

Parents' Guide

A guide for parents of
children with hearing loss

child
friendly
hearing
care

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PEDIATRICS

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The Purpose of this Booklet

Hearing is one of the things many of us take for granted. It plays an enormous role in our lives. Yet, as long as it works we tend to forget that it is there.

From birth we develop language by distinguishing between meaningful speech sounds and environmental noise. A hearing loss reduces these skills. Fortunately we know more about hearing loss than ever before and a lot can be done to help.

This booklet should help you understand your child's hearing loss. It tells you how the ear works. It tells you about the most common types of hearing loss and how hearing instruments can help. It also explains the communication techniques that you can use to make everyday life easier for both you and your child.

For more information you can also visit www.oticonusa.com





What Causes Hearing Loss

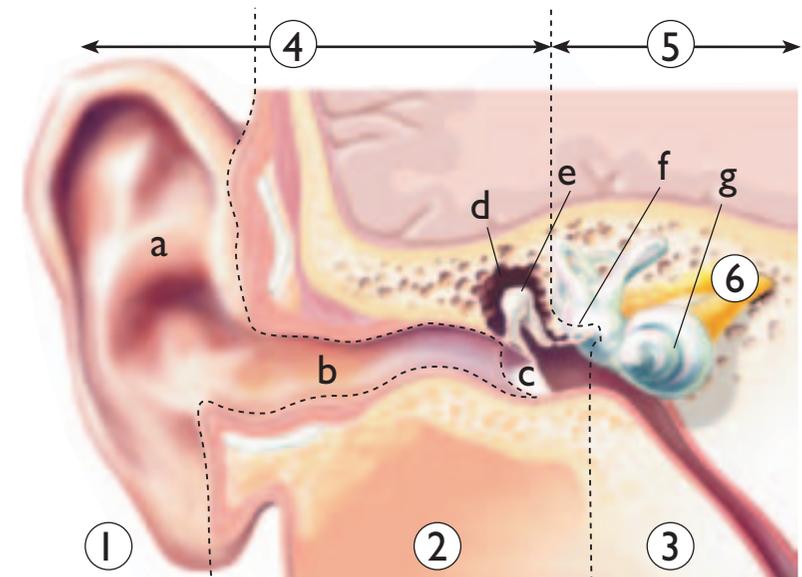
To give you some insight into what causes a hearing loss this chapter begins by telling you a little about how the ear works. It also describes the different kinds of hearing loss, and the effects of a hearing loss.

How the ear works

The ear is made up of three main sections:

- the outer ear
- the middle ear
- the inner ear

The two main parts of the outer ear are the pinna (a) and the ear canal (b). Sound waves enter the ear canal and travel towards the eardrum (c). When the sound reaches the eardrum, it vibrates - just like a real drum does when you hit it.



1. Outer Ear
2. Middle Ear
3. Inner Ear

4. Conductive Portion
5. Sensorineural Portion
6. Auditory Nerve



When these vibrations reach the middle ear, three tiny bones called the ossicles (also known as the hammer (d), anvil (e) and stirrup (f)) begin to vibrate. They amplify the sound even more.

When the sound waves reach the inner ear, they enter the cochlea (g). This looks like the circular shell of a snail. Inside, there is a system of tubes filled with fluid.

The sound vibrations make this fluid move, and thousands of tiny hair cells are set in motion. They transform the vibrations into electrical impulses, which travel along the auditory nerve to the brain. The brain interprets these signals, and that is how we hear.

The different types of hearing loss

In general, there are two main types of hearing loss:

Conductive hearing loss

This is caused by problems in the outer and/or middle ear, that can stop sounds getting through to the inner ear. In children, this is mostly due to middle ear infections, or a build-up of fluid in the middle ear. But conductive hearing loss can also be caused by wax, a hole in the eardrum, or by the tiny bones inside the ear being damaged or their movements being impeded.

Eighty percent of all children between 0-6 years of age get middle ear infections at least once in their lives. Most infections heal without causing any lasting damage. Sometimes middle ear infections can cause temporary hearing loss, which can delay the child's language and speech development. If the infections last a long time,

the middle ear can be damaged, which can result in permanent hearing loss.

Sensorineural hearing loss

This happens when some of the delicate hair cells in the inner ear break down, and are unable to convert sound waves into electrical signals. Sometimes the nerve pathways in the auditory nerve are damaged, which also prevents the signals from reaching the brain. This kind of hearing loss can also be caused by excessive noise from machinery, or loud music.

Sensorineural hearing loss is sometimes passed down from parent to child. But this is really difficult to predict, because more than half of children with hereditary hearing loss have parents with no history of hearing loss. In their case it could still be a genetic problem that might have skipped several generations.





Understanding the Hearing Loss

This chapter shows you how valuable a hearing test is, in terms of what it can tell you about your child's hearing. It shows you the kind of sounds your child can hear when not wearing hearing instruments, and explains the effect of varying degrees of hearing loss.

Sounds can be described as loud or soft, and high-pitched or low-pitched. A violin, or birds chirping are examples of high-pitched (or high frequency) sounds - while a tuba, or traffic in the street are examples of low-pitched (or low frequency) sounds.

An audiologist can perform a hearing test on your child. There are several types of measurement methods. Your child's age and ability to cooperate will determine which methods the audiologist chooses to use. Performing a hearing test, especially on smaller children, may take some time. In order to keep the child engaged and limit boredom, a hearing test may be broken up into several visits. Often more tests are required in order to define the degree of hearing loss.

The audiologist measures the sound level at which your child can or cannot hear different tones. The results are then plotted on a chart, an audiogram.

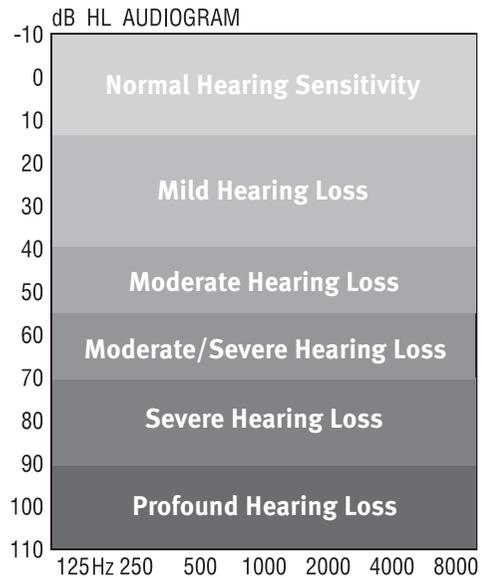
The audiogram shows whether your child actually has a hearing loss, and if so, what kind it is, and how severe it is. This helps the experts decide what treatment is best. As a parent your involvement is essential.



Generally, the degree of hearing loss is described using one of five categories:

- Mild hearing loss
(average from 15-40 dB HL)
- Moderate hearing loss
(average from 40-55 dB HL)
- Moderate/Severe hearing loss
(average from 55-70 dB HL)
- Severe hearing loss
(average from 70-90 dB HL)
- Profound hearing loss
(average above 90 dB HL)

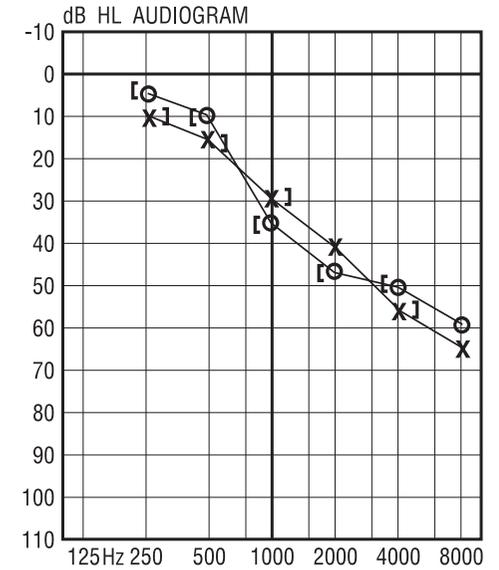
As you can see from this graphic, a child with normal hearing can hear sounds within the 0-15 dB HL level.



The audiogram

When you learn to read the audiogram it will help you understand which sounds you can expect your child to hear, without amplification.

The “O” indicates the hearing level on the right ear. The “X” indicates the hearing level on the left ear. The audiogram on the right shows a mild to moderate/severe hearing loss sloping from low to high frequency.



Find out what your child can hear

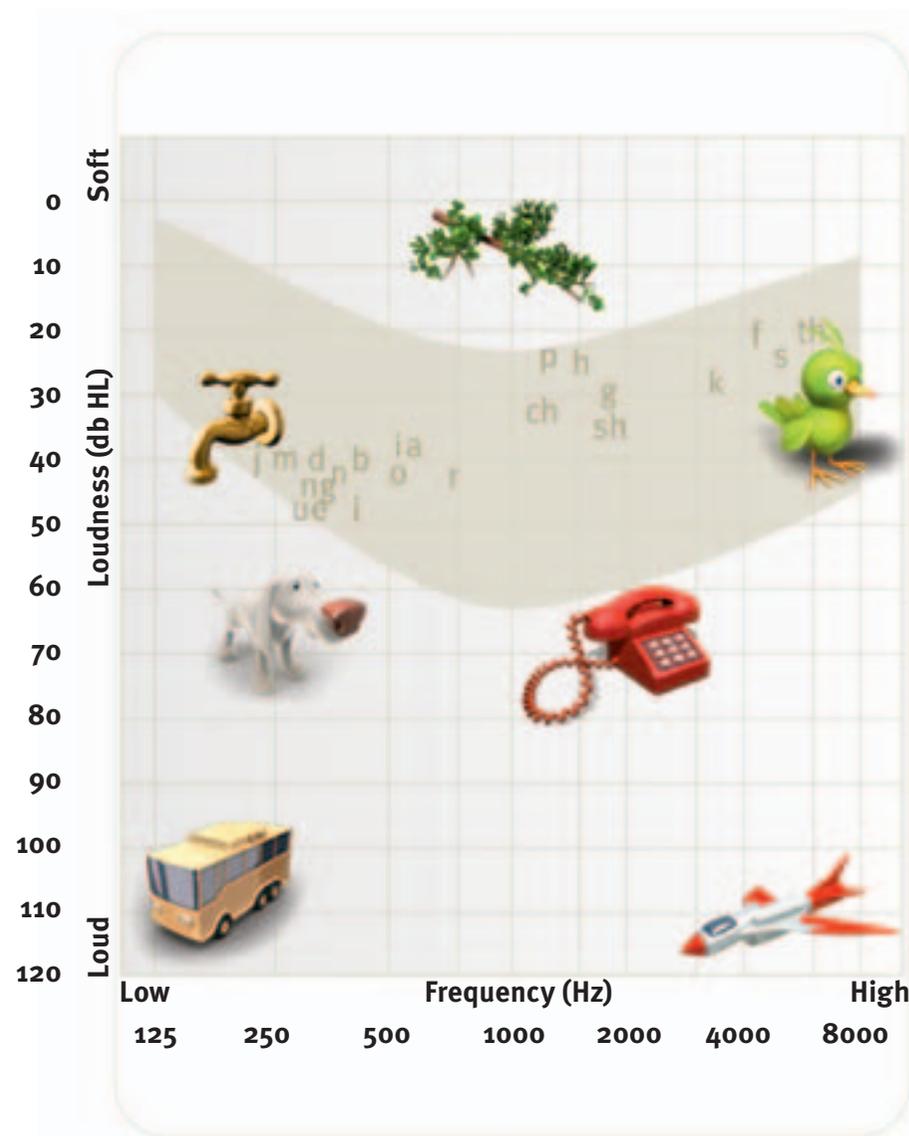
As an experiment, take your son's or daughter's audiogram and copy the line onto the graph on page 15. This graph shows where certain sounds are on the sound map, and will give you a good idea of the sounds your child can hear when not wearing hearing instruments.



The high-pitched sounds are at the right of 1000 Hz on the chart, and the low-pitched sounds are at the left of 1000 Hz. The shaded area is called the "speech spectrum". It shows you the levels you need to be able to hear in order to understand what people are saying when they are talking normally (not too soft/not too loud).

This audiogram shows:

- That with mild to moderate hearing loss (15-55 dB HL) it is difficult to understand most speech, even in good listening conditions (no background noise).
- That with moderate to severe hearing loss (55-70 dB HL), speech has to be very loud to be understood.
- That with profound hearing loss (above 90 dB HL), communicating can be very difficult even with hearing instruments. In this case it might help to use specific communication techniques.



Take your son or daughter's audiogram and copy the line onto this audiogram.



Accepting Your Child's Hearing Loss

Before you knew for sure that your son or daughter had a hearing loss you probably felt very insecure. This chapter helps you deal with the emotional aspects of coping with your child's hearing loss.

The idea of your child's hearing loss may have left you feeling shocked and numb, or sad and worried about the future. It may be hard for you to accept what the doctors are saying. You may be thinking "Why us?" because you never expected something like this to happen. This is a perfectly understandable reaction.

It takes time to understand and accept the fact that your child has a hearing loss. As soon as you are able to do this, you can begin to focus on how to cope with it. And when you're ready, you can gather more information that will help you deal with the practical side of things.

How you cope depends upon the kind of person you are. Certainly the best way to handle it is by being open, and by letting other people help you. As time passes, and circumstances change, new situations will arise. And when they do, the easiest way to cope is by taking things one step at a time.

If you need advice don't hesitate to ask your child's audiologists, teachers, hearing care professionals or other parents of children with hearing loss. They know a lot about your situation.

Encourage your son or daughter to talk about the way they feel - not only with you, but also with other children with hearing loss. They have a unique understanding of the situation.

Remember that you are not alone. Hearing loss is more common than you think. In the US approximately 30 million people have hearing loss. And about one million of them are children below age eighteen.



Why Hearing is so Important

Children use their hearing ability to develop their language skills in order to communicate. But a hearing loss can make communication difficult. This chapter focuses on the importance of hearing, and how we depend upon it.

Developing language

We start to develop language from the moment we are born. At first, babies only make crying, sneezing, yawning, and coughing sounds. Even though they haven't yet learned to talk, they are constantly listening. A newborn baby can soon recognize its mother's voice.

If a child has a hearing loss the basic development of language will often be delayed. However, children with mild to severe hearing loss can develop understandable speech with the right intervention and amplification.

Research has shown that many children with a profound hearing loss can also learn to speak if they are diagnosed relatively early. They often are, because the signs of hearing loss are more obvious than within the milder categories of hearing loss.

So the earlier the hearing loss is detected and the earlier it is treated, the better the prognosis for language development. With today's technology, children can be fitted with hearing instruments within the first few weeks or months after birth.

First, they need to be fitted with the right kind of hearing instruments. Then they can start special speech and language therapy right away.

If the hearing loss is so profound that even very powerful hearing instruments don't help, your child can still learn to communicate using specific communication techniques. Whether you choose a specific communication technique or a spoken language, the message is clear: the earlier your child starts, the better.



The Benefits of Hearing instruments

This chapter gives you an idea of what to expect from hearing instruments, and what to look out for during the first few months of using them. It also gives you some good tips on how to help you and your child take good care of the hearing instruments.

Even the most advanced hearing instruments cannot restore a child's hearing. They cannot help a damaged hearing nerve, or improve the brain's ability to interpret what it hears. But if the hearing loss is mild to severe, hearing instruments will be able to help your child rely on his or her hearing in most situations.

For children with profound hearing loss many sounds will still be distorted and "blurred", even with hearing instruments. Fully understanding what's being said might require learning additional techniques such as lip reading or other visual communication methods.

Hearing instruments can be beneficial, and getting the best out of them takes time and patience. How much they can help depends on the degree and type of hearing loss, and age of onset and identification. It also depends on the

kind of support your child gets - from family, friends, teachers, audiologists and other professionals.

Today's hearing instruments provide very good sound quality and listening comfort. So most children can benefit from using them.





Types of Hearing instruments and Listening Devices

There are two basic styles of hearing instruments, as well as many types of listening devices to help your child in special situations such as in the classroom. This chapter gives you a basic description of what is available.

The two basic styles of hearing instruments are those that sit behind-the-ear (BTE), and those that sit inside-the-ear (ITE). Both types have the same three basic elements:

- A microphone - to pick up sounds
- A processing circuit - to make the sounds louder and change the tonal balance
- A loudspeaker - which sends amplified sounds into the ear

Behind-the-Ear (BTE) hearing instruments

BTE instruments are suitable for every kind of hearing loss. The amplified sounds pass through a clear plastic tube into an earmold, which is custom-made to fit the ear, so that it looks and feels just right.

BTE instruments are slim, and fit neatly behind the ear. They follow the curve of the ear so well that they are often difficult to see. They come in several colors to closely match the color of the hair. Many models also come in bright, fun colors, which are very popular with children.





In-the-Ear (ITE) hearing instruments

ITE hearing instruments are worn inside the ear. They are usually suitable for mild to moderate hearing losses. They are custom-made to fit the ear exactly.

ITEs come in several different sizes, but are not usually recommended for children, because their outer ears and ear canals are too small, and are still growing which can lead to costly and time consuming remakes. In addition, ITE hearing instruments do not allow access to FM devices which assist children to understand more clearly in classrooms.

Caring for the hearing instruments

As children get older they should learn how to care for their hearing instruments themselves. But until then, you need to check each day that the hearing instruments and batteries work. You can do this by reading the user instructions, and by using the tools in the Oticon Hearing instrument Care Kit to perform the following checks:

- Use the listening tube to check that the instruments are working. The audiologist can give you guidelines for quick and easy listening checks.



Listening tube

If the hearing instruments seem dead or sound strange after you have changed batteries, have them checked by your audiologist or dispenser.

- If they make a whistling sound (acoustic feedback) when worn in the ear, try to find out why. With BTE's you might need to clean the

earmolds (you can use the cleaning kit), check whether the tubing needs to be replaced, or have new earmolds made. The most common reason for feedback in young children is that the earmolds have become too loose.



Adding extra performance to your child's instruments

Your child's hearing instruments are the first step to better hearing. But in noisy environments, such as in the classroom, additional benefit to hearing can be achieved with an FM system or an Assistive Listening Device (ALD).

Classrooms are especially difficult listening environments, even for children with normal hearing. This is partly because the teacher's voice has to carry a long way, but is mostly due to background noise such as feet shuffling, chairs being moved around, and students talking. The way the room is built (hard reverberant surfaces that make sound echo), and the way the furniture is placed can also result in poor acoustics.

Using an FM system with your child's hearing instruments can be the answer to gaining better speech understanding. In the classroom the teacher wears a microphone and his or her voice is transmitted to your child's FM receiver and into the hearing instrument. By sending the voice directly to your child's hearing instrument, the noisy interference and distance that physically exists between your child and the teacher is eliminated.

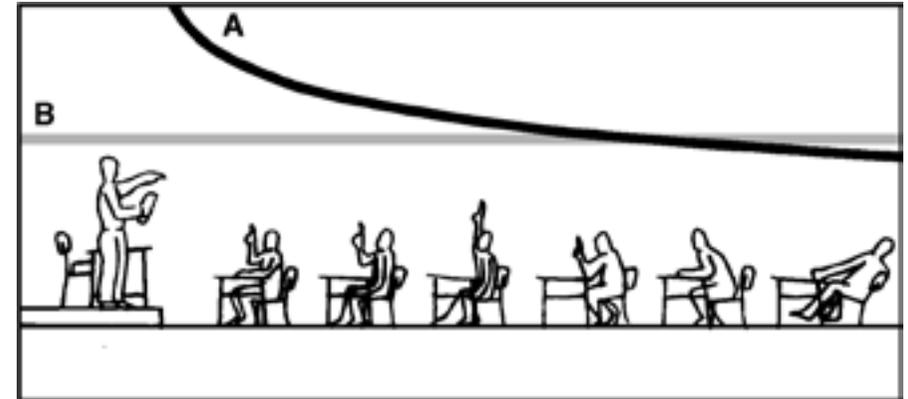
FM systems can be helpful in many other difficult environments, not only in the classroom but also when

- At home
- At the dinner table
- Playing outdoors
- Watching TV
- Travelling in the car
- Taking instructions from a sports coach or dance instructor

FM systems are designed to overcome the obstacles of distance, noise and reverberation. The benefit to you and your child is freedom to hear and understand more clearly anywhere at any time.

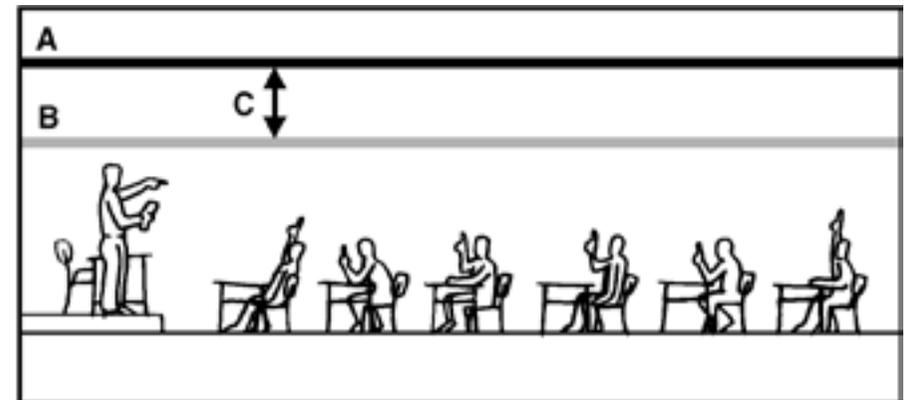
Ask your child's audiologist to assist you in finding the right FM solution for your child.

For more information please refer to Oticon's All about FM booklet.



A = Level of teacher's voice
B = Level of background noise

Increasing the distance between teacher and student reduces speech understanding.



A = Teacher's voice through FM-system
B = Background noise
C = 15-20 dB improvement in signal level versus noise

Sitting in any row of the classroom, the student can hear the teacher's voice through the FM-system as clearly as being right next to the teacher.



Helping Your Child Communicate

When we communicate we use more than just spoken language. We use our hands, body language, and facial expressions. In this chapter you will learn about some very helpful basic communication techniques.

There are many ways of communicating in addition to hearing. Lip-reading is one way - which we all use to some extent. We also read people's gestures, facial expressions and body language.

Lip-reading

Lips show the articulations of words e.g. 'man' versus 'land'. That is why lip-reading is important especially for children with hearing loss because they need to see in order to fully understand. Lip-reading thereby supports spoken speech.

Speech and language therapy

Many children with hearing loss have delayed language development. Therefore they often get referred to a speech and language therapist who can help them communicate better.

Clear Speech

The Clear Speech method is a new way of speaking. It shows you how to pronounce each word and sentence in a precise and accurate way - without dropping word endings. Clear Speech teaches you to pause between all phrases and sentences.

If you use this method, and speak more clearly, you will find that your voice automatically slows down and becomes louder. And by using a fuller range of voice intonation and stressing key words, your voice also becomes livelier. You can refer to Oticon's Clear Speech booklet for exercises you can practice at home, or ask your audiologist to help you.

Cued Speech

Cued Speech can also be used to supplement spoken language for children with profound hearing losses. First you learn where in the mouth particular sounds are formed. Then these sounds are linked to certain hand gestures to support the spoken words. This technique requires special training, but if you and the rest of your family learn it, you will be able to help your child's speech and language development.

Sign language

Children with profound or total hearing loss often use sign language. Most children with this degree of hearing loss need auditory and visual cues to communicate. Learning sign language doesn't necessarily mean that the child won't be able to learn to talk. It takes a lot of training, but it is not uncommon for children with a profound hearing loss to learn both.

If you do decide to learn sign language, both your child and your family need to be actively involved. Talk to your audiologist about what communication techniques are best for your son or daughter, and talk with other parents, teachers, and adults with a hearing loss.

Exactly how your child will benefit from some of the communication techniques mentioned above depends on the degree of the hearing loss. It also depends on how old the child is and what his or her abilities are. Your support and involvement as a family in using new ways of communicating is vital to your child's success.



Good communication habits

When you communicate with your child try to remember some basic rules which will help your child understand and develop speech better.

1. Always face your child when speaking, preferably within 3-6 feet. Keep your face in view. If you stand where your face is well lit, it makes it easier to see your facial expressions and read your lips.
2. Try not to talk while chewing food. This makes it difficult to understand what you are saying, and almost impossible for others to read your lips.
3. Don't lean with your face on your hand, or sit behind newspaper when talking, because this also makes lip-reading difficult.
4. Speak clearly, at a normal pace, and remember that you don't need to shout. If your child has trouble understanding you, try re-phrasing the word or sentence rather than just repeating yourself.
5. Try to avoid background noise when talking to your child. Turn off the television and close any open windows to muffle any noise from traffic. Either move closer to make your voice louder than the background noise, or try to find somewhere quieter to talk.

For more information please refer to Oticon's Good Communication Habits booklet.



Good Tips on Raising a Child with Hearing Loss

Wanting to protect your child is the most natural thing in the world. The question is how much protection you should offer? This chapter gives you some basic guidelines on how to help your child become self-reliant.

By allowing children to experience things for themselves, we help them grow up to be independent individuals. You can be protective in situations where your son or daughter may not be able to manage without help - but you should try not to be over protective.

Talk about things that can help your child relate to the outside world. If children grow up feeling strong, independent and self confident, they manage despite the hearing loss.

You don't have to become a professional teacher or child psychologist. All you have to do is be there, offering loving support. This will make it easier for you to keep your child's needs, and the rest of your family's needs, in focus.

Expectations and demands

We all expect something of our children. We want them to learn, behave properly, and perform well in school. Hearing loss can complicate development of learning, communicating, social skills and growing up, but you can still teach your child the basic codes of behavior. Again, you have to find the right balance between expecting too much and expecting too little.

You have to consider your own child's capabilities, and how he or she is developing. If you are too ambitious, your child may have problems living up to your expectations. But if you set your sights too low, and don't make reasonable demands, he or she could become de-motivated.

Your child shouldn't be excused from taking part in the daily routines (such as tidying up, or carrying out the dinner plates) because of the hearing loss. You may feel that you're walking a tightrope, but one thing is sure: by getting involved, you show that you're interested, and this gives your child more self-esteem and motivation.

Learning abilities and social skills

As far as maturity and social behavior are concerned, you should expect the same of your child as you would expect of a child with normal hearing at the same age. Your child's ability to learn and develop will depend upon the degree of the hearing loss, and how he or she works with the various teachers.

While it is important to get a good education, it is equally important to develop good social skills in order to

make friends. Just rely on your common sense, look out for positive and negative reactions, and talk to your child's audiologists and teachers. If you can accept their advice, you'll be able to help your child learn without neglecting the social skills.

Learning human values

Some parents say that because of the hearing loss and language issues, their children had difficulty learning morals, values and social behavior. Where do you learn about morals and about what is right and proper? These principles aren't only something your parents have taught you, but behaviors learned by watching and listening to other people.

If you don't hear well it's difficult to get an accurate impression of what you see and hear around you. It may be harder to form your own ideas of what is right and wrong. Your child will find it easier to learn if you openly discuss these things with him or her.

Learning new words and concepts

Children with hearing loss need additional support when learning new words and concepts. It can be fairly easy to teach them about objects, but teaching them about concepts can lead to misunderstanding and confusion.

Because they may not hear the finer nuances of language they sometimes either take things too literally or over-generalize. Concepts such as time (seconds, minutes, hours, weekdays, the months of the year, etc.) can be very hard to understand, so you may have to find different ways to explain them.

One typical example of language misunderstanding was when a child asked his mother "How many spiders have eyes?" What he really meant was "How many eyes do spiders have?" In this kind of situation, try drawing or using pictures to illustrate what you are trying to explain.

You can also record videos of children's entertainment programs or animal shows from TV. View these together and use the opportunity to stop the tape and explain and discuss what you're watching.

In the evenings, read bedtime stories. These are useful in more ways than one. They help to develop your child's language. They provide valuable information. They arouse a child's natural curiosity. You can even take photos of vacations, family, pets, and things you have done, and put them in a book to talk about later on.

When you've finished reading, remember to leave on a nightlight. Children with normal hearing can still hear the television and the clink of a spoon in a coffee cup even when the lights are out, but children with hearing loss appreciate the feeling of security a nightlight can provide.





Making Everyday Life Easier

This chapter explains some of the advantages of being open about your child's hearing loss. It gives you some guidelines on how to tackle everyday situations, and practical tips on how to organize things to make life easier for your child.

Some parents try to hide their child's hearing loss by getting the smallest hearing instruments possible, and changing the child's hairstyle. This is often because parents feel embarrassed about their children wearing hearing instruments. Many younger children like to wear hearing instruments in bright, fun colors. If they want to show them off and wear their hair short, they should be allowed to do so. The more the child decides in regards to color, decoration and cosmetics the more they will accept their hearing instruments.

Another advantage of not trying to hide the hearing instruments is that if people can see them, they can make allowances. And if they get a different response from your child than anticipated, at least they won't jump to the wrong conclusion.

Don't be shy - be informative!

Generally, people know very little about hearing loss and hearing instruments. But if you take the initiative, you'll find that most people - whether family, schoolteachers, or friends - are interested. By telling them about it, and how it affects your lives, you help them understand why your child reacts differently sometimes, and why certain listening situations are more difficult than others.

As your child grows up and moves to a new school, encourage him or her to tell the new teachers and classmates about the hearing loss and hearing instruments. Tell them about the simple communication techniques they can use - such as not shouting or covering their mouths when talking. This will make transition periods easier.

For more information, see the Oticon Teacher's Guide.



Preparing and following up

Children with normal hearing do quite well in everyday situations because they pick up all sorts of information from various sources. But some children with hearing loss need to have things carefully explained on a one-to-one basis, such as what you are planning to do today, where you are going to shop, what you're going to buy, or who you are going to visit.

Taking time to prepare for these situations makes it easier for your child to follow what's going on, thereby increasing his or her feeling of understanding and security. At the end of the day, follow up on what's

happened, to give your son or daughter an opportunity to talk about the way they feel.

Always talk to your child, even though he or she may not always fully understand what you're saying. The only way to encourage him or her to develop spoken language and the right kind of behavior is by speaking clearly yourself, and by setting a good example. And remember that your facial expressions and body language also tell an interesting story!

When your child does talk to other people, don't take on the role of interpreter, or answer on his or her behalf. It's

important that they learn to speak up for themselves. And when you are explaining things try to use short, clear sentences wherever possible.

Some final tips

The following examples are useful learning opportunities for your child:

- Getting involved in practical tasks, such as doing the laundry. Name different items of clothing, explain loading the washer and talk about the sounds it makes. Talk about what you are doing as you go along.
- Involve your child in the kitchen activities. If you are baking cookies or cupcakes, talk about the different ingredients, and explain where they come from. Find or draw pictures to help your child make the connection between eggs and chickens, flour and corn, etc.
- Picture games are also very useful when teaching your child about objects, concepts, and language.
- If you go for a walk or a drive, point out different things you see and describe them as you go by.

- Before going shopping, go through some of the items you're going to buy on the shopping list. Again, make drawings if necessary. And let your child try to find some of the different products on the shelves.



Frequently Asked Questions

You probably already have a whole series of questions waiting to be answered, such as:

- How will this hearing loss affect my child as he/she grows up?
- Will my child be able to go to a regular school?
- What sounds can my child actually hear?
- How will hearing instruments help?
- How long will my child have to wear them?
- Will hearing instruments help my child develop language?
- How will this affect us as a family, and me as a parent?
- Will my child learn to speak?
- Does my child have to learn sign language?
- Will this condition pass, and if not, can it be cured?
- Will it get worse?
- What about surgery?

These questions are difficult to answer in a booklet, but your audiologist will be able to tell you what to expect as you go along. It might help to write your questions down each time you think of new ones. You might not get answers right away, but writing them down will help you sort things out in your mind.

Each child is unique, and every child reacts differently. Your own situation is also unique, so use whatever professional help is available to help you adapt. There are no golden rules. At home, you are the expert, so do what you feel is best, always keeping in mind the advice of the professionals who know your child's hearing loss and hearing abilities.

You can talk with them if you have questions such as:

- My child seems very withdrawn right now - can this have something to do with the hearing loss?
- My child reacts very strongly sometimes. Is this because of the hearing loss, or is it just a passing phase?

Questions like these will continue to arise as your child develops. All we can say is keep looking for the answers, because the more you know, the better you will feel.

We hope that this booklet has given you some useful information.

Remember to rely on your own good judgement, and be patient. Whenever you have questions, don't hesitate to ask. Audiologists, counselors and teachers will do their utmost to support you and your family through the rewarding challenges ahead.



Glossary

Assistive listening devices (ALD)

Devices that, used together with hearing instruments, enhance listening in difficult listening situations.

Audiogram

The product of a hearing test. For each ear it shows how loud a given tone needs to be in order to make the tested person able to hear it.

Auditory deprivation

When an ear with a hearing loss does not get stimulated through a hearing instrument, it can result in a reduced ability to process sound.

BTE

Hearing instrument that sits behind-the-ear.

Clear speech

A method of speaking used by relatives and friends to a person with a hearing loss.

Cochlea

The inner ear.

Cochlear implant

A medical hearing device that is surgically implanted.

Conductive hearing loss

An auditory disorder caused by dysfunction in the outer or middle ear.

Cued speech

A form of communication which supplements spoken language.

Decibels

A measurement for loudness or intensity of sounds.

dB HL

The degree of a hearing loss is written in dB HL (decibel Hearing loss).

Eardrum

The circular membrane in the ear canal that vibrates when touched by sound waves.

Earmold

A custom-made plastic piece that is used together with a BTE instrument to transmit sounds into the ear.

FM systems

An FM system consists of

- a) microphone/transmitter
- b) receiver

In a classroom the teacher wears the microphone and the child wears the receiver. The teacher can speak directly to the child without interference from background noise, distance and reverberation.

Frequency

Another word for pitch. Measured in hertz.

Hertz (Hz)

A measurement for pitch or frequency.

ITE hearing instruments

Hearing instruments that sit in-the-ear.

Mixed hearing loss

A combined conductive and sensorineural hearing loss.

Ossicles

The three bones (hammer, anvil and stirrup) in the middle ear.

Pitch

An alternative word for frequency. Examples of high-pitched sounds: violin, bird singing. Examples of low-pitched sounds: vacuum cleaner, male voices. Is measured in Hertz.

Sensorineural hearing loss

Hearing loss caused by damage in the inner ear (cochlea).

Speech spectrum

Indicates the hearing levels in the audiogram necessary to hear speech at a normal conversational level.

Stetoclip

A non-electric tool resembling a stethoscope used for listening to a hearing instrument.

Photos: Oticon A/S

People First

People First is our promise to empower people to communicate freely, interact naturally and participate actively

child
friendly
hearing
care

It takes a truly dedicated approach to help children with hearing problems achieve their full potential. That's why we deliver all the solutions and services that professionals and caregivers need to give children the opportunities they deserve. This is what *child-friendly hearing care* is all about.

