



Ali Ahmed Saleh Al-Mehrezi -Amana Healthcare Rehabilitation Hospital. United Arab Emirates

## CASE STUDY # 1

### COMPLEX CASE

### C3 COMPLETE SCI FULLY VENTILATED

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# REX Assisted Physiotherapy

When an operation to remove a spinal tumor in 2011 left Ali Ahmed Saleh Al-Mehrezi, paralyzed he thought he would never walk again and would spend the rest of his years lying in a bed. Prior to the operation he had led an active life as an agricultural engineer, working on his ranch tending to the crops and animals to support his family.

## Background

Ali has a C3 complete spinal injury and is fully mechanically ventilated requiring 24 hour nursing care. He has reduced dorsiflexion of his right ankle as well as inversion. His rehabilitation program prior to using REX involved limited use of a standing frame and manual stretching exercises to his ankle. Although his physiotherapists had been successful getting Ali standing they couldn't find suitable equipment to ambulate him and felt REX would be ideal because it was designed to be self-supporting, doesn't require upper body strength and had already been used successfully to ambulate other people with C3 spinal injuries.

## Respiratory Problems

Ali had an early tracheotomy with mechanical ventilation to improve his respiratory function. Spinal injuries often

lead to impairment of the respiratory system and, consequently, restrictive respiratory changes. Paresis or paralysis of the respiratory muscles can lead to respiratory insufficiency and in tetraplegia respiratory function can be reduced up to 59 %.( 1)

Ali's physiotherapists felt using REX and enabling Ali to be in an upright position and moving for thirty minutes each day may improve his respiratory function.

## REX Assisted Physiotherapy

Ali's physiotherapists used REX to encourage equal weight bearing from left to right, increase dorsiflexion in both ankles and encourage blood flow to his lower limbs. His first session consisted of two 'sit to stands', however pain was limiting him. In the second session wedges were used and REX was put into a posterior pelvic tilt. This helped Ali overcome his pain and he progressed quickly to transferring his weight from left to right in a rocking motion using the REX, encouraging equal weight distribution, bilateral knee flexion and increased dorsiflexion. Ali soon increased the amount of dorsiflexion he could achieve and started to take his first steps since his accident with minimal assistance of two physiotherapists.

His physiotherapists aim to progress his therapy by increasing the length of the sessions and increasing the speed of movement, eventually using REX to help hold prolonged stretches into hip extension and backwards walking to help reduce the pain in his lower back.



## Walking and exercising again

'It feels great, really good. I hope to have many sessions, I want to use it every day ....it gave me hope, I am smiling. I am happy'

(1) *Spinal Cord* (2006) **44**, 642–652. doi:10.1038/sj.sc.3101915; published online 14 March 2006. Physical capacity in wheelchair-dependent persons with a spinal cord injury: a critical review of the literature. J A Haisma, L H V van der Woude, H J Stam, M P Bergen, T A R Sluis and J B J Bussmann

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