

# FREQUENTLY ASKED QUESTIONS (FAQs) RELATED TO THE GMFM-66

© Dianne Russell, Lisa Rivard, Doreen Bartlett, Peter Rosenbaum  
and Roberts Palisano, 2003

*CanChild* Centre for Childhood Disability Research

Published and Distributed by *CanChild*

## FAQs relating to the GMFM-66:

### **Q. What is the GMFM-66?**

A. The GMFM-66, or Gross Motor Function Measure 66, is an update of the GMFM-88 (the GMFM-66 is, in fact, the GMFM-88 minus 22 items!). It includes 66 items identified through Rasch analysis, which, together, best describe gross motor function in children with cerebral palsy of varying abilities. Like the GMFM-88, it is used to evaluate change in gross motor function over time or with intervention in children with cerebral palsy. The items are administered in the same way as with the GMFM-88 except for the scoring of the GMFM-66 where it is important to differentiate a true score of "0" (child does not initiate) from an item that is Not Tested (NT). This new measure uses a computer program (called the GMAE or Gross Motor Ability Estimator) to convert scores and plot them on an interval scale of gross motor function as opposed to the ordinal scaling of the original GMFM-88. It is valid **only** for use with children with cerebral palsy.

### **Q. Who can use the GMFM-66?**

A. The GMFM-66 was designed for use primarily by physical therapists who are familiar with children with cerebral palsy, and the administration and scoring criteria outlined in the manual.

### **Q. What are the benefits of using the GMFM-66?**

A. It takes less time to administer the GMFM-66 as it contains 22 fewer items than the original GMFM-88 version. It can be scored using a computer program (GMAE have interactive link/"hot" button here) that provides interval scaling of items and allows plotting of scores on an item map. Item maps (interactive link/"hot" button) provide

information that should allow you to determine what skills are likely to be next in the child's development, thus assisting with goal setting. The computer programme assists in interpreting both clinically and statistically significant change over time by providing item maps and a summary of GMFM-66 scores (along with the 95% confidence intervals) over subsequent assessments. Another benefit includes the ability to get an accurate estimate of a child's GMFM-66 score even when all items have not been administered.

**Q. How long does it take to learn the GMFM-66 items and the computer-based scoring system (GMAE) initially?**

A. The length of time to learn the items of the GMFM-66 varies with the skill of the assessor, their familiarity with standardized assessments in general, and with the GMFM-88 in particular, and their comfort and rapport with children with cerebral palsy. It takes a minimum of 3 hours to read through the manual and an additional 3 or more hours to work through the CD ROM training. Learning how to score and interpret the GMFM-66 using the GMAE will require additional training. The length of time to learn the scoring system depends on the assessor's familiarity with item maps.

**Q. How long does it take to administer, score and interpret the GMFM-66 for a child with cerebral palsy?**

A. As with the GMFM-88, the length of time to administer the GMFM-66 depends on factors such as the skill of the assessor, the range of abilities of the child and the child's level of cooperation and understanding during the assessment. Administering the GMFM-88 takes on average 45-60 minutes and this measure has 22 fewer items. We are currently documenting the administration time from therapists using the GMFM-66 in a trial with adolescents. Scoring for the GMFM-66 requires entering the item scores into a computer program and pushing a button to receive the GMFM-66 score, item maps and summary tables. Additional time is necessary to review and interpret item maps.

**Q. Do I need to administer all 66 items of the GMFM-66?**

A. Work is currently being conducted to test algorithms for item subsets in each of the five levels of the GMFCS. At this point, it is best to test all 66 items.

**Q. Are the dimension scores calculated somewhere by the GMFM-66?**

A. No. Item difficulties can be displayed by dimension on an "item map by item order" but dimension scores are not available from the GMFM-66. Items can also be displayed in terms of difficulty using the "item map by difficulty order" which provides much richer information. Technically, the GMFM-66 doesn't require all items to be tested so it is possible to focus on those items most relevant to the child negating the need for goal

totals based on dimension scores. Accuracy of administering fewer items is currently being determined.

**Q. How accurate is an obtained total score using the GMFM-66?**

A. As for all measurements, each time an assessor completes an evaluation with an individual child, the obtained total score will be an estimate of the child's gross motor function. The GMFM-66, when used with the GMAE, automatically provides a 95% confidence interval (CI) around an obtained score. For example, a child might obtain a total score of 42, with a 95% CI of 39 to 44. This means that the therapist can be 95% confident that the child's true score is somewhere between 39 and 44, and that the estimate on the day of testing was 42.

**Q. How frequently should the GMFM-66 be administered?**

A. There are no guidelines provided about frequency of administration. Considerations include, but are not limited to:

- (1) age (more frequent evaluations in younger children),
- (2) type and intensity of intervention over a specified period of time (pre- and post-evaluations around interventions that are expected to make a difference),
- (3) estimate of the amount of time that the child will require to learn a gross motor function(s),
- (4) concurrent health status (evaluation around the time the child experiences other health concerns to establish the impact on gross motor function),
- (5) a facility's administrative requirement for an annual evaluation, and
- (6) responsiveness of the GMFM-66. Overall, the responsiveness of the GMFM-66 has been shown to be similar to that of the GMFM-88 over 6 and 12 months, however the GMFM-66 is more sensitive to change at the extremes of the scale (i.e. for those children scoring very low and those scoring very high) and probably less than the GMFM-88 for those children functioning in the middle of the scale.

**Q. How can change in GMFM-66 scores be interpreted?**

A. The printout using the GMAE scoring program can be used to determine if change has occurred that is greater than measurement error. Basically, one needs to find out if the 95% confidence intervals (CI's) (see also frequently asked question "How accurate is an obtained total score using the GMFM-66?") between the first and second test occasion overlap. If they overlap, the difference in the obtained scores may be due to measurement error. If they do not overlap, the difference can be interpreted as true change. The overall magnitude of change in GMFM-66 score that is considered "clinically important" has not been determined scientifically but the therapist can use

their clinical judgement to determine if the items showing improvement are clinically important for the child they are seeing.

**Q. How can I obtain a copy of the GMFM-66 manual and score sheets?**

A. The manual, which contains updated information on the GMFM-88 and GMFM-66 with detailed administration and scoring guidelines and a scoring CD ROM is available for purchase from [Wiley-Blackwell Publishing](#).

The GMFM-88 and the GMFM-66 are now combined on a single score-sheet, which can be downloaded from the CanChild web site at [www.canchild.ca](http://www.canchild.ca) and is also available in the Gross Motor Function Measure (GMFM-66 and GMFM-88) User's Manual.