

# **Teamwork Actually Does Make the Dream Work! Providing Powered Mobility for Double Upper Limb Amputation. A Case Study.**

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## **Summary**

This is a case study looking at the story of getting Rob, who lost both arms following an electrical accident, into a powerchair that he could operate and access his community. It shows how teamwork, expertise, organisation and enjoyment in your work can ultimately lead to a successful outcome.

## **Aims and Objectives**

The effects on Rob's life following the loss of his arms were not just physical. The isolation and mental struggles were significant. Our aim was to provide a powerchair that Rob could use independently with his remaining upper arm. Myself and Josh had to make it as safe and as practical as possible. A suitable aid needed to be devised that consistently gave Rob the control to operate the chair at the level required for issue. The on/off, tilt and functions also had to be incorporated in a way that Rob could use independently. We needed help from other departments.

## **Background and Case Study**

In 1998 Rob was working on a substation and exposure to live wires meant a 33,000-volt explosion leading to horrific injuries and then sepsis. This led to both arms being amputated mid humerus. After many years of living his life a mild CVA meant we received a referral for potential powered mobility to allow Rob, who was feeling more and more isolated, to access the community.

The standard powered process was undertaken to assess eligibility. This was followed by a triage and then a very amusing but essential driving test with a powered chair crudely adapted to establish potential driving ability. These were both passed. A suitable chair was ordered then we set about adapting it. Any form of head control was dismissed due to client needing to access the chair independently and also out of personal preference.

The first approach was to the workshop team through Josh to make bracketry to get the chairs controller in a position to give us a chance of success. After getting the height and position of the controller correct it quickly became apparent a joystick alone could not be used by client's arm accurately or safely enough so something had to be devised to connect the arm to the joystick to provide the control needed.

This led us to contacting the Swansea limb service and in particular head of prosthetics Peter McCarthy. Peter had dealt with Rob post-accident and was very keen to help us find a solution. An MDT assessment was set up and the limb workshop team were asked to come up with a "passive terminal device" that attached to the joystick from a compliant liner attached to Rob's arm. Following a number of appointments, in which there were equal amounts of success and failure, a device was made and then successfully trialled. The next issue was the mounting of the functional buttons around the chair to allow Rob to switch on/off as well as changing speeds and seat position. This also had its challenges but by enlisting the expertise of the electrical engineering team a solution was found after a number of trials.

The limb service also employed an OT who also worked with Rob advising on home adaptations to improve access inside and outside the home and make Rob's driving experience safer and easier.

The result of all this work was that Rob can now access his home and local community independently in a way he couldn't previously. He now spends time in his kitchen, garden, local community and most importantly his local football team he used to play for and manage. His family have much more peace of mind and much more of Rob.

### **Discussion**

As therapists, engineers, scientists, technicians etc. we all have high levels of expertise but we also have a lack of knowledge in many areas. This case study shows that working together, asking for help and making our jobs enjoyable we can achieve some amazing results. Obviously, this is not always possible and there can be many obstacles to this but this case study saw Rob go from being stuck in an armchair to getting out and about in the community and getting his life back. Workwise it created a number of professional relationships and a lot of much needed enjoyment.

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