

**THE ASSESSMENT: ON THE 'MAT' AND
TAKING CLIENT MEASUREMENTS**
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Toward Independence

All good seating starts at the pelvis. Completing a thorough but concise mat assessment has always been a challenge in seating and mobility due to time constraints and environmental challenges.

Assessment Guidelines

Observation

Interview

Cognitive/Perceptual Status

Communication

Sensory

Environment

Transportation

Current Equipment

Physical Findings

Observations throughout assessment

- Skin integrity
- Pain
- Tone
- Reflexes

Assessment is initiated in supine. Client is then brought to a seated posture and reassessed to see if same ranges and positions can be achieved.

Physical Findings

Pelvic and sacral range of motion

- pelvic tilt
- pelvic obliquity
- pelvic rotation

Questions

- *Can neutral alignment be achieved?*
- *Are positions fixed or flexible?*
- *Are positions sustainable?*

Trunk range of motion

- kyphosis
- scoliosis
- rotation
- rotoscoliosis

Questions

- *Can neutral alignment be achieved?*
- *Are positions fixed or flexible?*
- *Are positions sustainable?*
- *Can trunk position be isolated from pelvic position?*

Lower extremity

- hip ROM
 - internal/external rotation
 - flexion/extension
 - ab/adduction
 - windsweeping
- knee ROM
 - extension/flexion
- ankle ROM
 - inversion/eversion
 - plantar flexion/dorsiflexion

Questions

- *Can neutral alignment be achieved?*
- *Are positions fixed or flexible?*
- *Are positions sustainable?*
- *Are there issues of subluxation/dislocation?*

Upper extremity

- shoulder ROM
 - flexion/extension
 - retraction/protraction
- elbow ROM
 - flexion/extension
- wrist ROM
 - flexion/extension
 - radial/ulnar deviation

Questions

- *Can neutral alignment be achieved?*
- *Are positions fixed or flexible?*
- *Are positions sustainable?*
- *Are there issues of subluxation/dislocation?*
- *Will upper extremity ROM impact seated posture or function?*

Measurements

Anatomical measurements of the client are necessary in order to then determine the proper measurements and set up of the seating and mobility system.

- *The client should be on a flat surface.*
- *Separate right and left side measurements are sometimes needed.*
- *Measure as straight as possible.*

Heights

- Seat surface to PSIS
- Seat surface to elbow
- Seat surface to inferior angle of scapula
- Seat surface to armpit
- Seat surface to top of scapula
- Seat surface to top of shoulder
- Seat surface to top of head

Depths

- Trunk depth- distance from backrest surface to front of ribs
- Seat depth -distance from rear of buttocks to back of knees

Widths

- Hip width- distance from one side to the other at the widest point
- Trunk width -distance from one side of trunk to the other at about 1" below the armpits
- Shoulder width- distance between the outer edges of the shoulders
- Head width- side to side distance at the head's widest point
- Knee width- distance from outside of one knee to outside of the other
- Foot width- distance from outside of one foot to outside of the other

Length

- Lower leg length- bottom of foot to underside of knee
- Foot length- distance from heel to toes

Generic Features of Seating Components Required

Glossary of Terms

The following is a glossary of common deformities and postures found in individuals undergoing a seating assessment and intervention.

- **Pelvic obliquity:** the pelvis tilts down on one side. The side that is lower is the side that has the obliquity. An obliquity is often associated with a scoliosis.
- **Posterior pelvic tilt:** the entire pelvis tilts backward creating pressure on a sacrum and coccyx. This posture often makes the seat depth look longer than it really is.
- **Anterior pelvic tilt:** The entire pelvis tilts forward. A small amount of anterior tilt can be a good functional posture that encourages spinal elongation. Too much anterior tilt can lead to hyperlordosis of the spine and extra pressure on the pubic bone.
- **Pelvic rotation:** the pelvis rotates forward on one side, backward on the other side. The rotation is labeled by the forward side. This deformity often appears like a leg length discrepancy.

- **Scoliosis:** the trunk is curved laterally, or to the side.
- **Kyphosis:** the upper spine and trunk are flexed or bent forward. A kyphosis creates a hunched over look.
- **Hyperlordosis:** the lower back is abnormally extended or arched.
- **Hip adduction:** the legs come together toward the midline of the body, therefore creating limited space between them.
- **Hip abduction:** the legs are spread apart, away from the middle of the body.
- **Internal rotation of the hips:** the knees come together towards the middle of the person, the feet will move away from the middle of the body.
- **External rotation of the hips:** the knees separate and the feet will come back together towards the center of the body.
- **Dorsiflexion of the ankles:** the feet are bent upwards excessively.
- **Plantarflexion of the ankles:** the feet are bent downwards excessively.
- **Inversion of the ankles:** the feet are turned in.
- **Eversion of the ankles:** the feet are turned out.
- **Protraction of the shoulder girdle:** the shoulders are pulled forward.
- **Retraction of the shoulder girdle:** the shoulders are pulled backward.

Deformities vary in individuals and conditions. Age, diagnoses, muscle tone, range of motion, length of time with the deformity, compliance, skin condition, cognition/perception and function will all effect the posture of the individual and ability to correct the existing problems. Deformities are assessed as either fixed or flexible. Fixed deformities are those that cannot be corrected and must be accommodated with seating components, so as not to worsen or cause secondary problems. Flexible deformities are those that can be actively corrected and must be modified and improved so that they do not become fixed.

References

Buck, S., Fisher, K., Laurence, S., Mogul-Rotman, B., 2006, *Reality Hits the Mat*, [Proceedings of Canadian Seating & Mobility Conference 2006](#).

Zollars, A., 1996, [Special Seating: An Illustrated Guide](#), USA.

Speaker Bio

Brenlee is an occupational therapist who owns a private practice in the Toronto area. She provides assessment and treatment to a variety of client populations, most specifically brain injured and spinal cord injured clients. Brenlee has a special interest in the area of seating and mobility and is involved with manufacturers and vendors with product development, clinical trials and product application. Brenlee is a well known presenter and has presented internationally on various topics related to seating and mobility. Brenlee can be reached at brenleemogul@sympatico.ca.