

38 year old Nicole Ionescu was born with a total spinal cord injury (paraplegia) and dislocated left hip, as a result of a traumatic birth.

As a consequence of her injuries, she has always been a full time wheelchair user. Nicole's sitting tolerance has been limited to two hours per day, due to persistent pressure damage over her left ischial tuberosities. When not sitting, Nicole spends the time lying prone on a wheeled board, which she uses to access the different rooms of her flat in Bucharest. She is even able to Hoover the carpet whilst using her prone board!

Due to Nicole's immobility and poor muscle tone, she has over the years, developed severe postural changes, which result in her being extremely uncomfortable in her wheelchair. Despite her poor posture, Nicola works full time for a charity, Romania Connect and this work involves travelling and presenting at conferences. Nicole recently presented a paper to the Romanian Parliament.

Case Study

Nicole Ionescu

July 2009 - April 2010

Nicole's Goals:

- To be able to sit facing forwards
(Nicole has a tendency to lean left)
- To achieve healing of the pressure damage on her left ischial tuberosity
- To be able to sit for longer periods of time in her wheelchair, without sustaining further pressure damage
- To increase her comfort when sitting in the wheelchair
- To increase her posture
- To increase her mobility



Nicole arrived at the assessment in her old Remploy Roller wheelchair which provided insufficient postural management and pressure redistribution. Nicole had been using this chair for a number of years. As is evident from the image to the left, the seat depth had been reduced to accommodate a left leg length discrepancy. However, the seat cushion was constructed from high density foam, covered in vinyl, which had bottomed out on the left.

Postural Evaluation

- Left pelvic obliquity
- Scoliosis convex to the left
- Rotation of the pelvis forwards on the right
- Compensatory trunk rotation to the left
- Anterior tilt of the pelvis
- Severe spinal lordosis with retraction of the scapulae
- Leg length discrepancy
(left leg 10cm shorter than the right)
- Increased flexion of left hip (80°)
- Extension of right hip (110°)
- Decreased flexion of both knees
(due to inadequate foot support)

Identified Seating Goals

- To Support anterior tilt
- To facilitate head support
- Support lower area of the spine
- Increase comfort and improve sitting posture
- Provide sufficient support for thighs, calves and feet.
- Support right ischial tuberosity
(to reduce loading on the left ischial tuberosity)
- Reduce pelvic rotation and accommodate leg length discrepancy on the left
- Fully support right thigh
- Reduce trunk rotation
- Support left side of trunk
- Redistribute pressure, where possible

Planned Intervention

It was agreed that Nicole's wheelchair provision was unsuitable and unsupportive.

It was obvious at the outset that Nicole required both a new wheelchair and pressure relieving cushion to meet her complex needs. However, due to her fixed posture, both items required modification in order to accommodate the leg length discrepancy. Nicole tried the Starlock single valve air cushion.

This cushion was specifically selected as it had the potential to meet both her postural and pressure relieving needs. The Starlock cushion is like a traditional single-valve air cushion, but in addition a locking mechanism can be inflated to create a personalised seating surface.

This locking mechanism enabled Nicola's asymmetrical posture to be addressed enhancing her stability and postural control. The cushion was specifically modified in size to manage Nicole's leg length discrepancy. This cushion cradled and supported Nicola's posture, immediately increasing her comfort.



Outcome

Within one month of receiving her cushion, the pressure damage on Nicole's left ischial tuberosity had healed; the skin still remains in-tact. Nicole is now able to sit in her wheelchair for up to five hours at a time, without resultant skin damage. Several months later Nicole was provided with a modified XLT lightweight rigid wheelchair, which has also significantly improved her posture and mobility.

Fiona Collins, MSc DipCOT SROT, Occupational Therapist

Fiona Collins is an Occupational Therapist with 20 years' experience in pressure ulcer prevention and management. Specialising in posture and seating, Fiona's clinical expertise has gained her a national reputation within the seating arena. Fiona's advice is sought by clinicians, industry and professional bodies.