

Introduction

It is absolutely essential for any individual, particularly those with motor problems to be seated correctly. This is especially important for:

- Writing/Drawing
- Fine manipulative tasks
- Cognitive tasks
- Feeding/eating
- Accessing assistive technology

What is 'Good Seating'?

Good seating can be described as one of symmetry with stability at proximal joints i.e. the spine, shoulder and hip joints. For this to be achieved the head and neck need to be vertical and the hips, knees and ankles flexed at 90° with thighs, feet and forearms supported.

- A) Hips, knees and ankles should be at a 90° angle to each other
- B) Thighs should be fully supported
- C) Feet should be flat on the floor or supported by a foot block
- D) Tables/desks should be at the height to allow forearm support when the elbows are flexed at 90°
- E) Tables with a cut-out provide extra trunk and forearm support. Sloped table tops can also improve position

If this achieved it will allow optimum distal joint movement i.e. wrist and finger joints. For those individuals who do not possess the required postural control to achieve this, the provision of supportive seating can enable them to gain a stable seating position.

Goals of Supportive Seating

The goals of supportive seating regardless of the underlying disability can be described as:

Alignment and stabilisation of the pelvis. Positioning the pelvis in neutral or with slight anterior tilt is desired ensuring it is level and in midline. To achieve this, the use of the pelvic belt, knee blocks and pelvic lateral supports may be required.

The hips flexed at approximately 90°. However for those with excessive extensor tone, hip flexion may need to be increased further. This can be achieved through the use of a ramped cushion.

Providing a stable sitting base allowing the femur to be in a horizontal position. The use of a ramped cushion will be needed to achieve this. The legs should be positioned in neutral abduction with 90° knee and ankle flexion. The use of pommel or knee block, foot support and foot straps may be needed to achieve this.

Adequate foot support should be given to ensure stability, and maintenance of hip, knee and ankle position.

The trunk should be in an upright position and aligned in midline. To achieve this lumbar support, lateral support and anterior support (e.g. chest strap) may be required. The height and contour of the chairs back can also have an influence.

The head and neck should be in midline and upright. The use of lateral and posterior supports may be required.

The upper limbs should be supported to avoid fatigue and discomfort in the shoulders and to assist in maintaining head and trunk in a good position. A wheelchair tray or armrests can provide this upper limb support.

Freedom of motion must be ensured, rigid support of all body parts is not practical or comfortable.

For those with deformities adaptations to this ideal will be required to achieve seating that is comfortable but allows maximum function.

What are the advantages of good seating?

- The ability for an individual to maintain a sitting posture;
- Maximum stability to enhance function;
- Improved control of voluntary movements;
- The head to be in a central positioning allowing improved:
 - interaction
 - awareness of environment
 - vocalisation
 - listening
 - functional motor skills
 - concentration on position and ability to focus on other activities
 - comfort
 - breathing
 - eating and drinking
 - spatial orientation
 - anticipation
 - vision
 - maintenance of correct posture therefore preventing postural deformities

From this list we can identify many benefits of effective seating which will have a direct effect on improving an individual's communication and educational performance especially if they need to access assistive technology.

Compromise

When assessing an individual's seating needs it is important a multi-disciplinary team approach is adopted. When considering assistive technology resources and systems, this is especially important to ensure all issues are considered e.g. their access method or the mounting of equipment.

However, when working in a team compromise is often required to ensure the individual is provided with the most functional seating arrangement for their needs. What in theory may appear to be the perfect position for an individual, may not in practice allow them to access assistive technology resources and systems effectively. Therefore compromises will have to be made to ensure optimum function for the individual.

Further Reading

Ayre, J. and Gray, C., (1995) Seating Children for Access to Technology. Ace Centre Advisory Trust, Oxford. Tel: 01865 763508.