

## Sound Exposures and Hearing Thresholds of Symphony Orchestra Musicians

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Royster, J.D., Royster, L.H., and Killion, M.C

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### SOMETHING ABOUT MEAD

Although there had been articles in the 1970s and 1980s about the effects of music on hearing thresholds, this was amongst the first to use dosimetry and to compare with international noise standards. To even accomplish something like this, Mead needed assistance from the Chicago Symphony Orchestra and a “buy-in” from its musicians and its management. Through his many contacts with the Symphony, he was able to complete this study. Mead was not shy about asking people to do things. Unlike simply “volunteering” to help, Mead was always able to make a case that was based on both a true and deep concern about hearing health care, as well as in solid acoustic science, that future research participants (we used to call them “subjects”) were always ready to jump in with both feet. It takes many people saying “yes” before such a study could ever have been carried out. Mead’s clear thinking and even clearer explanation of “why” have opened many doors for him and others involved in any one project. I am not sure there is a single English word for this trait, but I suspect the closest word that best describes Mead is “passion”.

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### SUMMARY

In their article ([Sound Exposures and Hearing Thresholds Of Symphony Orchestra Musicians](#)) Royster, Royster, and Killion used dosimetry to measure the weekly exposure of all musicians in the Chicago Symphony Orchestra. These results were compared with a precursor to the current international standard (ISO R-1999), namely ISO 7029 (1984), and found to be in very good agreement, demonstrating that the effects of music exposure were similar to those of noise exposure. Using a 3 dB exchange rate, dosimeters were fit on 68 classical musicians, and the Leq was measured for 15 hours during the work-week noise exposure (excluding practice and teaching time), and found that equivalent weekly exposures (Leq) ranged from 75 -95 dBA. The resulting audiograms showed excellent agreement with ISO 7029. Of interest is that 52.5% of classical musicians demonstrated notched audiograms, consistent with those of their industrial colleagues, with the left ear of violinists and violists worse than the right due to the proximity of the instrument to the left ear.



Annotated by: Marshall Chasin