: Poor head positioning is generally associated with other postural challenges, such as kyphotic postures. A comprehensive assessment will determine the problems that will need to be addressed during the seating prescription. It is important that support starts at the pelvis as it is the keystone to the alignment of the individual's seated posture. A stable base is needed as it influences all body segments, especially the position of the head.

HOW CAN CAREFLEX HELP?

A comprehensive seating assessment is critical for appropriate seating prescription. Due to the variability among people, a universal seating position is not practicable or safe; therefore, a thorough assessment is recommended to ensure the chair prescribed is tailored to the individual. CareFlex offer a free no-obligation assessment service; we are a team of highly skilled and extremely knowledgeable professionals and we pride ourselves on our efforts to truly improve quality of life, from initial contact through to after-care.

CareFlex seating is flexible and adjustable allowing the chairs to accommodate to any deformities present, but also allowing correction of body segments to reduce the risk of them developing.

The HydroTilt with tilt-in-space, a range of head support options such as the soft profiled headrest, and integrated WaterCell Technology could be a great solution for moderate postural challenges.

For more complex postures, the HydroFlex with back angle recline and an articulating head section could be the suitable solution. Or the SmartSeatPro with multi-adjustable back components, which can be altered in height, depth, angle, offset and rotation, and an inline headrest could be indicated.

The MultiAdjust could be the ideal provision for multi-user environments with chair dimension flexibility, armrest height adjustment, and the option to add a tray.

CareFlex also offer a Tailored Seating Solutions service. During the seating assessment, it may become evident that a unique modification is required to achieve optimum posture and pressure management that is supportive yet comfortable. If so, details are passed to the design and engineering team, who then produce a schematic drawing and quotation. Sometimes the modification can be a simple accessory; in other instances it can be a significant alteration to the structure of the chair. CareFlex have many years of experience producing unique seating solutions.



REFERENCES



References

1. McClenaghan BA, Thombs L, Milner M (1992) Effects of seat-surface inclination on postural stability and function of the upper extremities of children with cerebral palsy *Developmental Medicine and Child Neurology* **34**:40-48
2. Green EM, Nelham RL (1991) Development of sitting ability, assessment of children with a motor handicap and prescription of appropriate seating systems *Prosthetics and Orthotics International* **15**:203-216
3. Collins F (2001) Selecting cushions and armchairs: how to make an informed choice *Journal of Wound Care / Therapy Weekly Supplement* **13**(5)
4. Cook AM, Hussey SM (2002) *Assistive Technologies Principles and Practice* St Louis: Mosby
5. Pountney TE, Mulcahy CM, Clarke SM, Green EM (2000) *The Chailey Approach to Postural Management* Birmingham: Active Design Ltd.
6. Hulme JB, Shaver J, Acher S, Mullette L, Eggert C (1987) Effects of adaptive seating devices on the eating and drinking of children with multiple handicaps *The American Journal of Occupational Therapy* **41**(2):81-89
7. Trefler E, Taylor SJ (1991) Prescription and positioning: evaluating the physically disabled individual for wheelchair seating *Prosthetics and Orthotics International* **15**(3):217-224



Please check out our further publications in this Seating Challenges Series and don't forget to visit our website for all our available learning resources.

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The information given in this book represents current advice at the time of publication. It is intended as general information and guidance and is not a substitute for professional medical advice which should be sought for specific, individual cases. It is the responsibility of the treating clinician, relying on independent knowledge and skills, to determine the best intervention and method of application for the client.

1. Tilt-in-Space and Back Angle Recline should always be prescribed responsibly, ensuring that they are safe and appropriate for the user following a comprehensive assessment of posture and risk, with advice sought from the multi-disciplinary team where indicated. In some cases these functions will be contra-indicated, and they could also increase shear and friction forces.

2. All belts and harnesses must also be prescribed, implemented and monitored responsibly following a comprehensive risk assessment. Please see the Device safety information alert for further information: www.gov.uk/drug-device-alerts/all-posture-or-safety-belts-fitted-to-supportive-seating-wheelchairs-hoists-and-bathroom-equipment-risk-of-serious-injury-or-death