

GETTING READY FOR A COCHLEAR IMPLANT



WHAT TO EXPECT AT SURGERY
AND INITIAL STIMULATION



ADVANCED
BIONICS
POWERFUL CONNECTIONS

WHAT TO EXPECT AT SURGERY AND INITIAL STIMULATION

Congratulations on making the exciting, life-changing decision to hear your world with a cochlear implant from Advanced Bionics.

For over 25 years, AB has been at the forefront of cochlear implant innovation. All the dedication and care we put into developing our technology is matched by our commitment to provide the very best customer service and support throughout your journey to hearing.

This guide is intended to provide useful information for the two steps that take place prior to hearing with a cochlear implant: the surgical placement of the implant, and the activation of the system two to four weeks after surgery. It will also help you understand what to expect in the months ahead as you or your child learn to hear with your new cochlear implant.

“ I’ve been implanted since 2001, and **it has been the greatest gift I have ever received.** From the moment I was hooked up, I loved my implant because **it has truly given me back my life.**”

—Michelle Tjelmeland, AB CI wearer



THE FIRST STEP IS PREPARING FOR SURGERY

WHAT ARE YOUR FEELINGS ABOUT SURGERY?

In the time leading up to the surgery, it is normal to experience a range of emotions. It is perfectly natural to feel anxious, especially if you are the parent of a young child who may be undergoing surgery for the first time.

Keep in mind that surgery is a necessary but brief part of the process, and that hundreds of thousands of people have undergone the procedure all around the world. Most people go home the same day or the very next day. Staying focused on the ultimate goal—hearing your world—can help calm any fears you may experience.

HAVE YOU REVIEWED YOUR HOSPITAL-PROVIDED, PRE-SURGERY INFORMATION?

If you have not received this from your hospital or surgeon, contact them to request it. Make sure you have all of your questions about surgery and recovery answered in advance.

If you have been told that you will spend the night, remember to pack your personal belongings for an overnight stay

NOTES:

ADULT IMPLANTATION: PREPARING FOR SURGERY

GETTING READY

While any type of surgery has some associated risks, it is important to know that complications are extremely rare. You or your child will go through thorough pre-surgical examinations to make the surgeon aware of any special circumstances that need to be considered. You should talk to your surgeon and other medical staff about any concerns you may have about the procedure and recovery. It may also help to talk to members of the AB Community or the HearingJourney.com online community to discuss their experiences.

SOMEONE TO BE WITH YOU AT THE HOSPITAL

It is a good idea to have someone with you on the day of surgery who can help with any communication needs. If you are a hearing aid user, there will be times when you cannot use your hearing aid. There may be times when medical staff will talk to you while they are wearing a surgical mask, which can pose a challenge if you rely on speechreading. Even though your implant team is aware of these communication challenges, it can still be helpful and comforting to have someone you trust with you in case you need help communicating. That person will likely be able to accompany you into the surgical preparation area as well. It may also help to have a pencil and paper or dry-erase board to ease your communication needs. If you are a hearing aid user, bring a sturdy case, labeled with your name and hospital ID number, to store it in and consider giving it to your support person to hold onto while you are in surgery.

SOMEONE TO TAKE YOU HOME

You should not expect to go home by yourself after surgery, especially if it is an outpatient procedure and you are sent home that day. If the person supporting you during surgery preparation is not the same person taking you home later, make sure you arrange for someone to meet you at the hospital and accompany you home. They should stay with you while you get settled in, ensure you have any prescriptions filled, and understand your recovery instructions.

“ I felt like, okay, I can go ahead and make plans now **to move forward with rebuilding my life**”

—Jim Alsup, AB CI wearer

PRE-SURGERY CONSIDERATIONS

HAS YOUR INSURANCE BEEN APPROVED AHEAD OF SURGERY?

If you need assistance, contact AB's Insurance Reimbursement Department at [877.779.0229](tel:877.779.0229) or insurance@advancedbionics.com. Make sure you know what insurance information you will need to bring with you to the hospital and when you will need to provide it.

HAVE YOU REGISTERED AT MYABONLINE.COM?

My AB Online is a portal designed for AB CI wearers, caregivers, and parents and provides one convenient location for everything you need to use, maintain, and make the most of your hearing devices. Registering before the surgery ensures that you can connect with your local AB representative or customer service, and learn about helpful resources, mentors, and events in your area. Go to advancedbionics.com/myabonline to register for free.

PRE-SURGERY CHECKLIST

- | | |
|---|---|
| ☐ Have you read the pre-surgery packet provided by the hospital? | ☐ Where do you need to go? |
| ☐ What day is your surgery? | ☐ Who is taking you to the hospital? |
| ☐ What time is your surgery check-in? | ☐ When do you expect to go home? |
| | ☐ Who is taking you home? |

PEDIATRIC IMPLANTATION: PREPARING FOR SURGERY

PREPARE AS A PARENT

The prospect of surgery is usually more unnerving for you than it is for your child, so make sure you prepare yourself. Even if you are nervous, try to be matter-of-fact about the surgery. It is important that you appear calm and confident so that your child does not become overly anxious or afraid. Talk to your child's doctor and audiologist about how to prepare them for surgery. It can be reassuring and comforting to hear from other parents who have been through the same experience. AB can help you get in touch with other parents whose children have received cochlear implants.

PREPARE YOUR CHILD

Children generally are happier when they know what to expect, so talk to them, answer their questions, and offer them reassurance.

Preparing your child is as simple as playing. Play hospital with your child if they are old enough. Let your child be the doctor, put a bandage on a beloved stuffed animal, and give it pretend aspirin if their head hurts a little. You can also share the story with siblings, so they understand the process.

Take their favorite stuffed animal or lovey to the hospital on the day of surgery for your child to hold while falling asleep and waking up. The familiarity of it will give your child peace of mind during the process.

PRE-SURGERY CONSIDERATIONS

HAS YOUR INSURANCE BEEN APPROVED AHEAD OF SURGERY?

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HAVE YOU REVIEWED YOUR HOSPITAL-PROVIDED, PRE-SURGERY INFORMATION?

If you have not received this from your hospital or surgeon, contact them to request it. Make sure you have all of your questions about surgery and recovery answered in advance.

If you have been told that your child will spend the night, remember to pack their personal belongings for an overnight stay.

PRE-SURGERY CHECKLIST

- | | |
|---|--|
| ☐ Have you read the pre-surgery packet provided by the hospital? | ☐ Where do you need to go? |
| ☐ What day is your child's surgery? | ☐ When is your child expected to go home? |
| ☐ What time is your surgery check-in? | |

SURGERY DAY

The surgery is done under general anesthesia and typically takes one to three hours, with some additional time in the preparation and recovery areas.

THE OPERATION

1. The procedure itself is relatively simple. The doctor makes an incision approximately 6 to 10cm long in the skin behind the ear to access the area where the implant will be placed.
2. The doctor will create a pocket area for the implant to be placed.
2. The doctor will create access down to the cochlea where they will insert the electrode into the cochlea.
3. During insertion, the unique AIM system* from AB can use the electrode to monitor the function of your cochlea, providing your surgeon with additional insights.
4. The implant is checked to confirm functionality, and the responsiveness of the hearing nerve may also be evaluated.
5. The doctor will close the incision and apply a bandage.

WAKING UP FROM SURGERY

After surgery, you or your child will be brought into the recovery room. When you wake up, you may feel groggy and even a little nauseous from the anesthesia and any prescribed sedatives. Sometimes the doctor prescribes anti-nausea medication. There may be some temporary soreness or tenderness from the incision and surgery.

*Not available in all clinics

AFTER SURGERY

Depending on the situation and your doctor's preference, you or your child will either go home the same day or stay the night in the hospital. You should be provided with post-surgery guidelines, including bathing and bandage treatment instructions, medication procedures, and possible activity restrictions. Make sure you understand and follow these post-surgery guidelines.

You may receive antibiotics or other instructions to prevent infection. You will be instructed to watch for symptoms such as swelling, redness, fever, bleeding, and/or excessive pain. Any of these or other symptoms provided by your doctor could be signs of infection, which your doctor will want to treat immediately. Be sure that you have an emergency contact number should you or your child need post-surgical treatment. Meanwhile, the natural healing process will continue—any discomfort and pain should subside, and other possible post-surgical symptoms will dissipate.

“Forty-eight hours after surgery, **he was back to his old self**, running and jumping all over the place.”

—Melissa Li, mother of Brandyn, AB CI wearer



INITIAL STIMULATION FOR ADULTS AND CHILDREN

With the surgery done, you are ready to begin the exciting part of the journey to hearing by turning on your AB cochlear implant system for the first time.

Approaching the initial stimulation session, everyone wants to know if they will hear right away, what it will sound like, and if they will understand speech and music. Parents wonder if their children will be immediately aware of sounds and voices around them.

Every person is unique—with different medical and hearing histories and life experiences. What you will hear depends on many factors, such as how long you have had hearing loss, how much sound you have heard in the past, and other medical and physiological factors affecting the inner ear and auditory nerve. Everyone also responds differently to what they hear at first.

HOW WILL IT SOUND?

At first, speech and sounds from the environment can sound or feel like vibrations, clatter, or garbled noise. Some people can recognize speech right away, but it might sound high pitched like a “Mickey Mouse” voice, or mechanical and artificial. To others, it may start out sounding natural, just like they remember. Very young children may not have any association or comprehension of sound, so they may not know right away that they are hearing. For adults with long-standing hearing loss, the brain may have been deprived of meaningful sound for a very long time, in some cases since birth, which requires time to learn or re-learn how to hear and identify sounds.

It is important to realize that the initial experience of hearing with a cochlear implant system does not set the stage for what sounds you will hear and interpret after a period of listening and practicing. High pitches (frequencies) are usually the first sounds people with hearing loss lose. When high frequencies are first heard again, it can make sounds come across as unnatural or “tinny.” It takes time for these sounds to become natural.

INITIAL STIMULATION DAY: EXPECTATIONS

The ability to associate sounds with meaning can take time. Since many sounds are coming all at once, it takes the brain time to learn, or re-learn, how to separate and identify individual sounds in the environment. People forget or are not aware of how many things make sound, since so many sounds have not been audible. With patience and practice, the world of sound will begin to make more sense. As the brain adjusts and learns the complete sound picture, what you hear will become more natural.

“ During my initial stim, my audiologist was asking me questions, testing to see if I could hear the fluctuations. And I remember thinking that I couldn’t, but I kept working to see if I could make them out. Then I remembered the advice that everyone had given me— just **be patient, just relax, and take the time you’re going to need** to sort things out. Now everything does make sense, and the world sounds so beautiful. But you just don’t know when you’re starting out.”

—Sarah S., AB CI wearer



INITIAL STIMULATION: PREPARATION

Language is not acquired overnight, nor is awareness and comprehension of sound. A two-year-old child who has never heard before has to begin associating sound with words and words with meaning. It is impossible to predict how your child will react on the day of initial stimulation. New sounds may be scary, confusing, or exciting to an infant or toddler.

THE OBJECTIVE OF THE FIRST APPOINTMENT

The objective of the initial stimulation and programming day is simple: to find a comfortable volume level across the frequency (pitch) spectrum so that a hearing program (sound processing program or “map”) can be set. It has been a successful first day if an older child, teen, or adult can tell the difference between loud and soft sounds, or if the audiologist is confident that a younger child is receiving audible input. For children who cannot report what they hear, the programming software allows the audiologist to take measurements of the hearing nerve’s responses to sound to guide the initial mapping.

GETTING READY FOR THE APPOINTMENT

It is a good idea to talk to someone who has been there before. Contact AB at hear@advancedbionics.com to connect with other cochlear implant wearers or parents who can share their personal experiences with you.

LEARN THE SYSTEM BEFORE THE APPOINTMENT

If your audiologist provides you in advance with a cochlear implant system brochure, be sure to read the materials before going to the appointment. You can also find a lot of information online at advancedbionics.com. It is important to become familiar with the different parts of your system, so that you feel comfortable using the equipment on the first day.

Your audiologist should have your system kit in their office by the time of your appointment and have the equipment ready for you to use. You may want to put the rest of your batteries on the charger when you get home to make sure they are fully charged. Refer to the Quick Start Guide or User Guide for further instructions on how to charge your batteries.

INITIAL STIMULATION: PREPARATION

WHO SHOULD ATTEND THE APPOINTMENT WITH YOU?

The initial stimulation can be a very emotional experience for everyone involved. Some people are happy to have a large group of people with them. Others prefer to limit the number of friends and family who join them. This is an important moment for you. You will need to be able to concentrate on listening and you should aim to create an environment in which you feel comfortable and relaxed. Talk to your audiologist and see if they have input or opinions on whom they recommend, if anyone.

- Adults or teens will need to focus on listening and working with the audiologist. It can take an hour or more. It is difficult to predict how much sound will be understood right away. One or two people should be all the support needed.
- You and your child's audiologist should monitor how your child is progressing through initial stimulation and determine if fewer people in the room or taking turns in the room might be warranted.

“Emily was turned on when she was a little over 14 months old. We didn't really know what to expect. When Betty Jane (the audiologist) turned on the sound, Emmy looked at me and just started bawling. To her, it must have been the loudest thing in the world, but **we were so excited that she could hear something!** When Emmy was calm, she was looking everywhere trying to figure out what it all was. From that moment, she wanted the implant system on all the time.”

—Helen Cartwright, mother of Emily, AB CI wearer

INITIAL STIMULATION: FOR TEENAGERS AND ADULTS

SYSTEM SETUP

First, your audiologist will connect the programming system to your processor and place the headpiece over your implant. The visit may begin with running diagnostics and testing the software to be sure everything is active.

SETTING VOLUME LEVEL

The audiologist will slowly increase the volume and ask you to indicate when you hear something. You may also hear a beeping noise, depending on the programming method used by the audiologist. It does not matter what you are hearing or whether you recognize the sound, just let your audiologist know when you start to hear or perceive something.

There are 10 levels of sound that you will use to describe volume. After you identify the first moment you hear sound, the audiologist will begin determining the most comfortable level for various sounds.

This is not a test to see how loud you can take it. The goal is to find a comfortable audible level so that you do not have to strain to hear. Usually the most comfortable level is made up of a volume range, so do not worry about having to determine the exact right level. Also, your sound comfort level will change over time, so the volume you select on the first day is not necessarily what you will be listening to after future programming sessions.

SETTING VOLUME

	VOLUME
TOO LOUD	10
UPPER LOUDNESS LIMIT	9
LOUD	8
LOUD BUT COMFORTABLE	7
MOST COMFORTABLE →	6
COMFORTABLE BUT SOFT	5
COMFORTABLE BUT TOO SOFT	4
SOFT	3
VERY SOFT	2
JUST NOTICEABLE	1
OFF	0

MOST COMFORTABLE is defined as the level that has the highest volume that you can listen to with ease and comfort over time.

INITIAL STIMULATION: FOR CHILDREN

Because children arrive at this experience at different ages, with different hearing experiences and different levels of language development, they can have a wide variety of responses to sound. Some children are too young to communicate what they experience. Your audiologist is trained to identify a child's responses to sound, so that they can set appropriate levels for the hearing program.

SYSTEM SETUP

Your audiologist will connect the programming system to your child's processor, and place the headpiece over the implant. The visit may begin by running diagnostics and testing the software to be sure that everything is active. Neural Response Imaging (NRI) is a method used to gain information about a child's auditory nerve and the levels at which a response to sound input can be achieved. NRI is helpful in setting appropriate programming levels, particularly for young children who are not able to give reliable responses to sound. Your child may or may not react to sounds during this test and can move around and play with toys while it is being conducted.

SETTING VOLUME LEVELS

The audiologist will begin increasing the volume and evaluating your child's responses. The first sounds can produce a variety of reactions, including crying, laughing, looking up, bewilderment, and even ignoring what is heard. Because sound has no meaning to a child born with significant hearing loss, they may not have any obvious reaction at first. This is where audiologists apply their skills and can identify behavior that might otherwise go unnoticed. A parent's input during this process can be valuable as well.

HOW YOU CAN HELP

Fitting the processors and conducting initial programming can take anywhere from 30 minutes to over an hour. Often, a child reacts to having the headpiece put on or to hearing sound for the first time by pulling the headpiece off. You can help by keeping your child distracted with toys and games as your audiologist manages the equipment and programming. Bring your child's favorite toys to the appointment. It is important to convey to the audiologist your observations about your child's responses, as your input can be very helpful in the programming session.

AFTER INITIAL STIMULATION

Before you leave your audiologist's office, be sure you understand how to wear and use the processor and batteries. Your User Guide is helpful to review after you have spent some time using the cochlear implant system. Advanced Bionics YouTube channel (www.youtube.com/c/ABSupport) has helpful instructional videos that will be a great resource for you as well.

At first, sounds may or may not be pleasant as you start hearing with your cochlear implant. Regardless, it is important to keep the sound processor on during most waking hours. You may need to gradually increase the amount of time that you use the processor each day. Ask your audiologist for guidance.

PROGRAMS

Your sound processor can store multiple hearing programs. At your first appointment, your audiologist may start with one baseline program and then progressively more programs for you to work through as you adapt to the sound. It is helpful to note your observations on a daily basis.

- **FOR CHILDREN**, observe and keep track of what your child is responding or not responding to. Be sure to note and describe any differences you notice in responses with the processors on, when using different programs, and when different types of sounds occur. Do not expect to see a large variety of responses in the first days and weeks, as it will take time for your child to adapt. Ask your audiologist and auditory or speech/language therapist for help in becoming a good observer of your child's responses to sound. For additional tips, visit AdvancedBionics.com or email hear@AdvancedBionics.com. You can also access the HearingSuccess Portal from any device, anytime, anywhere at HearingSuccess.com. Specifically BabyBeats™, an early intervention resource, is a valuable tool to help caregivers interact with their child and enhance their pre-verbal and early communication skills.
- **FOR ADOLESCENTS, TEENAGERS, AND ADULTS**, evaluate what works best as you get used to your new hearing. It is important to keep track of what programs sound like and your successes and difficulties hearing certain sounds or in specific environments. Your input can be used to optimize your programs at a follow-up appointment. Between appointments, you could utilize the SoundSuccess™ Rehabilitation Resource. SoundSuccess is an online resource that provides adults the opportunity to gain confidence and improve understanding of speech and conversations using functional, everyday topics. You can access SoundSuccess at HearingSuccess.com.

NEXT APPOINTMENTS

You will have several appointments over the next few months to make adjustments and evaluate your progress. The information you provide about your experiences with sounds and different programs will help your audiologist optimize your hearing and listening enjoyment.

HEARING THE FIRST DAY AND THEREAFTER

As you hear with your cochlear implant system, sound begins to transform over the first days, weeks, and months. This occurs with changes in the auditory system as the nerves and brain acquaint or reacquaint with sound. Three aspects that will affect hearing development include time, programming, and listening experiences. Sounds on the first day will not seem the same to you a few months later, or even a week later. Be patient as your brain adapts and learns.

The speed of progress will vary for different people. Rehabilitation, practice, and repeated experiences are essential components for improving hearing. Be sure to devise an appropriate rehabilitation plan with your audiologist. AB offers a wide range of educational materials for therapists, parents, and for adolescents and adults, including apps and other tools. [For more details, visit \[advancedbionics.com\]\(https://www.advancedbionics.com\).](https://www.advancedbionics.com)



A PARTNER FOR YOUR HEARING SUCCESS

Advanced Bionics recognizes that this is a life-long journey—one on which we'll accompany you every step of the way. That's why choosing AB means you'll have a hearing partner that will never stop looking for ways to ensure you can enjoy a life filled with sound.

MY AB ONLINE

My AB Online is a portal designed for AB CI wearers, caregivers, and parents, and provides one convenient location for everything that need to use, maintain, and make the most of their hearing devices. Sign up for free at advancedbionics.com/myabonline.

HEARINGJOURNEY

The HearingJourney™ online forum is the largest online community of cochlear implant wearers, people considering cochlear implants, their families, friends, and loved ones. It is the place to learn, chat, laugh, and share stories about cochlear implants and hearing loss. Register for free at hearingjourney.com.

HEARINGSUCCESS

Here you will find auditory training and rehabilitation tools and resources for children and adults, including the BabyBeats App and SoundSuccess program. HearingSuccess.com.

POWERFUL INFORMATION ON CIS AND HEARING LOSS

In this blog, you will find stories written by CI experts, CI users, or parents of children with CIs, about their hearing journey and helpful articles on hearing loss and cochlear implant technology. advancedbionics.com/blog

CONNECT WITH THE MOMENTS YOU LOVE WITH MARVEL CI

MICROPHONES

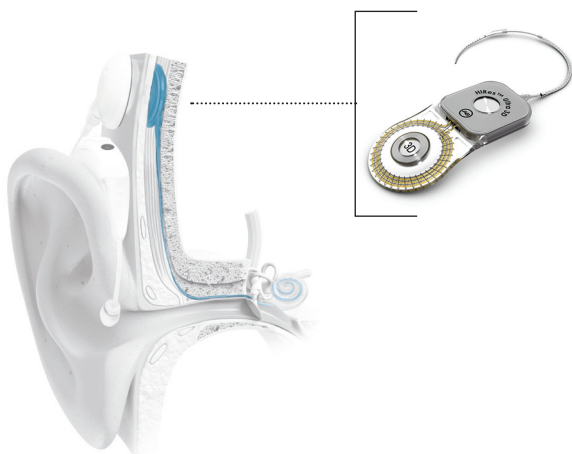
A series of microphones on the headpiece and processor capture sounds and deliver them to the sound processor.

SOUND PROCESSOR

Sitting on the ear, the sound processor analyzes sounds and sends them on to the implant, via the headpiece.

HEADPIECE

The headpiece magnetically connects, to the internal cochlear implant and is fully removable.



IMPLANT

Internally, the HiRes™ Ultra 3D cochlear implant and electrode array receive the processed signal and stimulate the cochlear nerve. These signals travel to the brain where they will be interpreted as sound. The implant is compatible with an MRI, which means that, should you ever need an MRI scan, the implant will not need to be removed.

ACCESSORIES

For unique environments such as the swimming pool, noisy restaurants, or meetings, there are a variety of accessories designed to help you hear your best and be at the center of the conversation.



A wide variety of helpful information is available to you. Contact us to get information on AB products, educational materials, resources and references, news and events, and much more.

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