

## The Effect of Tilt-in-Space Wheelchairs on Children's Posture and Function

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**Background:** There is an increasing use of tilt in space wheelchairs (TIS) for children with cerebral palsy. Tilt-in-space systems are used in this population for diverse reasons. Evidence is limited to guide parent and clinicians as to how the angle of tilt affects posture and function (Michael et al 2007; Nwaobi 1997; Myhr and von Wendt 1991; Sochaniwskyj et al 1991; Reid and Sochaniwskyj 1991 and Meidaner 1990).

**Aims:** To determine the effects of tilt-in-space on postural ability, comfort and functional ability in children with bilateral cerebral palsy by:

- Questionnaire to gather views of users of tilt in space wheelchairs
- Measuring changes in posture & function at different angles of tilt

**Methods:** Phase 1 - a questionnaire was sent to a purposive sample to collect the views of children and parents who currently use TIS. Questions relating to ease of use, criteria for TIS provision and how it is TIS used in the upright and tilted positions were included.

**Inclusion criteria** children and young people with cerebral palsy who currently use a TIS

Phase 2 -- Participants were placed in 3 different angles of tilt consecutively, order of tilt was randomised. Changes in posture and function were measured using the Chailey Levels of Ability, skeletal measures and a datalogger for timing and accuracy of switch use. Child's preference of each position indicated.

**Inclusion criteria:** Children with cerebral palsy at Level 3 or below on the Gross Motor Function Classification System; Current user of a special seating system within TIS; Competent switch user and between 5 and 12 years of age

**Results:** 37 children were identified as potential participants. 9 questionnaires were returned and 2 children agreed to participate in Phase 2. Children & young people were a mean age of 9 years & participants had used a TIS for between a mean 3.9 years.

Reasons for prescription of TIS included: Head control, tiredness, hanging on straps when tired, parents' request & post-operatively. Different angles of tilt were used for different activities. Parents also commented on the functionality of the TIS.

In Phase 2 significant differences were found between skeletal measures at different angles of tilt.

The main findings were a lack of clarity regarding why TIS were prescribed & adherence to the safety advice given for travelling in wheelchairs in transport. None of the parents had been given verbal or written information regarding the use of angle of tilt for different activities except for travelling.

**Conclusions:** Families & children generally liked TIS & would request another in future provision. Issues were raised regarding the functionality of the TIS. Recommendations are for more clarity in criteria for prescription & provision of TIS and advice on how to use different angles of tilt.

The small sample size limits the ability of the data to be generalised however it offers some insight into how TIS are prescribed and used.

## References

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