

# Binaural Fusion Test as an Alternative to Masking in Pure-tone Air-conduction Audiometry\*

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The Binaural fusion tests and conventional air-conduction tests were administered to 33 normal subjects and 100 pathological cases consisted of 4 groups :

1. Conductive loss group ;
2. Mixed loss group ;
3. Sensori-neural loss group ; and
4. Unilateral total loss group.

Categorization of these groups was on the basis of the Binaural fusion thresholds were gathered using Beyer DT 48 earphones enclosed in MX/41 AR cushion. The Wixon-Matched-Pairs Signed-ranks test was administered to test the significance of difference between the thresholds obtained through these two methods. The following observations were made :

1. The results showed no significant difference between the Binaural fusion thresholds and the conventional masked air-conduction thresholds for all the three groups.

2. The results of test-retest reliability on Product-Moment correlation shows high correlation between the two tests at all the frequencies (250 Hz to 8 KHz).

3. Normals also did not show any significant difference between the Binaural fusion thresholds and the conventional unmasked air-conduction thresholds. This

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substantiates the phenomena of Binaural fusion test that when two tones of the same frequency are fed simultaneously to both ears at a particular sensation level, the tones will get fused and will be heard at the center of the head.

4. It is hence concluded that Binaural fusion test can be used clinically as a useful tool for determining the Pure-tone air-conduction thresholds of the poor ear where masking is needed. It can be employed as an alternative to conventional masking with the same efficiency and maximum simplicity, it can also be administered by all audiometricians.

## Limitation of the Study

The only limitation of this study is that cases with other pathological symptoms like recruitment, tone decay, diplacusis are not included and hence the applicability of this test on them is not known.

## Recommendations for Further Research

The test provides further scope for research in the same area. Firstly, to check whether the fusion can be applied to Bone-conduction audiometry when there is minimum amount of attenuation. Secondly, its effect during noise audiometry : Will Binaural fusion for noise yield any information in pathological cases especially with central auditory disorders ? Thirdly, will there be any difference in the Binaural fusion test during speech audiometry ?