

People with autism can hear more than most—which can be a strength and a challenge

May 3 2017, by Anna Remington



Credit: AI-generated image ([disclaimer](#))

A group of friends are sitting in the garden chatting – only one person hears the ice cream van in the distance. That one person is autistic. He is also able to hear the buzzing of electricity in the walls and sometimes finds it overwhelming to be in a very noisy environment.

Our most recent work, published in [Cognition](#), suggests why that might be the case: people on the autistic spectrum can take in more sounds at any given moment compared with non-autistic people.

Over the past few years, there has been growing awareness that sensory experiences are [different](#) in autism. What is also becoming clear, however, is that different doesn't mean worse. There are many reports of autistic people doing [better](#) than non-autistic people on visual and auditory tasks. For example, compared with non-autistic people, [autistic individuals](#) spotted more [continuity errors in videos](#) and are much more likely to have perfect pitch.

We suggest that the reason behind this is that autistic people have a higher perceptual [capacity](#), which means that they are able to process more information at once. Having this extra processing space would be useful in some situations, but problematic in others.

For example, when copying a complicated drawing you need to take in lots of information as efficiently as possible. On the other hand, if you don't need much information to perform a [task](#) (when having a conversation with someone, say) then the extra capacity automatically processes other things in the room. This can distract you from what you are trying to do, or make you feel overwhelmed by lots of different sensory stimuli.

A sound advantage

To test out this idea, we asked a group of autistic and non-autistic adults to carry out two computer-based tasks.

The first was a listening-search task where having greater perceptual capacity would be useful and help you perform well. Participants were asked to listen to short bursts of animal sounds, played simultaneously,

and figure out whether there was a dog's bark or a lion's roar in the group. At the same time, they also had to listen for the sound of a car, which was there in half the trials.

The autistic adults were much better than the non-[autistic adults](#) at picking out the car sound at the same time as doing the animal task correctly.

The second task involved listening to a recording of a group of people preparing for a party and focusing on the women's conversation to be able to answer questions about it at the end. In this case, the task was easy and having extra capacity might leave you at risk of being more easily distracted by information that isn't needed for the task. To see if that was the case, an unexpected and unusual addition was made to the middle of the scene: a man walked in saying, "I'm a gorilla," over and over again. As predicted, many more of the autistic participants (47%) noticed the "gorilla man", compared with 12% of the non-autistic group.

So it seems that increased capacity for processing sounds in autism could be linked to both difficulties and enhanced auditory abilities that are found in the condition.

Changing perceptions

Understanding that differences in autistic attention might be due to this extra capacity, rather than an inability to filter out irrelevant information, can change the way we understand the condition and how we might intervene to help those who are struggling.

Our findings suggest that to reduce unwanted distraction, autistic people need to fill their extra capacity with [information](#) that won't interfere with the task at hand. For example, it might be helpful to listen to music while reading. This challenges the common approach taken to simplify the

classroom environment for [autistic children](#), although care should still be taken to avoid a sensory overload.

While we must not downplay the challenges associated with autism, our study raises awareness of a more positive side to the condition. By promoting evidence of autistic strengths, we embrace diversity and undermine the traditional view that autism is only associated with deficits.

This article was originally published on [The Conversation](#). Read the [original article](#).

Provided by The Conversation

Citation: People with autism can hear more than most—which can be a strength and a challenge (2017, May 3) retrieved 24 April 2024 from <https://medicalxpress.com/news/2017-05-people-autism-mostwhich-strength.html>

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