

WHEELCHAIR SKILLS PROGRAM (WSP)[®]

GENERAL INTRODUCTION

For further information

Contact information: wsp@dal.ca.

Warnings

The wheelchair skills described and illustrated in the WSP can be dangerous and result in severe injury if attempted without the assistance of trained personnel. Wheelchair skills are potentially dangerous, some more so than others. Attempting these skills may not be appropriate for some wheelchair users or caregivers. If the skills are attempted, for assessment or training purposes, an experienced spotter should be available to intervene.

Disclaimers

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The importance of wheelchairs and problems with their use

The wheelchair is arguably the most important therapeutic tool in rehabilitation. The prevalence of use is high and rising. Yet, despite the importance of wheelchairs, they are far from perfect. Repairs are needed often and many wheelchair users suffer from acute or chronic injuries due to wheelchair use. Inaccessibility restricts the usefulness of wheelchairs for some users.

Tradeoffs between safety and performance

Improvements in safety often come at the expense of performance and vice versa. For instance, a highly stable wheelchair may be less likely to tip over, but will create problems when the wheelchair user attempts to unload the casters to overcome obstacles. There are at least three approaches that can be used to overcome these tradeoffs – improved accessibility, improved wheelchair design and improved wheelchair skills training.

The wheelchair-provision process

The manner in which people receive wheelchairs varies widely. At the “commodity” end of the spectrum, a wheelchair can be purchased without any clinical input, “over the counter” at the corner drugstore. Optimally, as described by the 2008 World Health Organization (WHO) Guidelines on the Provision of Wheelchairs in Less Resourced Settings, there is a care pathway that includes assessment by professionals, the development of a prescription with the involvement of the wheelchair user and family, assistance (if needed) with the organization of funding for the wheelchair, proper fitting

and adjustment of the wheelchair, training of the wheelchair user and caregiver in maintenance and handling skills, and long-term follow-up for refinements, routine servicing and periodic replacement.

The Wheelchair Skills Program (WSP)

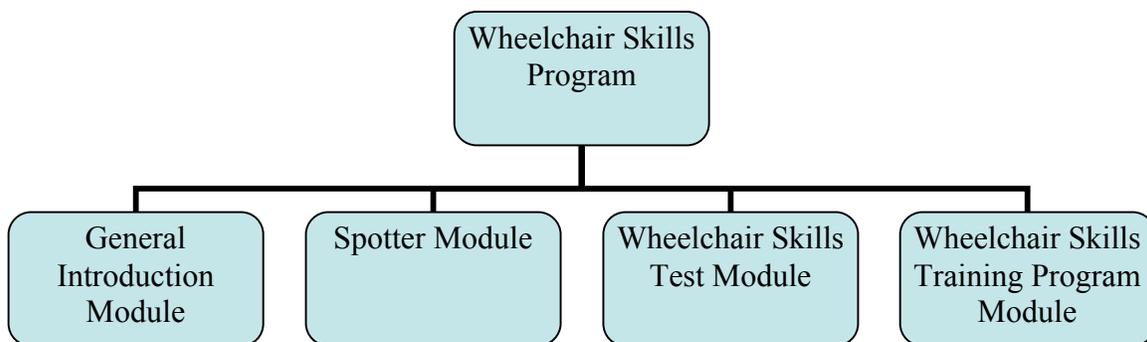
Two important elements in this care pathway are wheelchair skills assessment and training for wheelchair users and their caregivers. Using methodology based on the extensive motor-learning literature, beginning in 1996, the Wheelchair Research Team at Dalhousie University and Capital Health, in Halifax, Nova Scotia, Canada, began developing the Wheelchair Skills Program (WSP). The WSP is a set of assessment and training protocols related to wheelchair skills. The WSP includes the Wheelchair Skills Test (WST), the Wheelchair Skills Training Program (WSTP) and related materials.

What's different about the WSP?

There are excellent manuals and textbooks that deal with the subject of wheelchair skills. What is different about the WSP in comparison with many available sources are the focus on both the wheelchair user and the caregiver; the inclusion of both manual and powered wheelchairs; the attempt to incorporate the latest evidence on motor skills, biomechanics and ergonomics; the process and sequencing of the training; the ongoing evaluation of the WSP with as much scientific rigor as possible; and the fact that it is free.

Organization of the WSP

As shown in the figure below, the WSP website is organized into four main modules. This document is part of the General Introduction Module.



Spotter Module

The Spotter Module deals with issues affecting safety during WSP activities, both assessment and training. The focus is on the types of risks that can occur during WSP activities and how the spotter can minimize them without unduly interfering with the activity.

Wheelchair Skills Test (WST) Module

The WST is a standardized evaluation method that permits a set of representative wheelchair skills to be objectively, simply and inexpensively documented. The WST is intended to test a specific person in a specific wheelchair in a standardized manner.

For clinical purposes, the WST may be used early in the course of a rehabilitation program as a diagnostic measure, especially to determine which (if any) skills need to be addressed during the rehabilitation process (e.g. by training or wheelchair changes). By repeating the test on completion of the rehabilitation phase (or later during follow-up), the WST can be used as an outcome measure. The WST may also be used for program evaluation, to answer research questions and to assist in wheelchair design.

The measurement properties of the Wheelchair Skills Test (WST) have been documented. In these studies, the WST was found to be safe, practical, reliable, valid and useful. The WST has been used as a screening or outcome measure in a number of studies. Further study is needed to evaluate the measurement properties of the WST as it evolves, and in different settings. The relationships between the objective WST and the questionnaire version of the WST (WST-Q) have also been reported. The correlations between the total WST and WST-Q scores were found to be excellent, although the WST-Q scores were slightly higher.

Wheelchair Skills Training Program (WSTP) Module

The WSTP uses the WST skill set and training methodology based on the literature. There have been randomized controlled trials looking at the WSTP for users of manual wheelchairs and health-care professionals. In all studies to date, the WSTP has been found to be safe, practical and to result in significantly greater improvements in wheelchair skills capacity than standard care. Further study on caregivers and users of powered wheelchairs are needed.

The circle of education

The WST and the WSTP are both elements in the classical circle of education. In this circle, one begins with an assessment (the WST) to identify the learner's starting point. From this, the educational objectives are individualized. This is followed by the curriculum (the WSTP), aimed at meeting these objectives. This is followed by another assessment (the WST) to confirm that the objectives have been met.

Evolution of the WSP

The WSP has evolved over time, in response to feedback and our experience with it. Various versions of the WSP – Versions 1.0, 2.4, 3.2, 4.1 and 4.2 – have been released for general use on since its inception. Version 4.2 of the WSP was released for use on April 4, 2013. The Manuals are periodically updated in response to questions from users and our experience with it. If the version number has not changed despite an update, it is because the changes have been deemed to be predominantly of an editorial nature, rather than changes that might alter the measurement properties, for instance.

Cost-effectiveness of the WSP

Although no formal studies of cost-effectiveness have yet been conducted, we do have some basis for concluding that the WSP appears to be a highly cost-effective program. The WST requires an average of about 30 minutes to conduct and the WST-Q about 10 minutes. The training studies to date suggest that improvements in capability can be accomplished in a total of 4 hours of training or less. No equipment is required, only

trained personnel. For personnel, we generally recommend occupational or physical therapists. However, we have also had good results when using trained students or research assistants as trainers. Learning a new skill lasts a lifetime, unlike strength or endurance training that requires ongoing efforts to maintain benefits. For all of these reasons, the WSP can accurately be described as a “low tech, high impact” intervention.

Languages

The WSP was originally developed in the English language. It has since been translated by a team lead by Francois Routhier (a member of the WSP Editorial Committee) into French (www.wheelchairskillsprogram.ca/fre). Translation into other languages is encouraged and we are aware of some initiatives in other countries (e.g. Turkey, Thailand and Denmark).

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Acknowledgements

This work would not have been possible without the excellent papers, textbooks and training manuals that have been published by others. This literature is too extensive to cite here, but has been more specifically acknowledged in the reference sections of our papers published about the WSP (see web site).

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