TILT IN SPACE: CLINICAL INDICATORS

Written by: **MICHELLE L. LANGE, OTR/L, ABDA, ATP/SMS**

Tilt in space is a feature on mobility bases such as adaptive strollers, manual wheelchairs and power wheelchairs. The orientation of the client changes in relation to the ground without a change in the seated angles. Tilt may move posteriorly, anteriorly or laterally. Tilt is sometimes combined with other technologies, such as recline.

CLINICAL INDICATORS

POSTERIOR TILT:

A client may benefit from a posterior tilt to redistribute pressure from the buttocks and posterior thighs to the posterior trunk and head, shifting weight to reduce pressure injury risk. Posterior tilt can also be used to manage posture by reducing the impact of gravity on the seated position and subsequently reducing the effort required to keep the trunk and head upright. Tilt helps to manage fatigue by also reducing the client's effort to stay upright and even allowing sleep while seated. Finally, posterior tilt may be used to manage medical concerns, such as the postictal stage following seizure activity.

ANTERIOR TILT:

Anterior tilt has more specific clinical indicators. By tilting the entire seating system forward, the client is placed in a "task performance" position, which facilitates a slight anterior pelvic position, upper extremity function, and increases trunk and head control. However, this is a difficult position to maintain, and the client must return to a more traditional seated position or even a posterior tilt to find a position of rest.

If a client has significantly limited hip flexion, the seat-to-back angle will have to be quite open to accommodate this range limitation without pushing the pelvis into a posterior tilt. This position is not very functional and may impact vision. By using an anterior tilt, the client can approach a more upright trunk while respecting the limitation in hip flexion. In this case, the pelvis is more prone to slide forward during the anterior tilt, and sufficient postural supports are required.

A true anterior tilt does not open the seat-to-back angle; however, some newer power seating functions incorporate an anterior tilt, which actually opens the seat to back angle by raising the posterior portion of the seating surface.

LATERAL TILT:

Some clients are unable to tolerate a posterior tilt or recline to shift their weight. When the head moves posterior to upright, reflexive responses (i.e., startle) and postural insecurity can occur.

Another strategy to provide a weight shift is a lateral tilt, only available on power wheelchair bases. In this case, the entire seating system tilts to one side, relieving pressure under one ischial tuberosity at a time. During the weight shift, the client may have difficulty sustaining an upright seated posture and experience increased pressure against the lateral trunk support on the low side.

Lateral tilt is sometimes used to accommodate a significant pelvic obliquity. In most cases, a lateral wedge under the seat itself is sufficient, rather than a powered lateral tilt.

Tilt features on mobility bases have many clinical advantages and should be considered as a part of seating and mobility equipment recommendations.

CONTACT THE AUTHOR
Michelle may be reached at
MICHELLELANGE1@OUTLOOK.COM

REFERENCES
1. DICIANNO, ET AL. (2015). RESNA POSITION ON THE APPLICATION OF TILT, RECLINE, AND ELEVATING LEGRESTS FOR WHEELCHAIRS LITERATURE UPDATE. HTTPS://WWW.RESNA.ORG/PORTALS/0/DOCUMENTS/POSITION%20PAPERS/RESNA%20PP%20ON%20TILT%20RECLINE_2017.PDF.

Michelle Lange is an occupational therapist with more than 30 years of experience and has been in private practice, Access to Independence, for over 10 years. She is a well-respected lecturer, both nationally and internationally and has written numerous texts, chapters, and articles. She is the co-editor of "Seating and Wheeled Mobility: A Clinical Resource Guide," editor of "Fundamentals in Assistive Technology, Fourth Edition," NRRTS continuing education curriculum coordinator and clinical editor of DIRECTIONS magazine. Lange is a RESNA Fellow and member of the Clinician Task Force. Lange is a certified ATP, certified SMS and is a senior disability analyst of the ABDA.