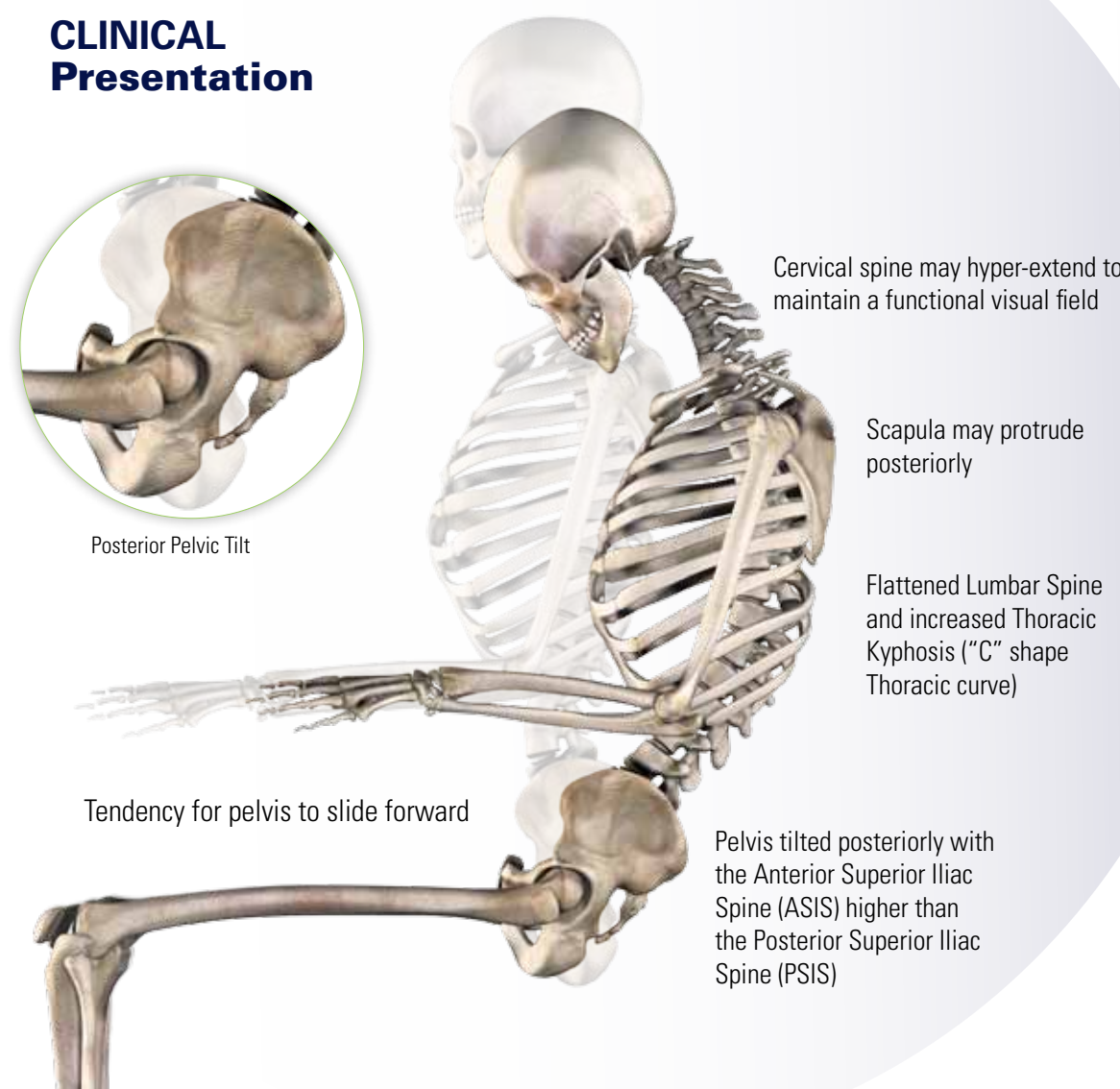


# INVACARE® MATRIX® CLINICAL SEATING & POSITIONING GUIDE

## POSTERIOR PELVIC TILT WITH KYPHOSIS

### CLINICAL Presentation



### POTENTIAL Causes

**Wheelchair Fit**  
Seat depth too long/short  
Foot support position  
No support for PSIS  
In manual wheelchair, location of rear wheel not optimal for reach  
Seat to floor height too high/low for foot propulsion

**Clinical**  
High or low tone in trunk  
Lacks true 90° of hip flexion  
Weak abdominals/back extensors  
Shortened/tight hamstrings  
Assumes position for increased postural stability

### POTENTIAL Solution Flexible Posture

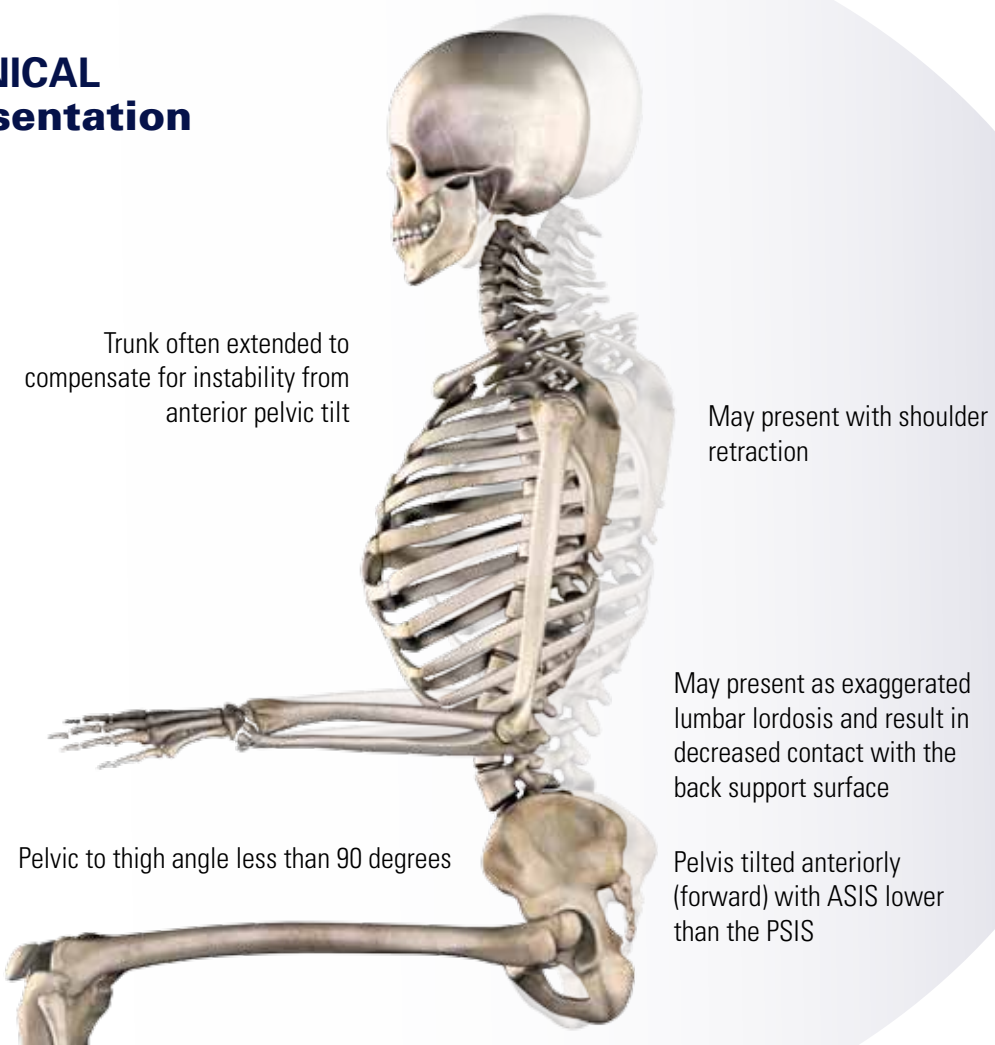


### POTENTIAL Solution Fixed Posture



## ANTERIOR PELVIC TILT WITH HYPERLORDOSIS

### CLINICAL Presentation



### POTENTIAL Causes

**Wheelchair Fit**  
Back support too upright  
Excessive lumbar contouring

**Clinical**  
Tight quadriceps/hip flexors/paraspinal muscles  
Weak abdominal musculature  
Obesity

### POTENTIAL Solution Flexible Posture

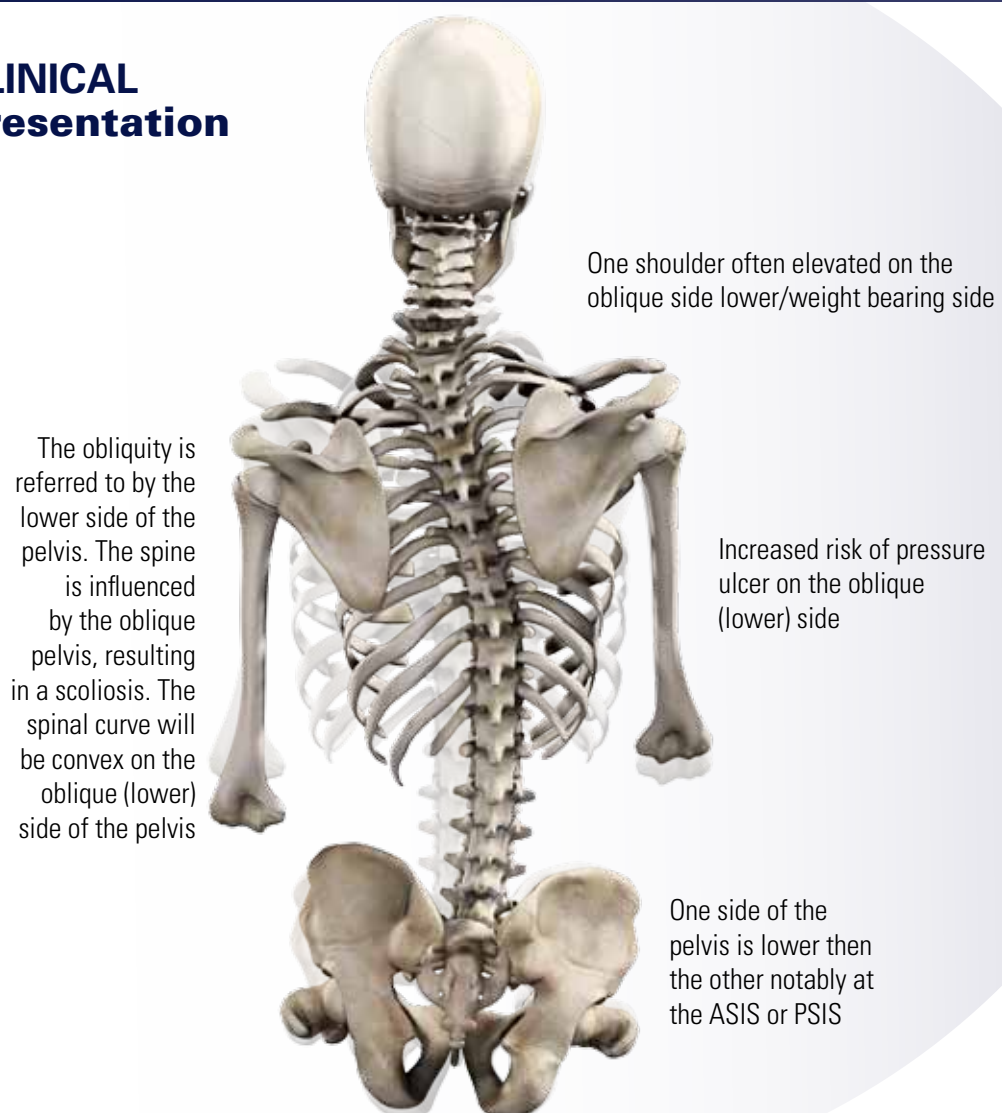


### POTENTIAL Solution Fixed Posture



## PELVIC OBLIQUITY AND SCOLIOSIS

### CLINICAL Presentation



### POTENTIAL Causes

**Wheelchair Fit**  
Sling or stretched seat upholstery  
Seat width too wide and/or arm supports too low to support upper extremities  
Cushion does not provide effective support for greater trochanters  
Wheelchair seating angles and/or foot support position does not accommodate hip range limitations  
Power wheelchair joystick or rear wheel manual wheelchair location not optimal for reach  
Back support too wide

**Clinical**  
Asymmetrical pain or discomfort  
Asymmetrical Tonic Neck Reflex (ATNR)  
Asymmetrical muscle tone/weakness in trunk and/or lower extremities  
Limitations of hip flexion, abduction, adduction, internal or external rotation  
Structural bony deformity in spine or surgery  
Asymmetrical upper extremity strength with manual propulsion

### POTENTIAL Solution Flexible Posture

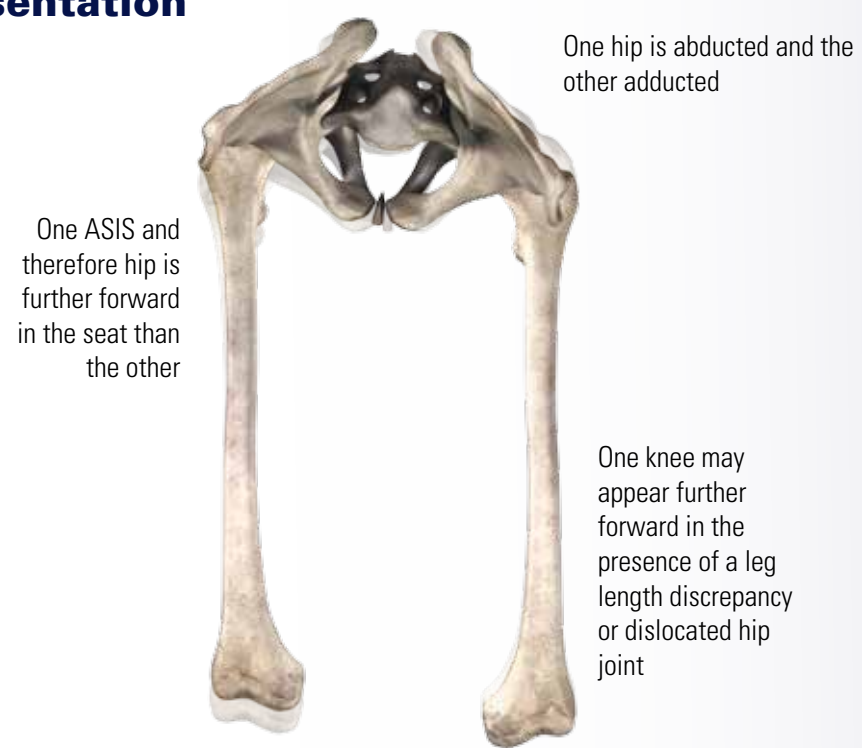


### POTENTIAL Solution Fixed Posture



## PELVIC ROTATION

### CLINICAL Presentation

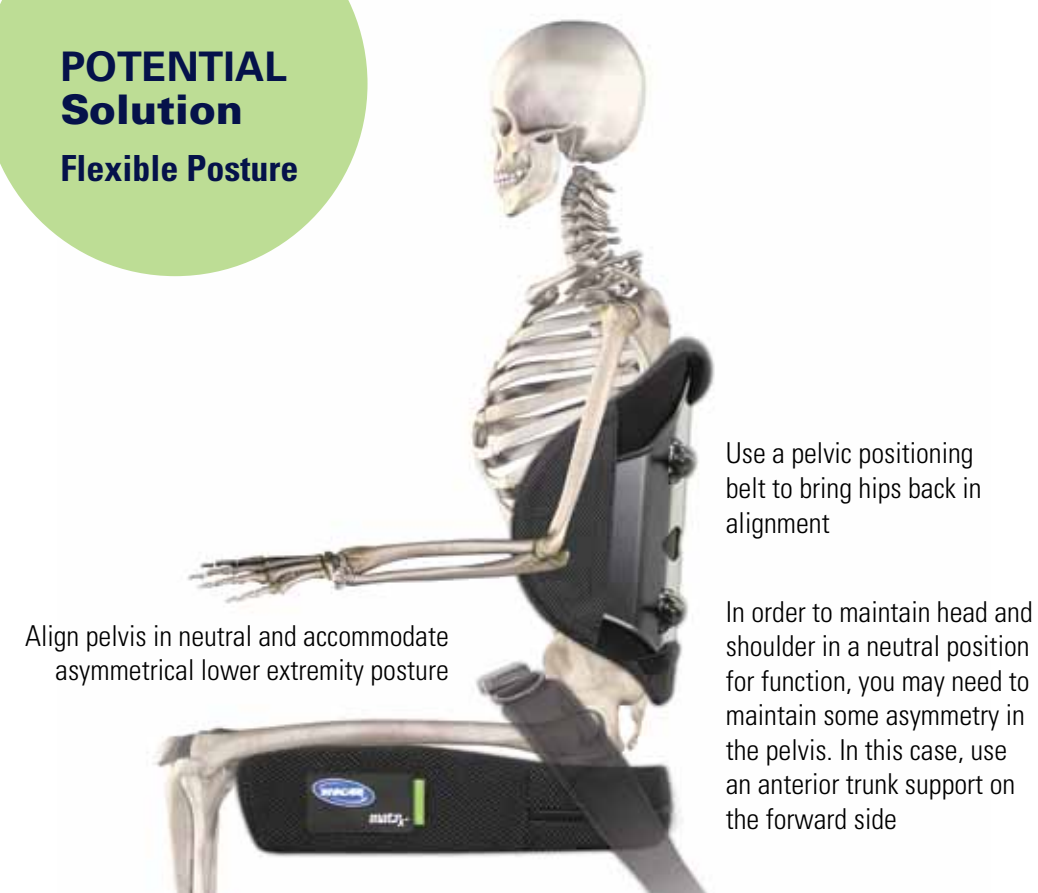


### POTENTIAL Causes

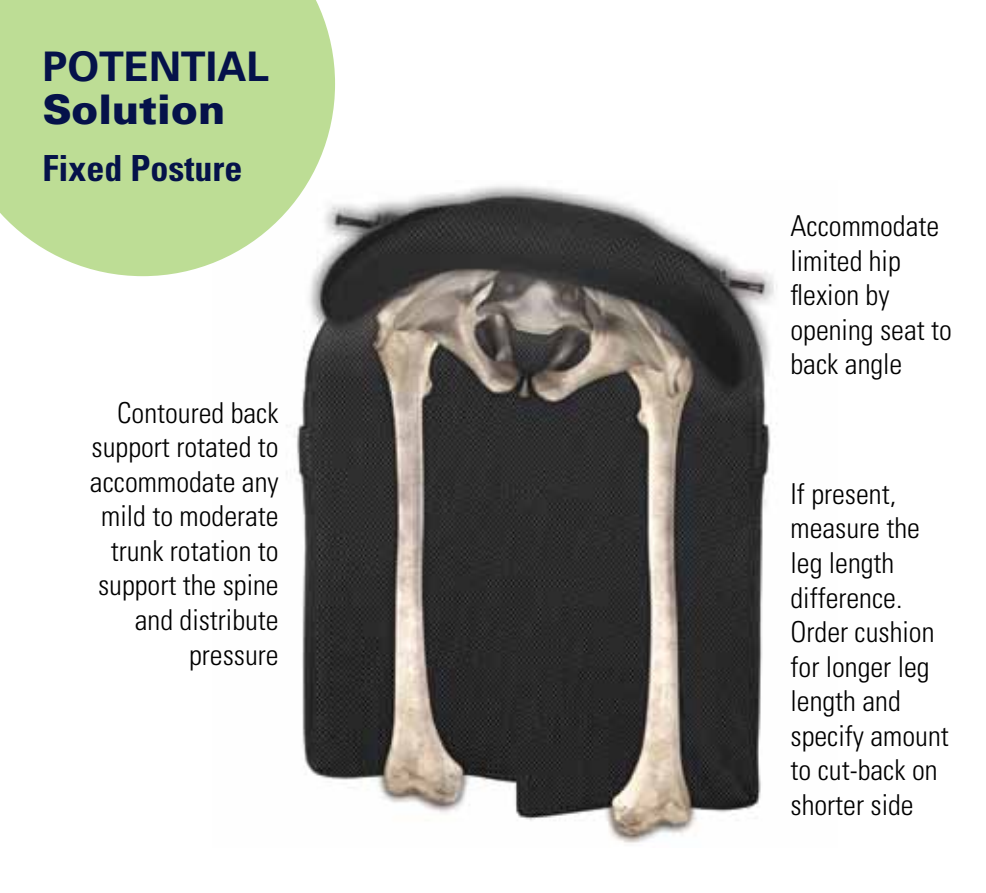
**Wheelchair Fit**  
Poor wheel placement on manual chair  
Seat to floor height too high for foot propulsion

**Clinical**  
Limited hip flexion, abduction, adduction  
Leg length discrepancy may be caused by dislocated or subluxed hip  
Unequal buttock/thigh depth, leg length discrepancy

### POTENTIAL Solution Flexible Posture

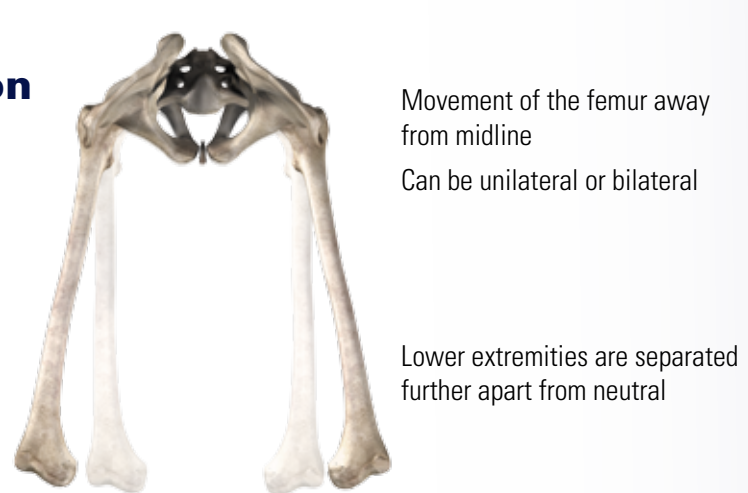


### POTENTIAL Solution Fixed Posture



## HIP ABDUCTION

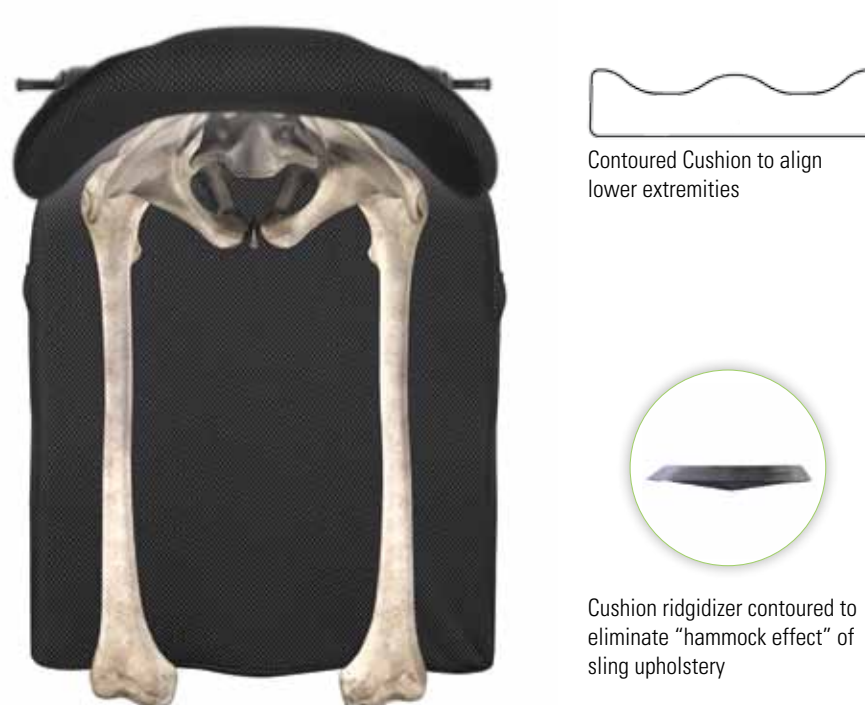
### CLINICAL Presentation



### POTENTIAL Causes

Low or high tone  
Surgeries, LE Abduction due to excessive abdominal tissue  
Inadequate seat depth

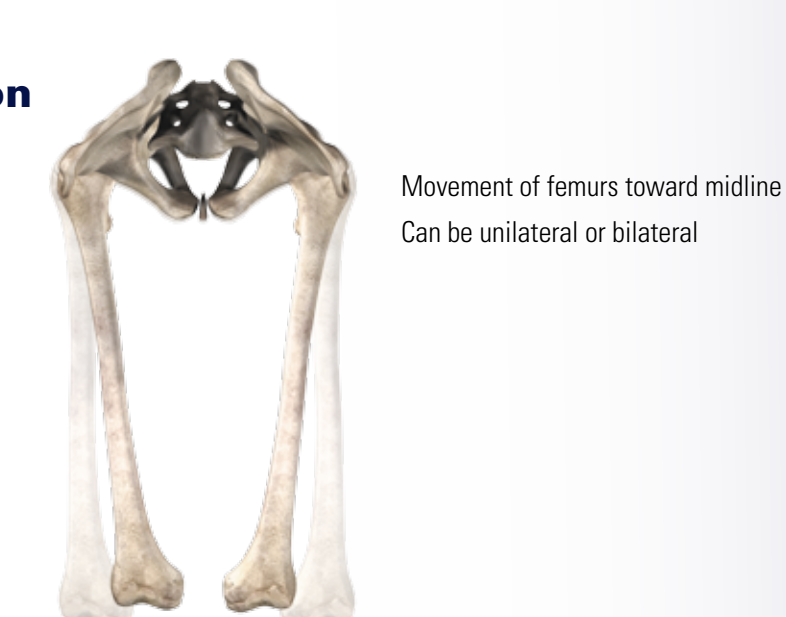
**Flexible:** Try to align femurs in neutral using contoured cushion  
Try distal lateral thigh supports  
**Fixed:** Accommodate with custom contoured seating



**Flexible:** Use seat rigidizer or solid seat pan  
Try distal medial thigh support or contoured seating  
**Fixed:** Accommodate with custom contoured seating

## HIP ADDUCTION

### CLINICAL Presentation



### POTENTIAL Causes

Sling upholstery without solid seat insert  
Low or high tone, decreased range of motion and/or strength of hip abductors

### Invacare® Matrix® Seating Objectives

- Facilitate postural stability while allowing purposeful movement to promote effective function and support healthy resting postures.
- Respect 3 dimensional anatomical shapes, working to match contours for optimal support and pressure redistribution.
- Wherever possible, support postures from within the contours of the seating system in order to maintain skin integrity and to promote stability, balance and function, complemented with additional external components as needed.

### Invacare® Matrix® Guiding Principles

- The effect that seated posture has on breathing and swallowing should be a primary concern.
- Long term sitting can cause secondary complications such as tissue trauma, back and neck pain, postural deformities and joint contractures.
- A comprehensive evaluation, including a physical assessment in both supine and sitting, is the foundation of all effective seating solutions.
- The position of the pelvis directly impacts the spine, which in turn influences the position of the head and extremities.
- The pelvis is the foundation for seated function and the PSIS must be supported in order to achieve postural control.
- Determining if a posture is fixed or flexible is vital for selecting appropriate seating solutions.
- The opportunity to trial seating solutions in static and dynamic situations is important for identifying the most effective overall seating solution.

For more information, visit [www.invacare.com](http://www.invacare.com).

These are the opinions of clinical staff at Invacare Corporation and proper assessments should be made at the individual patient level. This information is not intended to be, nor should it be considered, medical, billing or legal advice. The physician and other medical care providers are responsible for determining proper product selection and the appropriate billing codes when submitting claims to the Medicare program, and should consult an attorney or other advisor to discuss specific situations in further detail.

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**matrix**  
SEATING SERIES

**INVACARE**  
Yes, you can.®