

1. How do children learn to talk and develop their language?

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How to support speech and language development: birth to 6 years

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Overview

- What do we know about speech and language development?
- What do we know about how this may be affected by having Down syndrome?
- What are the implications for interventions?
- How do we deliver this? Four essential strands
 - Developing communication
 - The central importance of speech sound development
 - Vocabulary size matters
 - Building sentences
 - Teaching reading

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Children with Down syndrome learning to talk

- Speech and language development is usually more delayed than it should be relative to non-verbal mental abilities – so not all explained by cognitive delay
- Progress varies widely with children saying their first words anytime between 1 and 3 years or later
- Children may have between 50 and 400+ words by 5 years and mostly use 2 and 3 key word utterances to communicate in school
- Teenagers often still use 'telegraphic' utterances and unclear speech
- We know quite a bit about the reasons for their delays and difficulties
- We have evidence that we can make a difference with extra input and inclusion in schools and in communities

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The components of being an effective talker

Communication	Language	Grammar	Speech
<ul style="list-style-type: none"> Learning to get your message across Using words and non-verbal signals Taking account of the listener Developing narratives and conversations Presenting, making speeches 	<p>Vocabulary</p> <ul style="list-style-type: none"> Learning what words mean Building a large store of different words We add new words across the life span Influenced by reading 	<p>Grammar</p> <ul style="list-style-type: none"> Learning the rules for building sentences and changing word meanings Continues through school years Influenced by reading 	<p>Speech</p> <ul style="list-style-type: none"> Learning the sounds used in your language How they are combined Saying clear words and sentences With fluency, intonation and stress Takes time – into school years

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The profile for most children with Down syndrome

Communication	Language	Grammar	Speech
<ul style="list-style-type: none"> Communication skills are usually a strength Children and adults will use whatever means they can to get their message across Early non-verbal skills usually good Later need help to develop conversational skills 	<p>Vocabulary</p> <ul style="list-style-type: none"> Learn words more slowly Continue to add new words Over time vocabulary is a strength 	<p>Grammar</p> <ul style="list-style-type: none"> More of a challenge Many teens and adults have limited grammar in spoken communication 	<p>Speech</p> <ul style="list-style-type: none"> Most children and adults have difficulty developing clear spoken words This leads to poor clarity/intelligibility and often not being understood

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Why this uneven profile?

<p>Learning from listening difficult</p> <ul style="list-style-type: none"> Often have hearing loss due to 'glue ear' or conductive loss and hearing loss in early years does influence progress of both speech and language Have a verbal short-term memory weakness – the system for holding and processing spoken language <p>Cognitive delay</p> <ul style="list-style-type: none"> May take more time and repetitions to learn <p>Input matters – quantity and quality of language learning opportunities</p> <ul style="list-style-type: none"> May receive less input when slow to talk – but need more Progress is influenced by being in inclusive environments <p>Health – poor sleep influences language and cognitive progress</p>

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What can we learn to guide interventions? 

Make language visual


- Use visual supports for memory and hearing issues (pictures, signs, print)
- Verbal short-term memory – uses a speech-based code so learning to hear and discriminate speech sounds matters

Compensate for barriers

- Hearing – regular checks, treatments, aids – worn, adjusted, speaking clearly, turning off TV/music, having eye contact, signing – ALL ages
- Vision – ‘see what you mean’ – keep spectacles clean!
- Sleep – get advice on sleep apnoea or behavioural sleep issues

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What can we do to improve learning environments? 

There is a risk of getting less input when child needs more

- May initiate or start conversations less often (point, try words)
- May be in limited language environments – inclusion matters
- May be included less often in conversations at home and at school
- We may prompt too much – speak for the individual, complete their sentences, asked closed questions (only need 1 word answer)
- Think about their learning opportunities with other's their own age
- Think about how you and others communicate with your child and how this can be improved (think of others their age)

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What can we learn to guide intervention? 

- We need to address all four components/domains in parallel and across the life span – but early years really matter
 - Communication
 - Speech
 - Vocabulary
 - Grammar/sentences
- We can have activities to help children progress in each
- We know the order of development for each component, so we know what to encourage next
- We also know that progress in one is linked to progress in another

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Links between components/domains 

- Children learn to communicate non-verbally at first, but communication skills are still important when we talk at all ages
- The ability to hear and produce speech sounds in the first year of life influences the first words and later the sentences children say – speech matters (and influences verbal short-term memory (VSTM) development)
- Children say 50-100 words before they start to join them to say 2 key words 'daddy gone', 'baby sleep', 'big dog', 'more dinner'
- Children say 250-300 different words before they start to use grammar in sentences – vocabulary teaching matters (and words = knowledge)
- These facts are the same for children and young people with Down syndrome – many start school at 5/6 with less than 300 spoken words

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Communicating – starts non-verbally 

- Usually a strength from first months – increases if successful
- Smiling, eye contact, looking (eye-gaze), facial expressions, body postures, sounds, turn-taking, pointing, showing, signing
- Non-verbal – used throughout life (eye contact, turn taking
- Responsive partners – respond to all forms of communication and attempts at words
- Compensate for less initiating and less requesting
- Encourage choices e.g. bubbles - blow, wait for any sign, jiggling, pointing, sounds. Wind up toys, toy in a jar – need to request
- Communicating = social learning – how we interact, social rules

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Speech sounds really do matter 

- Starts in first weeks of life – because brain needs to tune to local language for understanding words, saying words, developing verbal short-term memory system (which is speech based)
- Learn to hear, discriminate and say all speech sounds
- Learn to combine them into words
- Practice, practice, practice and practice – to improve motor control
- Not a lot of research but evidence that practice works
- Keep talking – input matters
- Games to develop speech sounds then words (See and Learn Speech) principles same for any language

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Vocabulary learning 

- Words learned in a developmental order – we know what to teach
- Sound discrimination matters (hat, cat, mat...)
- Signs help – increase total number of words until about 4-5 years then as spoken words come new words learned in spoken form (even if only an approximation)
- ALWAYS SPEAK with signs and encourage/respond to all use of voice
- Keep a record of words understood, signed, spoken (DSE checklists)
- Teach and practice (saying words influences speech clarity & VSTM)
- Prompt production – encourage imitation once child can make attempt (supported by research – natural play not enough)

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Joining words, sentences and grammar 

- 50-100 words before joining 2 words (and even when they can join words, speech issues often limit children to 1 word production at home and school)
- About 250-300 words before develop grammar in sentences – same as all children – except often 5-6 years or older
- Use vocabulary records to choose words for sentences – and teach sentence structures and grammar (plurals, past tenses etc) in developmental order
- Teach reading to teach talking – often sight word learning is a strength from 3 years or earlier (See and Learn Language and Reading)

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Teaching reading 

- When child can match and select pictures, sign or name some – at least 50 and understands 2 key words in play etc (give dolly a drink, put teddy to bed when both toys present)
- Choose words child understands to teach as sight words (match, select, name, comprehend – match with picture)
- Make simple books (family names, then eating book, mummy eating, daddy eating etc – sleeping book. Add – mummy eating an apple).
- Make sure child can read confidently (about 40-50 words) and show they understand what they read before trying to teach phonics
- Can learn letter-sounds earlier which may help speech but let decoding develop slowly with reading experience

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Summary 

- Speech and language is central to all development, learning, thinking, social life, independence
- Needs to be supported from first months of life to adult years
- Usually learned by listening – and talking – both compromised
- Make everything visual – more practice needed to progress (often get much less)
- All 4 domains matter – speech sounds, vocabulary sentences, communication – develop them in parallel. They influence each other.
- Keep talking and communicating – lots of social experience, inclusion matters – at home, school and in community

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DSE Resources 

- See and Learn website see <https://www.seeandlearn.org/> – principles of design apply in any language
- Online courses
- <https://www.down-syndrome.org/en-gb/services/training/courses/>
- Parent course on speech and language – learn principles which apply across life span – much practical information and resources
- Professional course for SLTs – if you want all the research in detail
- Early years course – for information and advice on all aspects of development
- While on a course 12 months access to me for individual advice
- <https://store.dseenterprises.org/collections/checklists> - examples

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