

A Key Question: Is More Better?

A Research Report for Families

BY PAUL YODER, PH.D., PROFESSOR OF SPECIAL EDUCATION AND VANDERBILT KENNEDY CENTER INVESTIGATOR

Introduction

Medicine has long viewed prescribing how often to take a pill as an important way to fit a treatment to a specific patient. Education has only just begun to study how often treatment sessions should occur to maximize benefit to students.

Children with disabilities and their parents/caregivers took part in a study to find out whether daily or weekly treatment sessions were more helpful in improving a child's spoken vocabulary. Two groups of families (daily and weekly) were seen for 9 months.

Past research has shown that children with Down syndrome tend to have more trouble learning to speak than children whose intellectual disability has other causes. On one hand, it is possible that the impact of daily vs. weekly treatment will be greater for children with Down syndrome than for other children with intellectual disabilities because children with Down syndrome may need more total teaching episodes to learn to talk. On the other hand, it is also possible that the impact of daily vs. weekly treatment will be greater for children with intellectual disability for reasons other than Down syndrome, because spoken language intervention of any frequency is not enough to make up for the disadvantages that having Down syndrome places on children's development of spoken language.





The Language Treatment

The treatment method used is called Milieu Communication Teaching (MCT). Almost all sessions occurred in the home. MCT has 3 parts.

- ❑ The first part, which children receive when they enter the program, teaches children to use their gestures (for example, a child gives an object to someone as a way to ask that it be opened or operated), nonword vocalizations (for example, sound combinations like “aga”), and eye contact to ask for things and actions, to communicate liking something, or to take turns in simple games (for example, peek a boo). This first part of MCT follows the principles of Prelinguistic Milieu Teaching. Previous research has shown that children communicating in these ways predicts later language growth and provides a rich opportunity for parents to respond in ways that teach spoken words.
- ❑ The second part of MCT teaches parents to notice their children’s nonverbal communication and then to respond in ways that are thought to teach children to use and understand words. To conduct the second part, we followed the curriculum set out by *Hanen It Takes Two to Talk*.
- ❑ The third part of MCT starts when children begin to use words in treatment sessions. This third part teaches children to use words to express what they have been trying to communicate without words. At moments when children are thought to learn best, a sequence of prompts was used to encourage children to produce words, and researchers used immediate rewards for talking. This third part of MCT follows Milieu Language Teaching principles.

Study’s Four Questions

The study aimed to answer four main questions.

- ❑ Do children who receive daily MCT sessions learn to use more spoken words than children receiving weekly MCT?
- ❑ Is receiving daily MCT associated with more family stress than receiving weekly MCT?
- ❑ Do children with Down syndrome acquire spoken words at a slower rate than children with other intellectual disabilities who are the same age and have the same intelligence level?
- ❑ Within each subgroup (Down syndrome vs. intellectual disability for other reasons), do children receiving daily MCT sessions learn to use more spoken words than children receiving weekly MCT?

Who Took Part

Sixty-four families took part in the study. All of the children in the study had intellectual disabilities and spoke very little before entering the study. All children were between 18 and 27 months when they started the study (mean = 22.5 months). On average, the children had cognitive levels on the 12.5-month level (ranging from 12- to 24-month level). Among the children, 16 had Down syndrome, and 19 had intellectual disabilities from other causes, most of which were unknown.

Study Design

The research design used to address these research questions was very strong in several ways. One important strength was that families assigned to the weekly MCT treatment group were very similar to the families assigned to the daily MCT treatment group. They were similar on 39 different characteristics that can affect spoken language development, like child’s thinking ability, child’s comprehension, parent’s education level, and amount of “other” interventions being provided outside the study. When groups are not different on “all relevant” variables, researchers say they are “equivalent before treatment.” This type of “group equivalence before treatment” is an essential part of the research design. It was achieved in this study largely because parents agreed to let researchers assign their child randomly to either the more frequent or less frequent treatment group. Without this consent to randomly assign, there would have been too many alternative explanations for results, which would have

meant that researchers could not have addressed their important research questions.

The primary measure of spoken vocabulary development came from the checklist of words parents were asked to fill out every 3 months during the study. Using this checklist, they reported the words they heard their child say every 3 months. By using their observations of and knowledge about what words their child said, researchers tracked the child's use of words, not just in clinic visits or during therapy, but everywhere and at any time the parents heard the child talk. This frequent assessment of the number of words the child said allowed researchers to track the development of the child's spoken vocabulary very well.

Finally, researchers were able to implement the intended frequency of treatment in almost all cases. Children in the daily MCT group attended approximately 4.19 times more sessions than did participants in the weekly MCT group. This is just short of the target of a difference of 5 times more sessions for the daily MCT group. Regardless of group, at least 98% of the sessions lasted the target of at least 45 minutes a session. Therefore, even young children could tolerate (and usually enjoy) sessions that lasted longer than researchers had attempted in the past. The average duration of treatment phase was just a little under 9 months. Both these figures are very close to the researchers target of 9 months of 60-minute sessions. From a researcher's perspective, it is important to note that the staff treatment providers also met their goal of providing an average of at least 1 correctly implemented teaching episode per minute. Thus, children received the planned quality and quantity of treatment.

Findings

All children grew in their spoken vocabulary. Regardless of the number of times per week that children received the treatment or whether they had Down syndrome, on average, children learned to use 16 new words. However, regardless of how often they received treatment, children with Down syndrome learned 10 new words, while children with intellectual disabilities for other reasons learned 28 new words. Also of interest, parents reported the same amount of stress regardless of whether their child received treatment daily or weekly.



If researchers do not consider whether or not children had Down syndrome, receiving MCT daily did not appear to have a clearly better effect than receiving it weekly. However, within the Down syndrome group, once cognitive level was controlled, children receiving daily MCT gained more words (mean = 17 words) than children receiving weekly MCT (mean = 5 words).

It may be discouraging to hear that having Down syndrome can place a child at greater disadvantage for learning to use new words than a child already experiences from having an intellectual disability. The good news is that more frequent sessions per week can help make up for some of this disadvantage. Additionally, there is no evidence that adding more sessions a week caused parents to feel more stress. It has long been argued that toddlers with autism, a different disability, need more hours of treatment per week than is generally provided by many states through state-funded early intervention programs. This study now provides data to argue that toddlers with Down syndrome also need more hours of treatment per week.

Heartfelt Thanks

We are grateful to the families who took part in this study. They are our partners in discovery. Without families taking part in research, we could not advance our society's understanding of how children with and without disabilities grow and learn.

Questions?

Contact Research Coordinator elizabeth.gardner@vanderbilt.edu

This research was supported by NIDCD R01007760 and NICHD Grant P30 HD15052 to the Vanderbilt Kennedy Center for Research on Human Development. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIDCD or the National Institutes of Health. Printed June 2012.



VANDERBILT KENNEDY CENTER
FOR RESEARCH ON HUMAN DEVELOPMENT