

Maureen and Robert, two clients with Multiple Sclerosis, have been full-time powered wheelchair users for over 10 years. Dependent on their carers for all activities of daily living and over the years, have both had intermittent problems with sacral pressure sores.

Both clients attend North Tees and Hartlepool Wheelchair Service for their mobility equipment and associated accessories, where a number of wheelchairs and static cushions have been issued to address, not just their mobility and postural problems, but to alleviate areas of sacral pressure due to long periods of time sitting and their associated immobility.

Both have spent extended periods of time in bed in order to try and heal areas of sacral pressure where the skin has broken down. These periods in bed have been socially excluding and placed them at risk of further health related complications; chest infections and contractures.

In both cases, at the time of intervention (3-6 months post pressure sore being observed), the pressure sores were not healed but

Maureen and Robert both wanted to be up and back in their wheelchairs to restore some independence and social integration.

Both experienced pain over the area of the sore when sitting in their wheelchairs (despite the chairs having tilt and recline facilities) and although their sores did not worsen when sitting out, the pain they experienced took them back to bed.

They have both tried a range of cushions including foam, foam & gel and air – either flat or contoured and prior to the Starlock, the most successful cushion, was an air cushion with individual air cells that could be filled to an optimum air pressure. The client would then immerse into and the cells then locked off to create a static air cushion or left open to allow air to circulate creating a dynamic cushion.

Maureen and Robert, found the pressure created on contact with the sore still caused too much pain and discomfort. It was then we decided to try the Starlock cushion. A cell based air cushion inflated and operated in a similar way but its design allows individual air cells to be 'locked off'. Doing this, the area directly under the pressure sore could identified, the air cell(s) locked off, and deflated to create a hollow section removing any point of contact with the pressure area. The surrounding tissue, still supported and the pressure disseminated by the remaining air cells.

Both Maureen and Robert found that they could now tolerate sitting in comfort for longer periods of time without compromising the need to be off the pressure area to allow the sores to heal (which was the time they spent in bed), without compromising surrounding tissue and without discomfort when wanting or having to use their wheelchair.

In both cases the pressure areas have healed

but they continue to use the Starlock cushion, with the cells deflated as a preventative as opposed to a curative measure.

Case Study Maureen and Robert (May 2013 - August 2013)

Maureen (74) and Robert (73)

Both have Multiple Sclerosis and have been wheelchair dependent for the last 15 years. As a result of poor muscle tone caused by the multiple sclerosis and the extended periods of time they now spend in their wheelchair they are both prone to recurring sacral sores – for Robert over his left ischial tuberosity and for Maureen over her coccyx. Both Maureen and Robert have had to spend extended periods of time in bed in order to both relieve pressure to allow time for the sores to heal as well as to relieve the pain caused by the pressure area.

Goals

- To be able to sit in their wheelchair rather than being in bed
- To be able to sit in their wheelchair and still achieve healing of their pressure areas
- To be able to sustain sitting in their wheelchair without incurring any further pressure damage
- To be able to sit in their wheelchair and be comfortable and pain free
- To increase the time they spend in their wheelchair
- To regain some of their independence and be less dependent on their carers
- To regain participation in social activities

Assessment of mobility and associated pressure care

Maureen and Robert were visited at their homes and both were on bed rest at the time of the visit, where they had been for in excess of 3 months. Both were feeling fed up with being in bed and felt socially isolated. Both had had to use their wheelchairs within the 3 month period but experienced a lot of pain over their pressure area, limiting the time they were able to stay in their chairs. They were also concerned of causing further damage by using their wheelchair until their pressure area was fully healed. Both Maureen and Robert had NHS occupant controlled powered indoor and outdoor wheelchairs (EPIOC's) on issue, with recline and tilt facility. Both competent at operating their wheelchairs. Robert also had an environmental control system on his EPIOC and an attendant operated facility for when he tired and was not able to operate the EPIOC himself. At the assessment both Maureen and Robert were using High Profile Roho (air) cushions which until their last recurring pressure sores were working well, and prior to this, had used a selection of foam and foam & gel cushions (flat and contoured), meeting their needs at the time of issue.

Postural Evaluation

- None weight bearing
- Low muscle tone – generalised
- Sacral sitting with associated abduction for Maureen
- Pelvic obliquity with wind sweeping
- Decreased knee flexion (Robert)
- Scoliosis convex to the left with possible hip impingement with Maureen and scoliosis convex to the right with Robert
- Poor head control (Maureen)
- No use of right arm and very limited use of left (Maureen) and no use of both for Robert (Robert used a head control to operate his powered chair – Maureen a joystick/scanner)
- Sacral pressure areas – left ischial tuberosity for Robert and coccyx for Maureen (open wounds being dressed every other day)
- Pain on sitting due to pressure sores

Identified Seating Goals

- To maintain /facilitate head control
- To maintain support to left side of trunk for Maureen and right trunk for Robert
- For Robert to maintain support for thighs, calves and feet
- To increase support to reduce abduction for Maureen
- Improve sitting posture and increase overall comfort in the wheelchair
- To reduce pelvic obliquity and accommodate wind sweep
- To redistribute pressure from areas of pressure and if possible reduce pain
- To increase the time they can spend in the wheelchair if possible

Planned Intervention

It was agreed that the wheelchairs and the current level of support within the chairs were continuing to meet both Maureen's and Robert's needs with regards to mobility and positioning. The tilt and recline options were enabling Maureen and Robert to independently change their position to relieve pressure when the carers were not available. However, due to the recurring pressure areas it was agreed that new pressure relieving cushions to meet their current needs were required. Both Maureen and Robert were asked to trial the Starlock single valve air cushion.

The Starlock cushion was selected as it was similar to the single valve air cushion that they were both already used to (and which provided the support they both required) but it addition its design allowed for individual air cells to be 'locked off'. In doing this the area directly under the pressure sore could identified, the air cell(s) locked off and deflated to create a hollow section which would remove any point of contact over the pressure area. The surrounding tissue however would remain supported and the pressure disseminated by the remaining air cells. This cushion would not only provide the correction, as their previous cushion had, but it would also remove the pressure from directly under the pressure sores which in turn, it was hoped would significantly reduce the pain that they were experiencing when being sat and in doing so increase their comfort.

Outcome

Maureen and Ron were contacted one month post provision. They both stated that within days of receiving their cushion the pain that they were previously experiencing when having to sit in their wheelchairs had gone. They explained that although the pressure areas were still being treated the cushion did not impact on the rate of healing. Maureen and Robert said that they are now able, if they have to, to sit in their wheelchairs (with the use of tilt and recline) for up to six hours and have had no reason for concern with regards to further tissue damage. They are now comfortable, pain free, mobile and no longer socially isolated in their beds.

Judy Ruddle, Dip COT SROT, Occupational Therapist

Judy Ruddle is an Occupational Therapist with over 20 years experience in Wheelchair Services. Judy works alongside Rehabilitation Engineering and Nursing colleagues specialising in posture, seating and ulcer prevention management.

