Case Study of Shapemaster Bed

GK is an 11 year old boy who has severe quadriplegic cerebral palsy and microcephaly.

GK has increased postural tone in all 4 limbs with his right side more affected than his left.

GK has extensor patterns of movement in his upper and lower limbs, he finds it very difficult to flex (bend) in the middle.

In supine he is side flexed to the right side with elongation of the trunk on the left, his arms are held in an extended pattern of movement, he can flex his head forwards. He has minimal abduction in his hips approximately 5 degrees on right and 10 degrees on the left. He has no knee flexion. Popliteal angles cannot be measured due to very limited knee flexion. Straight leg raise (SLR) is approximately 30 degrees. He has more internal rotation in his right hip compared with left.

In prone he pushes into extension with his upper body and hyperextends at the lumbar region and with his head.

GK used to be able to long leg sit with support, but this is now not possible due to increasing tone and non neural changes in his muscle structures.

GK has very little selective active movement and very little trunk rotation, he has extensor spasms and when this happens he pulls right pelvis into protraction and left pelvis retracts. He is often upset and has abdominal discomfort and pain from his hips.

GK underwent a course of Shapemaster therapy on the waist away bed.

The first session consisted of 6 minutes; he was assessed for tone and range of movement (ROM) prior to the session.

During the session the extensor spasms decreased, arms were able to be extended and stretched away from the extensor pattern of movement. He smiled throughout the session and his tone visibly decreased.

Following the session his range of movement was re assessed.

He had 10 degrees abduction at his right hip and 15 at his left side. SLR was approximately 45 degrees bilaterally. His right sided trunk appeared less side flexed. He had minimal knee flexion.

His tone had decreased, he was hoisted back into his chair with ease and the chair was placed in a more upright position than usual (usually reclined). Following the session he went to a sensory session and staff were able to long leg sit with him on the floor, the first time in 18 months.

Following this session it was decided that GK should access the waist away bed on a daily basis if the curriculum allowed the time.

The second session consisted of 9 minutes. Staff report he has generally been more relaxed and easier to position in seating equipment.

His tone was decreased compared with initial session and he had ROM of 10 degrees bilaterally in hip abduction, arms were still held in extensor pattern and quite fixed. On attempting to move his arms, extensor spasms increased.

Following the session, he had 15 degrees abduction bilaterally; his arms could be moved in a small ROM without initiating extensor spasms. Tone had decreased and trunk symmetry were improved.

He was seated in an upright position in his chair; staff are now able to support him in long leg sitting on a regular basis. His spasms have decreased and he appears to be in less hip and abdominal discomfort, he has had his bowels open more easily.

The third session, the same results were repeated.

The fourth session consisted of 9 minutes. The ROM in his legs remains improved at 15 degrees bilaterally. During this session his arms were moved into a neutral position and placed on his abdomen in midline, this has never been achieved before.

Overall his tone is decreased, he has better trunk symmetry, less extensor spasms, he his easier to hoist and can be sat up in his seating systems. His range of movement has increased in his hips, knees and arms. GK is generally happier and in less discomfort, class report he is crying less, smiling more and has become more vocal. School are continuing to use the bed with him on a regular basis to maintain and improve his symmetry and tone.

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