Learning to talk

Most children and adults with Down syndrome experience significant difficulty with speech and language skills. Few achieve clear and fluent speech and few can express what they wish to communicate effectively because of delays in learning all the vocabulary and the grammar that they need. In recent years, there has been a large research effort exploring all aspects of speech and language development, from birth to adolescent years in particular.

In a recent paper, Joanne Roberts and colleagues present a comprehensive review of this research, covering phonology (speech), semantics (vocabulary), syntax (grammar) and pragmatics (communication or use of language). Importantly, the authors also consider hearing and oral motor skills which they rightly identify as factors which may influence progress in learning to talk.

This is a very useful review paper, as the authors both review current knowledge and identify the research needed next in each area. The authors provide detailed advice on interventions that may help, stressing the need to manage otitis media and hearing loss, to initiate language intervention early in development, to intervene to increase speech intelligibility, to assess language in different contexts, to specifically target vocabulary, syntax and pragmatic skills, to plan to promote the generalisation of skills learned in therapy so that they are used in many contexts and to make full use of signing or other augmentative communication aids as needed.

Throughout the paper the authors remind readers of the wide range of abilities and disabilities that can occur for children with Down syndrome and the need to plan for individuals while taking account of the syndrome-related expectations.

Sue Buckley

Original research paper


Exceptional reading among young people with Down syndrome

It seems unlikely that a child with Down syndrome will have age-appropriate reading skills yet show significant delay on measures of verbal and non-verbal mental age yet this is the pattern reported by Margriet Groen and colleagues in a detailed case study of KS aged 8 years. The paper reports three studies exploring different facets of the reading skills shown by KS.

In the first study, the abilities of KS are compared with a group of 13 other children with Down syndrome who are more able than average and this comparison establishes that KS is reading exceptionally well for a child with Down syndrome. She was the best reader and scored significantly ahead of the rest of the children with Down syndrome on the reading measures even though she did not score ahead of them on verbal or non-verbal mental ability measures.

In the second study, the researchers explore her phonological skills – that is her ability to use letter-sound correspondences and rhyme in a variety of ways – and here her performance is compared with that of typically developing readers. KS demonstrates age-appropriate skills on the majority of the measures showing that she is able to decode words for reading and spelling and does not rely on visual memory and good ‘sight-word’ skills at this point (though other studies do indicate that children with Down syndrome rely on ‘sight-word’ skills for longer i.e. at higher reading ages, than other children).

In the third study, the reading comprehension abilities of KS are compared with those of a group of children who have age-appropriate word reading and decoding skills but some reading comprehension difficulties. KS shows a similar pattern of difficulties in that she has age-appropriate reading comprehension skills when the tasks require literal comprehension – that is, the answers are all transparent in the text, but has delayed comprehension when the comprehension tasks require the ability to make inferences not
fully apparent in the text but requiring the reader to draw on world knowledge and past learning to understand fully. On the more difficult comprehension task, KS shows a delay of 13 months in comparison with her word reading ability putting her score just below the average range for readers of her age. She also showed a delay in her performance on a listening comprehension task similar to that shown by the delayed comprehenders she was being compared with.

This is a detailed and fascinating paper as the authors have made full use of the availability of other data sets to address the questions and provide the most detailed published account of the skills of a reader with Down syndrome. Reading ability is not the only strength that KS displays. She has exceptional speech skills (articulation and speech fluency), visual and verbal short-term memory skills and uses longer sentences (better expressive grammar) than most other children with Down syndrome, even though she does not score significantly higher than them on vocabulary or grammar comprehension tasks.

Four questions come to mind when reading this paper. Firstly, are the gains in speech clarity, short-term memory and expressive grammar linked to her reading progress? I have argued in a number of places that such a link is theoretically plausible, that is, that teaching reading will lead to such gains[2-4]. Longitudinal studies are needed to investigate this possibility.

Secondly, what does a developmental profile as uneven as this (some abilities that are typical for age and some very delayed) tell us about the development of speech, language, literacy, memory and general verbal and non-verbal abilities in the brain – and the possible inter-relationships between them?

Thirdly, what role have specific interventions played in the abilities achieved by KS? The article notes that her parents had been teaching her to read from the age of 3 years and following a programme which specifically works on speech sound discrimination and production from that age and earlier. Here again, longitudinal research is needed to explore these issues.

Fourthly, how exceptional is KS? This is an important question for parents and teachers as they need to know how many other children with Down syndrome might be as successful with reading if given the opportunity to learn. Case study reports of other children with Down syndrome who read at age-appropriate levels exist and also suggest gains for speech (e.g. see REF 3). A number of studies report a range of reading ages for children with Down syndrome including some readers achieving reading ages of 14-15 years (see REF 3 for a review). A recent UK study of 49 children with Down syndrome reported four children reading at age-appropriate levels and identify that reading is a strength for the children, that is, they are often reading better than would be expected for their mental-age score[19]. Further research to find and study more of these ‘exceptional’ readers might go some way to also answering question 3.

Sue Buckley.
Original research paper