

## Vocal Loading Among Elementary School Teachers

*Suvi Hakala<sup>1</sup>, Eeva Sala<sup>2</sup>, Leena M. Rantala<sup>1</sup>, Sofia Holmqvist<sup>3</sup>*

<sup>1</sup> Logopedics, School of Social Sciences and Humanities, University of Tampere, Tampere, Finland.

<sup>2</sup> Department of Otorhinolaryngology-Head and Neck Surgery, Turku University Hospital, Turku, Finland.

<sup>3</sup> Department of Logopedics, Åbo Akademi University, Turku, Finland

{ [suvi.hakala@uta.fi](mailto:suvi.hakala@uta.fi) ; [eeva.sala@tyks.fi](mailto:eeva.sala@tyks.fi) ; [leena.m.rantala@uta.fi](mailto:leena.m.rantala@uta.fi) ; [sofia.holmqvist@abo.fi](mailto:sofia.holmqvist@abo.fi) }

Vocal loading is associated with many voice disorders either being the main cause of tissue damage causing the voice disorder or affecting performance in voice production in voice disorders of other origin. Vocal loading is build up by speaking loudly with a high pitch for a long period of time. There is only little quantitative data dealing with vocal loading among voice users of different professions because of practical and functioning measurement methods have been lacking. The new method, Ambulatory Phonation Monitor (APM KayPentax) has been developed for documenting parameters of voice such as fundamental frequency (F0), sound pressure level (SPL) and phonation time during working conditions. The purpose of this study was to gather data on vocal load of elementary school teachers. Forty elementary school teachers (32 females, 8 males, mean age 43,6 years) from 14 schools participated in the study. The measurement started in the morning before lessons, and data was recorded throughout the whole working day. The measurement period was mean 4 hours 53 minutes (min 3:25 and max 7:27 hours). The phonation time was mean 20±5% of the work day. Speech level was 74.5±6.4 dB for females and 72.7±1.4 dB for males, and fundamental frequency 222±24 Hz for females and 121±4 Hz for males. Voice loading is analyzed separately in different categories of lessons and also during recesses, during lessons with high and low background noise level. Comparison will be made to other studies which have been measuring voice loading during work day.