

# [Study1: threshold estimates compared to other measures](https://assignbuster.com/study1-threshold-estimates-compared-to-other-measures/)

Study1: comparison of ASSR with ABR resultsThis study demonstrated that the thresholdestimation using the ABR and ASSR could be used to predict the pure-tonethreshold in infants and children. To obtain theresults, Behavioral Threshold Tests, ABR Threshold Tests and ASSR ThresholdTests were conducted.  Result:  The discrepancybetween behavioral and evoked potential threshold was generally smaller forASSR than for ABR. The correlations of c-ABR with pure-tone thresholds weremoderately robust. However, at 1 and 2 kHz, the pure tone-ABR correlationcoefficients slightly exceeded those for the ASSR.   Discussion: –         Thesedata indicate that both c-ABR and ASSR threshold estimates can be used topredict pure-tone threshold for infants and children.-         The differences between the ABR and ASSRcorrelation coefficients were small. In addition, both click ABR and ASSR havestrong and statistically significant correlations.

–         Thecorrelations between the c-ABR threshold and the ASSR thresholds were alsostatistically significant. Strengths: –         In this study ABR, ASSR, and behavioral threshold correlations were addressed. However, the previous studies were only address ASSR and behavioral thresholdcorrelations.

Weakness:  –         Differences in thresholds when measured inthe ear canal for the adult and infant. –         More thanhalf of the sample are sensorineural hearing loss, so thesample distribution was not equal.-         Some observer may have bias to the responsebased on the audiometric result.

Study2: Direct comparison of ASSR and tone bursts evoked ABRThis study provided evidence that there wassimilarity in threshold estimation when automatic detection was used in ABR andASSR algorithm. However, the threshold estimation varied with frequency, stimulus rate, and detection method. ASSR tests were carried out using 500- and4000-Hz. Response Detection include visual detection and automatic detection.  Result: Thresholds for 500 Hz were elevated incomparing with 4000 Hz. In regards to stimulus type, thresholdfor the tone bursts were elevated. Discussion: –         Visualdetection of the 500-Hz tone burst ABR resulted in significantly lower thresholdestimates compared to other measures at 500 Hz, and the 500 Hz ASSR at 74 Hzresulted in the highest threshold estimates.

–         Visual detectionof toneburst ABR at 4 kHz also resulted in the lowestthreshold estimate, but this was not significantly different from the estimateobtained for ASSR at 95 Hz. Strengths: –         Previousstudies comparing ASSR to tone burst ABR have employed visual detection alone forABR threshold estimates and have only compared tone ABR to ASSR at onefrequency. However, this study includes findings at more than one frequency. –         Allparticipants had normal pure tone thresholds and normal results intympanometry. Weaknesses: –         ASSR isnot approved by Food and Drug Administration (FDA). –         Most ofthe participants slept during testing ASSR and the thresholds were lower. –         Only oneear was tested for each participant in both ABR and ASSR –         Noformal assessment was made of subject status during the experimentalprocedures. –         Difficulties remain in comparing thresholdestimates for tone ABR and ASSR because of the difference in stimuli used.

What did Ilearn:-         Frequency specificity, response generators, theeffects of hearing loss, and automatic detection algorithms should beconsidered when comparing the two evoked potentials.-         Adisadvantage of ABR is the subjective nature of response detection. However, ASSRuse objective detection using a set of statistical criterion previouslyobtained.