Best Practices and Advice for Using Pupillometry to Measure Listening Effort: An Introduction for Those Who Want to Get Started

Within the field of hearing science, pupillometry is a widely used method for quantifying listening effort. Its use in research is growing exponentially, and many labs are (considering) applying pupillometry for the first time. Hence, there is a growing need for a methods paper on pupillometry covering topics spanning from experiment logistics and timing to data cleaning and what parameters to analyze. This article contains the basic information and considerations needed to plan, set up, and interpret a pupillometry experiment, as well as commentary about how to interpret the response. Included are practicalities like minimal system requirements for recording a pupil response and specifications for peripheral, equipment, experiment logistics and constraints, and different kinds of data processing. Additional details include participant inclusion and exclusion criteria and some methodological considerations that might not be necessary in other auditory experiments. We discuss what data should be recorded and how to monitor the data quality during recording in order to minimize artifacts. Data processing and analysis are considered as well. Finally, we share insights from the collective experience of the authors and discuss some of the challenges that still lie ahead.

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Corresponding author: Winn, M. B.
Contributors: Winn, M. B., Wendt, D., Koelewijn, T., Kuchinsky, S. E.
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