En

A HEARING SCREENING TEST

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with the use of sound toys which fits easily in the paediatric examination of children between 6 months and 2 years of age

Clinical hearing test designed by Dr. Lucien MOATTI

Recommended by HAS Haute Autorité de Santé (High Health Authority) (September 2005)

As from the day a child is born, its ear detects the sound environment in which s/he is immersed , in particular the vocal emissions surrounding her/him, and the first acquisitions will gradually lead to the formation of her/his own language. The perception of sounds surrounding the child contributes furthermore to a harmonious neuropsychic development. A hearing anomaly, either existing since birth or appearing during the first age seriously affects language learning and may lead to muteness.

THE MORE SEVERE THE HEARING LOSS, THE EARLIER IT MUST BE DETECTED

This test consists of 4 sound toys presented in a box with this guide. It is distributed exclusively by:

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THE RISK FACTORS OF INFANTILE DEAFNESS

Congenital deafness or deafness in the first months of life occurs more frequently when certain «risk factors» are present. It is important to bear those risk factors in mind. But it is also important to know that a number of deafness cases are discovered in the absence of any such circumstances. This is why screening with sound toys has to be included in every pediatric examination as from the age of 6 months simultaneously with the search for the following «risk factors»:

Family history of deafness

Pregnancy Pathology (viral infections, in particular rubella - infections which are too often still treated with aminoglycosides, slow intra-uterine development)

Problems during delivery (fetal distress, neonatal anoxia, infections by vinyl chloride monomer)

Visible head and neck dismorphy and any other associated signs suggesting syndromic deafness

Meningitis in early childhood Iatrogenicity (aminoglycosides, chemotherapy)

SIGNS SUGGESTING DEAFNESS

At the age of 3 months of age: the child does not startled, does not wake up when a loud noise occurs

Between 6 and 9 months of age: the child does not start, does not wake up when a loud noise occurs

Between 12 and 18 months of age: the child does not respond to his/her name

Above 18 months of age: the child does not understand short and simple sentences

The mothers are the first ones to be worried, they should be listened to carefully.
This device allows to systematically test hearing reactions at each paediatric examination between 6 and 24 months of age.

The 4 objects presented in this box are small cylinders emitting sounds reproducing animal noises (bird, cat, sheep, cow), when turned upside down.

The broadcasted intensity is constant and independent from the mode of handling (approx. 60 decibels at a distance of 2 meters = speech sound level).

The minimal frequency of the bird is in the high frequency range (around 1000 Hertz). Those of the sheep and the cow are in the low (bass) ranges. Good speech perception by the child requires satisfactory hearing in the range from 250 to

3000 Hertz. In principle the sound perception of all 4 items enables to rule out severe deafness curtailing his/her ability to hear an oral message.
The devices should be manipulated at a distance of 2 meters, out of the child's sight, preferably behind the child or hidden by the desk. The test can be made more sensitive by muffling the sound emission with the palm of the hand.

TEST TO BE USED BETWEEN 6 AND 24 MONTHS OF AGE

Reaction of the child

The child reacts by:
- orienting his/her head or sometimes simply by glancing towards the sound: it is the orientation investigation reflex,
- but also by changing his/her behaviour: by expressing surprise, joy or fear, starting or stopping crying, stopping sucking, etc.

Interpretation of responses

With a reaction to each one of the objects obtained in good testing conditions, in a not too noisy environment, out of the child's sight, within the required distance and respecting the recommended age ranges, it may be ascertained that the hearing is satisfactory except for particular cases.
A reaction to the low (bass) frequencies objects but a lack of reaction to objects in the medium or high frequencies, can suggest deafness in the high frequencies. Mishearing of high frequencies is often due to an inner ear alteration, and may cause deafness of perception.
A lack of reaction is not necessarily proof of a hearing disorder, but does make it necessary to rerun the test, and in case of persistent doubt, an ENT and a phonological audio checkup should be conducted by a specialized team for a absolutely trustful diagnosis.

SOME PRACTICAL ADVICE

The use of unanalysed common sounds may underrate a partial insufficiency of the hearing range, especially in the high frequencies. It is important to read thoroughly the following text before using this Test.
1°) This device is fragile and is to be preserved from shocks. It should be handled only by the examiner and should not be given to the child.
2°) Turn the object up side down without shaking it.
3°) Its handling must occur strictly as indicated in the above mentioned conditions: for example, the examiner will place himself at a distance of 2 meters either behind the child, or in front of the child, but he should then hide his gesture.
*extract from the circular of the French Ministry/DGS1977:
"During the Certificate of health of the ninth month..., the use of calibrated sound toys can confirm..."
*extract from the Proposal of HAS the High Authority of Health in September 2005 concerning the individual screening of children between 28 days and 6 years of age, intended for general practitioners, pediatricians, Mother and Child care and school medicine:
Chap. 4 § II: The screening of hearing disorders of the child between 28 days and 6 years of age fits into the continuity.