Filtering Auditory Peaks Using the Berard Method of AIT

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The AIT filtering procedure described below is based on Dr. Berard's clinical experience with over 8,000 clients over a 20-year period. Studies conducted by Drs. Rimland and Edelson support this filtering procedure.

Based on feedback received by SAIT, it is evident that the filtering procedure used in the Berard method of AIT is not clearly understood by some practitioners. The following information is presented to clarify the recommended filtering protocol.

(1) Interpreting the audiogram and selecting filters. One of the goals of AIT is to decrease both hypersensitivity to specific frequencies and auditory distortions by reducing or eliminating auditory peaks present in one's hearing. An auditory peak can be defined as hearing a specific frequency more keenly than its two adjacent frequencies.

(2) During the listening sessions, the person hears processed music selected to cover a wide frequency range. Frequencies which audiograms show to be hypersensitive may be dampened by using filters. The width and depth of the filters as well as the total number of filters varies, depending on the AIT device. The filters on the AudioKinetron are: 750 Hz, 1 KHz, 1.5 KHz, 2 KHz, 3 KHz, 4 KHz, 6 KHz, and 8 KHz.

(3) Audiograms for both left and right ears need to be obtained in a quiet, but not sound-treated, room. Audiograms obtained in a sound-treated room or obtained through play audiometry should not be used when determining filter settings for AIT.

(4) No more than two filters should be used at one time. If more than two peaks are present in a person's audiogram (considering both ears), refer to Table A below to determine which two peaks should be filtered. However, in some cases, no filters or only one filter should be activated, depending on which auditory peaks are present. Certain configurations in the audiogram are more important than others. The more important peaks should be filtered before other peaks are considered. Filters are determined by examining the severity of the peaks and the difference between the peak in question and its adjacent frequencies.

(5a) 'Primary peaks' or 'primary pairs' refer to two specific peaks present in the same ear. All of the primary pairs include 8 KHz and one other peak. The chart below lists different primary peaks associated with 8 KHz, the amount or difference between the two adjacent frequencies, and the priority of filtering.

Table A: Filter Priorities for Peaks Associated with 8 KHz

Primary Peaks Associated with 8 KHz	**Minimum difference from adjacent frequencies**	**Priority**
2.0 KHz	5-5 dB	1st
1.5 KHz	5-5 dB	2nd
3.0 KHz	5-10 dB	3rd
1.0 KHz	5-10 dB	4th

750 Hz	10-10 dB	5th
4.0 KHz	10-10 dB	6th

(5b) The 'minimum difference from adjacent frequencies' column refers to the minimum difference, in decibels, between the auditory peak and its adjacent frequencies. '5-10' refers to a 5 dB or greater difference on one side of the peak (i.e., either side of the peak), and a 10 dB or greater difference on the other side of the peak.

(5c) For all of the primary pairs listed above, there should be a minimum of a 5 dB peak at 8 KHz.

(5d) The most severe case is when a person has the same peaks in both ears. Peaks present only in the left ear are considered second in severity, and peaks present in only the right ear are considered third in severity.

(5e) As stated above, the most severe peaks are filtered first. Thus, if an audiogram has three peaks (e.g., 750 Hz - 2 KHz - 8 KHz), then filters should be set at 2 KHz and 8KHz since these two peaks have a higher priority than 750 Hz and 8 KHz.

(5f) Since the beginning of the development of Berard AIT, Dr. Berard's recommendations have evolved through his own experiences and those of his practitioners. Initially, Dr. Berard determined that a peak at 4000 Hz was not to be filtered since the 6000 Hz frequency is too variable (often referred to as the 'wandering frequency') and might give the appearance of a real peak at 4000 Hz and 8000 Hz. Recently, it has become evident that it may be important to filter 4000 Hz when the difference is 10-10 dB or more with a peak at 8000 Hz (see Table A for priority order). It should be filtered as a secondary peak, if there is a 10-10 dB or more difference and if no other more important secondary peaks require filtering (see Table B below).

Examples When to Filter Primary Pairs

(6) A difference equal to or greater than 5 dB on both sides of 2.0 KHz and a difference equal to or greater than 5 dB on the left side of 8 KHz.

(7) A difference equal to or greater than 5 dB on one side of 3.0 KHz, and a difference equal to or greater than 10 dB on the other side of 3.0 KHz, and at least a 5 dB difference on the left side of 8 KHz.

(8) A difference equal to or greater than 10 dB on both sides of 750 Hz, and a difference equal to or greater than 5 dB on the left side of 8 KHz.

(9) Secondary peaks. If primary peaks are not present in the audiogram, then single peaks, if present, should be filtered. These are referred to as 'Secondary Peaks.' In rare instances, three or more secondary peaks may be present in the audiogram that meet criteria for filtering. Since only two filters can be activated simultaneously, Dr. Berard recently suggested a priority for selecting the two secondary peaks to be filtered.

Table B: Secondary Peaks

Secondary Peaks	**Minimum difference from adjacent frequencies**	**Priority**
2.0 KHz	10-10 dB	1st

1.5 KHz	10-10 dB	2nd
3.0 KHz	15-15 dB	3rd
1.0 KHz	10-10 dB	4th
4.0 KHz	10-10 dB	5th

(10) Plateaus. A 'plateau' refers to two peaks occurring next to each other. A plateau should be filtered if no other filtered peaks are present, and the individual is having difficulty pronouncing vowels and dipthongs.

Table C: Plateaus

Plateaus	**Minimum difference from adjacent frequencies**
1.0 and 1.5 KHz	5-10 dB
1.5 and 2.0 KHz	5-10 dB

(11) Individual peaks. There are a few additional rules to follow when determining filters. With the exception of 1 KHz, 1.5 KHz, 2 KHz, 3 KHz, and 4 KHz, single peaks are not usually filtered. Single peaks at 750 Hz or 6 KHz should not be filtered.

(12) Situations in which filters are not used. If the audiogram contains four or more peaks involving different frequencies in the right and/or left ears, then filters should not be used. The only exception is when there are peaks at 2 KHz and 8 KHz. In this case, filters should be activated.

(13) If a person's audiogram indicates poor hearing acuity in one or both ears, filters should not be used for the first 5 hours of AIT. The aim in this situation is to treat the person's hearing first, and later treat the person's auditory peaks. If acuity continues to be poor after 5 hours of AIT, then filters should not be used for the remaining 5 hours.

(14) If a reliable audiogram cannot be obtained from a person, then filters should not be used.

(15) Mid-way through the listening sessions. After five hours of AIT, the listener should be given a second audiotest to determine whether the initial peaks have decreased and whether new peaks have emerged. This audiogram should not be conducted immediately after a listening session. Several hours should pass to allow the person's hearing to rest before obtaining the audiogram.

(16) If new peaks emerge, then filters should be set for these peaks based on the order of importance described above. If the audiogram does not have any peaks in either ear (i.e., a relatively straight line), then filters should not be used for the remaining 5 hours of AIT; however, if the initial audiogram had peaks at 2 KHz and 8 KHz and these peaks are no longer present, these filters should still be continued to ensure that the peaks do not return.

(17) An audiotest should also be given after ten hours of AIT to determine whether the peaks have been eliminated, indicated by a generally flattened pattern in the audiogram. Again, it is best to allow at least several hours of rest before conducting the final audiogram.

(18) If the listener has speech and language problems, (e.g., mute, echolalic, nonsense speech), the volume level for the left ear should be decreased after five hours of AIT. In this way, the volume on the right ear is louder and is stimulating the left hemisphere of the brain. The left hemisphere is

responsible for most of our speech and language, and sounds entering the right ear are sent directly to the left hemisphere. This difference in sound level between the left and right ears should be consistent for the remaining listening sessions.

Editors' Note: Most published research supporting the efficacy of the Berard AIT method has relied on the procedure outlined above. The use of other filtering methods is likely to be less effective. (It is also possible that a person may have improved after receiving another form of AIT, but their results may have been better had he/she received the Berard AIT method.) There are some AIT practitioners who claim to offer the Berard method of AIT, but they do not truly follow his procedure. In many cases, these individuals were taught the "Berard AIT" method by someone other than Dr. Berard or one of the people he authorized to teach his method. We encourage our readers to share this article with other AIT practitioners--whether or not they are SAIT members. In this way, more families can be assured that their children are receiving the real Berard method of AIT.

Clarification of 'Progressive Peaks'

Addendum to "Filtering Auditory Peaks Using the Berard Method of AIT"

Sometimes the audiotest pattern shows a gradual rising slope that results in a peak. This is referred to as a 'progressive peak' and typically occurs in increments of 5 dB, although it could be greater. At first glance, the frequency may not seem to meet the criteria for filtering since there may not be a 10 dB difference from the immediate adjacent frequencies. For example, as stated in *The Sound Connection* (2000, Vol. 8, No. 1), filter selection for a secondary peak at 1000 Hz should have a minimum adjacent difference of 10 dB. However, a 'progressive peak' may be present and may need to be filtered. The size of the 'progressive peak' can be measured by using the points of the frequencies that mark the beginning and ending of the slopes as a base and the highest point as a peak.

Several examples are located on the Internet at: www.up-to-date.com/saitwebsite/progressive.pdf You will need Adobe Acrobat reader to view this page. You can download a free version of Adobe Acrobat at: http://www.adobe.com/products/acrobat/readstep.html

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