EVALUATING PROSTHETIC FUNCTION WITH THE UNB TEST

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Functional assessments examine human capabilities and potentials and provide a basis for the individual to realize change, improvement, adaptation or efficiency. These assessments are used as a guide for measuring effectiveness of various interventions. Was the intervention a success or not? Today people often refer to these assessments as outcome measurements. These measurements are becoming increasingly important in justifying the treatment and interventions of fitting prostheses. With rising costs and cuts in health care prosthetics teams need to develop and use outcome measurements as part of their daily practice.

Unfortunately, functional assessments or outcome measurements are in the process of evolving. In prosthetics, teams tend to depend upon observation and subjective evaluations to determine the outcome of their interventions. To date there have only been two published tests of prosthetic function for children one by David Krebs in 1987, the other by E.R. Sanderson in 1985. Since their publication, little was known about how much the tests were used by therapists.

A descriptive research study was completed this spring which examined the use by occupational therapists of the UNB Test of Prosthetics Function. This paper discusses this study.

WHAT IS THE UNB TEST?

The UNB Test of Prosthetics Function is an assessment tool for children ages 2 to 13 years. It is a test to be used with children who have unilateral upper extremity amputations who wear either powered or conventional prostheses. Children are asked to perform ten age appropriate functional activities and are scored on their spontaneity and skill of prosthesis use during each of the 10 activities.

The test provides bimanual activities for age categories 2-4, 5-7, 8-10 and 11-13. Three subtests of ten items each are given for each age group so that a different test can be administered in subsequent visits. The spontaneity and skill rating scales provide a 5 point scale. Spontaneity scores range from 4- immediate, automatic, consistent use of terminal device for active grasp to 0- prosthesis not used or used only on request. Skill scores range from 4- active use of terminal device is quick, skilled and smooth, grasp is consistently maintained to 0- prosthesis not used. To effectively administer the test a therapist would provide the child with some test activities mixed with non test...
activities. Scoring is without the child’s knowledge. To complete and score the full 10 items mixed with other activities, the test can take up to an hour to complete.

**STUDY METHODS**

There were two data collection methods: a mailed questionnaire and a semi-structured telephone interview. Questionnaires were mailed to occupational therapists at various centres throughout Canada and the United States. Therapists were identified from a current listing of the Association of Children’s Prosthetics-Orthotics Clinics. A selection of therapists who returned the questionnaire were also interviewed by telephone.

The questionnaire consisted of some voluntary demographic information, nine closed-ended questions and two open-ended questions. Questions identified to what extent and manner the test was used by the therapist involved with the fitting of prostheses with children. The advantages and drawbacks of the test as well as input on how to improve the test were also included in the questions. The validity of the questionnaire was established by testing it with an occupational therapist in Halifax who worked with a prosthetic clinic. The questionnaire took approximately 15 minutes to complete.

The telephone interview took approximately 10-20 minutes for participants to answer both open-ended and closed-ended questions. Specific information on drawbacks and suggestions on modifying the test were sought.

**RESULTS**

A total of 39 questionnaires were mailed out. Twenty of the 39 questionnaires were completed and returned representing a 51% response rate. 55% (or 11) of respondents have used the UNB Test. Of the 45% who had not used it, 27.5% had not heard of it and 18% did not have access to it.

45.5% on the non users described a variety of reasons for not using the test including limited assessment time in the clinic, and preference for clinical observation and judgement rather than standardized assessment.

Only 4 of the 11 therapists using the test indicated they used the UNB Test in its entirety. Of the therapists only using part of the test, subtest 2 for ages 5-7 was the most frequently used. The subtests for ages 2-4 and 5-7 were also used by this group.

The test was most frequently being used as an initial assessment. It is also used, in order of importance, as a reassessment tool, training guide, research tool and finally a performance checklist at final checkout.
The most frequently selected advantages (pro's) of the test are: assesses spontaneity/skill; easy to administer and score; variety of play, self-care and work activities; and interesting to children. The most frequently selected disadvantages (con's) were: Clients are scored negatively for passive use of their prosthesis; scoring is too subjective; some test items not readily available without planning.

Suggestions to improve the test included: create a section which tests passive use of the prostheses; include a section for ages 13+; create more appropriate activities - include a section for ages 1-3; create a more defined scoring scale; collect more normative data by testing more children with prostheses.

Four individuals were contacted by telephone. A specific list of suggestion to improve the test were given by these therapists.

**DISCUSSION**

This descriptive study was conducted by Shauna Feetham, a fourth year student of occupational therapy at Dalhousie University in Halifax from a research question submitted by the occupational therapist at the Institute of Biomedical Engineering. The administration of the questionnaires and telephone interview took place over a seven week period while the student was at Institute of Biomedical Engineering. This short time period for sending and receiving questionnaires may have limited the number of responses received. As well time limits to return replies may have discouraged therapists from completing the questionnaire. As a result it is felt that the small sample size cannot be taken as representative of all occupational therapists. Another limitation of the study was the small number of therapists contacted by telephone. This occurred, partially due to timing of receiving completed questionnaires and partially due to difficulties contacting therapists working part time.

**CONCLUSIONS AND RECOMMENDATIONS**

It was found that 55% of occupational therapists responding to a questionnaire used the UNB Test of Prosthetics Function. This test was found to be an effective occupational therapy assessment for children with upper extremity limb loss using a prosthesis. Some limitations of the test were identified and it was clear that there needs to be changes made to the test.

This study indicates that testing prosthetic function is indeed possible and does occur in several clinics throughout North America. It is hoped that this test can be further improved and expanded so that individuals can use the test as a means of measuring a functional outcome of prosthesis use.
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REFERENCES