

AUTISM/ A.D.D. RESOURCES INC.
25947 Gold Beach Drive S.W.
Vashon Island, Washington 98070
Phone (206) 463-5237 Fax (206) 463-2594

Michael R. McCarthy, MSc PhC QMRP
E-Mail: earait@aol.com

Marcialyn McCarthy, MAEd
Website: www.aitresources.com

DATE: _____
PARENT NAME: _____
CHILD'S NAME: _____ DATE OF BIRTH _____
LOCATION OF THIS TEST _____
YOUR ADDRESS: _____
CITY & STATE & POST CODE: _____
PHONE NUMBERS: _____
E-MAIL: _____

TEST RESULTS:

Your child/you/ would make a suitable candidate for Auditory Integration Training: Yes No

INFORMATION YOU WILL NEED

OTOACOUSTIC EMISSIONS TESTING & AUDITORY INTEGRATION TRAINING

COMMENTS:

WHO SHOULD READ THIS: Parents & caregivers – please read this booklet thoroughly in order to understand the test results. Please take notes in the margins as the test and analyses are explained.

WHY READ THIS MATERIAL: We have produced this information specifically for use as an educational tool to help you understand your child's auditory world when considering whether to have Auditory Integration Training for them. The information is specific to Auditory Integration Training, although some of the information will be applicable in everyday life and in educational programming.

HOW TO MAKE THE TEST MORE RELIABLE: The test will be more reliable if the child 1.) is relaxed, cooperative and quiet during testing; 2.) has ear canals clear of earwax; 3.) has very little or no congestion or sinus discharge; 4.) does not grind his teeth during the test. If the child is fearful and fidgety during the initial testing **and** you are set on having your child go through the Auditory Integration Training, do not worry. As the child learns that the listening sessions are actually fun and relaxing, the next time he or she is tested at midpoint and exit from AIT, they are always far more relaxed (90% of the time).

OTHER CONSIDERATIONS: There are several factors to consider besides the test data. We try to gain an understanding of the child by taking a complete history, including health and some developmental details, and questions to determine current performance. We ask about specific diagnoses if there are any known. We ask questions to understand the extent of receptive language and the child's ability to produce language or sounds. We include questions about the child's social skills and social situations in major environments such as home and school. We will ask about the child's current social adjustment problems, which might include symptoms of depression and withdrawal. We look at the test data to determine whether there is a latency problem (where sound signals must register at the nerves of the inner ear in a timely manner). We take data from each ear individually, but try to determine whether there is a balanced effect to hearing (symmetry).

MORE DETAILS ABOUT THE OAE PROCESS: Most, but not all, of our testing and intake will be performed using Otoacoustic Emissions (OAE) test protocol. OAE involves projecting a series of tonal click bursts into the ear canal, and measuring the resonating sonic emissions that result from tonal stimulation of the cochlear nerves. Each tonal burst spans the normal acoustic test range.

If there is considerable variation (asymmetry) in hearing response patterns ear to ear, and inconsistencies within each ear, a clinical history of early childhood ear infections or speech processing or expressive difficulties, we will consider your child for training.

While it is not necessary to have all conditions to qualify for AIT, we try to take all of the information into consideration. Our comparisons of intake to exit charts have been indicating considerable positive change in either, or both ears, post training.

TIME INVOLVED: The OAE will only take one or two minutes for each ear. This is under ideal circumstances, however. As a parent of a child with possible hearing dysfunction, you will be aware that some situations and responses are not always ideal.

THE ACTUAL TEST: We will place a small white rubber 'probe' into the outer ear canal. The probe is small and soft and is used to cover the 'listening' device probe, which is connected by a wire to the computer peripheral. With some children who find the testing frightening, the whole process will take much longer. We can test sleeping/napping children. We usually like to include a short consultation along with the tests where we explain the dynamics of the data and possible repercussions in the child's everyday functioning.

CARE OF OUR EQUIPMENT: We are very careful about placing the probe into the ear canal, as its specific angle is important to maintain a steady flow of click-signals and it needs to stay put (in the ear) for the necessary amount of time. Once in the ear canal – it cannot be touched, as this contaminates the data. We do not allow the child to place the device in his ear as it is a very expensive piece of equipment (\$500) and often at remote settings its replacement is not possible. We caution the child to keep his hands down (preferably in his lap), but parents can help the child in keeping hands down.

THE IMPORTANCE OF A QUIET TEST ENVIRONMENT: An ideal test situation is very quiet. Often this is not the case, when a child is frightened and crying and parents are struggling to keep the child still and get ready to have a probe placed in his or her ear!! In ideal circumstances, as soon as the probe is placed in the ear, no one should talk or whisper. The more noise the longer the test takes. The computer OAE is designed to allow the technician to adjust the noise contamination threshold. We can reduce the sound threshold so that the computer will only take data in extreme quiet. Ideally, we would like to collect 260 pieces of transit data. With the EZ Screen program for XP Windows, the data automatically shuts off at 200 data points if the quality is high enough. But often with noisy situations and crying children our chances are greatly reduced of getting the ideal 200 or 260 data points. However, if we reduce the noise rejection level, even with a noisy child, we can collect a reliable sample with between 50 and 100 data points.

ONCE THE TEST IS FINISHED: We can have the data printed or can send the data digitally in PDF format. We often schedule so that we test many children in one day and then begin the AIT listening sessions the next day. This may mean that we are unable to print the test data and hand it to the parent on the spot. Printing the information takes time. If you have an e-mail address, please include it as we can then send your test results via the Internet as an attached document.

TEST RESULTS AND HISTORY: After reviewing the test data, we will let you know whether the data reveals a problem with hearing that would, in conjunction with a strong supporting history to support the decision to go through AIT. This is what we mean when we comment that your child would make a good candidate for AIT.

HISTORY, FIRST, THEN TEST RESULTS: On the other hand, there are children who we see who appear to have hearing patterns well within normal bounds but who are obviously (by their behaviors and their problems with academic performance) not understanding instructions and not keeping pace with social situations. These are individuals who may be candidates for a condition called Central Auditory Processing Disorder. Some speech specialists can do detailed assessments to ascertain how much of a problem this is posing for the child and suggest some strategies to help the child with this kind of learning disability. AIT works well in conjunction with speech therapy for this condition. Again, we would indicate that for this kind of problem, AIT is in an appropriate type of training.

OUR EXPERIENCE: Michael McCarthy and Marcy McCarthy have 25 combined years in the AIT field. They have used the OAE system for determining AIT candidacy and progress since 1994. We find that this test is fair to young children and non-verbal and low verbal proficiency individuals. These are people whose poor coordination and poor motor timing prevent them from giving reliable results in traditional approaches to audiograms. This type of testing helps us make AIT specific to the needs of each client.

A REVIEW ABOUT AIT: Auditory Integration Training consists of three tests and a series of 20 half-hour listening sessions. The client listens to music, which has specific frequencies filtered out, as determined by the initial assessment. The music presentation is heavily processed to randomly attenuate different frequency bands as well as random volume shifts, alternating ear to ear. The music is selected from compact disks, which present broad range of frequency spectrum including the range of the human voice.

After the tenth listening session, a midpoint assessment is administered to determine any necessary changes in filtering for the last ten sessions. An exit evaluation is done to assess changes and progress.

AIT is administered in two 30-minute sessions daily for 10 days (sometimes, including weekends), each session is separated by a minimum of 3 hours.

AIT IS AN INTENSE EXPERIENCE FOR THE LISTENER: We don't often think about listening as being hard work. That's probably because it isn't when you have all the neural equipment performing on cue. When the environment between the ear and the brain is dysfunctional, the dynamics of the listening and processing in the brain change and situation may be quite confusing and sometimes chaotic.

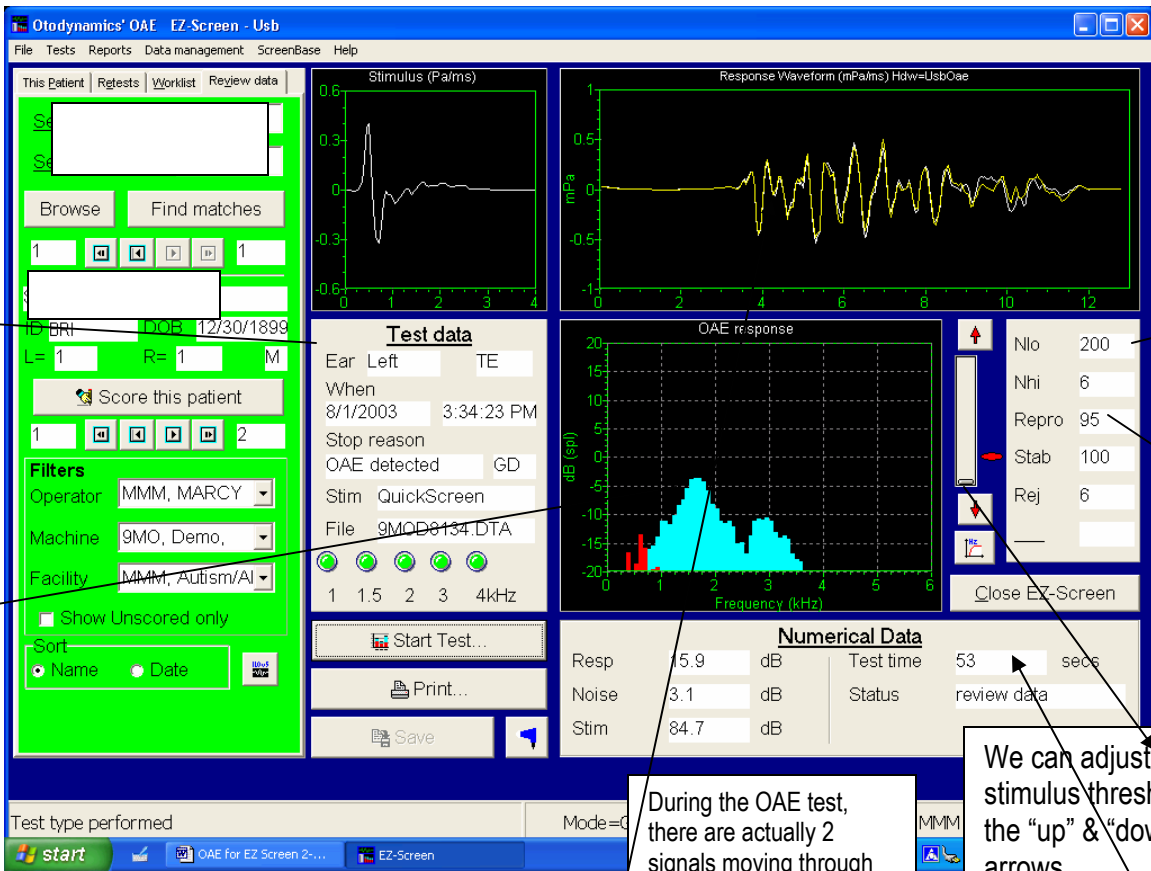
As your child progresses through the listening sessions you will find he may experience considerable stress. We counsel that the normal household rules should still apply to your child with regard to behaviors and consequences. This means that even though the normal schedule is usually abandoned during AIT, that the child should still have a 'structured environment' to return to at home and at school. The child should be allowed ample time for rest and relaxation. He or she should be encouraged to go to bed earlier. Please provide him with extra calming activities. This might include some deep pressure massages in order to support greater proprioception throughout the body.

SUPPORTS FOR AIT: In order to promote positive changes during AIT and post-training, we highly recommend that training should mark a new commitment by family members to begin examining the diet and food intake of the child. If need be, begin serious steps toward eliminating casein and gluten from their diets. Begin first by eliminating all dairy products (milk, yogurt, and cheese). We can provide you with Internet websites to help you with the process of substituting foods. If you haven't already, begin thinking seriously about having your child checked for intestinal yeast overgrowth and heavy metal retention by a trained physician working in conjunction with a reliable laboratory. We can certainly recommend where to start looking. We have worked among families who have instituted strict dietary changes prior to beginning AIT and we find that

the children adapt very quickly to the testing, and listening sessions and have more fun during the ten days. We have noticed calmer behaviors and decreased toe walking. Nearly all the children we observed who were on casein free and gluten free diets were toilet trained and only occasionally had 'accidents'.

RECOMMENDATIONS:

1. Institute firm diet guidelines if physician and laboratory results indicate a need.
2. If indicated, start metabolic detoxification procedures based upon testing by reliable laboratories
3. Return the child to a structured environment
4. Institute or return the child to a systematic communication/socialization training (ABA, Precision Teaching, Options style or other highly individualized academic setting.)
5. Institute or return the child to a systematic assessment of sensory integration activities designed by an experienced Occupational Therapist – ask for home activities too
6. Have the child taken to a developmental optometrist to determine eye teaming functions



This is the LEFT ear.

This is a peak of hearing. We can determine the frequency by running a cursor across the data. We would then filter OUT music at that pitch.

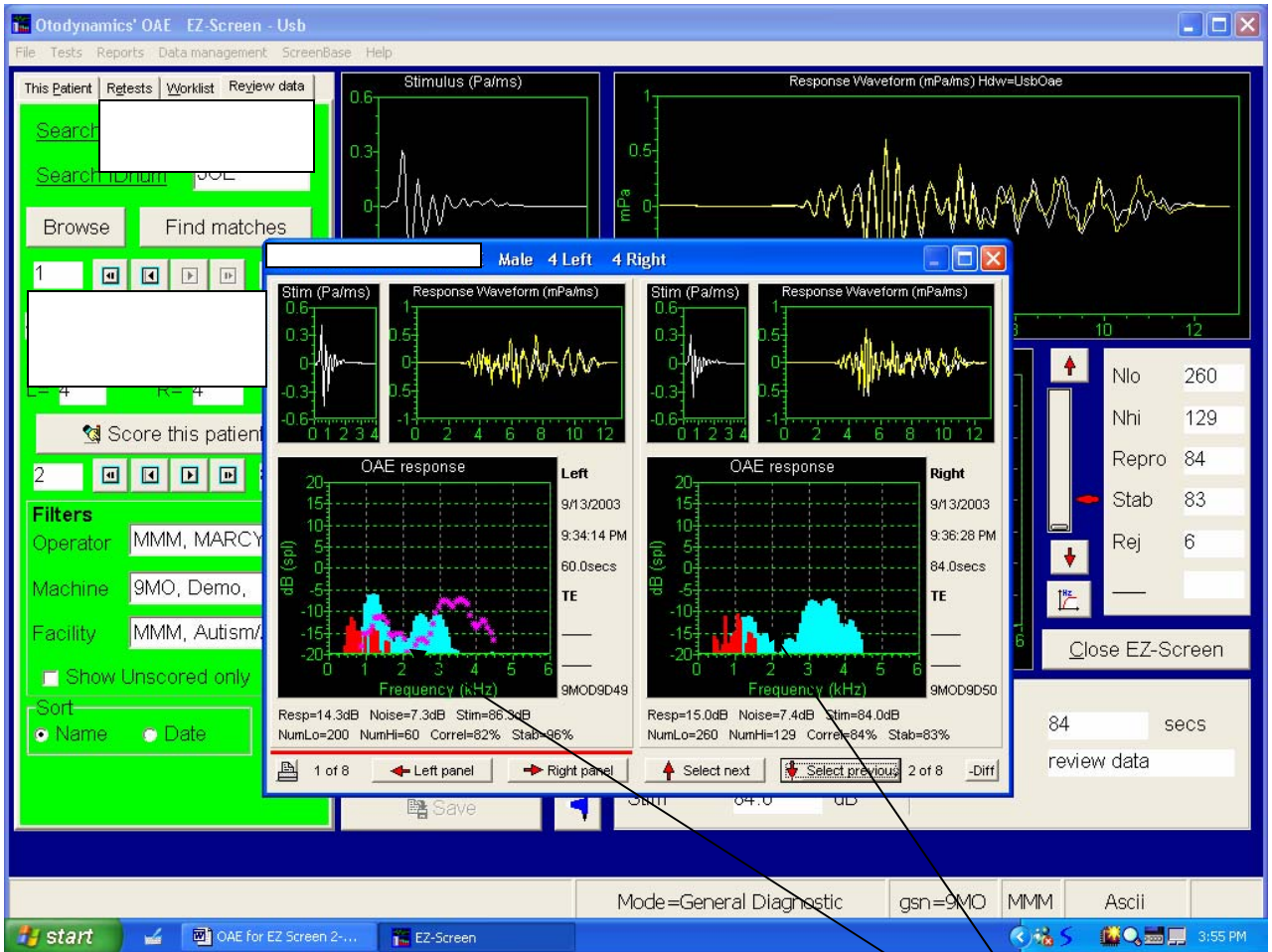
There were 200 signals processed.

We determine Latency or Validity with this figure.

During the OAE test, there are actually 2 signals moving through the ear canal to get to the inner ear (cochlea), and ultimately are echoed back to the probe. They are in a timed race. If they fall apart from one another, the Latency is said to be deficient. This is also shown as the A/B line, which is disjointed.

We can adjust the stimulus threshold with the "up" & "down" arrows.

This test took very little time at all. You can see that the Left ear took 53 seconds.



This is a sample of how the graph can compare 2 ears simultaneously. There are pink asterisks on the LEFT panel. These are indicators of how the RIGHT ear looks as it is overlapped onto LEFT ear.