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Biofeedback and Heart Rate Variability (HRV)

Time and again, biofeedback is moved into the proximity of the esoteric treatments. But it is a scientifically based method with repeatable, successful results and suitable for **diagnosis, prevention, recovery, treatment** or **rehabilitation**. With biofeedback you learn to make originally unconscious bodily processes conscious and to change and control these. Body information is made visible to the trainee on a screen and reported back. Through regular training, you learn to influence positively these quantities and is therefore training one's own self and the nervous system. Traditionally, we measure skin resistance, skin temperature, muscle contraction, respiration, heart rate and more recently, heart variability. Biofeedback has been a widely accepted, safe method for decades and has proved to be very helpful in **pain, anxiety, sleep disorders, cardiovascular problems** or **breathing difficulties** and so on. In addition, it promotes a **positive mood, increased carrying capacity** (resilience) and **reduces stress**.

Breathing

With breathing we affect our physiological and psychological condition. Although breathing is done mainly unconsciously, with exercise we can make breathing voluntarily and we train self-perception. The diaphragm is made for the correct abdominal breathing, **not** the chest. Proper breathing optimizes the pH of the blood and thus provides the ideal O₂-CO₂ ratio, so the haemoglobin can fulfil its vital functions optimally. Chronic bad breathing can be an important factor in **heart disease**, epilepsy, allergies, anxiety, pain, cold hands, irritable bowel etc. The proper exchange of gases through proper breathing strengthens the autonomic nervous system and promotes homeostasis. Therefore **self-healing** and **regenerative processes** are induced.

Heart Rate Variability (HRV)

Imperceptibly the heart rate accelerates when you breathe in (sympathetic system) and slows down while exhaling (parasympathetic nervous system, vagus). HRV measures the heart beat intervals which are made visible on a monitor with an appropriate hard- and software. In this manner you learn to control voluntarily and influence HRV. The analysis of the HRV is an important tool to evaluate the function of the autonomic nervous system and cardio-respiratory control system. HRV measures the autonomic functions of the body and acts directly and effectively on the body with its systems. Many studies show that this relatively simple measurement contains extremely valuable information regarding health and aging, mental and physical capacity and severity of a disease. A high HRV stands for health and wellbeing. HRV training is easy to perform and not invasive. HRV Biofeedback has recently experienced a rapid development in research and application. HRV will soon gain importance as blood pressure, pulse, etc., but you can exercise heart variability and thus increase efficiency.

Resonant breathing with HRV

American and Russian researchers were able to increase the efficiency of HRV training by introducing **resonant breathing**. This promotes very strongly the efficiency of the respiratory and cardiovascular system. So one benefits at **work**, in **sports** and general **health** is increased as well.

Everyone has an optimal breathing frequency (at rest an adult breathes in a range of four to seven breaths per minute), in which various body systems (heart rate, hormones, blood pressure, breathing, emotions, etc.) perform best together. When breathing in this resonant frequency you get a maximum training effect, because systems oscillate synchronously together. This way you target and affect directly or indirectly the various systems such as respiration (baroreflex), cardiovascular (blood pressure), immune and endocrine systems.

Studies demonstrate the specificity of resonant HRV training sessions for **asthma, hypertension, irritable bowel syndrome**, but also for a quick **recovery**. Even the susceptibility to **altitude sickness** can be reduced. Very latest studies (2009) show also a positive effect on people with **PTSD** (Post Traumatic Stress Disorder).

HRV biofeedback with resonant breathing can be easily learned in a **very short time** and helps improve **health, mood** and **performance**. Most people succeed in this control of the HRV with the corresponding resonance in about four sessions. And then you are to exercise this resonant breathing at least 10 to 15 minutes once a day (preferably 15-20 minutes twice daily).