

Investigating treatment of single-sided hearing loss

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Some children are born with hearing loss in only one ear. What to do then? The issue is more difficult than one might think.

If someone loses hearing on only one side, the goal is usually to provide some kind of assistive device. There are no medical reasons against treating the hearing loss in these cases.

The situation is different for children born with unilateral hearing loss. Here, the health care sector is looking for answers.

"There is clinical uncertainty about this group. We know too little about what is actually the best thing to do. We are doing research in this area," says Filip Asp, a researcher at the Department of Clinical Science, Intervention and Technology at Karolinska Institutet.

Language development

Children born with unilateral hearing loss hear language and learn to speak. However, studies have long shown that these children are at increased risk of social exclusion, poor language development and may have to repeat [school years](#).

At the same time, it is unclear what the health care sector should do. In a 2020 study co-authored by Filip Asp, a number of children born with unilateral [hearing loss](#) received [hearing aids](#) when they were between five and nine years old. They were followed up a few years later. It turned out that the children found the hearing aids helpful in quiet environments. But in conversations in larger groups or if there was background noise, it made no difference. And, curiously, the children had worse sound localization skills than expected. Surprising, since stereo hearing should provide a better ability to localize sound.

"We do not know what this means. A possible explanation could be that the hearing aid provides a small time delay in signal processing and that may produce this effect. Another reason could be that during their first years of life, children have adapted to unilateral hearing," says Filip Asp.

Hearing aids for younger children

In new studies, researchers have now given hearing aids to much [younger children](#), who still have a more malleable hearing system. These studies are not yet complete.

In Belgium, there is experience with [cochlear implants](#) for children with congenital unilateral deafness. The studies show that when these children are around four years old, their [language skills](#) seem to have benefited from early hearing in both ears.

"They seem to have a slightly better grammatical understanding, being a little better at getting certain plural inflections in the right context, for example. But this type of language ability is difficult to test in very [young children](#). We have to wait until they are older and therefore it will take time before we can obtain this type of data in our studies," says Filip Asp.

However, it is possible to test sound localization in young children. Filip Asp has been involved in developing such a test. For this the child will watch a colorful, fun film with sound and image—until the image suddenly disappears. However, the sound continues from another speaker in the room. Eye-tracking allows you to measure how accurately your child is looking in the right direction.

"This is a way of measuring one aspect of hearing ability. The advantage is that it can be done even in very young children, as young as 6 months old. The only requirement is really that their necks should be strong enough," says Filip Asp.

Provided by Karolinska Institutet

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