

PHYSIOLOGICAL EFFECTS OF FREE SINGING

Pilot study on a novel approach of singing therapy 1

Klasmann JK, Vienna, Austria, Puswald B², Moser M^{1,2}, Lassnig N.
Affiliation: 1. Medical University Graz and 2. Joanneum Research Institute for Noninvasive Diagnosis, Weiz

Correspondence: JK Klasmann,
Tel.: +43/676/731-15-19; voiceandwords@chello.at

Objectives and Goals “Sing Yourself Free” (SYF) is both a novel method of singing therapy and a way to rediscover natural singing. It can be developed to any level of performing skills up to the demands of perfect and effortless, yet virtuous belcanto singing. It is based on the observation that the physiological process of optimal phonation in speech or singing needs not to be learned as a technique, but is part of the inherent “knowledge” of any human body, starting from the very first cry. It could be called a part of the ‘basic program’ of our organism which may be inhibited by various kinds of conditioning occurring in one’s biography. Fortunately,

it can never be lost completely and can therefore be reactivated at any point in life. Experience with more than 400 clients of SYF suggests that freeing the natural breath, apart from improving singing and speaking, does not only foster a profoundly transformative and re-integrative process on the psychological level, but improvements of various medical conditions not directly related to breathing, lungs or throat. Therefore, we hypothesized that reactivating autoregulative properties of the breath by means of SYF might also improve the autoregulation and basic health capacities of the organism as such.

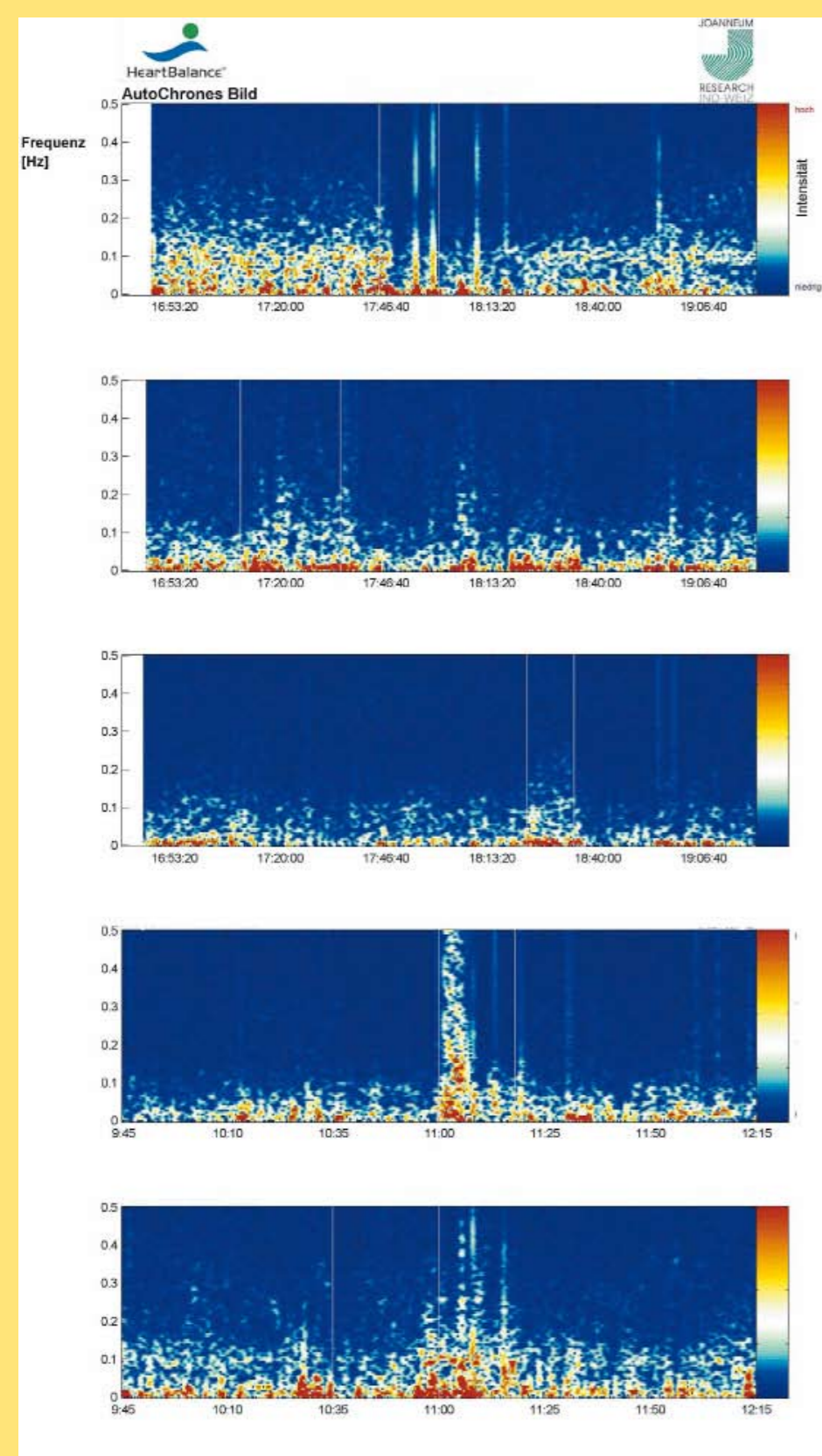
Methods The setting was a three-day workshop in SYF with 14 participants, consisting of an elaborated sequence of verbal introduction, bodywork, group supported individual sessions, partner exercises, meditation, work on breathing and sharing sessions. During the total 72 hours of the workshop, all participants were monitored with the ‘HeartMan’ (www.heartbalance.org), a digital high resolution ECG recording device originally developed for space medicine. The participants were advised to note their activities during non-workshop-hours. During workshop hours, activities had been tracked by the therapist. The recorded ECGs were used to record the heart rate variability (HRV). The data was analyzed and visualized in form of ‘Autochronic Images’ (ACI) which display in which periods the organism has been dominated by the sympathetic or the parasympathetic nervous system.

Medical science has only recently become aware of the complex patterns of body rhythms accessible e.g. by spectrogram analysis of long-term heart-rate recordings. Body rhythms display distinct times of chaos (mainly during the day) and order (during well slept nights). They are orchestrated horizontally e.g., by the circadian clock, which conducts the temporal order of different organs as well as vertically, by the rhythmic interaction of parameters like respiration and circulation.

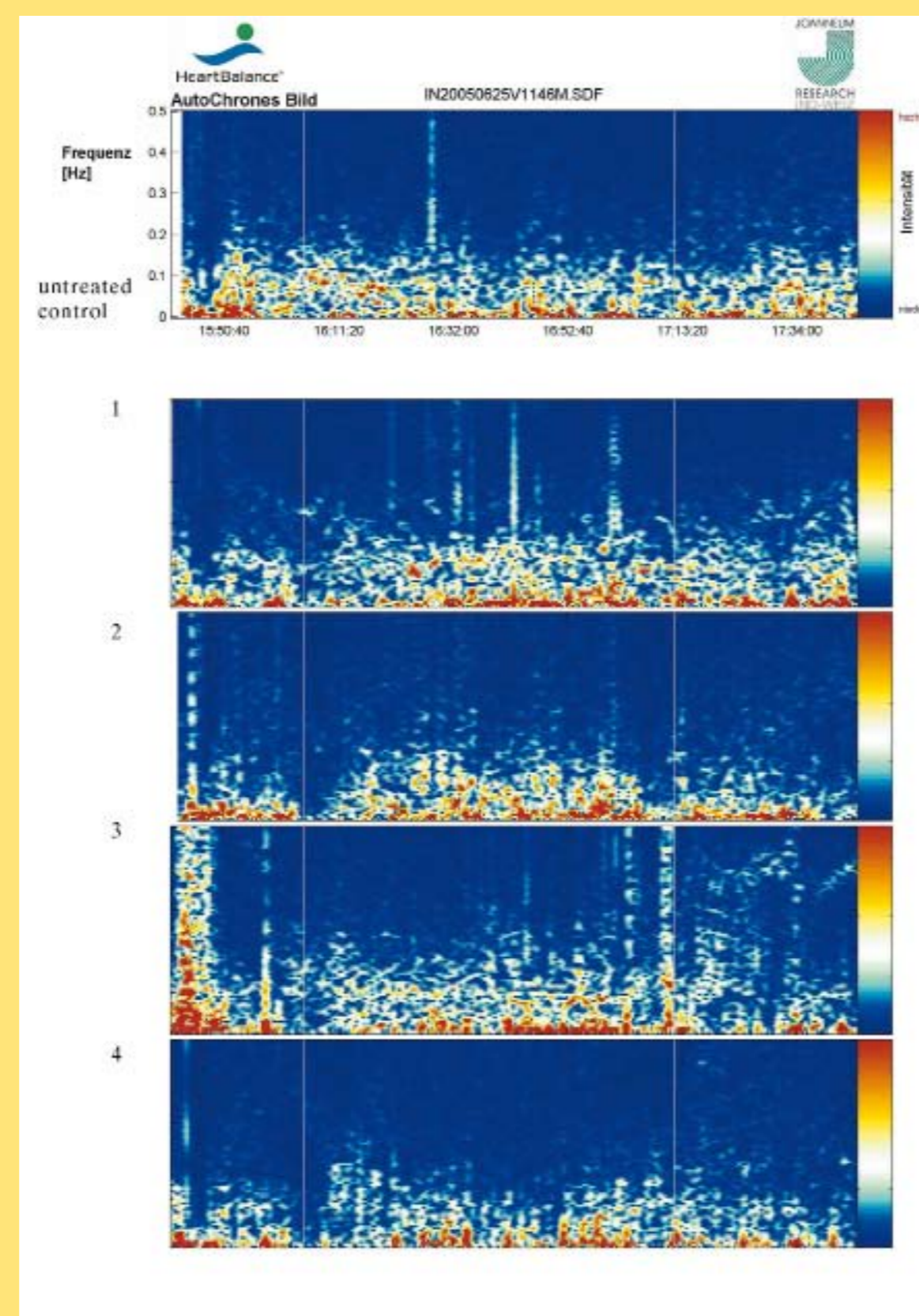
The ACI displays the heartbeat oscillations (I.), frequencies (II.), the balance of the parasympathetic nervous system and sympathetic nervous system (III.), the influence of the breathing on the pulse rate (IV. & V.), the heart rate (V.), the ratio of the pulse-respiration quotient (VI.) and the protocol of activities performed during measurement (VII.).

Results The data analysis showed an increase of sympathetic activity due to the increased amount of physical activity. The participants were unaccustomed to the amount of physical activity they performed during the sessions of the workshop. Physical training is used to lead the organism through an activated period which triggers it to reactivate its autoregulative potentials. The assumed positive effect of

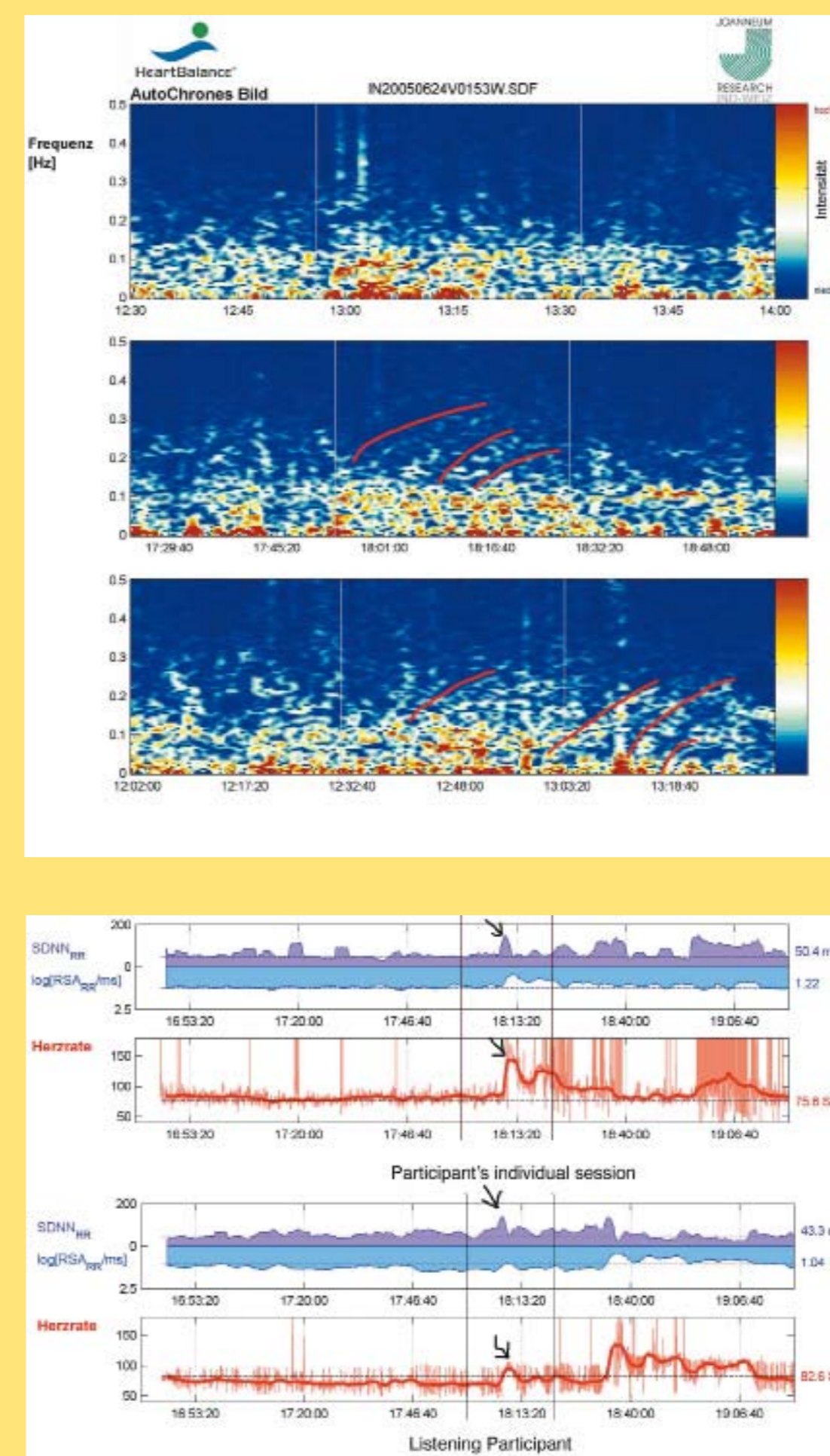
this therapy is supported by other findings detailed on this poster. To demonstrate the longterm effect on HRV, all participants should have undergone a 24 hour ECG before the intervention and an additional 24 hour ECG three days after the workshop. For economic and organisational reasons, this was not possible at the time of the study.



On the first full day of the workshop, each participant received a group supported individual session addressing his or her specific inhibitions of breath and singing. These sessions led to a visible increase in vegetative activity, i.e. „liveliness“ with the effect of the session in some cases continuing for some time (when the topic addressed was „still working“).



On the second day of the workshop, the whole group underwent an exercise designed by Moshé Feldenkrais to liberate the breath from unnecessary muscle activities. The vegetative activity provoked by this exercise showed two different types of patterns. Example 2 shows a simple rise-and-fall of activity whereas examples 1, 3 and 4 demonstrate a whole symphony of overtones, continuing also after the completion of the exercise.



In the morning and the afternoon of day 2 as well as in the morning of day 3, partner exercises were carried out with the participants helping each other in freeing their breath and singing. In several participants, this led to highly organized rhythmical structures in their ACIs, with a maximum in the second exercise and a slight decrease in the third. (See the marks „glissando“-structures; the heartbeat „sang“ whole scales of consecutive overtones, in some cases over more than one octave.)

During the individual sessions, some listening participants showed heart rate activity remarkably parallel to those of the person „at work“. This could be interpreted as a sign of empathy, or of a similar problem „touched“ by watching the session of another.

Conclusions These preliminary results show that the singing therapy SYF does have physiological effects, though distinctly different ones depending on the individual. Obviously, the autonomic nervous system responds immediately, and unexpected spectral phenomena in HRV arise. The chronobiological parameters of blood circulation, closely correlated with the basic rhythms of the sympathetic and/or parasympathetic branch of the autonomic nervous system, seem to react to SYF with the typical effect of a - presumably transitory - increase in sympathetic activity due to the emotional and physical stress triggered by the therapeutic process. According to observations made

during and after other similar interventions, we assume that follow-up measurements would show a positive long-term vagotonic effect of the therapy. Our observations also show that the precise analysis of HRV may be a valuable tool in the understanding of physiological processes occurring during the singing therapy SYF. Further research will be necessary to validate our hypothesis. Future studies should include 24 hour HRV measurements and analyses conducted 1-2 weeks before and 4-8 weeks after the therapeutic intervention to determine its long-term effects.