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Rehabilitation pre- and post- Cochlear Implant era

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A look into the history of deafness

Before the 1970s, deafness was considered to be an irrevocable blow of fate.

Congenital deafness resulted in muteness and educational support relied on visual perception and feeling of vibrations. It was rather an exception that a deaf born infant would learn to listen and talk.

The reason for deafness was seen to be retro-cochlear, which we know is not the case in 95 percent of the deaf population.

Parents felt guilty or ashamed to have a deaf child and would try to hide it away.



A look into the history of deafness

Quotes of famous people



- Aristoteles: deaf people are not subject to any education
- Paulus: Ex auditu fidem (Belief is based on hearing)
- St. Augustine: hearing impairment is a deficiency which impedes belief
- Leonardo: deaf people as “an object for visual perception”

A look into the history of deafness

Famous deaf people

Famous people suffering from deafness included artist Francisco de Goya, composer Ludwig van Beethoven and Czech composer Bedrich Smetana. They all suffered from their condition, which was reflected in their art.



Beethoven's music became much darker as his hearing loss progressed

A look into the history of deafness

Sign language

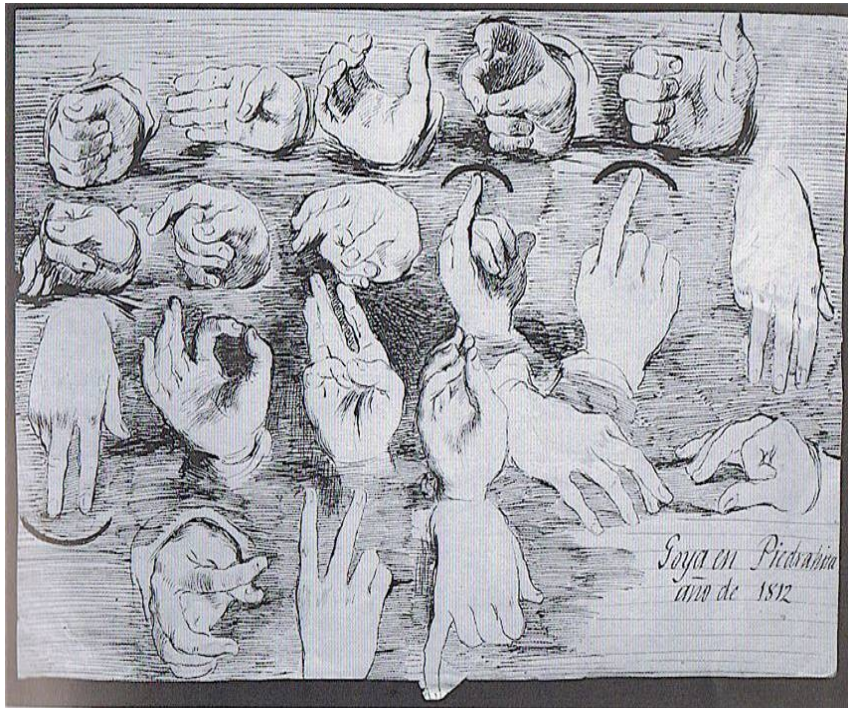


Sign language was invented by 'silent' monk communities and has been in use since the 16th century.

Controversies over sign language include disputes over whether it is a real language or not. Diderot and Rousseau conclude that it is.

A look into the history of deafness

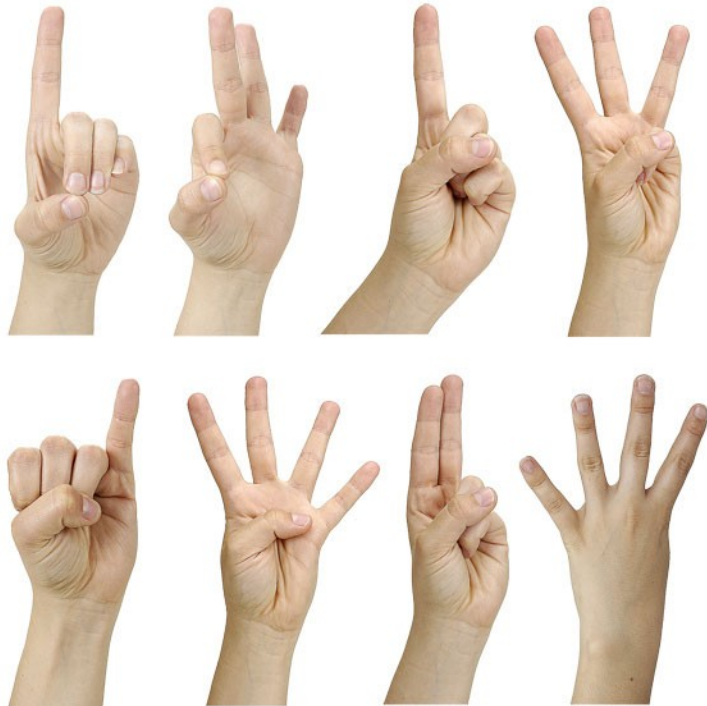
Francisco de Goya's 'Ydioma Universal'



In 1797, five years after he lost his hearing, Goya published the “Ydioma universal” – a sign language for the deaf, which is in the Museo del Prado in Madrid now and another 5 years later, in 1812, he completed a drawing showing the **alphabet for the deaf-mute**.

A look into the history of deafness

Oralism - a concept whereby people with hearing impairments should be educated using spoken language only



Abbé de l'Épée (1712 – 1789) was the founder of the first school for the deaf in 1770 in France.

In America Thomas Gallaudet founded the first school for the deaf in the year 1816.

In 1970 finger alphabet was reintroduced for classes in deaf schools in Germany. Sign language was banned in France until 1976 and in Austria the ban was lifted only in 1984.

A look into the history of deafness

Hearing movements in the 19th and 20th centuries

- Itard (1774 – 1838), Urbantschitsch (1847 – 1921), Bezold (1842 – 1908) and Kroiss (1861 – 1945) tried to find out how to develop hearing despite a severe hearing impairment. Results were disappointing as the technical quality of hearing aid instruments was poor.
- 1930-1960: the emphasis was on vision, lip reading and vibration.
- 1960-1985: understanding the importance of early detection and intervention. Armin Löwe introduced a programme for early support and intervention in Heidelberg in 1959.
- In the late 80s a new era began.

The landscape of deafness has changed

New technology caused a shift of paradigm in the methodology of rehabilitation



- We started to understand how the development of hearing and speech happens and learnt that we are not hearing with our ears but with the possibilities of the brain's central nervous system.
- Reliable test equipment became available, the quality of audiometers and other instruments improved significantly. Intervention started at a very early age.
- Deafness is no longer considered an irrevocable blow of fate but a neuro-developmental emergency.

Rehabilitation of children with cochlear implants



a new era in the rehabilitation for CI recipients has just begun and web-based learning, teaching, fitting and rehabilitation will significantly improve the overall quality of outcomes for CI wearers

Rehabilitation

Methodologies currently applied working with children with CIs



- Sign language
- Cued speech
- Total communication
- Simultaneous communication
- Guberina method
- Natural Aural approach
- Auditory verbal therapy

Rehabilitation

Regardless of which methodology is applied – the most convincing argument is the success of the therapy: establishing hearing as an integral part of the child's life, developing her/his communicative and verbal skills and improving them continuously over the years”.



Rehabilitation

Organization of rehabilitation for pediatric CI recipients

2.

- Fitting of the speech processor (5 weeks post-operatively, during 3 – 5 days, preferably in a CI Centre)
- Therapy should comprise on average 12 days per year until the recipient reaches the age of 20.



Rehabilitation

Answers to selected country-specific questions

3.

From the range of issues related to rehabilitation of children with CIs, we selected seven important questions and searched the data in various European states for answers.

We have uncovered very heterogeneous evidence!



Selected answers

Q1. Where does rehabilitation happen?

- **In Germany and Austria:** inside the hospital or outside
- **Switzerland:** in educational facilities
- **Spain:** in schools
- **Portugal:** two clinics offer rehabilitation in house (Coimbra and Estefania), all other is happening outside
- **UK:** in and outside the hospital, in health care as well as in educational facilities. There are no special Cochlear Implant Rehabilitation Centres
- **Central and Eastern Europe:** schools for the deaf
- **Czech Republic:** clinic, schools, local facilities
- **Lithuania:** educational institutions



Selected answers

Q1. Where does rehabilitation happen?

- **Poland:** in clinics, healthcare facilities, Polish Association for the Deaf
- **Latvia:** specialized healthcare facility
- **Bulgaria:** hospitals, schools and also a special Centre for rehabilitation of CI recipients
- **Romania:** in state-owned special schools for deaf children or in private individual speech therapy offices
- **Croatia:** special centres for hearing impaired children or for children with additional impairments
- **Serbia:** in some centers



Selected answers

Q 2. Is the surgeon globally responsible for the CI recipient or only for surgery

The surgeon should take the overall responsibility!

This is recognized in most countries (Germany, Switzerland, Poland etc.)

In Central and Eastern Europe the surgeon is only responsible for the operation



Selected answers

Q 3. Is each professional responsible for his own activity only or is there one person with a global responsibility and who is it?

Every professional is responsible for their work. Ideally, the head of the implanting clinic/coordinator takes overall responsibility.

In **Germany** this is the case in clinics with a very high number of annual implantations.

UK: a “key worker” to coordinate all activities, each professional is still responsible for their work.

Poland, Latvia: one person with overall responsibility.

Other CEE states: with a few exceptions this is not the case.

Varese, Italy: trans-disciplinary approach.



Selected answers

Q 4. Is rehabilitation a health care activity or an educational activity?



- **Germany:** a health care activity and paid for by the health insurance companies (Krankenkassen).
- **UK:** a health care activity in the early phase and as an educational activity long-term.
- **Poland, Latvia, Bulgaria and Croatia:** a health care activity because it is paid for by the Ministry of Health.
- **Czech Republic and Serbia:** both.
- **Lithuania:** an educational activity.

Selected answers

Q 4. Is rehabilitation a health care activity or an educational activity?

I believe that rehabilitation of paediatric CI recipients and counselling of parents is an educational activity, regardless of where it happens. Only a few components like first fitting and regular adjusting of the speech processor programmes and obviously regular medical follow-up do not belong to the educational process.



Selected answers

Q 5. What about the educational background / degree of the specialist in rehabilitation for the deaf CI recipient?

- Pedagogues for hearing impaired, logopedes, audio therapists, psychologists, ergo therapists, teachers, social pedagogues, music therapists, paedaudiologists etc.
- **Germany, Austria and Switzerland:** no legal requirement for a special degree but most professionals have one in the field of special pedagogy. 90% are female.
- The situation is practically the same in the UK, Spain and other Western as well as CEE countries.



Selected answers

Q 6. Who does the rehabilitation of deaf people? Hearing specialists or experts in communication from a more general point of view?

Pedagogues who have the competence of sign language work in the rehabilitation for deaf people. We could call these experts in communication.

For CI recipients it is in all countries specialists for hearing (but not necessarily medical doctors).



Selected answers

Q 7. Are there centres dedicated exclusively to deaf care in your country? Are there special centres for rehabilitation for CI recipients?

- **Germany:** Schools for the Deaf → schools for hard of hearing; special Rehabilitation Centres for CI recipients; special institutions for early support and intervention (Frühförderung), special boarding schools and vocational training establishments
- **UK:** special Cochlear Implant Rehabilitation Centres do not exist. Rehabilitation is provided in different places to support the development of spoken language and this is for children with hearing aids as well as for CI recipients.
- **CEE:** special CI rehabilitation centres are an exception.

Landscape of global communication changed

Web-based Learning, Teaching, Fitting and Rehabilitation

The LinkedIn logo, featuring the word "LinkedIn" in a bold, black, sans-serif font. The "in" is enclosed in a blue square with rounded corners.The MySpace logo, consisting of a blue rectangular background. On the left, there is a white icon of three stylized human figures. To the right, the word "myspace" is written in a white, lowercase, sans-serif font, followed by a small "TM" trademark symbol.The Twitter logo, featuring the word "twitter" in a lowercase, blue, sans-serif font.The YouTube logo, with the word "You" in a black, sans-serif font and "Tube" in a white, sans-serif font inside a red rounded rectangle.The Facebook logo, featuring the word "facebook" in a white, lowercase, sans-serif font on a blue rectangular background.

The Internet

- a revolution in global information
- geographical boundaries overcome
- social impact: social networks, forums and environments
- new possibilities for hearing rehabilitation

Landscape of global communication changed

Web-based Learning, Teaching, Fitting and Rehabilitation

- LiveOnline Room: every participant (wherever she/he is) can become active at the same time by writing into the text chat and it becomes visible to all participants who are logged in including the presenter.
- Three communication modes are possible simultaneously: listen and talk read and write, see and present.



Landscape of global communication changed

Advantages of post-operative care for CI recipients in a web-based environment



- Independence of distance
- Cost and time savings
- Higher chance for increased frequency of “meetings”
- Remote fitting

Please contact us



Thank you for your attention!

