Seating and Positioning for the Complex Orthopedic Surgical Candidate: Pre and Post Considerations.

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Disclosure Information
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Disclosure of Relevant Financial Relationships
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Learning Objectives

1. Understand how early assessment of postural seating needs will compliment the benefits of surgical outcomes and improve overall function

2. Discuss why seating and positioning is critical to the plan of care and how specific products can support the surgical intervention

3. Describe the benefits of a pre and post-surgical protocol for seating and positioning

4. Describe key seating and positioning strategies for the complex client
Principles of Seating and Positioning

• Obtain a stable base of support for weight bearing
• Decrease the influence of atypical muscle tone-counter rotational forces/torque
• Accommodate fixed deformities and correct flexible deformities
• Provide the least amount of intervention needed to achieve the greatest level of function
• There is no one solution or product, but typically a combination of tools that provide success

Adapted from Radell (1997) and York and Weimann (1991)
Perlman Defines Functional Positioning as

- Positioning which promotes **active movement** and **participation** and provides an opportunity to positively impact **cognitive function** while decreasing the affects of the abnormal tone
Postural support and alignment for the orthopedic client

Positioning for complex physical and medical needs (CP, MD, SMA) can be complicated, ongoing, and variable.

The long term effects of abnormal tone can be severe and affect the musculoskeletal system dramatically.

Each person is unique and there is no clear rule book when matching product with physical presentation.
Despite adaptive positioning and medical advances our clients often require surgery:

**Common orthopedic issues**
- Subluxed/dislocated hips
- Spinal curvature & rotation
- Contractures of elbow, wrist, knee and ankle

**Common Orthopedic surgeries**
- Soft tissue and tendon lengthening
- Hip/pelvic osteotomies
- Spinal fusion
Surgery results in a physical change to the skeletal system that can affect the patients seating and positioning system.

**Bony Osteotomy**
- Casts or splint for 6-12 weeks: how will they sit?
- Seat width can change about 2 inches
- Pelvic base of support has changed

**Spinal Fusion**
- Client often grows 4-6 inches in back height
- Not enough growth in seating
- Requires minimum of a new back support
How does seating benefit surgical outcome?

Pre-surgical planning is **CRITICAL** to determine the type of postural or mobility system to support the surgical intervention.
Without pre-surgical planning recommendations

The client may have no functional options to adapt to their posture following the surgery.

They will be placed into a seating system that does not support or compliment the surgical intervention.
Case Study: 6 year old, bilateral hip osteotomy

- Had Surgery without consideration of her equipment (dependent manual wheelchair, non-ambulatory)
- Spica cast 12 weeks, discharged with rental wheelchair as she could not use manual
- Perlman seating eval at 14 weeks s/p sx; funding submitted for new seating and growth to her frame to accommodate new hip width (increased 2 inches)
- Funding denied (3 months after eval): reason- family still has rental, additional justification for change in growth, original seating 1.5 years old
- 2 appeals later (3 months) equipment approved- equipment ordered and delivered 6 weeks later- total of about a year
- Not able to attend school due to not having safe means for positioning, limited community outings as rental not functional
• Procedure was on the schedule for 3 months
• Seating Evaluation could have happened before surgery
• Pre-surgical position planning with therapist
• Justification/recommendation submitted 3 months before surgery
• Appeal handled in plenty of time, MD reports to support
• Equipment approved & ordered OR final check of measurement upon cast removal
• Fitting 2-3 weeks after cast removal as vendor can rush order since they have prior authorization
• Optimal positioning to support surgical procedure
• Optimal positioning for functional activities
• Increased participation and return to daily routine
Things to consider

**Funding**
- Can take up to 6-9 months for approval
- Optimal to refer 3 months before surgery

**Caregiver planning**
- Increased stress over how to position after surgery
- Support family with post surgical plan for positioning

**Expensive procedure**
- Patient functionally seated in equipment that compliments surgery
- Improved outcomes

**Advocacy**
- Funding sources see the contributions of seating
- Improved access to adaptive equipment
The Pre-Surgical Seating Evaluation
Per RESNA Guideline

- Multidisciplinary team: Clinician, MD, vendor & patient
- Complete Mat Assessment
- Assessment of current equipment
- Discuss transportation and functional activity
- Talk about need for loaner/modification to current seating equipment
- Understand reason/expected outcome of surgery
- Consider contoured vs custom seating
- Recommendations made, justification submitted
Perlman Protocol for Optimal Seating for the Surgical Client
Per CCHMC Ortho and Perlman Policy

Medical team has recommended surgery: Seating referral needed to allow optimal positioning status post-surgery to accommodate physical and functional changes.

Pre-Op visit: Medical team refers client for seating and positioning consult (optimal 3 months prior to surgery date) to allow for assessment of recommendations, justification of medical need by therapist and prior authorization of funding to be initiated.

Inpatient: Therapist and vendor work with inpatient medical team to assist client with loaner wheelchair for transport home or modify current wheelchair to accommodate post-surgical restrictions and positioning.

6-12 week follow up (out of casts/bracing and tolerating range of motion and upright positioning): therapist and supplier re-measure client to assess any changes needed to recommendation prior to ordering.

Schedule Delivery of new equipment.
Non-surgical candidates should be referred for complex seating evaluations to explore alternative options to promote neutral positioning, reduce pressure over bony prominences, improve comfort and inhibit progression of orthopedic distortions.

Orthopedic conditions that are not addressed properly in a timely manner will lead to detrimental effects for the client, increasing level of disability.
Perlman Protocol for Optimal Seating for Non-Surgical Client

- Medical team has determined the client is NOT a candidate for surgical procedure.
- Medical Team refers the client for seating and equipment assessment to determine appropriate 24 hour positioning products to promote functional positioning and access, support asymmetries and contractures and prevent further impairments.
- Therapist and vendor perform assessment of recommendations to promote functional position; complete all necessary documentation for therapeutic justification and funding.
Strategies to consider with seating and positioning across the lifespan.

Different stages of development require different focus.
Positioning for the young child

Focus is to promote neutral postures and maintain good ROM for development of joints and structures that will assist with early participation.
Positioning for the Adolescent

Focus is to support growth spurts and continue to promote neutral alignment which often requires more frequent seating adjustments and modifications.
Positioning for the Adult

- Focus is to support postures to promote participation, accommodate orthopedic asymmetries and prevent additional complications.
Thank You