SENSORY SUPPORT
(HEARING IMPAIRED)

A Basic Understanding
of Sensori-Neural
Hearing Loss
OUR SERVICE

SENSORY SUPPORT (HEARING IMPAIRED)

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Staff from this Service have written the booklets in this series.

NB: In this series of booklets for ease of reading, the child will be referred to as ‘he’ rather than ‘he’ or ‘she’.
Where does a sensori-neural hearing loss occur?

A number of children suffer from sensori-neural (nerve) deafness which is caused by problems in the inner ear (cochlea) or nerve of hearing. This cannot be cured and may be very severe.
What causes a sensori-neural hearing loss?

There are various possible causes of hearing loss such as:

1. Illness in the mother during pregnancy (particularly the early months), e.g. Rubella (German Measles).

2. A family (or genetic) problem.
   Several members of a family may be hearing impaired while others have completely normal hearing.

3. Difficulties at birth - may be a result of prematurity.

4. The child may become deaf after a serious illness such as meningitis.

For many hearing impaired children the cause of the deafness is never known. This in itself may be distressing for parents and may give cause for concern during the child's adolescence.
How is hearing measured?

In DECIBELS to show intensity - how loud a sound is.

In HERTZ (Hz) to show frequency - low, middle or high pitched sound.

The child is tested in each ear across a range of frequencies from 250 Hz (low frequency) to 8,000 Hz (high frequency). This information shows us which sounds can be heard and how loud they need to be to be detected. The results are recorded on an AUDIOGRAM.

A. An audiogram showing normal hearing.

B. An audiogram showing a sensori-neural hearing loss.
Where do speech sounds and other sounds occur on an audiogram?

Speech sounds are often comprised of more than one frequency and of course words consist of a whole range of frequencies, e.g. bath ranges from 250 Hz → 8,000 Hz.
How do we describe a hearing loss?

A MILD LOSS - This is a hearing loss that averages between 20 - 40 dbs

A MODERATE LOSS - This is a hearing loss that averages between 40 - 70 dbs

A SEVERE LOSS - This is a hearing loss that averages between 70 - 90 dbs.

A PROFOUND LOSS - This is a hearing loss that averages in excess of 90 dbs.

A mild or moderate loss may be the result of a conductive hearing loss.

A sensori-neural hearing loss is usually moderate, severe or profound. The higher frequencies are most usually worst affected.
Why does a sensori-neural hearing loss cause speech and language problems?

Children learn to talk by imitating sounds they hear around them. If what they hear is distorted or incomplete then their speech will be affected.

Even with carefully selected hearing aids the child who has a severe or profound loss will receive an incomplete pattern.

Without hearing aids he will find the detection of speech impossible.

Language may also be delayed as children acquire a lot of their language 'BY ACCIDENT'; language is generally acquired through active listening.

The hearing impaired child misses many such opportunities as he is often 'out of range' when language is being used.


**How does lip-reading help a child with sensori-neural hearing loss?**

Children with a sensori-neural hearing loss learn to use lip-reading to supplement the auditory pattern.

Lip-reading would help to distinguish between the following sentences:

a. Make a _cross_ in the _square_.
b. Take the _dog_ up the _stairs_.

Listening and lip-reading are both needed to supplement each other as lip-reading itself produces an incomplete pattern, i.e.

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The sounds in each line are produced in a similar way (lip movements or tongue position) but sound different, e.g. bee, pea, me. This in itself can lead to confusion.
Why do so many children with a sensori-neural hearing loss learn to talk and attend a mainstream school?

Children learn to talk because adults talk to them and play with them.

Hearing impaired children can also learn to talk in the same way if they have the CORRECT hearing aids and these are worn at all times.

Hearing impaired children learn at school in the same way as their hearing peers but may need additional equipment, i.e. an FM System, and help from a teacher of the hearing impaired to ensure they are understanding the language which surrounds learning.
USEFUL INFORMATION

Teacher of the Hearing Impaired

ENT Consultant

GP

Health Visitor

Educational Psychologist
FURTHER READING

The Hearing Impaired Child in the Family
*Michael Nolan & Ivan Tucker*

Language Through Living
*Morag Clark*

Listen to Your Child
*David Crystal*

The Hearing Impaired Child and School
*Tucker & Powell*