

Positioning the Head



MICHELLE L. LANGE, OTR/L, ATP/SMS

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Learning Objectives:

- The participant will be able to list 3 causes of decreased head control.
- The participant will be able to list 3 strategies to provide posterior head support.
- The participant will be able to list 3 strategies to provide lateral head support.
- The participant will be able to list 3 strategies to support the head for clients little to no head control.

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What are we Covering?

Positioning the Head

- Assessment Considerations
- Posterior Head Supports
 - Occipital, Suboccipital, and Lateral support
- Dynamic Head Support Hardware
- Anterior Head Supports
 - Forehead support and collars

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Assessment Considerations


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Assessment Considerations

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

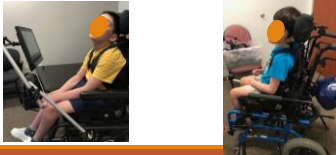


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Impact of Pelvic and Trunk Position on the Head

On the left, this young man is sitting in a posterior tilt with forward trunk flexion = neck hyperextension

On the right, he is sitting with aligned pelvis, trunk, and neck



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Assessment Considerations

Let's begin with a case study to put all of this in context...



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Case Study



Kian

Very poor positioning led to extreme neck hyperextension and choking

Impact of general position on the head

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Case Study

Kian

What is wrong with his head position?

What would you adjust?

- Hint: we already positioned the pelvis in neutral and adjusted the headrest



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Case Study

Kian

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



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Look Again...

BEFORE



AFTER



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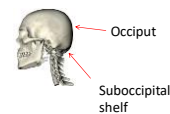
Anatomy Review

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



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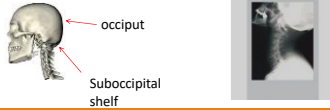
Clinical Implications

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



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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

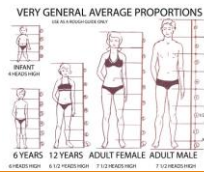
- i.e. collars

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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



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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



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Weight of the Head

Weight

- The average head weighs about 10 pounds

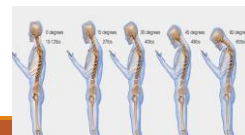


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Clinical Implications

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

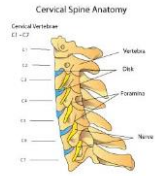


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Neck Flexion

Where flexion occurs at the neck varies with age

- Birth – 4 years: C2 – C3
- 5 – 6 years: C3 – C4
- Adult: C5 – C6



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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



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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 or CVI
- Client attempting to optimize swallow
- Client attempting to optimize breathing

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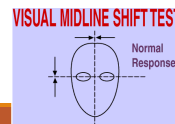
Vision and Head Position

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

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Vision and Head Position

Cerebral Visual Impairment (CVI)

- Brain processing issue

Client may need to move their head position to optimize vision

Client may 'glance' at something as sustained gaze may be difficult

Functional vision can vary over the day

May improve over time

Support the head, but allow movement for vision



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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



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What about Non-Reducible Kyphosis?

Open Seat to Back Angle

Or

Tilt in Space

Funding issues in long term care...



- Upright seating does not accommodate kyphosis
- Poor visual field

- Fixed tilt prevents further adjustment
- Improves visual field

Courtesy Sunrise Medical



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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

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Assessment Summary

Before jumping to product...

- Look at the client's overall positioning
 - Refer to the other courses in this series
- Consider visual impact
- Consider other factors, such as swallow and breathing
- Look at seat to back angle and position in space
 - Non-reducible kyphosis

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Posterior Head Supports

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Posterior Head Supports

Many posterior head rests or head supports are on the market

None will be effective if the client's head never touches it!

Use those other strategies



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Occipital Pads

Most Posterior head supports are comprised of an occipital pad

- Placed behind the occiput of the skull
- This pad is typically curved to encourage a more midline head position
- The pad may be very well padded. This is important if the client spends time in tilt or recline, when the back of the head bears weight



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Occipital Pads

An Example:

- Hailey can maintain an upright and aligned head position with a simple posterior head support. This support is thick to provide better pressure relief during tilt



Stealth Comfort Plus

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Lateral Support

Many posterior head supports incorporate more lateral support than a simple contour

- This occipital pad is hinged to allow the distal edges to be moved in, creating more lateral head support



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Suboccipital Pads

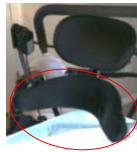
Suboccipital pads are typically used in conjunction with an occipital pad

Placed under the suboccipital shelf

Provides some weightbearing on this area for improved support

Can prevent neck hyperextension

Provides some lateral support along jaw



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Suboccipital Pads

An Example:

This occipital and suboccipital pad are working together to align the head. The suboccipital pad is a bit too high and pressing the ear



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Lateral Support

Lateral support can be added to many head supports

Rather than only having adjustment with a hinge attached to the occipital pad, very precise placement is provided in multiple planes

Lateral pads come in many sizes



Stealth Products Ultra with occipital, suboccipital, and lateral supports

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Posterior Head Supports

There are a lot! Here are some...

AEL

Matrx

Metalcraft

Stealth Products

Symmetric Designs

Whitmyer

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Posterior Head Supports

AEL

- Tri-pad includes some suboccipital support, as well as adjustable lateral support



Soft Curved Tri-pad

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Posterior Head Supports

Comfort Company (now under Permobil)

BodiLink

- 6 sizes
- 2 firmness levels




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Posterior Head Supports

Motion Concepts Matrix Elan

- Standard pads
- Occipital pads
- 4 point pad



4 point pad

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Posterior Head Supports

Metalcraft

- The P.L.O.S.H. includes some suboccipital support



Contoured Adjustable Winged Posterior Lateral Support P.L.S.H. Posterior Lateral Occipital Support P.L.O.S.H.

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Posterior Head Supports

Metalcraft

- Designed to provide mostly suboccipital support
- Can lead to neck hyperextension and high pressures on the posterior neck during tilt or recline



Head Support Adjustable Wing Collar H.A.W.C. Rigid Anterior Trunk Support R.A.T.S. Occipital Ring

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Posterior Head Supports

Stealth Products Comfort Plus Series

- Hinged version provides mild lateral support



Swing away assembly on rear

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Posterior Head Supports

Stealth Products Tri-Comfort Plus Series

- Fixed lateral support

Stealth Products Combo Series

- Adjustable lateral support
- Spare ears and improves visual field

Stealth Products All Positioning Series

- Mild suboccipital support
- Lateral support can be added



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Posterior Head Supports

Stealth Products Ultra Series

- Nino version for kids

Occipital, suboccipital and lateral options

Premade configurations

Custom configurations




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How to Build a Head Support

We are going to interrupt our tour of available Posterior Head Supports for a moment...

Some of these options, like the Stealth Ultra, are modular. This allows us to "build" or customize a head support

Let's check it out before we return to further product options



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Building a Head Support

Occipital Support

- 5 sizes
- Large is more contoured
- Children have large heads in proportion to their bodies




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Building a Head Support

Suboccipital Support

- 3 sizes

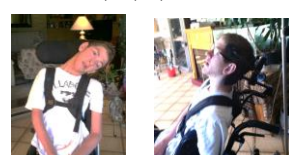




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Building a Head Support

Lateral Supports

- Suboccipital pad provides some lateral support, as well

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Building a Head Support

Materials and Upholstery

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



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Building a Head Support

Mounting and Swing-Away

- Separate depth adjustment for occipital and suboccipital pads



Uni-Link

Flip-down

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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

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Building a Head Support

Accessories

- Switches
 - Access to AT (video)

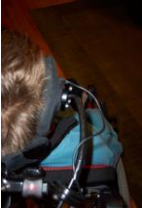
Switch used with spot pad for stability

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Building a Head Support

Accessories

- Speakers
 - Auditory scanning
 - Other auditory output



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Back to the Stealth Products Ultra...

Let's look at a few case studies



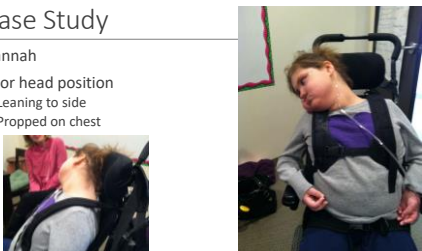
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Case Study

Hannah

Poor head position

- Leaning to side
- Propped on chest




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Case Study

Hannah

Right lateral support provided by suboccipital and spot pads

Suboccipital limits any hyperextension




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Case Study

Hannah

Improved head position allowed switch access by left side of head




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Case Study

MUCH IMPROVED VISUAL GAZE
IMPACT ON SWALLOW AND BREATHING


BEFORE:




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Jonathan

BEFORE



AFTER



Suboccipital pad reducing neck hyperextension

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Posterior Head Supports

Stealth i2i
Head, Neck, Shoulders Positioning System



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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



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Christopher

Christopher was propped on his chest with neck flexion and rotation, similar to Hannah

This head support worked better than Hannah's solution for him



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Jesse - Head Position and Eye Gaze

BEFORE ADJUSTMENT - HYPEREXTENDED

AFTER ADJUSTMENT - ALIGNED

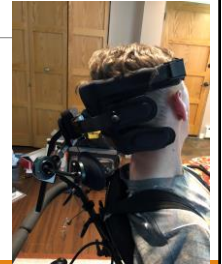


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Posterior Head Supports

Symmetric Designs

Savant headrest



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Posterior Head Supports: Whitmyer



Plush



Contoured cradle

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Posterior Head Supports

Whitmyer



Single Sub-Occipital



Three pad

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Whitmyer Heads Up

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Posterior Head Supports Summary

Define client parameters

Determine which product categories meet that need

- Type and size of occipital pad
- Size of suboccipital pad, lateral pads

Lateral support, in combination with occipital and suboccipital support, can provide neck alignment in multiple planes

Adequate postural support can optimize breathing, swallow, and vision

Impact on function

Mounting accessories

- Switch
- Speaker

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Questions?

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Wake Up Time!

Tell the person next to you your favorite Halloween candy!



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Dynamic Head Supports

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Dynamic Options

Providing movement at the head has several goals:



- Absorbs force to maintain component alignment and protect equipment from breakage
- Absorbs force to protect the client!
- Diffuses force to reduce extensor patterns
- Increases tolerance to seating system

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Dynamic Posterior Head Supports

Miller's Adaptive Technologies
Metalcraft Dynamic hardware

- Uni-directional

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Dynamic Posterior Head Supports

Miller's Adaptive Technologies
Dynamic Headrest Interface

Gas springs: two levels of resistance

- 40, 80

Large movement




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Dynamic Posterior Head Supports

Miller's Adaptive Technologies

- Dynamic Headrest Horizontal Adjustment Bar
- Shrouded to protect hair
- 2" posterior movement




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Dynamic Posterior Head Supports

Miller's Adaptive Technologies

- Dynamic Headrest Coil Spring Assem
- Captures rotation



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Dynamic Posterior Head Supports

Seating Dynamics Dynamic Head Support Hardware

- Captures posterior and rotational movement
- Compatible with a wide variety of head pads




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Dynamic Posterior Head Supports


Seating Dynamics Dynamic Head Support Hardware

- Can be used with suboccipital and lateral supports
- Lock-out feature standard
- Typically used:
 - During transportation
 - If mobility base is moving over rough terrain to limit excessive neck movement
 - During feeding, if more stability is required
- Pull the knob to lock out, push in to restore movement






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Dynamic Posterior Head Supports
 Seating Dynamics Dynamic Head Support Hardware

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Dynamic Posterior Head Supports



Stealth Tone Deflector

- 10 degrees any direction
- Works well for clients who do not tolerate a larger degree of movement
- Protects hardware
- Absorb and Avert!





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Dynamic Posterior Head Supports

Symmetric Designs Axion Rotary Interface


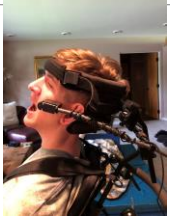
- Friction knob to provide resistance

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Axion Rotary Interface

Alexi

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Dynamic Posterior Head Supports

Symmetric Designs

Twin headrest mounting hardware with Dynamic +

Spring – firm or soft

Compatible with Symmetric Designs, Whitmyer, and Stealth head pads




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Dynamic Posterior Head Supports

Whitmyer Flex Interface Bracket

- Provides movement upward and then back to neutral
- Moves into hyperextension




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Combination Approach

Remember, these components can be used in combination with Dynamic Backs and Dynamic Footrests



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Anterior Head Supports

ANTERIOR SUPPORTS AND COLLARS

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Head Solutions for Clients with Little to No Head Control

Lateral Supports

Anterior Forehead

- Forehead band, strap, or pad
- Lateral pads
- Baseball cap/helmet attached behind the head

Under Chin

- Collars
- Chin support/orthosis

Superior support

- Head Pod

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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



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Clinical Implications

Anterior forehead supports can **reduce** any remaining head control

Under chin supports limit active range and can actually **improve** head control in some clients

The Head Pod has **increased** head control in many clients

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Lateral Support Pads

BEND LONG PAD TO PROVIDE SOME ANTERIOR SUPPORT
Steath Products

LATERAL PADS "HUG" THE HEAD



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Forehead Straps

Available from various manufacturers

Critical to ensure the strap cannot fall under the chin

Use with pelvic positioning belt and anterior trunk support

Angle of the strap, attachment point, and whether the strap moves with the client are all key



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HeadOvations

HeadAloft

Attaches to existing head support occipital pad

Optional suboccipital support

Crash tested

Fits on other seat or stander




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Motion Concepts

Matrix Elan 4-point with Forehead strap

Non-slip strap


Adjustable attachment point



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Symmetric Designs

Savant with forehead strap




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Whitmyer

Whitmyer Dynamic forehead strap on pulley system

- Allows head to turn side to side
- Strap stays on forehead better




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Whitmyer

May be more readily accepted

Whitmyer Pulley system using a hat instead of forehead strap



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Anterior Forehead Pads

Must swing-away
Use with pelvic positioning belt and anterior trunk support

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Gel Ovarions

Sta-Rite forehead stabilizer
Swing-away



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Stealth Products

Lateral pad placed in front of the forehead
Swings away

Microlight switch
by left cheek



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Whitmyer

Lateral pad placed in front of the forehead
Swings away



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Collars

Collars provide support under the chin and jaw
Limit excessive movement
Can be hot
Can be difficult to accept
May need opening for trach and/or vent

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Chin Prompts

Stealth i2i

- Prompt only
- Will release under pressure for safety

 Whitmyer Heads Up





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Collars

Soft cervical collar

- Good for transportation
- Soft, weight of head can fold this and lead to pressure against throat

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Collars

Danmar

Swirl

- Adjustable firmness

Many other collars







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Collars

Danmar

- Hensinger Collar
- Can be used with Trach and/or Vent
- Can attach to head support mounting hardware
- Do not do so during transport

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Collars

Symmetric Designs

- Headmaster
- Open to allow for Trach and/or vent





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Head Pod

Suspends the head from above, allowing movement into flexion and rotation

Originally designed for therapeutic purposes to increase head control



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Head Pod – Superior Support

Now being used as a part of the seating system




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Decreased or No Head Control

Goals:

- Improved swallow, feeding, breathing
- Prevent over stretching of neck extensors and shortening of neck flexors (if head is usually hanging down)
- Prevent shortening of neck extensors (if shortened by neck hyperextension)
- Capital flexion (chin tuck)
- Promote visual attention to the environment, peers, etc.
- Increase function
- Prevent subsequent distortions of neck and shoulder girdle

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Anterior Head Supports Summary

For clients with very little or no head control, additional support may be required at the sides of the head, forehead, under the jaw, or even above the head

Consider client and family preference and concerns

Consider impact on residual head control

Always consider safety!

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Take Home Message:

Positioning the Head requires assessment to determine what is causing lack of head control and sub-optimal positions

Interventions include far more than head supports

Dynamic options are helpful for some clients

Sometimes the solution isn't as hard as it seems – don't over-complicate!



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Within 24-48 hours of the conclusion of the class, a link will be sent to your email.

- A **course evaluation** will need to be completed.
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Final House Keeping

Within 1 – 2 days you will receive an email

- This email will contain a link to the quiz. The link is safe and will say PrideLearningInstitute.litmos.com. Click on the link and it will bring you to the evaluation for the course.
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Contact Information:

Michelle Lange
MichelleLange1@outlook.com
www.atilange.com

Cameron Sant
csant@quantumrehab.com



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www.stealthproducts.com

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