

## Summary of research into early hearing loss and language abilities in children with Down syndrome by Glynis Laws and Amanda Hall

Many children with Down's syndrome have hearing loss. This is most commonly caused by frequent ear infections and otitis media with effusion, often known as glue ear. Glue ear also affects many young typically developing children but researchers have concluded that this has no long term effects on their speech and language development. However, because children with Down's syndrome have other difficulties, they may not so easily compensate for early episodes of glue ear or overcome its effects on speech and language development. These effects were investigated in a paper just published on-line in the *International Journal of Language and Communication Disorders*\*.

The researchers studied 41 children with Down's syndrome of primary school age and tested their language production and comprehension, vocabulary understanding and speech production. The older children also completed a story-telling task. Parents completed questionnaires about the children's hearing and, with parents' permission, the researchers obtained records of children's visits to audiology clinics from birth, showing all their hearing test results and details of any treatments received such as grommets or hearing aids. The hearing information was used to group children according to whether they had had severe hearing difficulties between the ages of 2 and 4 years (16 children) or whether they had had more satisfactory hearing at that age (25 children). The two groups were similar in terms of chronological age and cognitive abilities at the time of the language tests.

The group who had had early hearing difficulties achieved lower scores than the group who had had satisfactory hearing on all the tests. These differences were statistically significant. Some might consider the differences to be relatively small; on average the children who had had hearing difficulties were 7 months behind the other group in vocabulary understanding. However, when one considers that the average delay in vocabulary understanding for the children with satisfactory early hearing was 3 years, then the additional delay is concerning. There were also differences in speech production; on average, children who had had severe early hearing loss produced 35% of speech sounds correctly whereas the group who had had satisfactory hearing correctly produced 58% speech sounds. Another concerning finding was that only 2/8 children with early hearing difficulties had been able to manage the story-telling task compared to 13/16 children who had had satisfactory early hearing.

The research shows that severe, persistent hearing difficulties from 2 to 4 years may have an impact on the speech and language development of children with Down's syndrome.

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