




NSW State Spinal Cord Injury Service

Spinal Seating Professional Development Program

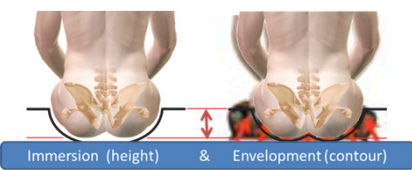
Clinical applications and handy tips for commonly prescribed cushions for SCI population – ROHO®

The SSCIS Seating Professional Development Program is funded by the Agency for Clinical Innovation (ACI) in NSW Australia and has been developed in collaboration with the Assistive Technology and Seating in Royal North Shore Hospital and the seating service in Prince of Wales Hospital.

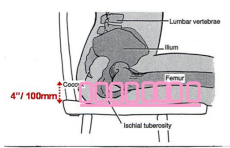
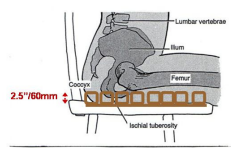
This presentation was adapted from the Spinal Seating Professional Development Program seating workshops. The material was developed by Charisse Turnbull in 2008, revised in 2015 as a resource for Spinal Seating Education website.

ROHO® cushions

ROHO® cushions are commonly prescribed for its excellent **envelopment** and **immersion** properties:



- 1) Air is a low density fluid with the lowest resistance to flow. When contained in soft inter-connected air cells, it provides a low surface tension support surface that would conform to the user's body shape, and constantly readjust its envelopment to the user's movement during daily activities
- 2) Users can select various cushion cell heights for immersion property vs. functional implications:
 - High profile - 4.25 in. / 10.5 cm
 - Mid profile - 3.25 in. / 8.5 cm
 - Low profile - 2.25 in. / 5.5 cm

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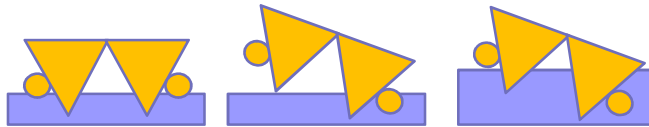
Tips for selecting ROHO® cushions

1. Skin protection:

- The higher the profile, the greater envelopment and immersion properties to distribute pressure. This should be weighed against functional and care requirement of the client.
- Foot support height should be adjusted to allow the anterior thigh to immerse also.

2. Skin protection with fixed pelvic obliquity:

- If the MAT demonstrated that the client has a fixed pelvic obliquity deformity, the higher hip would have less immersion than the lowered hip. It is important to note the amount of fixed obliquity in the assessment
- A deeper profile of the cushion should be chosen to distribute pressure from the lower ischial tuberosity (IT).
- Eg. a client with ~ 5 cm / 2" pelvic obliquity should NOT utilise a low profile cushion as there is no immersion for the higher IT which would load up the lower IT



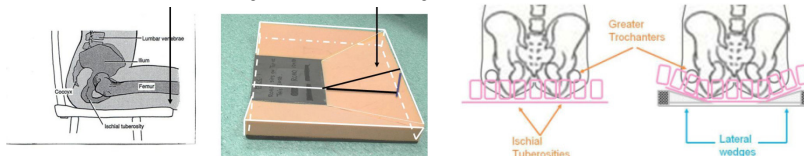
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Tips for selecting ROHO® cushions

3. Maximising skin protection with immersion beyond high profile:

- Custom made contoured foam base*, or bilateral foam wedges under the ROHO® cushion has been utilised successfully for clients with:
 - recurrent sitting acquired pressure ulcers,
 - significant muscular atrophy in pelvis and lower limbs, limiting area of contact on the seat support surface to distribute body weight, and
 - already using a high-end pressure care cushion such as the ROHO® air flotation
- Contact SSCIS seating services for assessment and consultations:
 - http://www.aci.health.nsw.gov.au/data/assets/pdf_file/0019/155251/seat.pdf
 - http://www.arata.org.au/old_site/arataconf08/papers/wheeled_mobility_seating/TURNBULL_Charisse_paper_GLUTEAL_CHALLENGE.doc

*Contour foam base has bilateral wedges and an anterior wedge







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Tips for selecting ROHO® cushions

4. Skin protection vs. postural stability and positioning

- As air has low resistance to flow, some users found air cushion to be unstable during activities and transfer. ROHO design strategies to improve stability and positioning of air filled cushions are:

Compartments:	Arrangement of air cell height	Foam base and air cells compartment combination	Custom design
Options for single, dual, quadrant (Quadro and Contour Select), and medial / lateral compartments (Enhancer)	E.g. the Contour Select and Enhancer has 2" & 3" cells around the medial areas of the buttocks and midline channelling of the femurs, 4" outer cells for lateral stability	E.g. Nexus Spirit, Hybrid Elite (note dual compartment can be optioned), and Harmony	Design your own ROHO compartment and cell height arrangement
			

- For cushion selection for skin protection vs. positioning / stability, refer to ROHO interactive chart: <http://www2.therohogroup.com>

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ROHO® setup and user guides

Steps:

- Over inflate
- Position user on cushion
- Find lowest bony prominence and release air to immerse the user INTO the cushion with the preferred posture
- Allow a minimum of 0.5" / 1.5cm between bony prominence and cushion base/ seat surface, but no more than 1" / 2.5cm

Video: <https://roho.com/support/adjustment/>

SSCIS user guides:

- ROHO® Enhancer:
http://www.aci.health.nsw.gov.au/data/assets/pdf_file/0010/155269/useroho2.pdf
- ROHO® Quadro and Contour Select:
http://www.aci.health.nsw.gov.au/data/assets/pdf_file/0007/155275/useroho3.pdf

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Tips for ROHO® setup :



1. To **estimate the positions of the ITs**, check PSIS & ASIS positions for the pelvic tilt and pelvic obliquity:
 - If the client has a moderate posterior pelvic tilt, ITs are more forward towards the middle of seat depth. Sacrum / coccyx should also be assessed in that case.
 - Always check the lower IT if pelvic obliquity is noted
 - The ITs are approximately 2" / 5 cm from midline of the pelvis. Your whole palm should be under the client to reach the IT. (if not, you may be palpating the GTs)
2. Use a **slippery glove** or plastic bag over your hand/ glove to reduce friction. Using the latex/ rubber glove only will increase friction instead.
3. Getting your hand under the client: **squat / kneel** down to level your shoulder height to the cushion. With one hand, hold onto and pull against the wheelchair frame such as the footrest assembly/ hanger or the back post, while the assessing arm pushes forward to slip the palm in between the cushion and buttocks - a pull and push action similar to loading up the bow and arrow
4. Some clinicians prefer the 'palm down' method once the ITs were located. This provides the clinicians the leverage to touch the seat base with the finger tips and sense the IT on dorsal aspect of the hand and during air inflation adjustment.
5. Always check and recheck the lowest bony prominences – ITs, coccyx and GTs based on MAT Asx

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Tips for ROHO® cushion maintenance:

1. Treat with respect
 - use cushion cover provided
 - Do not pull the ISOFLO valve. Use the yellow rope or cushion cover to carry
 - avoid contact with sharp objects, cat claws, cigarettes, welding embers
2. Clean:
 - dirt, grit, chlorine & urine can damage
 - use warm soapy water & soft brush or a micro fibre glove.
 - use a heavy duty cover if indicated but monitor skin due to reduce envelopment
 - <https://roho.com/support/cleaning-roho/>
3. Check cushion
 - daily if no sensation in case of puncture
 - air inflation is affected by **temperature** and **altitude** - requires checking
4. Repair damage
 - Overinflate cushion and spray/ immerse in soapy water to locate leak/ puncture
 - use repair kit for small punctures
 - for more severe damage entire cells &/or valves may be replaced by ROHO distributor.

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Indicators for replacement:

- Cell separation from the base – check the underside of the cushion
- Damaged air channel, or Iso-flo air lock
- Surface deterioration –
 - cells are not collapsing for immersion
 - some cells have noticeable changes on texture and /or colour on the surface
- Multiple patch / cell repairs
- The size / profile of the cushion no longer meet the user's need
- User's demand on the cushion affects the durability of the cushion

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