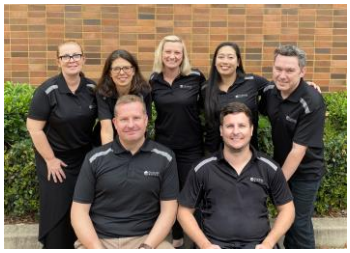
MAT EVAL

Assessment to prescription – Crash Course 101

Lisa Bidgood
Occupational Therapist
Clinical Hub Team, Sunrise Medical

July 21

CLINICAL HUB – AUSTRALIA WIDE TEAM



OUTLINE

1. What is a MAT eval
2. Influencers of posture
3. Measurements – simple measurements essential for wheelchair prescription
4. MAT assessment
5. Translation of findings
6. Seating considerations – cushions and backrests

Who does them?

Who does part of them?

Barriers to completing an assessment?



BIOMECHANICS

Biomechanically, people are not built for sitting!

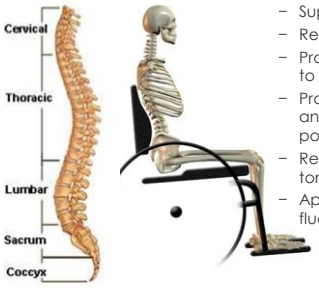
A MAT evaluation is completed to assist in understanding the capacity of a person's seated position.

By determining what position is optimal, the required supports can be identified to support that position and then replicated with a trial of potential equipment.

INFLUENCERS OF POSTURE

1. ROM
2. Body shape and size
3. Muscle tone
4. Gravity
5. Activity / engagement
6. Time spent in the posture
7. Health and emotional state

POSTURAL ALIGNMENT IN A WHEELCHAIR



- Support functional posture
- Respect available ROM
- Provide contours and angles to promote posture
- Provide seating orientation and angles to promote posture
- Respect and acknowledge tone
- Appreciate pressure fluctuations

THE "LIFE BOX"

- Physiologic function cannot be compromised
  - Elimination
  - Breathing
  - Swallowing
  - Digestion



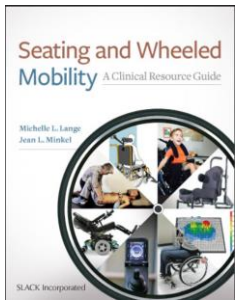
STANDARDISED MEASURES AND TERMS

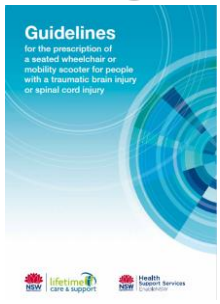


Global Effort began in the 1990's under the direction of Kelly Waugh.

Goal was to advance clinical practice and outcomes research in the field of wheelchair seating by promoting the use of standardized terminology and measurement during all phases of wheelchair service delivery.

1. Waugh, K. et al (2013). Glossary of Wheelchair Terms and Definitions, Version 1.0, December 2013. Denver, CO: University of Colorado Denver
2. Waugh, K. Crane, B., et al. (2013) A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces. Revised Edition. Denver, CO: University of Colorado / Assistive Technology Partners





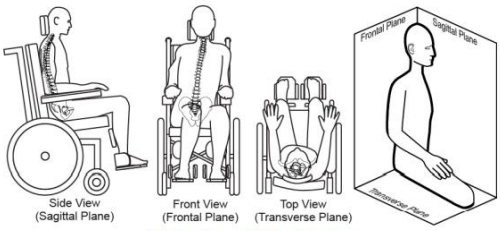


Fig. 1.5: Describing postural deviations in three planes

Fig. 1.4a: The three body planes, standing position

2. Waugh, K. Crane, B., et al. (2013) A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces. Revised Edition. Denver, CO: University of Colorado / Assistive Technology Partners

THE GOAL OF SEATING

Each abnormality is either **FIXED** (non reducible) or *FLEXIBLE (reducible).*

When a posture is **FIXED**;
- skeleton does not move; "stuck"
- trial potential equipment that will **ACCOMMODATE**
- *GOAL ⇒ prevention of further progression.*

When a posture is *FLEXIBLE*;
- skeleton moves and deformity *may* be reversed
- Trial equipment that will help **CORRECT**.
- *GOAL ⇒ restore movement of the skeleton, prevent the posture from becoming fixed AND allow greater freedom of movement*.

Accurate and standardised measurements and common vocabulary of a person's body and their seated posture is critical to

- **ensuring appropriate fit** and functioning of their wheelchair
- documenting **outcome**s related to our wheelchair seating interventions
- **communication** between therapists, equipment suppliers and funding bodies



THE WHOLE ASSESSMENT



Patient Demographics
- Age
- Diagnosis / prognosis / co-morbidities

Medications
Special needs
- Respiratory, GI, orthotics
- Communication devices or other assistive technology

Surgical History / plans
Physical status
- Strength, neuromotor, tone
- ROM

Sensation / skin integrity

THE ASSESSMENT

Cognition / behaviour
- Integrate, sequence, retain info
- Judgement

Visual limitations
Performance requirements
- Home environment
- Types of terrain – indoors / outdoors
- Inclines, ramps
- Travel distance

Transport
Functional skills



FUNCTIONAL MEASURES TO DETERMINE

- Seat surface to foot support
- Seat sling/pan to foot support
- Front seat frame height
- Rear seat frame height
- Backrest support height



1. Waugh, K. et al (2013). Glossary of Wheelchair Terms and Definitions, Version 1.0. Denver, CO: University of Colorado Denver
2. Waugh, K. Crane, B., et al. (2013) A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces. Revised Edition. Denver, CO: University of Colorado / Assistive Technology Partners

Hip width	• Seat width
Upper thigh length	• Seat depth
Lower leg length	• Seat to ground height
Back height	• Backrest height
Forearm height	• Height of armrest
Shoulder width	• Width between backposts
Chest width	• Backrest width (interior)

MEASURING THE CLIENT'S BODY

How?

- Preparation
- Process
- Risk assessment and safety concerns
- Risk reduction strategies for measuring the client's body

Why?

Measurements for:
- cushions
- back supports
- wheelchair frames

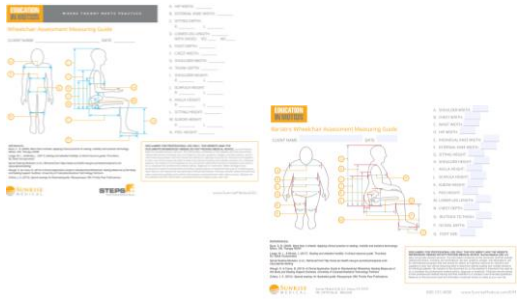
MADE-TO-MEASURE SOLUTIONS

• A client with complex seating needs will **require more body measurements** to adequately prescribe a good seating and wheeled mobility system

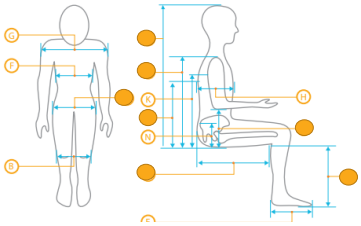
• Consider the client and clinician's **safety** and **reduce risks** accordingly, and

• A systematic record of body measurement **improves time efficiency for the trial process** and provides clear specifications of sizing required in prescriptions.

MEASURING GUIDE



MAIN 7 MEASUREMENTS



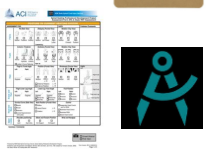
1. Sitting height - Head to base
2. Shoulder height
3. Scapular height
4. Seat depth
5. Lower leg length
6. Hip width
7. Flexed elbow height

INTERACTIVE – BODY MEASUREMENTS









HANDY HINTS

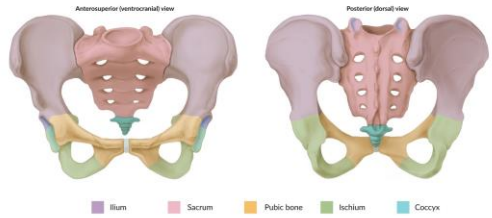
- Consider the client and clinician's safety and reduce risks accordingly
- Use a set of calipers where possible for ease and maintaining personal distance
- Use a hard measuring tape to reduce the risk of incorrect measurements due to curvatures of the body
- Use a ruler or chopstick placed in the popliteal fossa to assist with measuring seat depth
- Measure left and right sides of the lower body to rule out any anomalies (for complex or visually asymmetrical clients)
- Use Talk-to-Text software / app to record measurements
- Use an Angle Finder app to measure joint angles

QUIZ – BODY MEASUREMENTS

Seven important body measurements required for seating and wheelchair prescription?

1. Sitting height - Head to base
2. Shoulder height
3. Scapular height
4. Seat depth
5. Lower leg length
6. Hip width
7. Flexed elbow height

KNOW YOUR PELVIS



KNOW YOUR PELVIS - POSITIONS



Pelvic obliquity
- One side of the pelvis (ASIS) is higher than the other
- This is a right pelvic obliquity – the right side of the pelvis is higher than the left.

HOW DO WE REDISTRIBUTE PRESSURE?

Flexible - build up under the **low** side

Fixed – build up under **high** side

KNOW YOUR PELVIS - POSITIONS



Pelvic rotation
- Right side forward – rotation to the left.
- This is a left side rotation*

HOW DO WE REDISTRIBUTE PRESSURE?

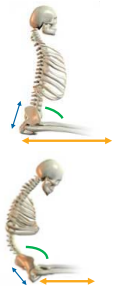
Each action has an equal and opposite reaction



Flexible – use of pelvic support belt, build up of forward side (right in this instance), consider corresponding build up of rear opposite side

Fixed – use of pelvic support belt, build up of non-forward side (left in this instance), consider corresponding build up of rear opposite side

KNOW YOUR PELVIS



Anterior Pelvic Tilt
- PSIS is higher than the ASIS.
- Excessive lordosis of the lumbar and cervical spine, producing a swayback.

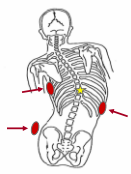
Posterior Pelvic Tilt
- ASIS is higher than the PSIS resulting in the posterior pelvic tilt/sacral sitting posture.
- Excessive thoracic kyphosis producing the "C" shape spine.
- Lordosis curvature of the lumbar and cervical spine "flatten out"

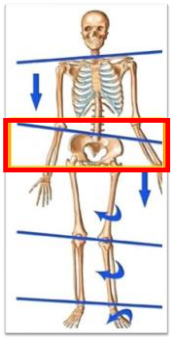
KNOW YOUR SPINE POSITIONS

Scoliosis- an abnormal sideways curvature of the spine.

If a **scoliosis curve** gets worse, the spine can also rotate or twist.

Three Points of Control in the plane of movement
1. Apex of primary curve
2. Above on opposite side
3. Below on opposite side





What's most important most of the time?

What are the deal breakers for client?

What are the deal breakers as a therapist?







SPOT QUIZ – KEY POINTS OF OPTIMAL SEATING & POSITIONING (7)

1. Pressure / skin integrity
2. Life box
   - –Elimination
   - –Breathing
   - –Swallowing
   - –Digestion
3. Supporting function
4. Support postural alignment
5. Provide comfort
6. Provide dynamic stability
7. Respecting tone

RECORDING THE MAT ASSESSMENT

The MAT should be recorded immediately after each assessment phase to prevent confusion.

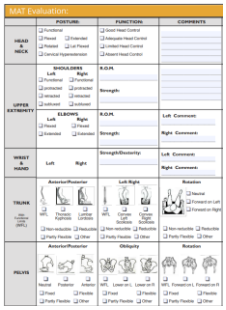
- **postural presentations**;
- **the range of movement**; and
- **flexibility**.

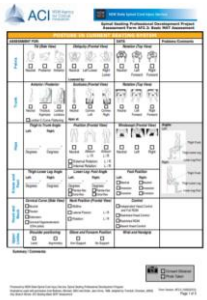
How to record?
- take photos / video for all assessment phases whenever possible (with the client's consent)
- Using Talk-to-Text apps
- Use stick figure drawings



https://aci.health.nsw.gov.au/networks/spinal-cord-injury/spinal-seating/module-3/recording-the-mat

MAT ASSESSMENT





MAT STEP 1 – REVIEW CURRENT CHAIR

- Look for areas of high pressure/shear
- What do you like most and least about the posture?
- What does the client like most and least?

Create a problem list and a priority list!



MAT STEP 2 – SUPINE ASSESSMENT

Assess available movement at the pelvis
- Anterior / posterior pelvic tilt
- Lateral superior / inferior movement
- Rotation

Assess effects on other body segments

Consider tone, spasticity

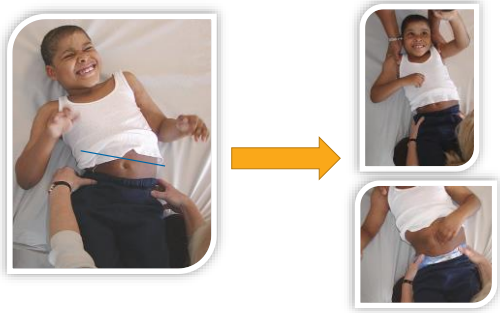
Assess comfort/ tolerance

Assess ROM lower limbs



CONSIDERATIONS FOR SUPINE MAT EVAL

- Plinth is not available - a full length transfer board on a soft bed can be used for a short duration. Consider their skin integrity and time taken for completion of this part of assessment
- Current pressure injuries - delay supine assessment until such time all wounds have healed
- Urinary catheter - should be emptied prior to supine assessment.
- Bariatric clients - Monitor breathing
- Spasms – may be common for clients with SCI when initially positioned in supine



SUPINE MAT ASSESSMENT

- Hip flexion
- Hip external / internal rotation
- Hip abduction / adduction
- Knee extension
- Ankle dorsiflexion
- Posterior / anterior pelvic tilt
- Left / right pelvic rotation



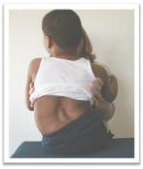


HANDY HINTS SUPINE

- Consider the client and clinician's safety and reduce risks accordingly
- Be systematic and slow
- Gentle rhythmic movements of the pelvic upon commencement of assessment may build rapport and place the client at ease
- Be firm when ranging the body & confident
- Stabilise the pelvis when ranging into (same side) hip flexion
- It's ok to use a bed if this is all you have access to – it will still provide a more complete and objective assessment of client's posture (without gravity)
- If appropriate you can hoist transfer client to the floor and use a thick yoga / exercise mat to complete the assessment

MAT – STEP 3 SITTING ASSESSMENT

- Sitting balance
- Confirm findings from supine
- Evaluate the effect of gravity on posture, and trunk flexibility




CONSIDERATIONS FOR SEATED MAT EVAL

- Use a padded firm surface such as a plinth / dining room chair with feet supported.
- The client is deemed a 'hands-dependent sitter' if they fall into a posterior pelvic tilt and thoracic kyphosis without upper limb support. A dependent sitter may require two clinicians to manually support the pelvis and trunk
- Position client with the back of the knees against the edge of a plinth, or sitting fully back in the chair.
- Knee extension spasms may cause feet to slide forward (ie off the footplates)
- Knee flexion pattern / hamstring activity will cause heels to move rearward (contact with front castors) or pull the pelvis forwards, inducing posterior pelvic tilt

SITTING BALANCE




HANDY HINTS SEATED

- Be systematic
- Use a padded firm surface such as a plinth / dining room chair with feet supported.
- Use the corner of the plinth for the client to sit on
- Place a towel or barrier between your body and the client to reduce trauma triggers
- Where possible, encourage client to move body – ie "march", "toe tap", "snow angels" etc
- Where possible, encourage functional movements of reach
- Where possible, use a full length mirror in front of the client (when you are sole assessor)
- Assess pelvic rotation by checking how much contact is being made with the back support. One side of the hip will make contact with the back support, on the other side there will be a gap where the pelvis is more forward

MAT – STEP 4 SIMULATION

Simulate postural supports as a result of steps 2 and 3

1. Consider
   - Skin protection
   - Postural support
   - Function/Comfort
2. Consider hand/s placement to correct a reducible posture
3. Consider the amount of force and direction required

MAT – STEP 4 SIMULATION




INTERACTIVE - MAT

1. Supine assessment
   - Assess pelvic and trunk mobility
   - Assess ROM lower limbs
     - Hip flexion
     - Hip external / internal rotation
     - Hip abduction / adduction
     - Knee extension
     - Ankle dorsiflexion
2. Sitting assessment
3. Simulation

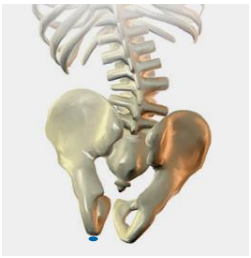
POST ASSESSMENT – SEATING / CUSHION CHOICE

1. Posture
2. Pressure Distribution
3. Cushion design principles
4. Microclimate control
   - moisture
   - heat





POSTURE - PELVIC OBLIQUITY

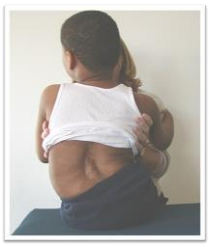


the misalignment of the pelvis, typically where one ASIS is higher than the other.



PELVIC OBLIQUITY





PELVIC OBLIQUITY

POTENTIAL CLINICAL FACTOR

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

POTENTIAL EQUIPMENT FACTOR

- Poor base of support
- 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 / narrow
- Seat / back provides insufficient lateral pelvic support
- Joystick or wheel location inappropriate
- Armrests too low

PELVIC OBLIQUITY - MANAGEMENT

REDISTRIBUTE PRESSURE

Flexible obliquity - build up under the low side

- Pelvic obliquity pads ☺
- Fluid supplement pads ☺
- Fluid overfill ☺

Fixed obliquity – build up under high side

POSITIONING PARTS FOR PELVIC OBLIQUITY



USING A FLUID SUPPLEMENT



CUSHIONS TO CONSIDER

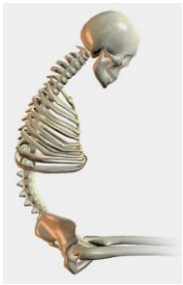
Fusion
J2
X2
GS



POSTURE – POSTERIOR PELVIC TILT



Front of the **pelvis** rises and the back of the **pelvis** drops



POSTERIOR PELVIC TILT

POTENTIAL CLINICAL FACTORS

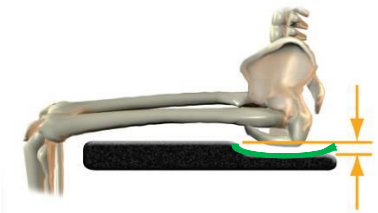
- Low or absent tone in trunk
- Low tone or poor muscle control in pelvis or trunk
- Atypical (high, low, or fluctuating) tone in trunk or lower limbs
- Atypical reflexes in trunk or lower extremities
- Limited hip flexion
- Decreased lumbar lordosis
- Decreased pelvic / lumbar spine range of motion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

POTENTIAL EQUIPMENT FACTORS

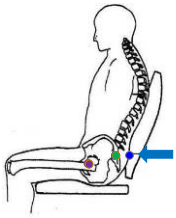
- Seat depth is too long
- Tight hamstrings - Footplate position and front frame or leg rest hanger angle
- Footplates are too high /low
- Lack of posterior pelvic and sacral support
- Back support angle is too acute
- Seat-to-floor height too high for foot propulsion
- Armrests are too low

POSTERIOR PELVIC TILT - MANAGEMENT

Anterior shaping / contouring of the cushion



MANAGEMENT FOR FLEXIBLE PPT

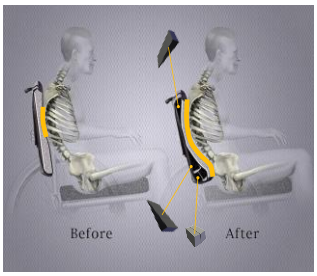


- Find the PSIS as the Pivot Point of the Back support
- Set the height of the back
- Set the back Angle
- Add positioning components at front of cushion

MANAGEMENT FOR FIXED PPT







CUSHIONS & BACKS TO CONSIDER

Cushions:
- Union
- Fusion
- J2
- GS



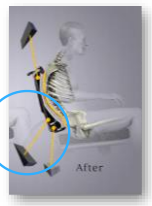
Backrests:
- Jay Fit
- J3
- With spine align kit





J3 SPINE ALIGN KIT







POSTURE - PELVIC ROTATION

One ASIS is positioned more forward relative to the other ASIS



Asymmetrical fixed postures and positions require asymmetrical solutions!

PELVIC ROTATION

POTENTIAL CLINICAL FACTOR

- 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

POTENTIAL EQUIPMENT FACTOR

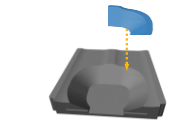
- Seat-to-back angle too closed
- Back support too low
- Arm support too low
- Back does not match shape of posterior trunk
- Head support mounted too far forward or too low
- Wheel set up incorrect for hand propulsion

PELVIC ROTATION





FIXED ROTATION





- Adjust well shape to match pelvic shape
  - Reduction ring
  - Fluid supplement pads

Cushions:
Fusion
J2
X2
GS

POSTURE - SCOLIOSIS

Sideways curvature of the spine

POTENTIAL CLINICAL FACTOR

- 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

POTENTIAL EQUIPMENT FACTOR

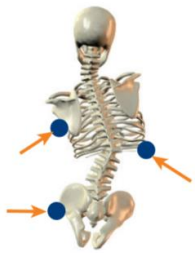
- Back does not match shape of posterior trunk
- Back does not support posterior pelvis
- Back does not provide enough lateral support
- Wheelchair does not provide solid base (sling upholstery) for pelvic stability
- Upper extremity support is too low, too high, or too wide
- Joystick or wheel location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

SCOLIOSIS RESULTING FROM PELVIC OBLIQUITY

Contact provided to maintain or correct

Three Points of Control
- Apex of primary curve
- Above on opposite side
- Below on opposite side
- In the plane of movement

Need to monitor key points for increased pressure



JAY 3 BACK REST - 5 SUPPORT SHAPES



- posterior and lateral pelvic and lateral thoracic stability.
- Fitting the back to the user not the user to the back

- **Posterior (PA)** - 2.2" of lateral thoracic support
- **Posterior Lateral (PL)** - 3" of lateral thoracic support
- **Posterior Deep (PD)** - 6" of lateral support
- **Posterior Deep Lateral (PDL)** - 6" of lateral thoracic support
- **Posterior Deep Contour (PDC)** - 6" of lateral pelvic support

4 SUPPORT HEIGHTS





Support level:
Low Thoracic, Mid Thoracic, Upper Thoracic, Shoulder High

JAY 3 PLUS – BARIATRIC



- allowing proper positioning without interference.
- optional lower vanity shell extension that can pivot to accommodate adipose tissue
- Accommodating up to 227kg
- widths of up to 26",
- TH 2-point or FS 4-point hardware
- features a 2.2" deep contour to provide for non-restricted movement.

4 HARDWARE OPTIONS



•SH - Easy to install, 2-point, quick-release hardware that allows for numerous attaching positions

•RH - 25% lighter than SH hardware and optimized for ultra lightweight wheelchairs without compromising adjustability

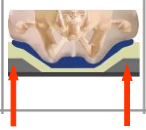
•TH - 2-point, quick-release hardware optimized for tilt-in-space wheelchairs, with a lengthened attachment pin and 226kgs weight capacity

•4-Point - Quick-release hardware that withstands greater force by distributing across four mounting locations

PRESSURE DISTRIBUTION -SKIN INTEGRITY

PRIMARY RISK FACTORS	SECONDARY RISK FACTORS
History of pressure injury	Poor nutrition
Inability to change position	Muscle atrophy
Abnormal sensation	Aging skin
Time sitting	Excessive body heat
Asymmetric Postures	Disease
Incontinence	Impaired circulation
	Reduce cognition
	Smoking

PRESSURE MANAGEMENT – OFF LOADING

Design Principles	Description	Clinical Application	Additional Considerations
	**Off-loading** is the reduction of pressure from one area of the body to another in an effort to reduce risk of tissue injury. 	Off-loading takes forces away from high risk areas and transfers them to low risk areas. Requires firmer materials on the load bearing surfaces. Off-loaded areas may seem suspended. The goal is to reduce the pressure under the ischial tuberosities and to redistribute pressure to the thighs or other parts of the seated body. Less direct pressure under bony prominences may lead to the reduction of pressure injuries.	Can the area of loading tolerate additional pressure? Has the load been moved to enough low risk areas? Is the individual comfortable on the firmer materials required for off-loading?

PRESSURE MANAGEMENT - IMMERSION

Design Principles	Description	Clinical Application	Additional Considerations
	**Immersion** is the ability for the body to sink into material. It is defined as the depth the body sinks into the support surface. 	Foam compresses under load to allow the body to immerse. Surface tension in the foam and its coverings can limit that immersion. Softer cushions with low Indentation Force Deflection (IFD) will allow the pelvis to sink into the support surface. Fluid materials such as JAY® Flow Fluid may allow for more immersion than solid or semi-solid materials. Ideally, pressure is reduced at a site of a bony prominence as they increasingly immerse into a cushion.	Does the pelvis immerse deep enough into the cushion material? Is the material thick enough to allow immersion without hitting the bottom? Is the surface tension of the cover limiting the immersion? Is the immersion creating tension under the ischial tuberosities?

PRESSURE MANAGEMENT - ENVELOPMENT

Design Principles	Description	Clinical Application	Additional Considerations
	**Envelopment** is defined as the support surface's ability to conform around the contours of the body. 	A cushion with greater envelopment properties allows for greater surface contact area to redistribute load, with reductions in peak and mean pressures under bony prominences. Envelopment occurs when the material in the cushion surrounds or engulfs the shape of the buttocks and body. Material selection is important when intending on enveloping bony prominences. Some materials, such as JAY Flow Fluid will fit or mold around the irregular shape of the body better than others.	Is the body shape irregular and requiring materials in which to be enveloped? Does the shape require custom contouring to accurately be enveloped? Could the buttocks be enveloped more with a different design or material?

PRESSURE MANAGEMENT – ANTI SHEAR

ANTI-SHEAR	**Anti-shear** designs combine immersion, stability and low-friction surface materials to protect soft tissues from damage due to sliding forces.	Shear is defined as the forces generated when the pelvis moves within the soft tissues of the body. The goal is to have the surface, body and skin move together. The shape of the cushion can prevent the pelvis from sliding forward. This is especially important during propelling or when reclining. Using materials that allow the tissue to move along with the pelvis will prevent shear. Cushion cover materials which allow the pelvis to immerse into the materials will affect the potential for shear reduction.	Is the cushion maintaining the pelvis, especially with activity? Does the shape of the cushion cause the pelvis to move during reclining? Is the cover preventing the tissue from moving along with the pelvis or from getting the benefits of materials underneath, such as fluid?

Friction without shear does not cause a pressure injury.

PRESSURE MANAGEMENT - MICROCLIMATE

- Refers to the temperature and moisture that leads to a pressure injury
- Too much heat may cause sweating, leading to moisture
- Prolonged moisture can lead to maceration
- Skin that is too dry or too moist is more prone to pressure injury
- Higher skin temperature increases tissue metabolism and demand for oxygen & nutrients (about **10% higher for 1°C** raised)

WICKING MICROCLIMATE

JAY® FLOW FLUID W/ CRYO TECHNOLOGY

FUSION WITH CRYO

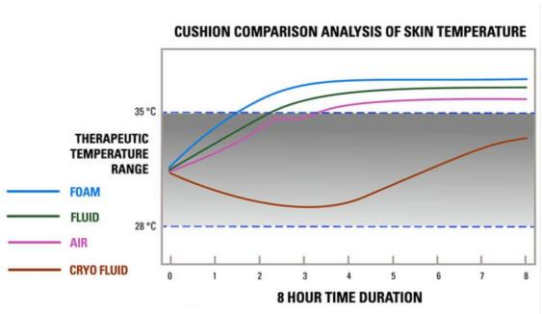
ACTIVE COOLING

THERAPEUTIC 8 HOURS EFFECT

- features millions of microbeads filled with paraffin wax which melts at a set temperature.
- heat from the skin is actively transferred into the fluid.
- This results in a lowering of the seated skin temperature within therapeutic range (28 – 32 degrees).
- heat dispersion continues to pull heat from the skin until all microbeads have melted, resulting in a therapeutic cooling effect
- lasts up to eight hours*.
- The Cryo Fluid microbeads will naturally re-solidify after the fluid returns to ambient temperature.



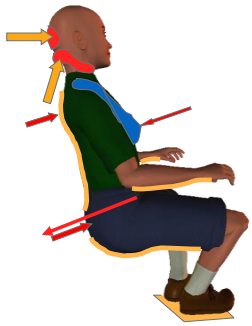
FUSION WITH CRYO



TONE – ASSESSING AND RESPECTING: ACTIVE EXTENSOR PATTERNS







- Posterior pelvic support
- Anterior cushion contour
- Anterior Pelvic support
  - High And Rearward pull to Tip Pelvis Back to Neutral
- High Thoracic support
- Sub occipital and occipital support

HEAD SUPPORT -WHITMYER

WHITMYER® is a line of head supports and accessories that addresses the range of user needs from basic support to multiple-point control.

A variety of pad shapes and sizes are available in single, two-pad or three-pad systems with each pad designed to address a specific support purpose.



S.O.F.T. SINGLE SUB-OCCIPITAL

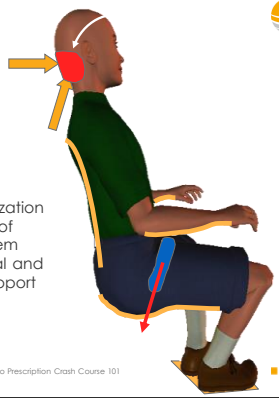
S.O.F.T. DUAL SUB-OCCIPITAL Adult & Pediatric

TONE – ASSESSING AND RESPECTING: PASSIVE PATTERNS



- Pelvic stabilization
- Orientation of seating system
- Sub-occipital and occipital support





- Pelvic stabilization
- Orientation of seating system
- Sub-occipital and occipital support

HEAD SUPPORT - WHITMYER



PLUSH

SPECIALTY PLUSH

LOW TONE





WHEELCHAIR FIT

Poorly fit wheelchair = Compensate

- Muscle imbalance
- Repetitive strain injury
- Poor skills
- Increased pressure risk
- Postural asymmetry



WHAT IS WORKING … WHAT COULD BE IMPROVED





4 key points

THE BENEFITS OF A GOOD SET UP





WHAT IS WORKING … WHAT COULD BE IMPROVED





4 key points

WHAT IS WORKING … WHAT COULD BE IMPROVED









Key points:

- Close seat to back angle
- Promote flexion
- 90 degree front end angle
- Tilt in space
- Casters and wheels
- Cushion with ischial shelf / PLA
- High side pelvic build up

WHAT IS WORKING … WHAT COULD BE IMPROVED





Key Points:

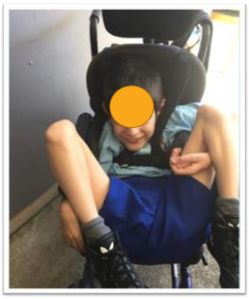
- Tilt in space
- Pelvic support belt
- Angle adjustable foot plates
- Reduced angle of leg rests






Key Points:
- Pressure relief cushion with obliquity support

IMPROVING PEOPLE'S LIVES



Key points:
- Behavioural NOT postural!
- Tilt in space
- Cushion with ischial shelf /PLA
- Pelvic support belt

EQUIPMENT SOLUTIONS

Seating Problem	Equipment Parameters
Obliquity	Cushion with PLA One side pelvic build-up
Scoliosis	Correct / accommodate obliquity from pelvis Lateral trunk supports
Trunk balance Functional UE use	Posterior pelvic support Open back angle
Skin	Cushion material choices
Independent mobility	Positioning for balance Wheelchair model and set-up

Thank you

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power mobility
The power to move you

REFERENCE

1. Waugh, K. et al (2013). Glossary of Wheelchair Terms and Definitions, Version 1.0, Denver, CO: University of Colorado Denver
2. Waugh, K. Crane, B., et al. (2013) A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces. Revised Edition. Denver, CO: University of Colorado / Assistive Technology Partners

USEFUL LINKS

ACI Spinal Cord seating module
https://aci.health.nsw.gov.au/networks/spinal-cord-injury

PDF of "Glossary of Wheelchair Terms and Definitions"
https://www1.ucdenver.edu/docs/librariesprovider38/clinic-documents/seating-guide/glossary-of-wheelchair-terms-and-definitions-version1-0.pdf?sfvrsn=f01e30b9_2

Sunshine Medical - Cushion Microclimate
https://www.sunrisemedical.com.au/education-in-motion/resources/how-to-manage-microclimate-1

Sunshine Medical - Jay Cushion properties
https://www.sunrisemedical.com.au/education-in-motion/resources/cushion-properties-1

Sunrise Medical – Seating and wheelchair angles
https://www.sunrisemedical.com.au/education-in-motion/resources/seating-and-wheelchair-angles

Sunrise Medical – Seating Shapes
http://www.sunrisemedical.ca/getattachment/Education-in-Motion/Resources/Seating/Seating-Shapes/MK-129538_Rev-B_Seating_Shapes.pdf.aspx?lang=en-CA

Sunshine Medical – Cushion material selection
https://www.sunrisemedical.com.au/education-in-motion/resources/cushion-material-selection

Sunshine Medical – Cushion design principles
https://www.sunrisemedical.com/education-in-motion/resources/seating/cushion-design-principles

ACI Basic MAT eval form
https://aci.health.nsw.gov.au/__data/assets/pdf_file/0004/312745/AF2.3_MAT_Assessment.pdf

Sunrise Medical – Wheelchair measuring guide
https://www.sunrisedice.com/asset-bank/assetfile/56020.pdf

Sunrise Medical – Pelvic and Spinal postures
https://www.sunrisedice.com/asset-bank/assetfile/54909.pdf

ACI health – Seating and Postural issues
https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0017/156221/m07_seating_posture_issues.pdf

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https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0003/167286/Guidelines-on-Wheelchair-Prescription.pdf

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