Title: Balancing Posture and Pressure in Complex Custom Seating – A Case Study

Introduction: A 40-year-old, 36 kilos, full-time power wheelchair user, lived independently with assistance from carers and friends, hoisted all the time, augmentative communication device for speech, loved to be out and about, used public transport, a poet and story writer.

Concerns reported by the client: Desire to go out and about locally and travel aboard, to participate in day-to-day activities, to experience an enhanced social life, to increase tolerance in seating on the wheelchair for a longer duration, to feel well supported and embraced.

Summary of assessment findings

Socially: home bound with limited socialisation, drastically reduced ADL, lack of involvement in the community, poor self-esteem

Skin and pressure injuries: Pressure injury started four years ago at sacral area, pressure injury at the time of assessment, Grade 3 at the sacral area, Grade 2 over the IT, Grade 2 over spinal

Physical assessment: Posterior pelvic tilt (severe, fixed), Scoliosis (convex left side, moderate & fixed) & kyphosis (severe, fixed), pain in both hips and knees (7 /10), trunk-to-thigh angle 125° and thigh-to-lower leg 80°

Clinical objectives: Pressure Care, Posture, stability, Seating tolerance, Seating Balance, Improve active mobility & socialisation

Wheelchair outcome measure (WhOM) used.

Technologies (Stephen Springle (1992) *The Match Game*, S.I.:Team rehab, PP20-21

Feature↓ / Material→	Foam Tech	Gel Tech	Fluid Tech	Air Tech
Postural support	Good	Reasonable	Poor	Poor
Level of pressure relief	Low-Medium	Medium	Medium-High	High
Shear reduction	Poor	Very Good	Very Good	Excellent
Heat dissipation	Poor	Reasonable	Reasonable	Good

What did we do (Foam Tech):

Step 1: One Piece moulded seating system

Step 2: Fitting and modifications to moulded seating system, Step 3: Widening the seating system by splitting centrally into half and adding 1" foam to widen the seating space,

Step 4: placement and channeling of air control valves

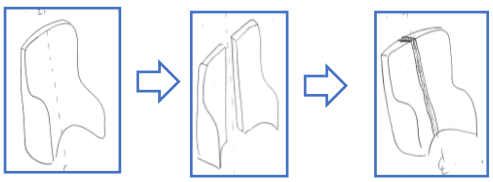
How did we do it (Air Tech):

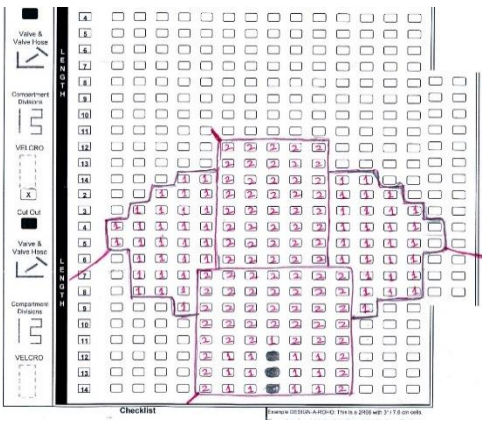
Step 1: Pattern of the contact surface in the existing mould to plan for shape, size, and obtain quote and for discussion,

Step 2: Decide over cell height with respect to seating needs,

Step 3: Re-confirm the size for final manufacturing,

Step 4: Placement of customised air seating insertion





Outcome: Immediate reaction at issue: Stable and comfortable seating (from 5.5/10 to 9/10), able to stay longer on the wheelchair and seating, travel up to some distance without getting tired, some degree of ability to manage ADL, improved seating tolerance, balance, posture, functional ability and socialisation.

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