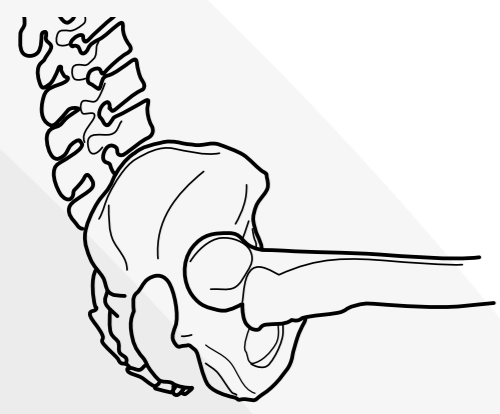


PELVIC & SPINAL POSTURES



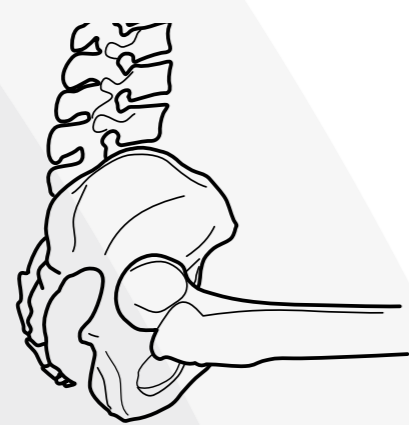
SAGITTAL PELVIC ANGLE:
Posterior Pelvic Tilt (+)

POTENTIAL CLINICAL CAUSES

- Low or absent tone in the trunk muscles
- Low tone or poor muscle control in pelvis or trunk
- Abnormal (high, low, or fluctuating) tone in trunk or lower limbs
- Abnormal reflexes in trunk or lower extremities
- Limited hip flexion
- Decreased lumbar lordosis
- Decreased pelvic / lumbar spine range of motion
- Decreased hamstring range of motion

POTENTIAL EQUIPMENT FACTORS

- Seat depth is too long
- Footplate position relative to knee does not accommodate tight hamstrings
- Front frame or leg rest hanger angle doesn't accommodate hamstring range
- Footplates are too high
- Footplates are too low
- Lack of posterior pelvic and sacral support
- Back support angle is too acute
- Seat-to-floor height too high for foot propulsion
- Armrests are too low

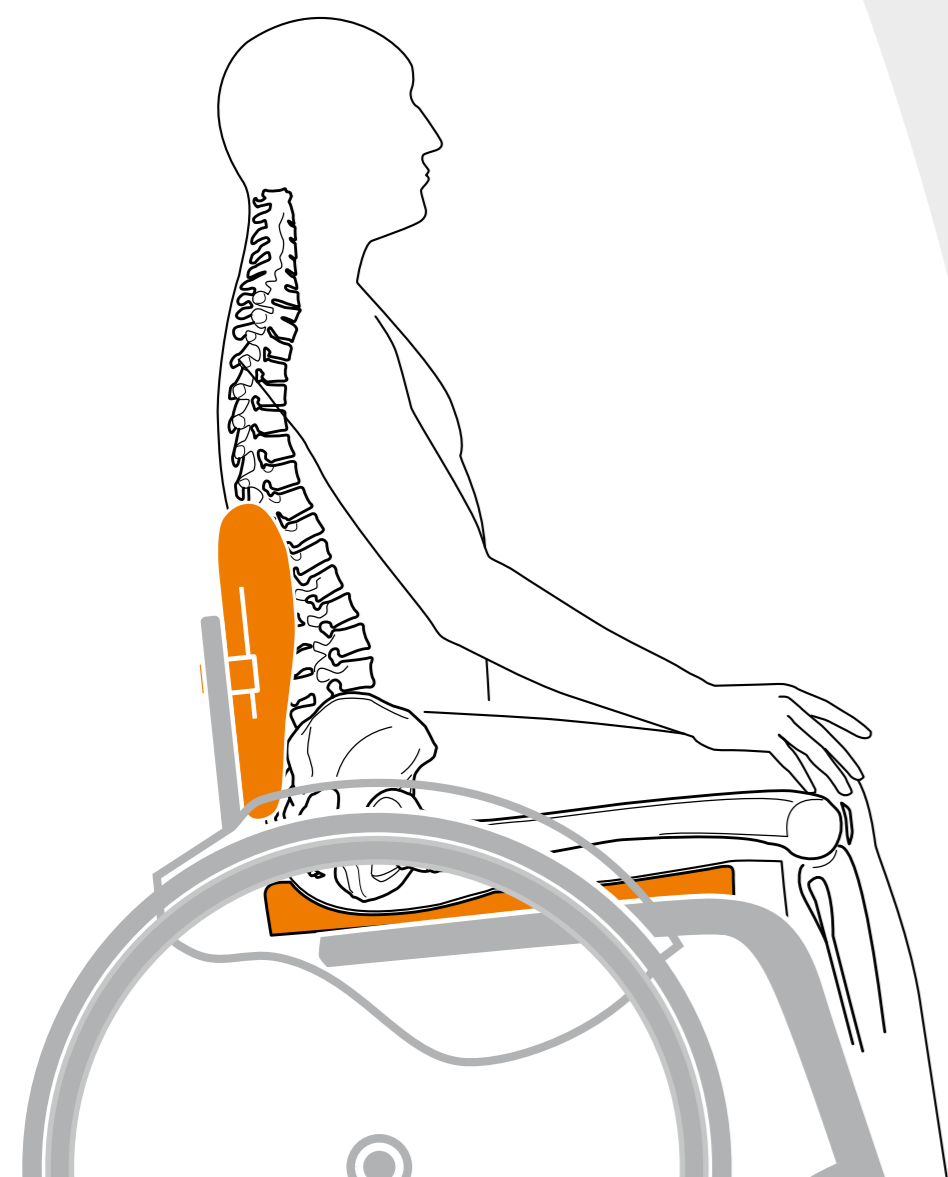


SAGITTAL PELVIC ANGLE:
Anterior Pelvic Tilt (-)

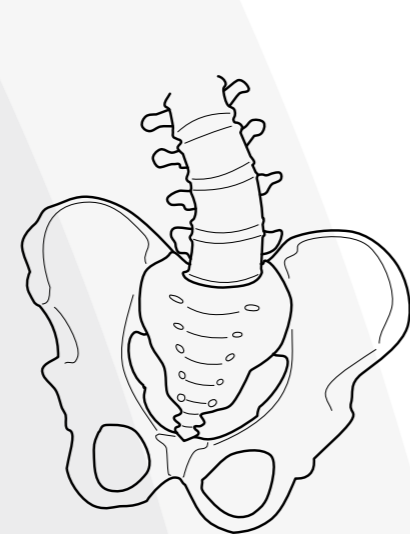
- Increased lumbar lordosis
- Tightened paraspinal muscles
- Weakened abdominals
- Tight quadriceps
- Tight hip flexors

- Knees are too low relative to hips
- Lumbar contouring is too aggressive
- Inadequate trunk not support
- Back support too upright, forcing trunk into flexion
- Back support is too reclined, providing inadequate support

CLINICAL ASSESSMENT GUIDELINES:



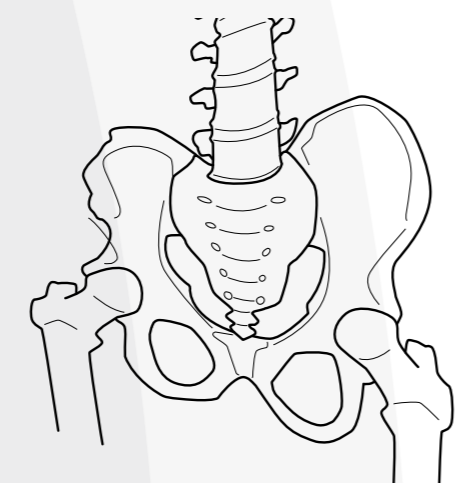
- Identify postural asymmetries at each body segment.
- Is asymmetry flexible or fixed?
- Measure angles in frontal, sagittal, and transverse plane.
- For absolute angles, measure angles between a line connecting 2 points of reference on the body and a neutral/plumb line.
- Angles which have moved clockwise from neutral axis are negative (-)
- Angles which have moved counter-clockwise from neutral axis are positive (+).



FRONTAL PELVIC ANGLE:
Obliquity

- Scoliosis
- Abnormal reflexes in trunk or lower limbs
- Asymmetrical muscle tone (trunk or lower limbs)
- Asymmetrical trunk muscle strength
- Asymmetrical soft tissue or muscle mass
- Asymmetrical pelvic, femur bone structure
- Asymmetrical hip flexion range of motion
- Limited hip abduction and / or adduction
- Limited hip internal or external rotation
- Unilateral hip or pelvic pain

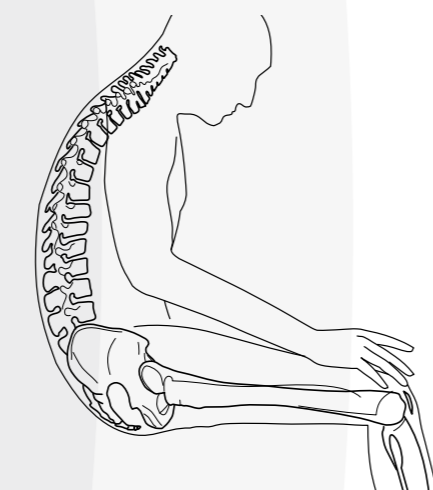
- Poor base of support in seat, e.g. stretched seat canvas
- Footplates, seat-to-back angle or front frame angle may not match client's available range of motion
- Seat shape does not support trochanters
- Wheelchair too wide
- Wheelchair too narrow, particularly for clients who are hoisted into seating
- Seat or back does not provide enough lateral pelvic support
- Joystick or wheel location inappropriate
- Armrests too low



TRANSVERSE PELVIC ANGLE:
Rotation

- Scoliosis
- Asymmetrical hip flexion
- Asymmetrical muscle tone in trunk
- Femoral or lower leg length discrepancy
- Posterior hip subluxation
- Limited hip abduction or adduction range of motion
- Asymmetrical muscle mass in the posterior pelvic area
- Unilateral foot propulsion

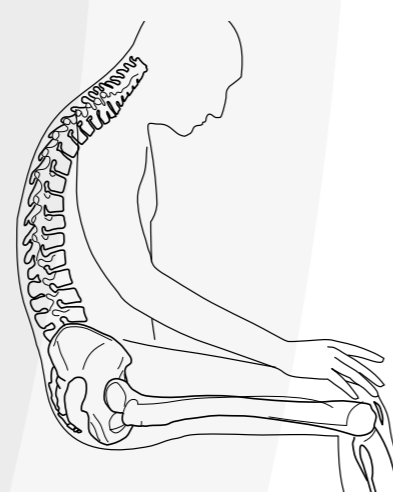
- Trunk not fully supported
- Lack of posterior pelvis or sacral support
- Seat or backrest contours too narrow
- Seat-to-floor height too high for foot propulsion
- Wheel set up incorrect for hand propulsion



SAGITTAL STERNAL ANGLE:
Thoracic Kyphosis

- Low muscle tone in the trunk muscles
- Compensation for posterior pelvic lift
- Diminished head control
- Postural deterioration over time
- Extreme hypermobility
- Hyper extended cervical spine
- Diminished disc space in upper thoracic spine

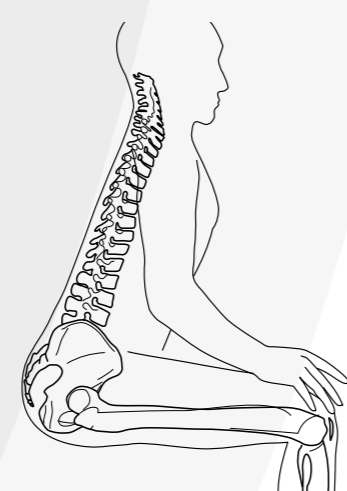
- Seat-to-back angle too closed
- Back support too low
- Arm support too low
- Back does not match shape of posterior trunk
- Head support mounted too far forward or too low
- Wheel set up incorrect for hand propulsion



SAGITTAL TRUNK ANGLE:
Global Spinal Kyphosis

- Low tone or poor muscle control in pelvis or trunk
- Compensation for posterior pelvic tilt
- Structural kyphotic spinal deformity
- Diminished head control
- Compensation for visual impairment

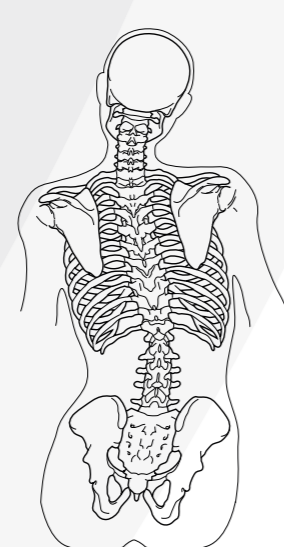
- Back does not match shape of posterior trunk
- Seat-to-back angle too open or closed
- Lack of adequate posterior pelvis or sacral support
- Back support too vertical
- Back support too low
- Head support mounted too far forward or too low
- Arm supports too low



SAGITTAL ABDOMINAL ANGLE:
Lordosis

- Low or absent muscle tone in the trunk muscles
- Tightened paraspinals
- Hypermobility of lumbar spine
- Compensation for anterior tilted pelvis
- Compensation for lumbar instability
- Obesity
- Fixed structural deformity

- Anterior femoral angle (knees lower than hips)
- Back too vertical
- Excessive lumbar contour
- Back does not match shape of posterior trunk
- Posterior pelvic support too high
- Back support too low
- Orientation in space not optimal (system too upright)



SCOLIOSIS

- Compensation for pelvic obliquity and / or pelvic rotation
- Asymmetrical muscle tone or strength in the trunk muscles
- Decreased trunk balance
- Structural spinal deformity
- Asymmetrical upper extremity strength during manual wheelchair propulsion
- Inability to hold the head in midline

- Back does not match shape of posterior trunk
- Back does not support posterior pelvis
- Back does not provide enough lateral support
- Wheelchair does not provide solid base (sling upholstery)
- Seat cushion does not provide pelvic stability
- Upper extremity support is too low, too high, or too wide
- Joystick or wheel location inappropriate

EDUCATION IN MOTION

WHERE THEORY MEETS PRACTICE