Applied Psychophysiology and Biofeedback (2022) 47:253–254
https://doi.org/10.1007/s10484-022-09555-1

Editorial: A Festschrift in Memory of Evgeny Vaschillo

Paul Lehrer[1]

Published online: 18 July 2022

This issue is a *Festschrift* in memory of Evgeny Vaschillo, a seminal researcher in the fields of heart rate variablity biofeeedback and resonance processes in the cardiovascular system. His work on resonance characteristics of the baroreflex system definitively demonstrated why breathing at a specific rate produces extraordinarily high amplitudes in respiratory sinus arrhythmia. His work was the foundation of all current work on heart rate variability biofeedback, a topic that now attracts more research interest and attention than any other in the peripheral biofeedback field.

This issue is devoted to reviews of personal research on heart rate variability biofeedback and the psychophysiology of heart rate variability by some of the most productive researchers in this field. Each paper reviews the intellectual history and scientific contributions of the author and their colleagues. The authors make frequent mention of the work of Dr. Vaschillo and that of other contributors to this issue, but each has followed a unique path, and has added in a unique way to our understanding of heart rate variability and heart rate variability biofeedback.

I met Evgeny almost by chance, in St. Petersburg, Russia, in a 1992 during visit to my son, who was studying there at the time. On the airplane trip, I read an advertisement in the *APA Monitor* inviting American Psychologists to pay a visit to the Department of Psychology at the State University of St. Petersburg, the home of the venerable Pavlov Institute. This was a chaotic time in Russia, soon after the fall of communism, with the economy in freefall, a time full of rapid change, criminality, and rampant poverty. While there, I asked if anyone in town was doing biofeedback. I was referred to a private clinic, *Biosvyaz*, who, I found, was doing heart rate variability biofeedback to help children with asthma. They taught children to breathe more slowly using an innovative biofeedback software program, with the goal of increasing the amplitude of respiratory sinus arrhythmia. I found this quite surprising, because, as an asthma researcher, I knew that increased vagus nerve activity causes bronchoconstriction, while, as a psychophysiologist, I knew that increased respiratory sinus arrhythmia would signify increased vagus nerve activity.

So why weren't all of the children having asthma attacks when they practiced this method? The president of the company, Alexander Smetankin, assured me, though an interpreter, that the children were all getting better, and that he hoped to market his biofeedback device in the United States. I replied skeptically that we needed data to back up the claim. He volunteered to share data form his clinic, and I found highly significant improvement in 20 consecutive cases from his clinic. We eventually published the results in this journal (Lehrer, Smetankin, & Potapova, 2000), and I followed this with a small, controlled pilot study, which obtained similar results (Lehrer et al., 1997). However, when I then decided to apply for NIH funds to do a larger study, a barrier was apparent: I didn't know how the method worked. It was then, in another visit to St. Petersburg, that Dr. Smetankin introduced me to Evgeny Vaschillo, who had done his doctoral research on the topic, demonstrating how heart rate variability biofeedback stimulates resonance characteristics of the baroreflex system., and thus possibly improve general adaptability. I helped Evgeny put his work into acceptable English, and the results were eventually published in this journal (Vaschillo et al., 2002).

Also, by a series of happenstance occurrences, Evgeny ended up migrating to the United States, in an area of South Florida near where my in-laws lived. We met regularly during that time, and when I eventually did get the NIH grant, I invited him and his wife Bronya to join my research team. He worked as a Rutgers colleague for the rest of his life,

✉ Paul Lehrer
lehrer@rwjms.rutgers.edu

[1] Rutgers -- Robert Wood Johnson Medical School, New Brunswick NJ 08852, USA

continuing to do productive research on resonance characteristics of the cardiovascular system, and how biofeedback can stimulate them.

This issue of *Applied Psychophysiology and Biofeedback* represents a status report on scientific work that he profoundly influenced.

References

Lehrer, P., Carr, R. E., Smetankine, A., Vaschillo, E., Peper, E., Porges, S. … Hochron, S. (1997). Respiratory sinus arrhythmia vs neck/trapezius EMG and incentive inspirometry biofeedback for asthma: a pilot study. *Applied Psychophysiology and Biofeedback*, *22*(2), 95–109. doi: https://doi.org/10.1023/a:1026224211993

Lehrer, P., Smetankin, A., & Potapova, T. (2000). Respiratory sinus arrhythmia biofeedback therapy for asthma: a report of 20 unmedicated pediatric cases using the Smetankin method. *Applied Psychophysiology and Biofeedback, 25 (2)*, 193–200. doi: https://doi.org/10.1023/a:1009506909815

Vaschillo, E., Lehrer, P., Rishe, N., & Konstantinov, M. (2002). Heart rate variability biofeedback as a method for assessing baroreflex function: a preliminary study of resonance in the cardiovascular system. *Applied Psychophysiology and Biofeedback*, *27*(1), 1–27. doi: https://doi.org/10.1023/a:1014587304314