

## Speech disorder in young children

by Dr Sean Pert

Many young children have difficulties producing sounds and using sounds in words. This is only a concern if these difficulties are not explained by typical development. For example, nine out of ten children can produce 'sh' by the age of five years to five years and five months of age, but younger children are often unable to say this sound in words (Dodd *et al.* 2003). Most children can say a full range of English speech sounds by the age of seven, with only 'th' in words like 'thin' and 'these' possibly developing at a later age, or not used at all because they are not in the child's accent.

The most obvious explanation for speech difficulties, one might think, is that the child has some *physical* difficulty producing the sound. It is certainly true that a small number of children have physical difficulties producing sounds. Possible physical causes of speech disorder include cleft lip and palate, tight lingual frenulum (tongue tie) and missing or misaligned teeth.

Cleft lip and palate is usually obvious at or before birth and is addressed by a multidisciplinary team, including surgery. A very small number of children may have a sub-mucous cleft where the gap is hidden by the lining of the mouth. It is therefore very important for speech and language therapists to carry out a speech systems examination for all children with suspected speech disorder.

It is often believed that a tongue tie (ankyloglossia) is the cause of speech disorder. However, the evidence does not support this. Tongue tie presents as a tight connecting strand from the floor of the mouth to the underside of the tongue. If the child is asked to stick out their tongue, it appears heart-shaped or notched due to the pull of the connecting strand.

Children rarely have difficulties with speech due to a tight lingual frenulum. A small number of babies need to have the tongue tie cut as it affects breast or bottle feeding, but children rarely need their tongue tie cut for speech reasons. If the child can raise their tongue to the alveolar ridge (the shelf of gum behind the top set of teeth), then they have sufficient movement for all the sounds of English. Many parents chose to have their child's tongue tie cut when the child also experiences speech disorder. This usually has no effect on the speech disorder and simply causes the child pain or discomfort from an unnecessary operation. Unfortunately, many GPs are uninformed about speech disorder and may also believe that a tongue tie operation will cure a speech disorder.

### What is the main cause of speech disorder?

So, if speech disorder is not usually caused by physical factors, what is the main cause? Acquiring speech sounds requires many different systems to be perfected. The child must hear other people speak and work out which sounds to say in words. This involves listening, recognising word boundaries (as speech is a continuous stream of sounds) and then splitting words into smaller parts (segmentation into syllables and individual sounds) and mapping the sounds onto the meaning of words. Most children with speech disorder have difficulties with the last skill, and so their difficulties are caused by unseen processes in the mind, rather than anything physical.

A common error in young children's speech is *fronting of velar plosives*. This technical term simply means that the child says "t" when they should say 'k'/'c' (both these letters are produced with the same sound; the tongue pulled down from the back of the mouth). This speech simplification pattern is found in one in ten children (or more) before the age of three years eleven months. 'key' is produced as "tea", and 'coast' as "toast". The interesting thing to note is that many children are able to say both "t" and "k" *as single sounds*, but have difficulty using "k" *in words and sentences*. This proves that it is not a physical difficulty, rather, the child has not realised that using the wrong sounds gives the incorrect message or meaning. Children fail to realise this, because most of the spoken sentences of children under seven are about the here-and-now, or very familiar

conversational topics. The adults around them can understand the child in context. The child is not being lazy or difficult, and young children are more concerned with getting their message across than with the sounds they use.

## Types of speech disorder

Speech and language therapists (SLTs) describe different sorts of speech disorder according to the following four categories. This explains the underlying reason for the speech disorder and helps in selecting the appropriate treatment.

Not all SLTs agree on these categories, but this is the most frequently used system.

- **SPEECH DISORDER (Overarching main category with four sub-types):**

- **Articulation disorder**

- The child has difficulty saying a sound *both* as a *single sound* and in words and spoken sentences.
- The child *cannot imitate the sound* after an adult has shown them how. This is usually due to a physical reason.
- Articulation therapy is indicated.

- **Phonological delay**

- The child is using simplified speech, with patterns *which are found in the speech of younger children*.
- Phonological therapy is indicated where the meaning of words are highlighted to the child.

- **Consistent phonological disorder**

- The child is using patterns that are *not* found in the speech of younger children.
- The child makes the *same error every time* and so the child's speech errors are predictable.
- The child may also use some delayed processes (see above)
- Phonological therapy is indicated where the meaning of words are highlighted to the child

- **Inconsistent phonological disorder / Inconsistent Speech Disorder**

- The child is using patterns that are *not* found in the speech of younger children.
- The child makes *different errors* when attempting to say the same word, for 40% or more of the words attempted.
- Core vocabulary therapy (Dodd *et al.* 2006) is indicated, where *saying the same word the same way* is emphasised, rather than accuracy.

After Holm and Dodd, 1999.

## Inconsistent phonological disorder (IPD) and DVD/CAS

Cases of severe speech difficulties leading to unintelligible speech are relatively rare and therefore there has been only limited research into this group of children. When a child has unusual and inconsistent speech sound errors, this often proves difficult to resolve, with children requiring long-term therapy. There is controversy on how to diagnose and treat such children.

Since the 1950s, such children have been diagnosed with *Developmental Verbal Dyspraxia* (DVD). This is possibly the most controversial of the speech disorder diagnoses, as it uses terminology 'dyspraxia' which is borrowed from adult neurology, meaning a problem programming motor speech output caused by a lesion on the brain. Children with severe developmental speech

disorder do not have a brain lesion! The very existence of DVD has been questioned for more than a quarter of a century (Stackhouse, 1992).

More recently the term *Inconsistent phonological disorder* (IPD) has been used to describe a group of children whose speech sound errors are inconsistent. It seems likely that a large proportion of children who have this label applied to them would previously have been described as having DVD. The advantage of the more recent label is that there is a linked therapy technique, Core Vocabulary, which has shown promising results.

Inconsistent phonological disorder is characterised by the child producing the same word differently for 40% or more of the words attempted. Researchers think that such children don't really have a fixed speech sound system and need to learn to produce words they use frequently in everyday life *in the same way*. When the child has enough consistent words in their repertoire then the child will begin to contrast sounds with each other to give the words meaning.

We know from various studies that IPD is more common than DVD (if it exists at all) and that assessment for inconsistency of word production, and where indicated, appropriate therapy such as the Core Vocabulary approach saves both time and money for services, leading to better outcomes for children (Stringer, 2012).

## Bilingual children and speech disorder

Multilingual or bilingual children are thought to have two or more separate word stores, one for each language. The speech disorder will be categorised as above, but the child may make different errors in each language. For example, they may produce 'h' as "k" in Urdu, but be able to use 'h' accurately in English (Holm *et al.* 1997).

Researchers found that articulation disorder was found in both/all the child's languages (as it has a physical cause) and phonological errors were the same category of speech disorder, but different sounds might be affected. This means that assessment and therapy for any phonological errors must be in both/all languages and that treating in one language will only improve that particular language.

## What can parents and carers do?

- **Check if your child has a speech disorder**  
Does your child have a speech disorder, or is s/he just too young to be producing some sounds as an adult would? You can read the new Afasic leaflet which explains the ages a child stops simplifying speech sounds.
- **Avoid dental problems and dump the dummy**  
Help your child to look after their teeth. Encourage regular brushing and visit a dentist. Avoid undiluted juice and sugary drinks in feeder cups as these can lead to dental decay. Do not allow your child to use a dummy after 12 months of age as these can cause the teeth to grow outwards, causing an 'open bite' where the tongue can poke through even when the teeth are together at the back.
- **Refer your child early to avoid literacy problems**  
Children with speech disorders that persist after the age five years six months are more likely to have difficulties with literacy skills (Bird, Bishop and Freeman, 1995) and so it is sensible to refer your child much earlier than this if you are concerned.
- **Ask for a hearing test**  
All children who have speech disorder should have an up-to-date hearing test. Hearing impairment, even a relatively mild and temporary ear infection may mean that your child misses some of the information for a sound and is therefore less likely to be able to say that

sound themselves. Your GP, Health visitor or SLT can refer your child to Audiology for an assessment.

- **Make sure the SLT checks your child's word production on more than one occasion**  
Inconsistent speech disorder can only be diagnosed if the SLT hears your child produce the same word list twice (or more). Any speech assessment could be used in this way but currently, only the *Diagnostics Evaluation of Articulation and Phonology* (Dodd *et al.* 2002) does this routinely. Without this, some children's difficulties may be misdiagnosed. Core vocabulary therapy is indicated for children with ISD.
- **Ask for assessment and therapy in both/all languages**  
Bilingual children will need assessment and therapy in both/all languages; e.g. therapy in English will not address any errors in the home language unless these are articulation errors.
- **Make sure any other difficulties are also identified**  
Speech disorder often occurs alongside other difficulties such as language disorder. It is important that all aspects of the child's speech, language and communication are assessed. If a child has both language and speech difficulties, then both will need to be targeted in therapy.  
Physical causes such as cleft lip and palate must be ruled out by a speech systems examination carried out by a speech and language therapist.
- **Check your child receives enough therapy, but be prepared to help deliver the SLT's exercises**  
Therapy for any identified speech disorder needs to be of the correct treatment intensity or dose. The NHS often rations therapy to a 'six week block', i.e. six weekly appointments of between twenty and forty five minutes. There is research to show that phonology therapy is effective but that interventions lasting longer than eight weeks are more effective than those lasting less than eight weeks (Law, Garrett and Nye, 2005). The same review also highlighted that parents were as effective as SLTs in delivering therapy when following an appropriate programme.
- **Accept a group if offered**  
There is no difference to outcomes if children were seen one-to-one or in groups (Law, Garrett and Nye, 2005). Groups are not a form of rationing and encourage children to see that they are not the only one who finds a particular sound difficult.

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