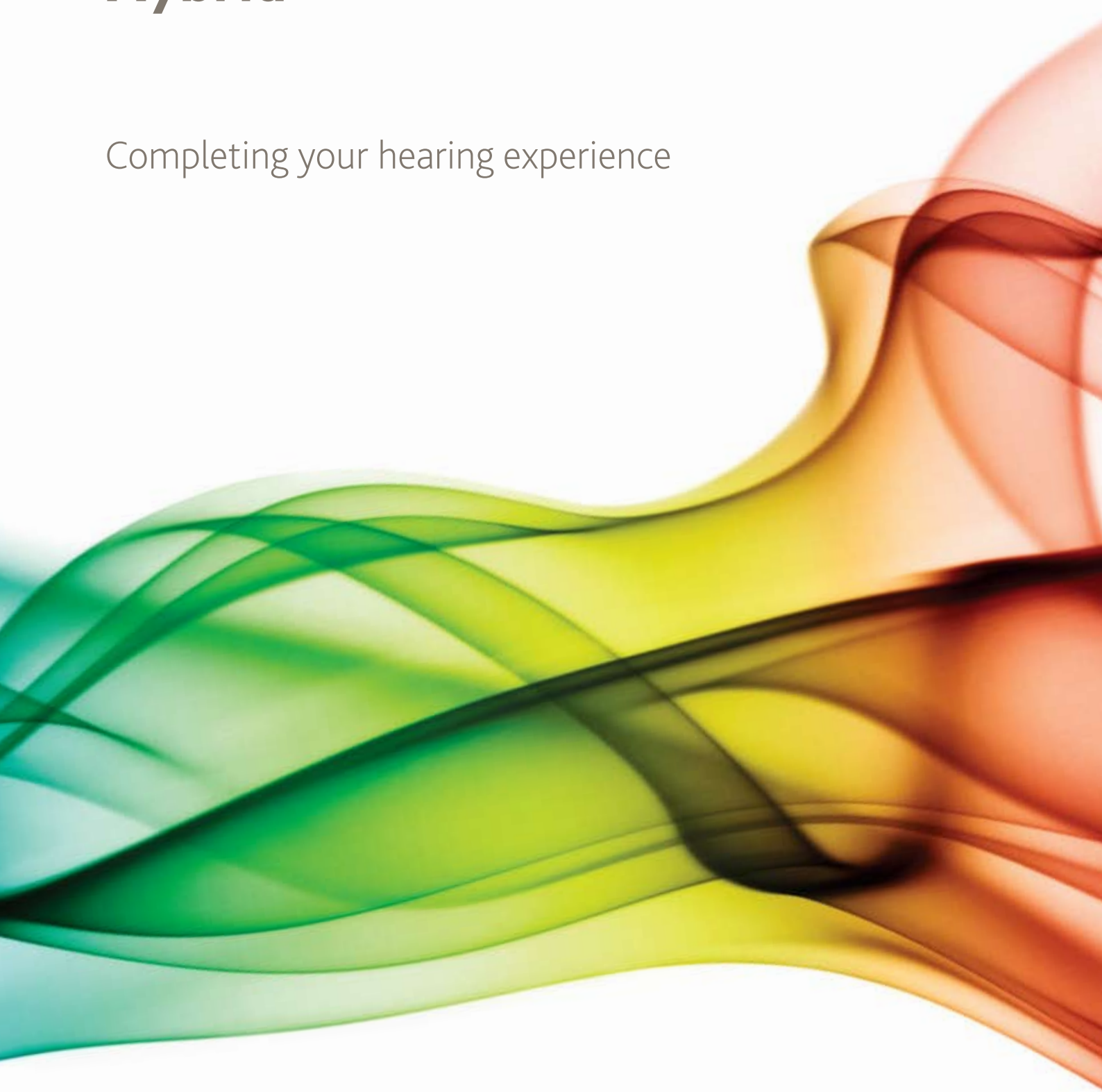


Hybrid™

Completing your hearing experience



Hear now. And always



How complete is
your hearing experience?





Is hearing well a real challenge for you?

Even while wearing your hearing aid, you may be struggling to hear effectively in many situations.

- Does background noise interfere with what you hear... in a restaurant? at work? at family gatherings?
- Are sounds you could once hear from a distance now harder to hear?
- Do you strain to hear dialogue on TV, while others say the volume is up too loud?
- Do you find it difficult to talk on the phone?

Chances are you are missing out on a lot of high frequency sounds. The ability to detect and appreciate these sounds is necessary for successful hearing interactions.

When hearing aids no longer help

You have probably used hearing aids for many years and perhaps they worked for you before.

But as your hearing slowly gets worse, you may be experiencing increasing levels of frustration and anxiety as you no longer hear as well as you once did with your hearing aids. Many people experience this – you are not alone.

Regular hearing aids may no longer be able to adequately help you hear the high frequency sounds that are so important for good speech understanding. In addition, you may be experiencing annoying feedback, or occlusion discomfort from your hearing aids, compromising your hearing experience.

Cochlear™ Hybrid™ – a new solution for high frequency hearing loss

The quality of your hearing plays an important role in enabling you to communicate and interact more fully with people and your environment. If you have high frequency hearing loss, effective restoration of the quality of your hearing is often difficult with regular hearing aids.

Now there is an exciting new treatment option available: the Cochlear Hybrid system.

The Hybrid system is a unique combination of solutions to overcome your high frequency hearing loss in a way not possible with hearing aids alone. It is designed to help you truly enjoy the quality and clarity of hearing by effectively adding back the high frequency sounds that you have been missing – completing your hearing experience.

Sound without high frequency hearing – that's like life without all its colours

What are high frequencies and why are they important?

Sound can be split into two sets of frequency ranges – low frequencies and high frequencies:

LOW FREQUENCIES provide the general foundation and structure of the sound. In addition to detecting the vowel sounds in words, low frequency hearing is also important for conveying the melody of speech which helps to recognise a person's voice and their emotional state. Low frequency hearing is also used to appreciate music.

HIGH FREQUENCIES deliver the additional vital details of sound as they enable you to identify and differentiate words so that you are better able to understand speech, especially at a distance or in noisy places. The high frequencies also add a pleasant quality and clarity to the sounds you hear. Sound is richer, fuller and crisper in every way.

Both low and high frequencies are essential for you to have a complete hearing experience.

High frequencies help you understand when people speak

When you lose high frequency hearing, the low frequency sounds merge together and make words indistinguishable from one to the next. Our brain relies extensively on high frequency sounds to clearly decipher and understand spoken words. This becomes extremely important in situations with a great deal of background noise (such as in public places) or when many people speak simultaneously (such as in workplace meetings, lecture halls and at conferences) or at a distance.

By restoring high frequency hearing, the Cochlear Hybrid system lets you focus your energy on more important things – such as communicating with friends, loved ones and professional colleagues. It allows you to fully connect with others by understanding, and being understood.

High frequencies are all around us

In addition to human speech, your environment is full of many other high frequency sounds.

From the sounds of doorbells and birds chirping, to an ambulance siren, hearing clearly at high frequencies can enrich your awareness and enhance your experience.

High frequencies form the detail in the sounds you hear – without them, you can't get a complete sense of the situation. With them, you are getting the full picture.

The Hybrid system helps you hear again in 'full colour' – filling in the missing details of sound.



COCHLEAR™ HYBRID™ CAN ENABLE YOU TO HEAR THESE SOUNDS

Figure 1: Everyday sounds that you may be missing if you have high frequency hearing loss

Illustrating high frequency hearing loss – the audiogram

An audiogram is used by hearing professionals to graphically illustrate your hearing loss. Figure 2 below is a typical audiogram for an individual with high frequency hearing loss.

The red line (hearing threshold) indicates how much sound input you require to be able to hear at different frequencies. The closer the line is to the bottom of the audiogram, the greater the hearing loss.

In this example, the red line is lower on the right side than the left, indicating that the hearing loss is worse in the high frequencies. If the line falls too low, then a regular hearing aid may no longer be effective.^{1,2}

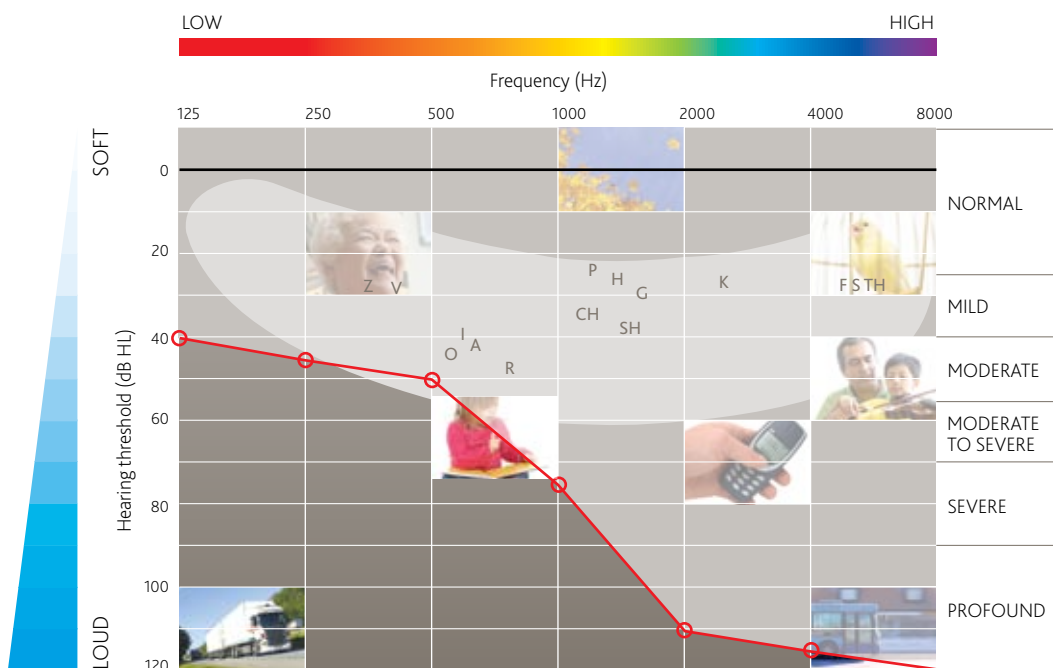


Figure 2: A typical high frequency hearing loss audiogram

1 Ching, T., Dillon, H., & Byrne, D. (1998). Speech recognition of hearing-impaired listeners: Predictions from audibility and the limited role of high-frequency amplification. *J. Acoust. Soc. Am.* 103,1128-1140.

2 Turner, C.W. & Cummings, K.J. (1999). Speech Audibility for listeners with high-frequency hearing loss. *American Journal of Audiology*, 8, 47-56.

Welcome to the world of Hybrid™ The new solution from Cochlear™

Add a new dimension to your hearing

Your struggle with high frequency hearing loss may soon be over!

Hybrid, the exciting and innovative new solution from Cochlear is designed to restore the full richness and clarity of sound, in a totally new dimension. It does this by integrating high frequency information provided by a cochlear implant with low frequency information provided by a hearing aid.

By seamlessly integrating these two approaches, Hybrid creates a complete hearing experience for you.

Why miss out on the essential sounds of life, when Hybrid is here, providing a real solution to your hearing needs?

Based on the experience of recipients in clinical trials conducted around the world, with a Hybrid system you may once again:

- Hear more clearly when people talk – close by or at a distance⁵;
- Remain sharp and focused – when there is noise around you⁵;
- Catch dialogue on TV more easily – without playing the TV at full volume³;
- Talk on the phone – and make sense of what's being said³; and
- Enjoy music.^{3,4,5}

Hybrid – what you may expect

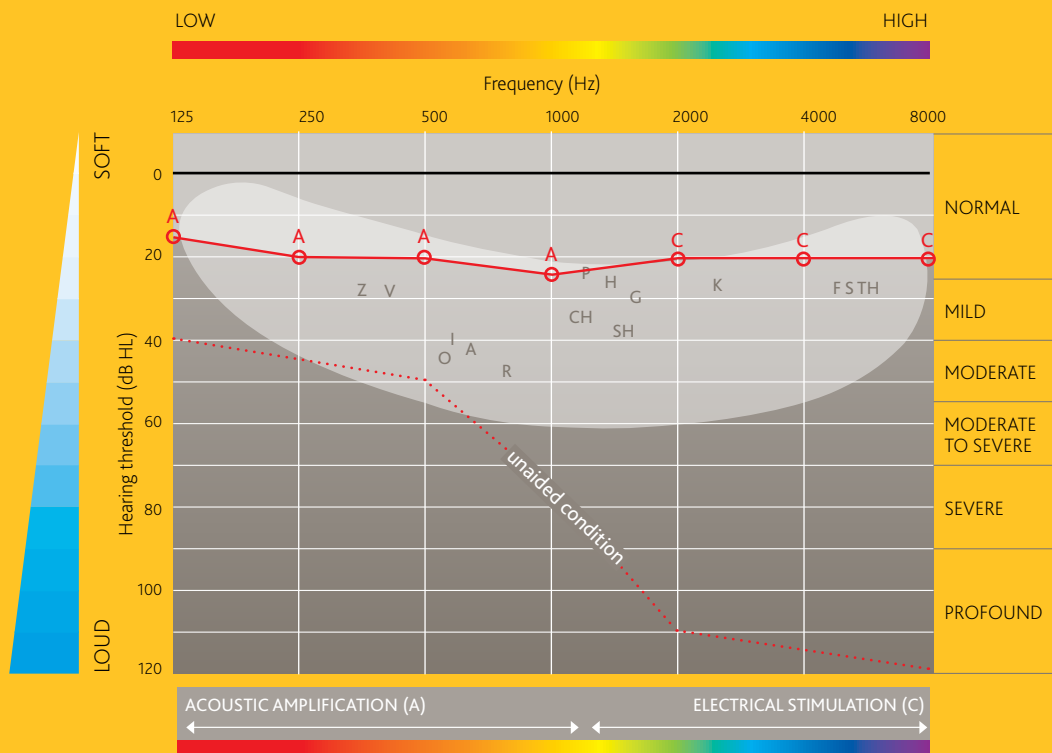


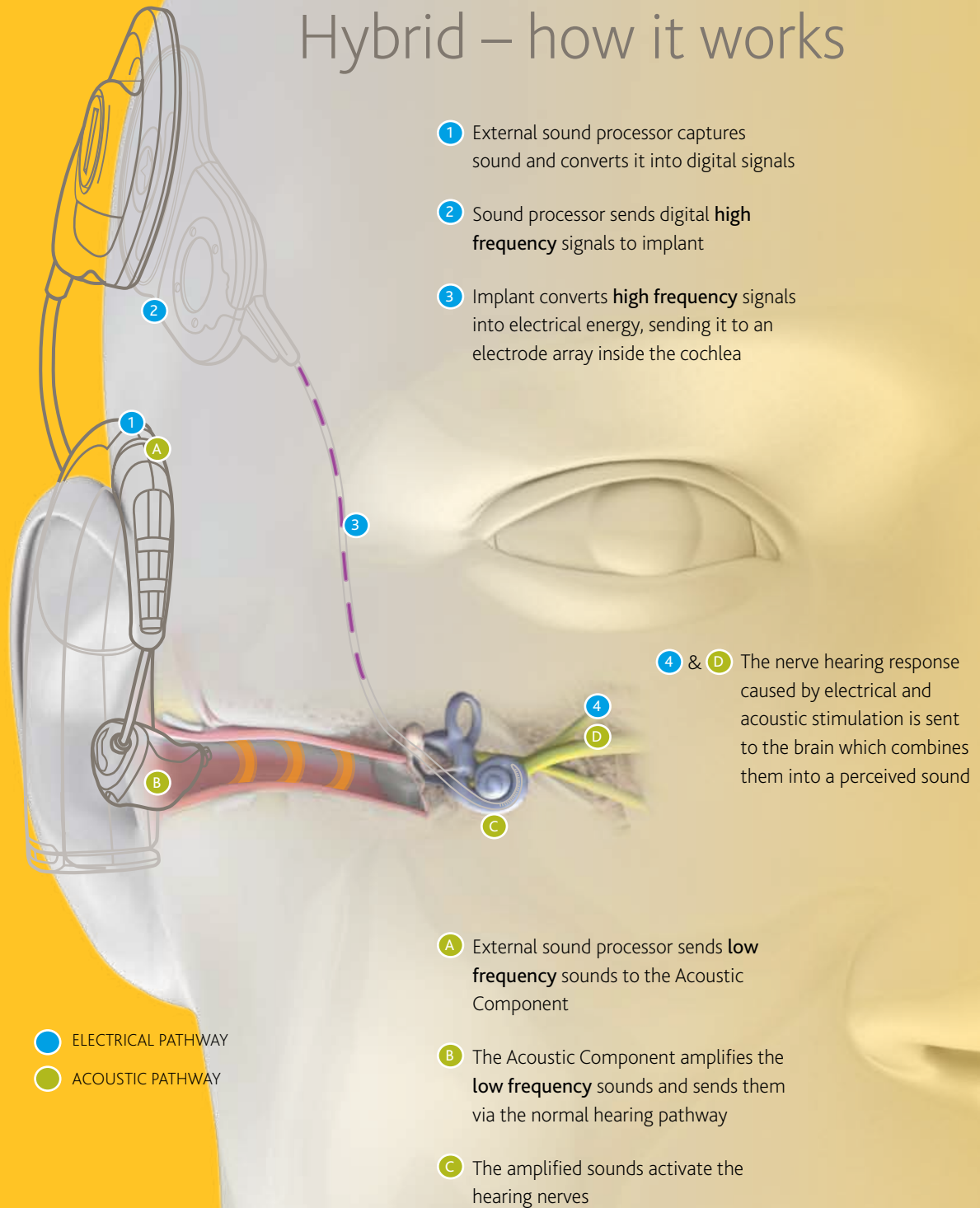
Figure 3: Electrical stimulation and hearing aid technologies combine and contribute to different parts of your hearing to deliver a complete solution.

³ Clinical Study of the Nucleus Hybrid Cochlear Implant (USA).

⁴ Evaluation of the Nucleus Freedom EAS Cochlear Implant (Germany).

⁵ Evaluation of the Nucleus Hybrid L24 Cochlear Implant System (Australia).

Hybrid – how it works



Add the vibrancy and
brilliance back into your
life with Hybrid

Figure 4: Hybrid – how it works

The Hybrid system and the hearing process

Function of the cochlea when untreated in a person with high frequency hearing loss

Sound entering the cochlea causes hair cells to vibrate sending a signal to the brain which creates the perception of sound. Low frequency sounds stimulate hair cells deep within the cochlea, whilst high frequencies stimulate those that are close to the entrance. If high frequency hair cells are damaged and non-functioning, the brain will miss out on the high frequency elements of the sound.

FREQUENCIES YOU CAN HEAR:

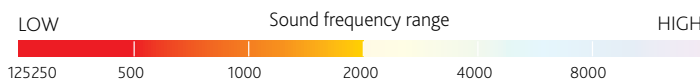


Figure 4a: The cochlea function when untreated

The cochlea function with a regular Hearing Aid

A hearing aid amplifies sound, strongly stimulating the low frequency hair cells deep inside the cochlea, and improving the perception of low frequency sounds in the brain. However, damaged, non-functioning high frequency hair cells still do not work and still do not generate a perception of sound in the brain.

FREQUENCIES YOU CAN HEAR:

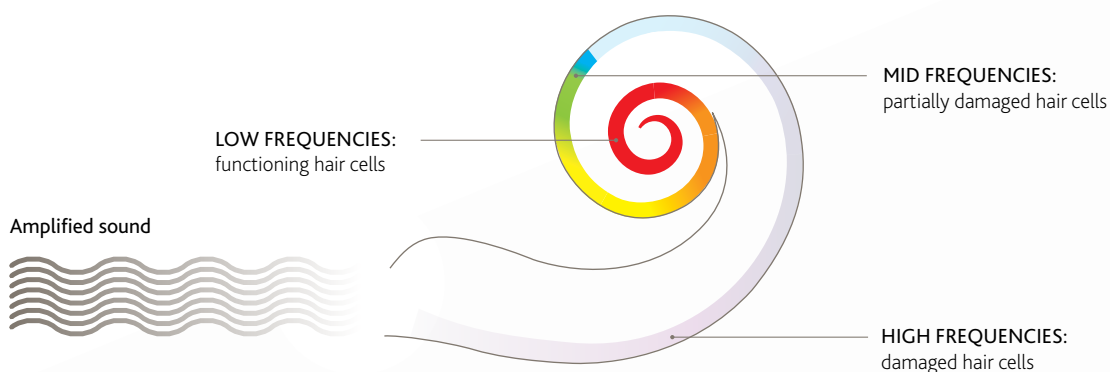
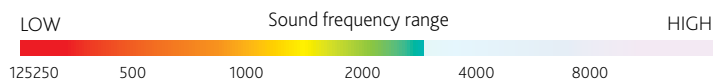


Figure 4b: The cochlea function with a regular Hearing Aid

Function of the cochlea with Hybrid

The Hybrid Acoustic Component amplifies sound, strongly stimulating the low frequency hair cells deep inside the cochlea, and improving the perception of low frequency sounds in the brain. The Hybrid L24 implant directly stimulates the high frequency hearing cells bypassing the damaged hair cells and creates the perception of high frequency sound in the brain.

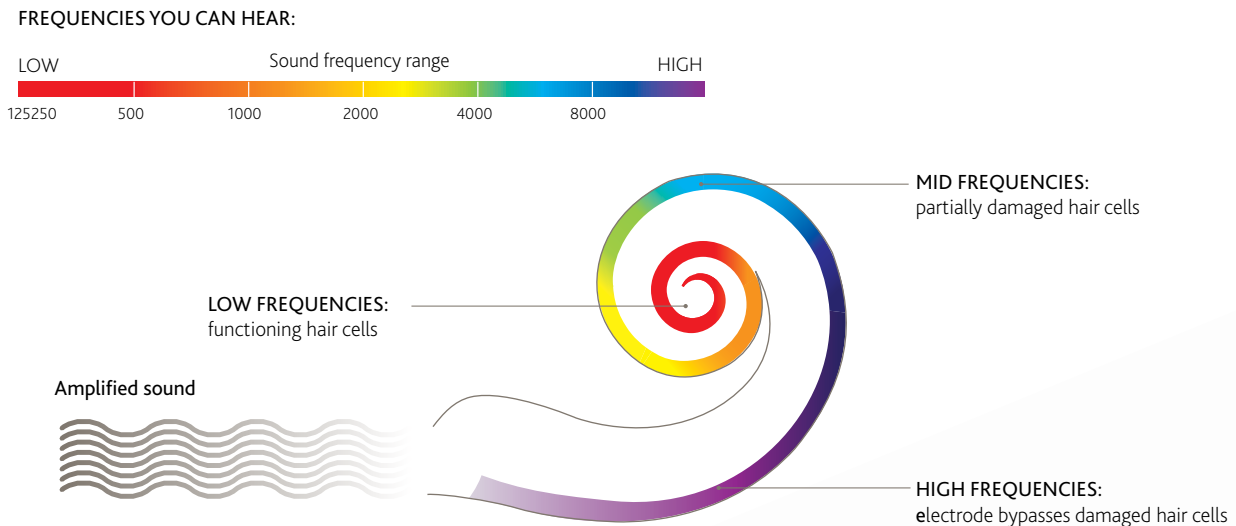
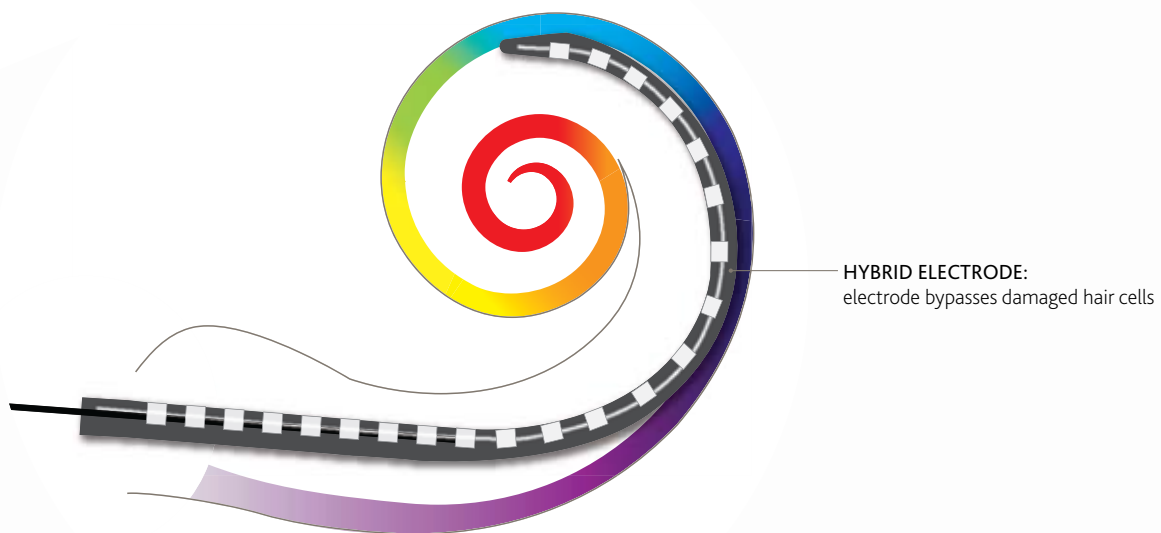


Figure 4c: The cochlea function when stimulated with the Hybrid System



The Hybrid system –
the brilliance is in the mix



Merging technologies to restore hearing

With the Hybrid system, two advanced and well-established technologies – cochlear implant and hearing aid technology – come together to complete your hearing experience. The system is designed to seamlessly blend both technologies, to correct your hearing thresholds to normal levels while providing optimum convenience and ease of use.

Crisp and clear – the proven, audible benefits

Cochlear has been working on the development of the Hybrid system for many years. As part of this process, Hybrid technology has been extensively evaluated in clinical trials around the world. Results from scientific studies show that after surgery, most people using Hybrid technology showed significant improvement in their hearing abilities, when compared to just using their hearing aids before surgery.^{6, 7, 8}

Furthermore, early results from a Hybrid clinical trial in Europe show that 93% of the subjects tested significantly improved their understanding of speech in background noise using the Hybrid device compared to just using hearing aids alone (Figure 5).

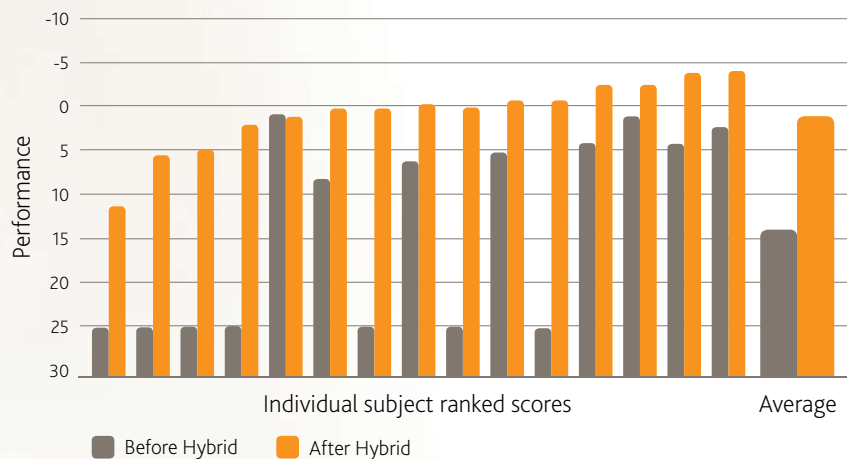


Figure 5: German (OLSA) sentences in background noise. Individual results for 15 recipients before and nine months after receiving the Hybrid system. Courtesy of the Department of Otolaryngology of the Medical University of Hannover (MHH).

People with the Hybrid system have reported performance benefits which include:

- Better understanding of speech in quiet surroundings, in noisy situations, and at a distance
- Greater awareness of environmental sounds

From important sounds like alarms, doorbells and approaching vehicles, to the subtle sounds of nature, such as rain, birds chirping or dogs barking.

- Increased appreciation of music

Like other hearing devices, there are factors that may influence the outcomes obtained with Hybrid. These include your age, how long you have experienced hearing loss, the degree of your hearing loss, and the condition of the cochlea in your ear.

Cochlear Hybrid integrates cochlear implant and hearing aid technology, for a seamless hearing experience.

6 Gantz, B.J. & Turner, C.W. (2004). Combining acoustic and electrical speech processing: Iowa/Nucleus Hybrid implant, *Acta Otolaryngol.*, 124, 344-347.

7 Gantz, B.J., Turner, C.W., Gfeller, K.E., & Lowder, M. (2005). Preservation of hearing in cochlear implant surgery: Advantages of combined electrical and acoustical speech processing, *The Laryngoscope*, 115, 796-802.

8 Lenarz, T., Stöver, T., Büchner, A., Paasche, G., Briggs, R., Risi, F., Pesch, J., and Battmer, R. (2006). Temporal bone results and hearing preservation with a new straight electrode, *Audiology & Neurotology*, 11 (Suppl. 1), 34-41.

Superior sound quality meets ease of use

Freedom™ Hybrid sound processor with SmartSound™ 2

A design that fits your lifestyle

The Freedom™ Hybrid sound processor is worn behind the ear similar to a hearing aid. It is designed to be comfortable, discreet, and simple to use based on studies involving people just like you.

All-in-one design for simplified use

You do not need two separate devices since the sound processor seamlessly integrates the cochlear implant and hearing aid functions – and you only operate one set of controls.

Advanced technology

The breakthrough fully integrated design of Hybrid means it can be tailored to your unique hearing needs.

More communication options

An integrated telecoil makes it simpler to use the telephone. You can also connect with a broad range of accessories such as FM receivers, TVs, music players, and Hi-Fi systems.

Water-resistant

Freedom Hybrid is water resistant⁹ so that you can be confident that your processor can withstand both rain and sweat.

SmartSound™ 2 Technology

The Freedom Hybrid sound processor uses SmartSound 2 input processing technology, which is designed to emulate the ear's adaptive capabilities. SmartSound 2 delivers improved hearing outcomes, providing control over how sound is processed in different listening environments.



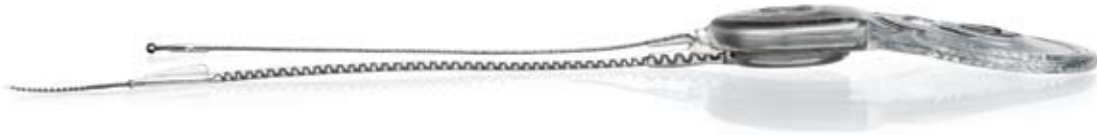
Custom-made Acoustic Component

The Acoustic Component is custom-made to suit your ear for comfort and superior sound quality, while minimising feedback and occlusion.

⁹ The Freedom Hybrid sound processor is certified to IP44 in accordance with international standard IEC60529.

Unlocking your hearing potential

Nucleus® Hybrid L24 Implant



Actual size

Electrical stimulation is the key

Electrical stimulation is a proven and highly effective way to restore high frequency hearing.^{6,7}

The Hybrid system integrates the Hybrid L24 implant to deliver electrical stimulation directly to the high frequency part of your cochlea.

The Hybrid L24 implant is designed for people with high frequency hearing loss who may have good low frequency hearing. It incorporates a specialised electrode designed to stimulate the high frequencies and complement your existing low frequency hearing.

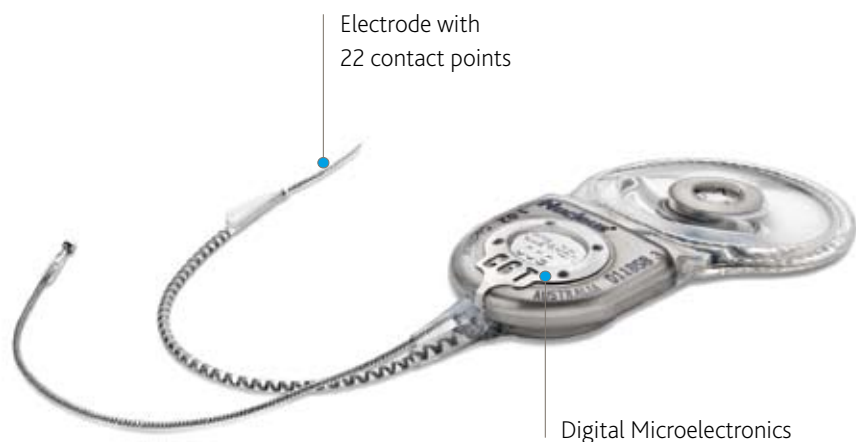
Routine surgical procedure

Implanted under your skin in a routine surgical operation, the Hybrid L24 implant will not be visible externally.

Cochlear implant surgery is a well established and low risk procedure that has helped tens of thousands of people to experience improved hearing. Cochlear has worked in partnership with leading surgeons worldwide for over 25 years to ensure that the attributes of the implant effectively complement the surgical techniques to achieve the best possible hearing outcomes for patients.

Setting new benchmarks for implant reliability

Since the release of the first multi-channel implant in 1982, Cochlear has produced several generations of cochlear implants, with each successive generation of implant being more reliable than the last. Over that time the improvements made in cochlear implant technology have resulted in improved hearing outcomes. The Hybrid L24 implant continues in this tradition and provides significant benefit for people like you.



An innovation to transform your life. Hybrid users share their experiences

Bronwyn's Story

Age: 48 | Experience with the Hybrid system: Nine months

“Prior to receiving the Hybrid system, I struggled to communicate in group situations, in noisy or party backgrounds, in the car, at cinemas, during live stage shows and on the phone. At the time, I believed that any improvement to the quality of my life had to come from me and what I was prepared to do about it.

I found out about the Hybrid system after my clinician informed me that I had good natural hearing and had good quality low tones. My clinician felt that I had too much to lose if I was to be implanted with a standard cochlear implant, if the low tones were to be lost during surgery.

Undergoing the surgery was of no-issue for me. The operation went without a hitch. It took all of about two hours. I was so relieved that it had gone so smoothly and quicker than my surgeon anticipated.

My experience with Hybrid has opened up a whole new world for me. Although my journey was slow in the beginning, it has now gone ahead in leaps and bounds. I still feel that there is a bit more to go with the fine-tuning of the programming.

My hearing experience has much improved. I am much more aware of speech and I ensure that I listen more carefully and attentively. I am now contributing more to conversations and

my own speech is improving as well, as people have informed me. This is possibly due to hearing the sharper high frequency sounds and how crisp and sharp some words do sound.

I am now beginning to hear the twinkling of higher-pitched musical instruments in musical pieces which I didn't hear before. The musical world is so beautiful. I am embracing the sounds of the instruments and the singing voices much more. I am absolutely loving it!

It has been a wonderful and life-changing experience. My whole life is much richer and I have gained the courage, belief and trust in myself and others. I am a much happier person and have gained the confidence and skills to seek more job opportunities.

I really don't believe that I would be this person today, had I not taken the Hybrid opportunity.”

“My experience with the Hybrid has opened up a whole new world for me... I am now contributing more to conversations and my own speech is improving as well... It has been a wonderful and life-changing experience”



John's Story

Age: 66 | Experience with the Hybrid system: 2.5 years

“I got to the stage with my hearing aids where my audiologist said there was no more she could do for me. I had no high frequency hearing and had problems participating in conversations with others. I found it difficult to hear other sounds also, like ambulance sirens although I could hear the general traffic noise.

I also found it difficult to have conversations while driving in the car and the car radio music just sounded like noise. I am a teacher and I had students who claimed that I was ignoring them which was not the case – I just could not hear them effectively using my hearing aids.

After being screened for the Hybrid system, I decided to go ahead with it. Even though I dislike doctors and surgery, I had no issues with my surgery and was back to work two days later. Today, there is no scar visible so without my sound processor no one knows that I have an implant.

“With my hearing aids I could hear about 40% of the sounds around me. I estimate that I can hear about 85% now with my Hybrid system... I am 100% better off, that's how much of a difference it has made to me!”

With the Hybrid system, the quality and clarity of my hearing has improved. These aspects of sound were all that I wanted, at the end of the day.

The sounds of voices that I hear with Freedom Hybrid sound processor are beautiful. I can hear many things that I couldn't hear before such as birds in trees.

I can even hear the sound of the traffic lights beep, not only on my side of the road, but on the other side also. I can join in a conversation, instead of standing back due to only hearing noise, which was the case when I was using hearing aids.

People used to think I was ignorant so I tended to avoid having conversations. There is no need to isolate myself anymore.

With my hearing aids I could hear about 40% of the sounds around me. I estimate that I can hear about 85% now with my Hybrid system.

I am 100% better off, that's how much of a difference it has made to me! ”



Start your journey to a complete hearing experience

If you suffer from high frequency hearing loss, now is the time for you to consider the Cochlear Hybrid system.

The Hybrid system is a unique combination of solutions to overcome your high frequency hearing loss in a way not possible with hearing aids alone. It is designed to help you truly enjoy the quality and clarity of hearing by effectively adding back the high frequency sounds that you have been missing – completing your hearing experience.

There's a clearer, more complete world of hearing waiting for you.

Take your first step now.

For more information on the Hybrid system, contact Cochlear Customer Services today on **+44 (0)1932 871 506**.





Hear now. And always



At Cochlear, hearing is our passion

Cochlear has a vision of connecting people through a world of sound by offering life enhancing hearing solutions.

As the global leader, Cochlear invests in service and product innovation, proves before it promises and makes evidence-based choices that deliver the best hearing outcomes and the best supporting infrastructure for patients and professionals respectively.

Driven by passionate visionaries through a foundation of excellence and commitment, Cochlear seeks, attracts, and collaborates with global experts to shape the future of hearing restoration.

At the centre of the innovations that Cochlear develops is the fundamental belief that they must enhance the quality of life and experience for our customers – both recipient and professional. It is our holistic offer and unwavering commitment that gives Cochlear the ability to provide solutions for life.

**We will continue to be there...
always.**

www.cochlear.com



Hear now. And always

As the global leader in hearing solutions, Cochlear is dedicated to bringing the gift of sound to people all over the world. With our hearing solutions, Cochlear has reconnected over 180,000 people to their families, friends and communities in more than 100 countries.

Along with the industry's largest investment in research and development, we continue to partner with leading international researchers and hearing professionals, ensuring that we are at the forefront in the science of hearing.

For the hearing impaired receiving any one of Cochlear's hearing solutions, our commitment is that for the rest of your life you will Hear now. And always

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