

AT103: HOW DO I ADDRESS POOR HEAD CONTROL IN THE SEATING SYSTEM?

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What we will be covering:

- Positioning Assessment
- Common positioning challenges of the head
 - Causes
- Suggested strategies
 - Goals



Assessment

- To position the head, we first need to perform a seating assessment
- The position of the head is extremely dependent on the position of the pelvis and trunk
- Seat to back angle and position in space allows the client to “balance” the head

Impact of general position on the head

- Kian
- Very poor positioning led to extreme neck hyperextension and choking



What do you think?

- Kian
- What is wrong with his head position in this picture?



What do you think?

- Kian
- What would you adjust?
 - Hint: we already positioned the pelvis in neutral and adjusted the headrest



What do you think?

- Kian
- Supporting the trunk aligned the neck, reducing hyperextension and improving vision, breathing and swallow



Look Again...

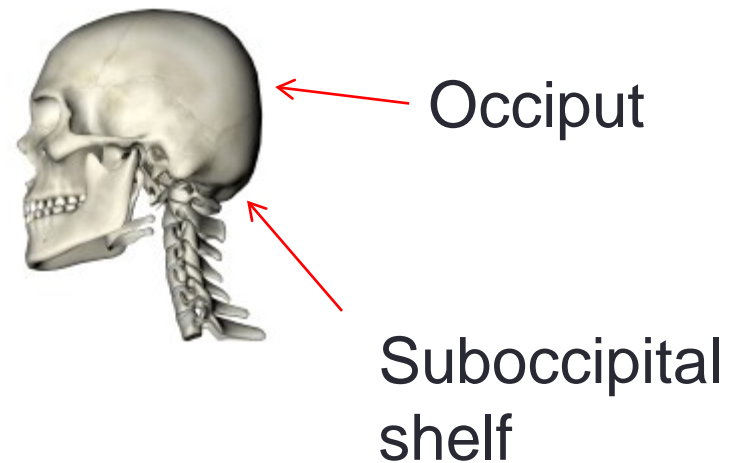


Assessment Considerations

- Anatomy review
- Proportion of the head
- Weight of the head
- Where flexion occurs
- Clinical implications

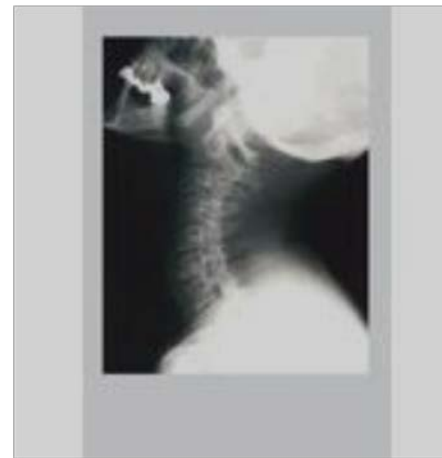
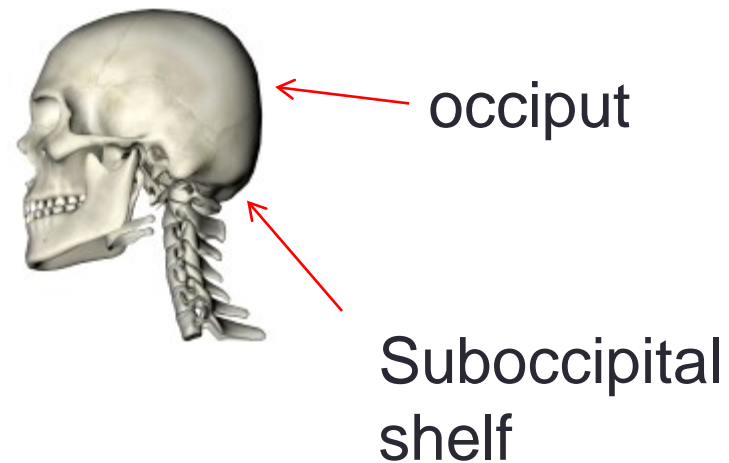
Anatomy Review

- The posterior contact area of the skull is the occiput
- The inferior contact areas include the suboccipital shelf and the jaw
- The anterior contact area is the forehead
- The lateral contact areas include the sides of the skull, the cheeks, and the jaw



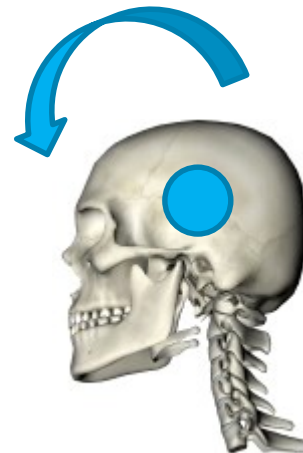
Clinical Implications

- Occipital support contacts the upper rear of the head
 - This contact does not prevent forward flexion or hyperextension
- Suboccipital support can actually provide “inferior” postural support as it “cups” the occipital shelf
 - This also can reduce neck hyperextension



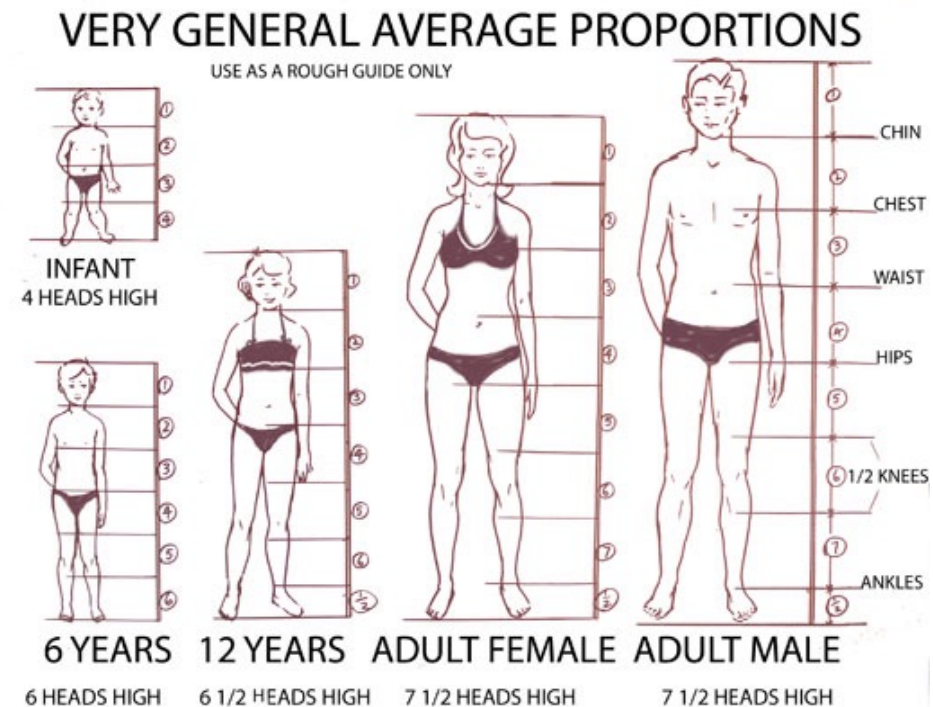
Clinical Implications

- Lateral support is most often placed at the sides of the head, limiting lateral flexion and rotation
- Anterior support is typically provided in front of the forehead
 - i.e. forehead straps
 - This can be challenging, as forward flexion creates a rotational movement
- Inferior support can be provided at the suboccipital shelf, as well as under the jaw
 - i.e. collars



Proportion of the Head to Body

- Length
 - A newborn baby's head is 1/4 of their body length
 - An adult's head is 1/7 of their body length



Clinical Implications

- Younger children are more top heavy, impacting head control
- Younger children may still require adult sized head supports
- Clients with macrocephaly will have similar issues



Weight of the Head

- Weight
 - The average head weighs about 10 pounds



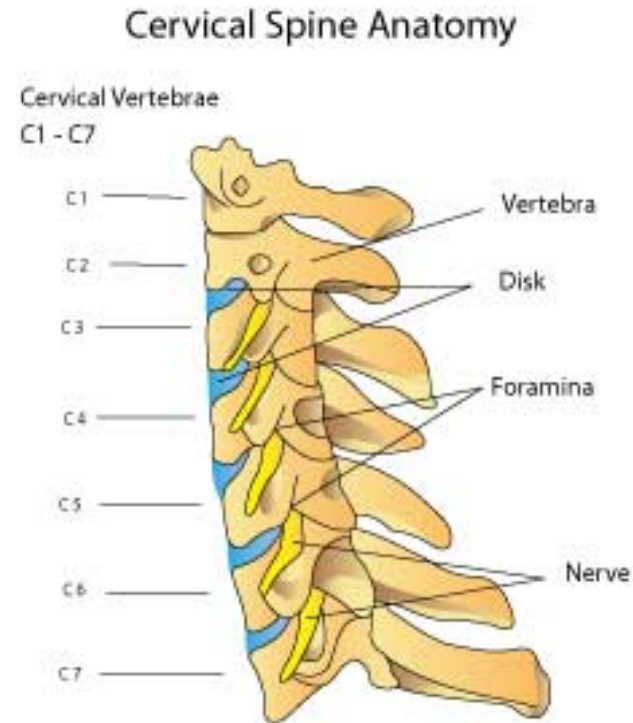
Clinical Implications

- Weight
 - That is a lot of weight to balance and recover!
 - If the head remains in a forward position, this increases the strain on the neck
 - Every inch of forward head posture can increase the weight of the head on the spine by an additional 10 pounds (Kapandji, Physiology of Joints, Vol. 3)
 - This makes the head “feel” heavier and is harder to return to neutral



Neck Flexion

- Where flexion occurs at the neck varies with age
 - Birth – 4 years: C2 – C3
 - 5 – 6 years: C3 – C4
 - Adult: C5 – C6



Clinical Implications

- We need to be aware of this as we look at overall positioning to optimize head control
- This could also dictate placement of the occipital and suboccipital pads, depending on where flexion is occurring

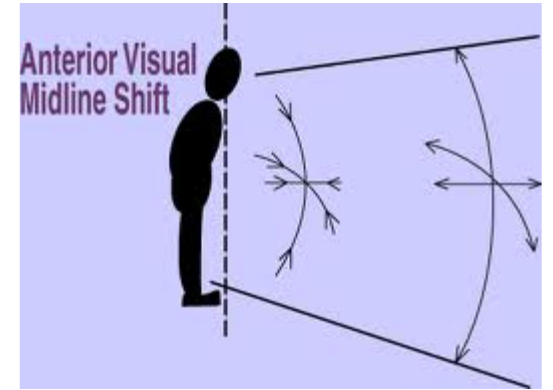


Assessment Considerations

- Possible Causes of decreased or no head control:
 - Decreased neck strength
- Possible Causes of sub-optimal head position:
 - Hyperextension of neck in compensation for poor trunk control
 - Forward tonal pull
 - Visual impairment, particularly a vertical midline shift
 - Client attempting to optimize swallow
 - Client attempting to optimize breathing

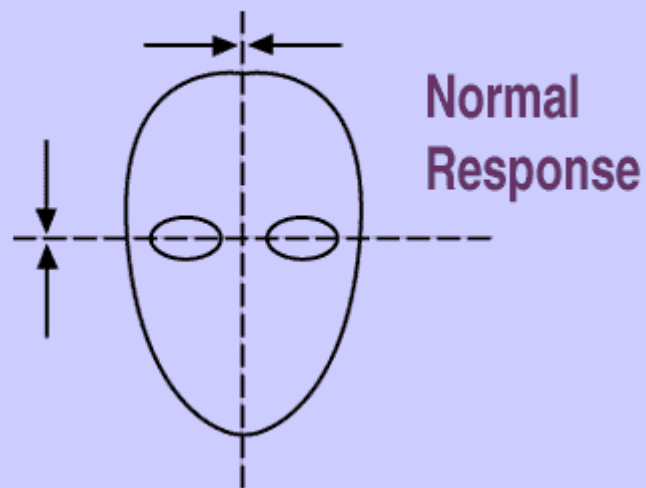
Vertical Midline Shift

- Midline “shifts” so that client drops head to optimize visual field (Anterior Visual Midline Shift)
- Horizontal Midline Shift can lead to lateral head lean
- Want more information?
 - NORA: Neuro-Optometric Rehabilitation Association

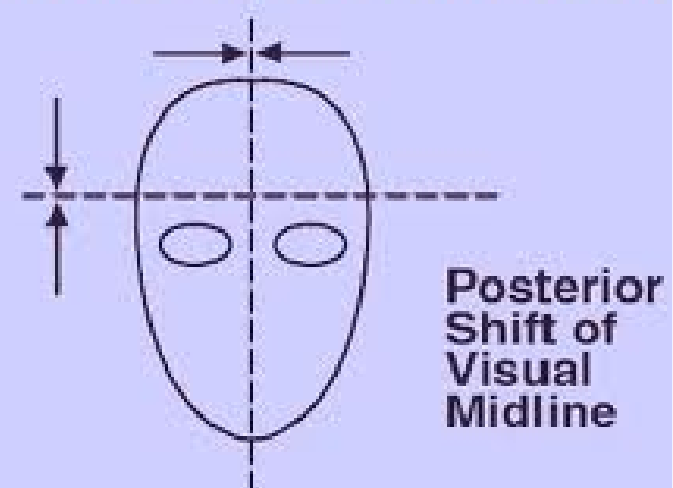


Padula Institute of Vision

VISUAL MIDLINE SHIFT TEST



VISUAL MIDLINE SHIFT TEST



Swallow and Head Position

- This young lady could not manage her secretions unless her head hung forward... or her seat to back angle was opened sufficiently



Assessment Considerations

- General Interventions:
 - Increase trunk extension and scapular retraction
 - Change pull of gravity against head by reclining or tilting seating system
 - Refer to neuro-optometrist, if appropriate
 - Neck rests
 - Posterior head supports
 - Anterior solutions

Questions?

Posterior Head Supports

- AEL



Soft



Curved



Tri-pad

Posterior Head Supports

- Otto Bock



Posterior Head Supports

- Stealth Products



Posterior Head Supports

- Symmetric Designs



Posterior Head Supports: Whitmyer



Building a Head Support

- Occipital Support

- Large or small
- Large is more contoured
- Children have large heads in proportion to their bodies



 Ultra Large



 Ultra Small

Building a Head Support

- Suboccipital Support



 600



 610



 620

Building a Head Support

- Lateral Supports



900



910



920



930



Building a Head Support

- Materials and Upholstery
 - Foam is standard, but solid gel can be used too
 - Smoother upholstery = less friction. Less bald spots!

Building a Head Support

- Mounting and Swing-Away
 - Separate depth adjustment for occipital and suboccipital pads



 SU980

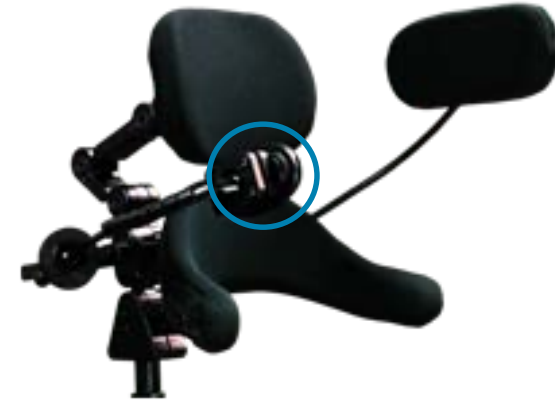


 TWB480-QFDM



Building a Head Support

- Accessories
 - Switches
 - Access to AT
 - AbleNet Specs mounting plate SSM-100



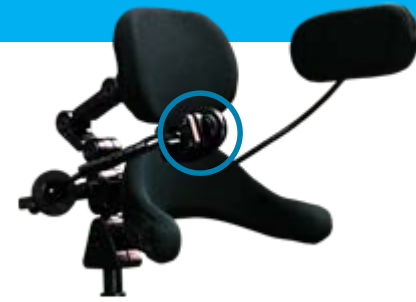
AbleNet Specs switch on swing away bar



Micro Lite switch on gooseneck

Building a Head Support

- Accessories
 - Switches
 - Access to AT
 - AbleNet Specs mounting plate SSM-100
 - *Video



Switch used with spot pad for stability

Building a Head Support

- Accessories
 - Speakers
 - Auditory scanning
 - Other auditory output



Case Study

- Hannah
- Poor head position
 - Leaning to side
 - Propped on chest



Case Study

- Hannah
- With suboccipital and lateral supports added



Case Study

- Hannah
- Right lateral support provided by suboccipital and spot pads
- Suboccipital limits any hyperextension



Case Study

- Hannah
- Improved head position allowed switch access by left side of head



Case Study

- Hannah
- Much improved visual gaze
- Impact on swallow and breathing



I2i Head Support

- Clinical Indicators:
 - No pressure on the occiput for clients who extend in response to contact with this area
 - Encourages midline head position
 - Prevents hooking
 - Minimizes neck hyperextension



i2i Head Support

- Before and After



Head Position and Eye Gaze



Questions?

Dynamic Options

- Providing movement at the head has several goals:
 - Absorbs force to protect equipment from breakage
 - Diffuses force to reduce extensor patterns
 - Increases tolerance to seating system

Dynamic Posterior Head Supports

- Miller's Adaptive Technologies
- *video

Dynamic Headrest Options

- Seating Dynamics Dynamic Headrest
 - Single Axis moves along midline or the Y Axis
 - Multi-Axis moves in both X and Y Axis and anywhere in between
 - *video



Dynamic Posterior Head Supports

- Stealth Tone Deflector
 - 10 degrees any direction
 - Absorb and Avert!



Dynamic Headrest Options

- Symmetric Designs Axion Rotary Interface
- *video



Questions?

Anterior Head Solutions

- Tread lightly – many clients will not tolerate anterior head support and many caregivers are resistant to the idea
- Controversial whether to use in transport
 - At the least, use anterior trunk support if anterior head support is used
 - Soft collar is safest in transport
 - Do not attach collar to seating system

Anterior Head Solutions

- Support at forehead
 - May lead to further loss of head control
- Support under jaw
 - Limits active range and can actually improve head control in some cases
- Support from above the head

Forehead Strap

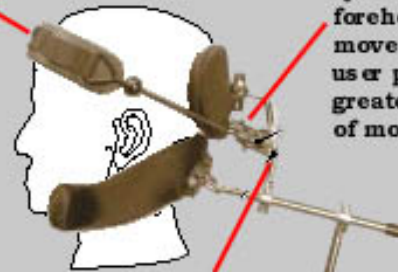
Another WBI Patented Advance in Support Systems -Forehead Support That Moves with the User!

How does it work? The secret's in the pulleys.



Many individuals cannot control their vertical head position allowing their heads to fall forward when not supported.

The WBI pulley system allows the Strap moves freely as the user moves.



The WBI pulley system allows the forehead band to move with the user providing greater freedom of movement.

The DFS attaches securely to the SOFT Head Support System (not included).



Hat



Attached to back
or headrest post



Whitmyer

Forehead Strap

- Savant with forehead strap
- Strap stays in position, as it attaches far forward on the side of the head



Forehead support

- Stealth lateral pads used to limit forward movement
 - Firm bilateral lateral support
 - Or, bend long pad for some anterior forehead support



Collars

- Soft cervical collar
- Good for transport
- Not so great for postural support
- Too soft, can fold and compress trachea area



Collars

- Symmetric Designs
- HeadMaster
- Open and lightweight
- Bendable
- Can be used with a trach/vent
- Designed primarily for ALS



Collars

- Danmar
- Hensinger Collar
- Can be used with a trach/vent
- Tube socks
- Can be attached to a headrest mount
 - Not during transport



Chin Prompt

- Stealth i2i
- Chin prompt cues the client to extend the neck
- Limits active neck range



Head Pod

- Superior (above) head support
- Mostly being used with small children
- Check out their videos!



Questions?

Thank you!

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