

MUSIC APPRECIATION & COCHLEAR IMPLANTS

Summary of presentation by Mary Grasmeder, Audiological Scientist, South of England Cochlear Implant Centre (SOECIC), Southampton, given at the Summer Meeting on 21 June, 2008

“Music is a very complicated sound; in fact it is not just one sound. When you are listening to music you are listening to lots of sounds all at the same time. Someone with normal hearing can pick up very, very tiny differences in notes. Not only are they able to hear lots and lots of different notes, but they can also tell if notes are not being played properly, if there is something wrong, if something sounds out of tune. Someone with normal hearing can also recognise a whole range of different musical instruments. Even instruments that sound very similar. They can recognise different chords, they can tell, for example, whether something is being played as if it sounds a bit sad, in a minor key, or if it sounds happy in a major key. And they can do all of these things at the same time.

There are a few technical difficulties when you try to listen to music with a cochlear implant. It's a difficult challenge that we pose ourselves. Cochlear implants normally stimulate only one or possibly 2 electrodes at anyone time. And because of this, the information which is transmitted has got to be limited. And until recently, most of the processing strategies that we use eliminated some of the important information that you need to hear music well. A lot of the temporal fine structure of music is not processed. So because this information has been missing, people have often found it difficult to pick up small differences in notes. Recently the manufacturers have been trying to introduce temporal fine structure into the implants, and this is an ongoing process.

Recently in Southampton, we started offering interested patients an opportunity to look at how they are listening to music with their cochlear implants, which involves going through assessments and getting some feedback on how they are doing on various aspects of music. Also how they are listening to music, what kind of music they are listening to, and giving them some tips really about what is good and what is bad about listening to music with a cochlear implant. I am trying to move on from this and put together a package so that people can try it at home. This is only in its early stages but I would like to try it out on you today.”

Mary then gave an interesting, thoroughly absorbing, and entertaining live demonstration of musical notes, chords, instruments, classical music, nursery rhymes, a whole panoply of music as she tested the audience's reactions and responses. Everyone was given a bleeper to signal their scores and answers to a range of questions that were posed as Mary developed and demonstrated a series of

Music Tips as follows.


- Start with music that you know well. Your memory of the music will help you to fill in any gaps in what you hear.
- Simple music is easier to hear with a cochlear implant than very complicated music. Some people start with nursery rhymes or simple folk songs, before trying more complex things. There has been a tendency for music to become more complicated over the years, both for classical and pop music. Sometimes older music is easier to listen to than modern music.
- Cochlear implants often process rhythms better than melodies. Try listening to music that includes one or more of the following:
 - .1 A simple rhythm e.g. Christmas carols such as ‘O little town of Bethlehem’.
 - .2 A repetitive or predictable rhythm. Songs with choruses are often like this.
 - .3 A strong beat. Try music that you can dance to.
- Listening to one or two instruments is easier than listening to lots of instruments at the same time, even if they are playing the same tune.
- Music can be part of a social activity. Taking part with other people can make listening more fun. Try dancing for example.
- Some instruments are easier to identify than others. Broadly speaking, percussion instruments come across well (drums and piano); string instruments, especially if they are plucked, are fairly good; wind instruments can be difficult to identify.
- Some detailed low frequency information can be picked up using hearing aids. If you have some residual hearing and have a hearing aid for your other ear, try using it when listening to music.
- Background noise gets in the way! In the context of music, backing music or accompaniment can be intrusive and reduce the extent to which you can pick up the tune. Try to choose music where the accompaniment is light.
- It's easier to listen to 2 instruments that are very different than 2 instruments that are very similar. For example, listening to a trumpet and drum playing together is easier than listening to a trumpet and trombone playing together.
- Think about the place where you are when listening to music. A quiet concert hall is better than an echoing cathedral; a quiet living room is better than a noisy car.




MUSIC APPRECIATION cont'd

- If the volume of the music is very quiet, you may miss some sounds. If the volume of the music is very loud, you may not be able to hear the sounds very clearly and they might all be at the same level.
- A direct connection into your processor can help to improve the quality of the signal. Use a direct input lead if you have one available.
- A song can be easier to pick up than an instrumental piece, as the words can help you to follow the music.
- Being able to see the person who is performing will help you to hear the music. If they are singing, you will be able to lip-read them. If they are playing, the movements they make will help you to make sense of the music. Try DVDs rather than CDs or watch a live performance. Alternatively follow the words or the music to help you keep up.
- Practise makes perfect! This very much applies to listening to music with your cochlear implant. The sound will improve and become more meaningful the more you try.

In conclusion Mary thanked the audience for their contribution to the development of this project and said that the package would be put up on SOECIC's website in due course. She reviewed all the above Music Tips (see Figures 1 & 2)







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Music Checklist (1)

- What kind of music are you listening to?
 - Music you know well
 - Not too complicated
 - Strong beat or simple or repetitive rhythm
 - Instruments you can identify
 - Light accompaniment
 - Volume not too soft or loud





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Music Checklist (2)

- How are you listening?
 - Watch the singer or player or follow the words or music
 - Use a direct connection to your implant or use a loop system
 - Use a hearing aid as well if this helps you
 - Listen in a quiet room
 - Dance or share the music with someone else
 - Increase your microphone sensitivity if necessary
 - Practise makes perfect!

UNDERWATER FUN

I was implanted in 2001, at Southmead Hospital in Bristol. This turned out to be one of the best things I've ever done, as it improved my confidence no end.



During my first year at Cornwall University, I picked up a deaf magazine where I saw an article about Worldwide Dive and Sail (WWDAS). In it, I read that their instructor, Naomi Hayim, worked there. Naomi is a graduate of marine and freshwater biology and although deaf, speaks, lip-reads and signs and provides a one to one, unique service to deaf and hard of hearing people who want to dive. I'd always been interested in the underwater world for as long as I could remember, but after my implant, I'd always assumed that learning to dive would never be an option. On seeing the article, I thought I had nothing to lose by sending an email. Several emails later, I booked myself on a trip to Thailand! The cochlear implant means I can't go below 30 metres, but as this is the limit for most recreational diving, I wasn't missing out on anything.

So in 2005, I set out for Thailand and met Naomi for the first time and the rest of the WWDAS crew. Straight away I found that there were no barriers and this put me at ease instantly. There was a mix of deaf and hearing people on the boat, and this was never a problem and the crew were also deaf aware. With that first stride into the water, I was completely hooked. There was no going back now! A whole new world opened up to me, one where everyone was all equal, regardless of their disabilities. I loved the sensation of floating underwater. Beautiful sights included massive colourful coral, and fish both big and small, as well as the environment around me. By the time I returned to the UK, I was already planning my next trip!

I have now teamed up with Naomi and another devotee of WWDAS, Shirley, to help promote trips for D/deaf and HOH people. I want to encourage other implant users that there is a whole other world waiting to be explored. There is nothing to hold you back. We are all firm believers in making diving trips accessible for everyone and breaking down the barriers. Taking the plunge on that first trip realised a lifelong dream and subsequently changed my life, now I want to help someone else realise their dream.

We are branching out for our next trip, taking the luxurious boat Sampai Jumpa Lagi out to Indonesia. This time, we will dive in the beautiful Komodo and Sunta Islands, scheduled for September 2009. We are already taking bookings! Take a look on the website at www.worldwidediveandsail.com for more details and drop us an email to deniece@worldwidediveandsail.com

Deniece Wheatley.....Having Fun!