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About the Authors

Ian Denison has redefined one of the roles of the physiotherapist in rehabilitation through a vigorous approach toward evaluating, surveying, testing, and proving equipment. He has become a valued resource for both clinicians and consumers alike. Those who know him believe the true reason for testing is to provide entertainment for his two children, Graham and Michael. The boys find watching Daddy fall out of various mobility devices highly amusing.

Doug Gayton has worked as a Practitioner in the Assistive Technology and Seating Service at GF Strong for ten years. He has extensive experience in mounting augmentative communication devices and the development of elegant interfaces between users and their environmental controls. He has engineered creative drive solutions for people who had given up hope of operating a power wheelchair. This experience combined with an inordinately acute mind led to the discovery that one of the chairs being submitted for testing would not work due to an absence of batteries.

Previous reports penned by the authors have found their way south of the 49th parallel and I am sure a number of readers

have shaken their heads at the spelling errors. Words like centre and manoeuvre are spelled differently here in Canada. We also went metric a few years ago confusing issues further. Where appropriate, we have converted kilograms to pounds and kilometres to miles. Americans should assume all misspelled words are actually Canadian. Canadians should assume all misspelled words are due to acceptance of my US spelling checker.

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Background

In 2001 we published a report entitled "Power Wheelchairs: A New Definition". Testing the chairs for that report gave us an opportunity to identify the factors which contribute to a chairs performance. It also gave us a chance to investigate characteristics inherent in the basic configuration of the design of each chair. Since that time manufacturers have been working hard to develop dynamic elements which allow their chair to overcome limitations inherent in the basic design which makes pigeon holing difficult.

This report has been created to provide consumers and clinicians a clear understanding of the relative merits of Front, Centre and Rear wheel drives.

We also performed comparison tests of the various chairs: tests which complement those done in ANSI / RESNA Laboratories; tests that tell you how well the chairs will meet consumers functional needs.

We have tried and tested all the chairs listed in the next couple of pages and for the first time have chosen not to report those test results in this document. By the time this book is read the models have often been replaced and the results can be misleading. Instead we want to identify the basic characteristics inherent in a chairs design so that consumers can apply this information to current models.

It is our intention that test results of specific chairs will be available on our web site eventually.

Objectives

- To provide clinicians and consumers with information which will help in the selection of an appropriate power wheelchair.
- To determine the merits and weaknesses of RWD, CWD and FWD chairs.
- To describe some of the mechanisms used by various manufacturers to overcome inherent weaknesses.
- To explain the factors which contribute to wheelchair performance.
- To determine the strengths and identify any weaknesses of brand name chairs.

A comprehensive analysis of the consumers needs, combined with this report and dealer supplied information, will enable the consumer to short-list chairs offering suitable performance and features. This will make the selection process simpler since the reader will not have to try all the chairs in all the circumstances they anticipate encountering.

However, the reader is advised to try the chair before buying it.

Go to the [Factors influencing Power Wheelchair Performance](#)