



# HORENTEK®

REVOLUTION MADE IN ITALY

## FEEL

Paediatric Sternal Vibrator



Paediatric kit before Cochlear implant, Mito Junior Hearing Aids and Sternal Vibrator



## PAEDIATRIC KIT BEFORE COCHLEAR IMPLANT SURGERY

The advent of cochlear implants has revolutionized rehabilitation strategy of paediatric deafness. Numerous experiences are confirming the absolute efficacy of surgical treatment which, however must be associated with a serious rehabilitation treatment and a proper management of the technology in order to have a real success.

Then the disclosure of newborn screening has allowed to confirming on the first months of life, the presence or absence of hearing loss, so that the American Speech and Hearing Association recommend starting the rehabilitation treatment before the six months to maximize the skills and the neurological plasticity of the young child. In addition, some protocols require a period of several months using hearing aids before deciding to confirm the opportunity of the surgery, that generally takes place after 8 months of life.

Therefore, the hearing aid fitting is still an important intervention during the first months of life until the child is not able to perform the intervention without surgical risks.

## AMPLIFICATION AND STERNAL VIBRATOR DURING THE FIRST MONTHS OF LIFE

Nowadays the hearing aids have improved their quality, allowing processing previously unthinkable such as the compression in frequency which transfers part of the high frequencies to bands more easily audible. However, at the same time we assisted to a reduction of acoustic gain, limiting the efficacy of the modern hearing aids to the severe hearing loss, excluding the profound ones. Then, from a strictly economic point of view it is not absolutely advantageous to offer very sophisticated equipment to a patient with profound hearing loss that does not enjoy any particular advantage. It is common experience that acoustic gains insufficient, digital processing unused and high costs, transform the modern digital hearing from a very effective tool, in an almost useless and expensive gadget for profound deafness seriously disabling.

In case of profound hearing loss two characteristics are extremely important: high gain close to 140 dB SPL and an extended band to the low frequencies. However not always can a powerful hearing aid stimulate usefully very poor residual hearing in order to allow the child to enter in the sound's world. In these cases, it is very useful to combine a powerful hearing aid with a sternal vibrator, a tool that was popular before the cochlear implants era and then abandoned for the obvious superiority of the surgery, forgetting it can preserve a real utility before the activation of the cochlear implant.

We are talking about body-worn vibrators that transform simply the acoustic stimulations into vibrations in order to provide sound awareness, listening attention and sounds detection without asking more sophisticated processing because the skin is not able to analyze complex information for the phonetic discrimination. In fact, awareness, attention and detection are the auditory pre-requisites absolutely necessary to activate the lip reading in order to start the auditory processes to reach the speech comprehension before the surgery.

Even so, It is important to highlight that the function of the sternal vibrator is limited to activate the auditory pre-requisites to avoid adding unrealistic expectations about the speech discrimination, processed by lip reading.

High-powered hearing aids, with a band extended to the low frequencies and sternal vibrators constitute absolute useful tools for oral rehabilitation of profound deafness before the surgery because they allow activating the basic skills of listening, that is the listening pre-requisites.

## FEEL PAEDIATRIC KIT HORENTEK

The products composing the kit are: the powerful hearing aid MITO Junior and FEEL system.

The powerful hearing aid MITO Junior is a tool with 4 channels of gain with one of the highest powers in the market, but manages to maintain a very wide band of amplification because it extends it from 200 to 7800 Hz. The maximum power can be up to 140 dB SPL on low frequencies allowing the clinician to compensate even the profound deafness so-called "comma". Despite the power, the MITO junior is characterized by small size and suitable paediatric age. The fitting can be made automatically or manually allowing the technician to choose: gain, maximum output, static and dynamic characteristics of compression, insertion of anti-feedback.

The fitting software is not only easy to use, but also intuitive. In other words, the hearing aid allows processing extremely powerful amplifiers that can be chosen and fitted very analytically for each patient inside the 4 channels of distinct compressions.

To the other part, the FEEL sternal vibrator has a reproduction band that interests speech frequencies with a wide dynamic range to stimulate the skin even with the whispered voice. It is composed of two parts: the FEEL Band that contains the true vibrator very thick (19 mm) and the FEEL Unit (heart of the system), also of small dimensions, where is also housed the battery. The vibrator is placed inside a convenient band washable to maintain the vibrator on the sternum.

## CLINICAL APPLICATIONS

The main indication of HORENTEK® paediatric kit are children with profound hearing loss identified in the first year of life and candidates for cochlear implant.

Therefore, they are before surgery tools that have to give up after the intervention. Appropriate fitting and the combination of the two systems will enable all deaf children, even those with the most important losses, to activate in any case, the awareness, listening attention and auditory detection which represent the basic skills necessary to the expert speech therapist to provide her rehabilitation contents through lip reading.

Thanks to the prosthetic -rehabilitation activity, when the day surgery comes, the child candidates for cochlear implant will be ready to develop his own hearing skills because the linguistic-cognitive ones have been set in the before surgery period. Moreover, the final recovery time will be shortened and more physiologic.

## COMPONENTS

Mito Junior - Feel Band (Sternal Band with transducer) - Feel Unit - Battery - Software