

GUEST EDITORIAL

Wheelchair Research and Development for People with Spinal Cord Injury

The new developments in wheelchairs affecting people with spinal cord injuries never cease to amaze me. After over 17 years of trying to develop better wheelchairs and making the assessment and procurement process more consumer responsive, we seem to continue to be faced with a constant flow of new issues. I do not mean to imply that there has been no progress. Tremendous advances have been made. We now have products that allow people greater mobility and higher reliability, and that better express personality than ever before. Although access to the community still needs to be improved, scientists and engineers are developing products that are redefining access. Science is also focusing on the long-term mobility needs of individuals with spinal cord injury. We have learned that an individual's wheelchair needs change with time and decisions made early in the assessment process may have long-lasting medical and quality-of-life implications. We now know that upper limb pain is prevalent among long-term users of manual wheelchairs. Science must determine why people develop upper limb pain and clinicians must work with consumers to prevent or reduce this pain. This could lead to new wheelchair designs, greater use of the features available to wheelchairs, or an entirely new way of thinking about wheelchair selection. The decision as to whether to use an electrically powered wheelchair versus a manual wheelchair is one that people have faced since the option was first presented. Traditional thinking was that if you could propel a manual wheelchair, then that was the proper choice, otherwise a powered wheelchair was selected. Research has shown us that manual wheelchair propulsion does not induce a significant exercise effect in most users of wheelchairs and that repetitive strain injuries are quite prevalent. At the same time, engineers have worked diligently to produce powered mobility that is more suitable to an active lifestyle. This is leading clinicians and



Rory A. Cooper, PhD

Director Chairman, Rehabilitation Science & Technology; Associate Professor, Rehabilitation Science & Technology, Physical Medicine & Rehabilitation, Orthopaedic Surgery, Mechanical Engineering, and Bioengineering, University of Pittsburgh, Pittsburgh, PA 15206

consumers toward looking at electric powered wheelchairs or powered accessory devices for manual wheelchairs as a means of managing pain and maximizing mobility. Research is now turning toward looking at preventing secondary disability as well as providing efficient mobility. This is a reflection of the wishes of people with spinal cord injuries to live long, healthy, and prosperous lives.

Rory A. Cooper, PhD

**This guest editorial is an invited opinion.
The Editor**