

1937

The Phenomenon of Increased Bone Conduction

Noble H. Kelley
State University of Iowa

Copyright © Copyright 1937 by the Iowa Academy of Science, Inc.
Follow this and additional works at: <https://scholarworks.uni.edu/pias>

Recommended Citation

Kelley, Noble H. (1937) "The Phenomenon of Increased Bone Conduction," *Proceedings of the Iowa Academy of Science*: Vol. 44: No. 1 , Article 75.
Available at: <https://scholarworks.uni.edu/pias/vol44/iss1/75>

This Research is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

interval they preferred. The tuned intervals were those with the simple arithmetic ratios of the natural scale. The series of mistuned intervals, both flat and sharp, extended approximately half way to the next simple-ratio interval. Pure tones from beat frequency oscillators were used and the exact interval was tuned by means of Lissajous' figures on a cathode ray oscillograph. Mistuning, in terms of vibrations from the standard, was accomplished by the use of a variable pitch condenser.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

THE PHENOMENON OF "INCREASED" BONE CONDUCTION

NOBLE H. KELLEY

Previous experimentation has indicated that under the following two conditions one's sensitivity for bone conducted sound is increased: (1) closure of the external auditory meatus; and (2) filling the meatus with water. There has been much discussion as to whether this "increased" sensitivity is apparent or real.

This study attempts to investigate the phenomenon of "increased" bone conduction in the normal occluded ear. The experimentation was conducted in a sound proof room. The source of sound was a Western Electric 2-A audiometer, which permitted control of the intensity of eight octave frequencies, ranging from 64 to 8192 cycles. The bone conduction receiver was a vibrating button type oscillator, part of a bone conduction hearing aid. Measurement was made from the mastoid bones and the forehead.

The phenomenon of "increased" bone conduction was present in the normal occluded ear. The effect of bilateral occlusion of the meati was a function of the stimulus tone. Occlusion lowered the threshold (increased the sensitivity) over the frequency range from 64 to 1024 cycles. From 2048 to 8192 cycles occlusion had no significant effect. Transcranial decrement values were also obtained from the bone conduction measurements.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.