



Custom Contoured Offset Seating

A CP Tech (Customised Product Technology)
Initiative

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(Initial project conducted by Anne Pearce and
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CP Tech

Equipment Clinic providing therapy services

- Assessment
- Prescription
- Areas - Posture & Mobility, AT, Home Mods, Sleep, Walkers, ADL, Mealtime Mx

Workshop services

- Fabrication/customising
- Repairs
- Research and Development



Background

Traditional postural seating at TCCP

Custom contoured offset seating

- Accurately molded carbon fibre shell
- Light weight, unobtrusive, comfortable
- Slam-latch mounting system



Process

Therapist

- Assessment
 - Interview
 - Seating review checklist
 - Postural assessment
 - COPM goals
 - WcS-DAT
- Funding application
- Simulate optimal position



Process

Technician

- Scan surface
- Manipulate the data
- Mould generated
- Vacuum shape shell onto mould



Process

Therapist and technician

- Review client in moulded shape
- Line with foam or alternative
- Fit straps, headrest etc.
- Mount to mobility device
- Trial and covering
- Post-evaluation
 - COPM
 - WcS-DAT





6-Axis robot and router





celebrating potential, creating possibilities



Therapeutic Benefits

Accurately fitted individualised contoured system.

- Optimal postural control
- Accommodate postural deformity
- Pressure relief
- Comfort
- Increased function



Other Benefits

- Aesthetics
- Lightweight
- Strong
- User-friendly mounting system



Production Benefits

- Manipulate data prior to manufacture
- Increase speed of manufacture
- Reproduction as required (eg. commode)
- Potential cost reduction



Case Study - Eleana

- Background Information
- Reason for referral
- Assessments completed
 - Seating review checklist
 - Postural assessment
 - COPM Goals
 - WcS-DAT



Seating Review Checklist

- Linear system – inadequate support
- Increasing back pain in the lumbar region
 - due to increased lordosis and mild scoliosis
- Bilateral hip pain
- T.I.S PWC (M1), provides minimal relief



Postural Assessment

- Pelvis - fixed anterior tilt
- Mild pelvic obliquity – L higher than R
- Hips – windsweeping to right
- Activity impacts on tone
- Mild leg length discrepancy (L<R)
- Trunk – fixed hyperlordosis, mild scoliosis, general instability – side flexes to the left
- Head - side flexion to the left, extension on activity



COPM Goals

- To provide adequate lumbar support
- To promote a symmetrical position and visual orientation
- To reduce the need for repositioning
- To decrease shoulder pain

Importance	10/10
Performance	2/10
Satisfaction	2/10
Total pre-score	16



WcS-DAT

Wheelchair Seating Discomfort Assessment Tool (WcS-DAT)
Part II – General Discomfort Assessment

Please rate your answer on the following scale	Strongly Disagree	Disagree	Partly Disagree	Neither agree nor disagree	Partly agree	Agree	Strongly Agree
... I feel poorly positioned							√
... I feel like I have been in the one position for too long.						√	
...I feel like I need to move or shift my position							√
... I feel aches, stiffness or soreness							√
... I feel pressure in some part or parts of my body							√
...I feel too hot or cold or damp.	√						
... I seek distraction to relieve discomfort							√
... I feel uncomfortable							√
... I feel no pain	√						
... I feel stable (not sliding or falling)	√						
...I feel comfortable	√						
...I feel good	√						
...I feel able to concentrate on my work or activities		√					

Wheelchair seating discomfort assessment tool Crane et.al. 89



Outcome

New seating system to :

- Support Eleana's trunk
- Accommodate fixed postural deformities
- Limit extensor tone at the pelvis
- Provide head support



CCOS

A CCOS was subsequently prescribed with the following features:

- Antithrust and pelvic strap
- Contoured shape to accommodate fixed deformities and provide trunk support
- Headrest with simple contouring



COPM Goals

- To provide adequate lumbar support
- To promote a symmetrical position and visual orientation
- To reduce the need for repositioning
- To decrease shoulder pain

Importance	10/10
Performance	10/10
Satisfaction	10/10
Total post-score	80



WcS-DAT

Wheelchair Seating Discomfort Assessment Tool (WcS-DAT)
Part II – General Discomfort Assessment

Please rate your answer on the following scale	Strongly Disagree	Disagree	Partly Disagree	Neither agree nor disagree	Partly agree	Agree	Strongly Agree
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...I feel like I need to move or shift my position					√		
... I feel aches, stiffness or soreness		√					
... I feel pressure in some part or parts of my body		√					
...I feel too hot or cold or damp.		√					
... I seek distraction to relieve discomfort		√					
... I feel uncomfortable		√					
... I feel no pain		√					
... I feel stable (not sliding or falling)							√
...I feel comfortable							√
...I feel good						√	
...I feel able to concentrate on my work or activities							√

Wheelchair seating discomfort assessment tool Crane et.al. 89



Other Applications

- Commodes
- School chairs
- Car seats
- Sleep solutions
- AFO's
- Leg trough
- Headrests

