

30 years with Respiratory Sinus Arrhythmia – an exciting personal and clinical journey

Bo von Schéele, Swedish Center for Stress Medicine, bo.vonscheele@stressmedicin.se

30 years ago I first observed the phenomenon of Respiratory Sinus Arrhythmia (RSA). Leaving music profession due to extreme stress, I started psychology studies. While in my first scientific study measuring wireless ECG during musical performance, I suddenly observed that one musician's heart rate co-varied with musical phrasing. I consulted the literature and found Grossman's and Porges' work on RSA. Since then RSA has been a "close friend" in my clinical work.

Among consequences;

All our patients (mandatory education is part of the treatment) understand and have used RSA-biofeedback

Four PhD dissertations in Artificial Intelligence Medicine (pattern analysis) and Psychology have been published by coworkers. Did not mention RSA in my own PhD dissertation 1986, however, because I "wanted to pass the examination".

In clinical settings we use RSA as a multifaceted tool expressed below in head lines

RSA: As a diagnostic tool

RSA: For (bio)feedback including influence on pattern characteristics

RSA: As outcome measure

RSA: As pedagogical tool

"RSA, a dynamic respiratory-cardiovascular interface which helps our understanding of basic biologic functioning. It can be used as on-line information and it could also be used as an outcome variable. It might also be used to diagnose and predict autonomic nervous system imbalance. Dysfunctional RSA should be used as information about "something is wrong; look for the details". By incorporating analyses of metabolic variables including electrolytic systems we may obtain a detailed picture of patient's dysfunctionality. We can then, collaborating with medical examination, find proper way to train patient to obtain functionality. I regard RSA as a key for better understanding and better practical clinical work and feedback for effective treatment, both on-line and over time. RSA is both the independent and dependent variable depending on where you are positioned - and so is the patient (Kelly, 1955)" (from von Schéele, 1995)

Different kinds of clinical use of RSA-pattern analyses will be illustrated with data

von Schéele, B.H.C. (1995). Respiratory Sinus Arrhythmia as a Diagnostic Tool, a Treatment Goal, a Rule for Treatment Planning, a Cool Biofeedback, and an Out-Come Variable. *Biofeedback and Self-Regulation*, 20, 3, 308-309