



BUBBLE²

A fusion of
technology and style

BUBBLE² PRACTICE STUDY

HRV-Analysis

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QUESTION

- ▶ How does the neurovegetative activity/autonomic function of the heart react to the **BUBBLE²**
- ▶ What results can be achieved?
- ▶ What frequency of Schumann resonance frequencies and magnetic field strength was used as the basis of the study?
- ▶ Which device was used for the proof of effectiveness?

Answers

- ▶ HRV measuring device - Pulse converter with finger sensor – ECG controlled
- ▶ HRV - 7 minutes - 1x without BUBBLE - 20 to 30 minutes wearing the **BUBBLE²** -2 HRV measurement
- ▶ **BUBBLE²** - Settings: Schumann resonance frequency 7.83HZ – 40 Micro Tesla
- ▶ The following parameters were measured to prove effectiveness:
SDDN, PNN50, RMSSD, SD1+SD2, heart rate variability CV and stress index
- ▶ 48 test subjects - aged 25 - 85 women and men

The practice study was conducted with this target group. My practice is heavily frequented by the age groups 25 - 85 years

From March to May, I was able to carry out, analyze and interpret 100 measurements on 50 test subjects.

It was important here to use parameters that can change in the short term and parameters that change in the long term.

Attention should be paid to stress-associated parameters:

SI -Stress parameter in relation to the RMSSD - Regeneration +Fitness parameter

A high SI value and a low RMSSD value is to a large extent a poor prognosis for the future for the test person!

A stress attack could occur!

It was therefore particularly important to investigate the influence on these parameters

To what extent the effect of the **BUBBLE²** technology can positively influence the SI and RMSSD parameters and the **BUBBLE²** can serve as a prophylaxis

Important values at a glance

- ▶ From the RR tachogram - ECG based - variance and mean value dependent time and frequency parameters are determined. Among the established indices of the time domain

Counting:

- ▶ Standard deviations of all RR intervals - SDNN- as an expression of the total variability
- ▶ Mean value of the differences of consecutive RR intervals - RMSSD- as a marker for the parasympathetic nervous system
- ▶ Stress index SI - parameter of the frequency distribution of the RR intervals and indicator of sympathetic activity
- ▶ PNN50- denotes the percentage of all intervals that deviate by at least 50ms from the outgoing interval. High values here stand for greater long-term variability and increased parasympathetic activity. Compared to SDNN, PNN50 is more stable.
- ▶ SD1 is the ability to adapt quickly in milliseconds - the ability to react to short-term changes in HRV is subject to the vagal control of the autonomic nervous system
- ▶ SD2 is the long-term change is influenced sympathetically as well as parasympathetically,

This table shows the results of group 1 of the HRV measurement before - after the application of **BUBBLE²**.

These are 5 examples, so-called random samples from group 1

23 test subjects - parameters were improved by 61% / 38% - 88% on average

Blue value before applying the **BUBBLE²**

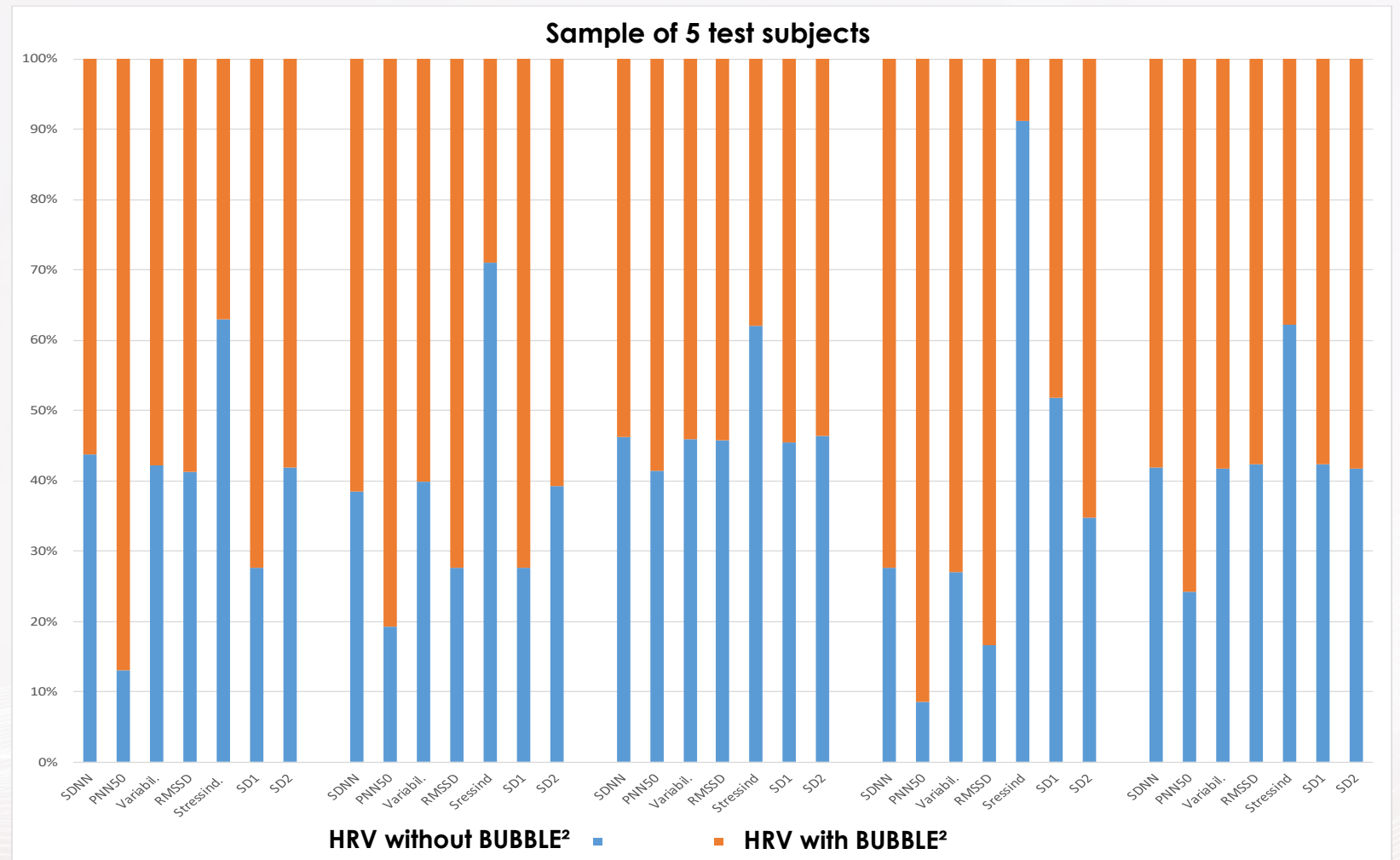
Orange: after applying the **BUBBLE²**

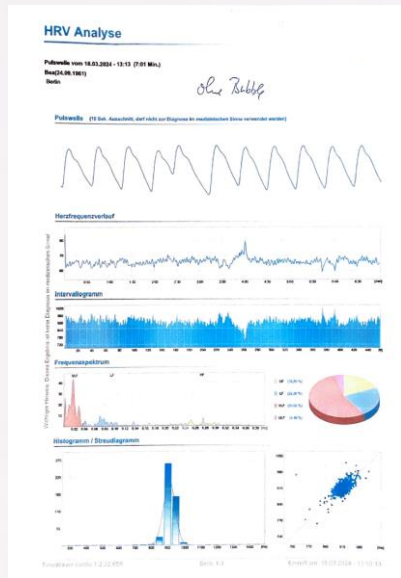
Example 1: SDNN - 43% - 57% + long-term value

1. PNN50: 12% - 88%+ long-term value
2. Variability: 42% - 58% +short-term value
3. RMSSD - 42% - 58% +short-term value
4. Stress index 62% - 38% lowered!
5. SD1- 28% - 38%+
6. SD2 - 42% - 58%+

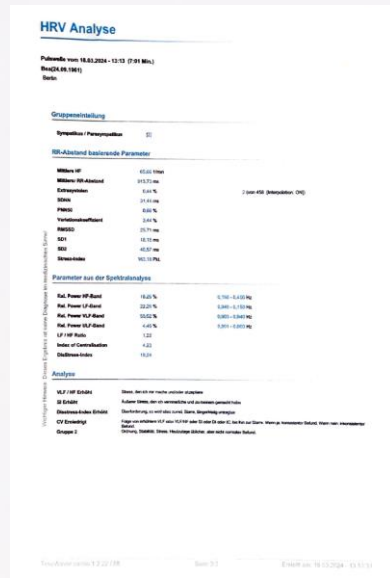
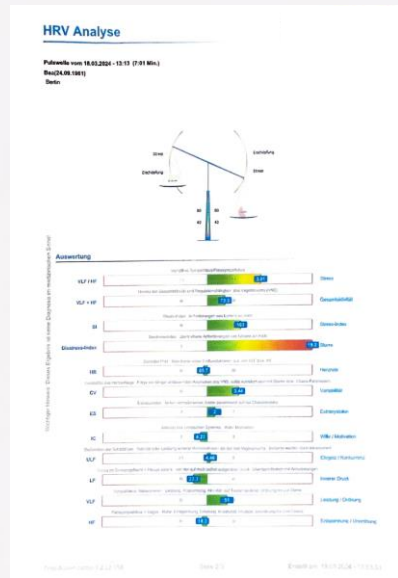
- ▶ 5 samples from the group - 23 test subjects
- ▶ All parameters reacted positively, and the result was an Improvement of all values

ORIGINAL HRV MEASUREMENTS

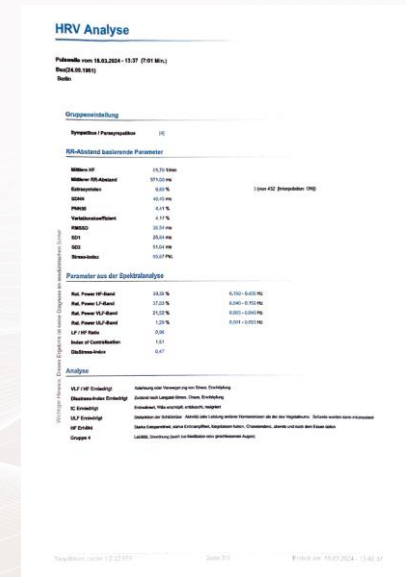
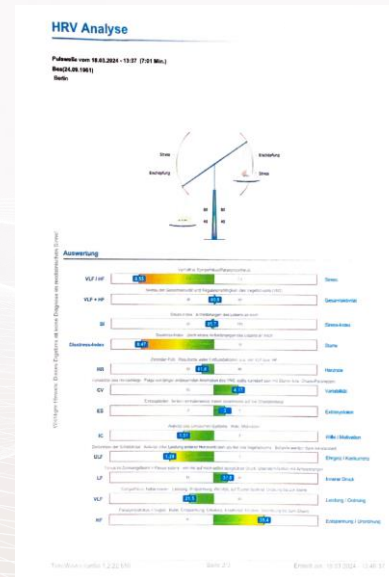
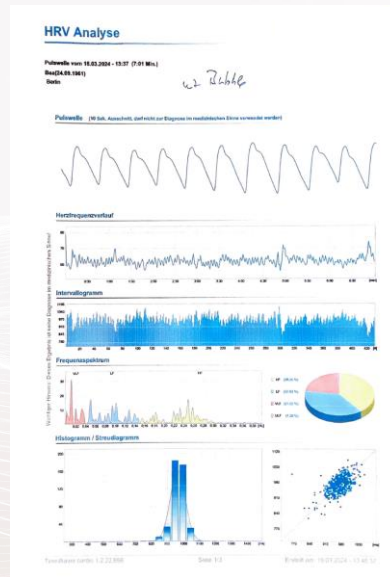


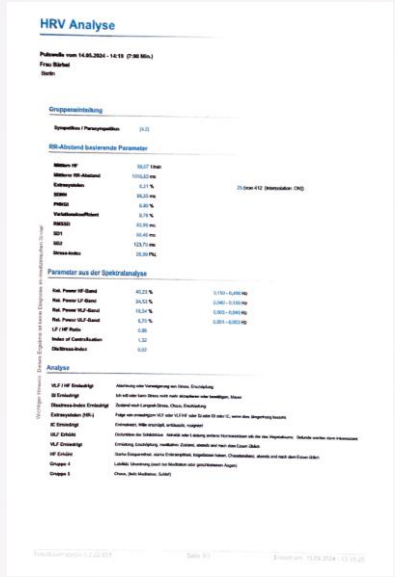
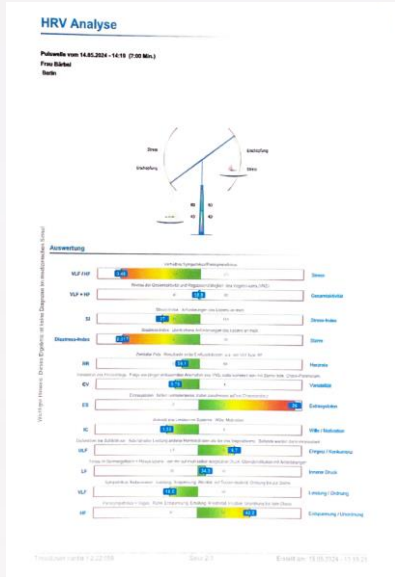
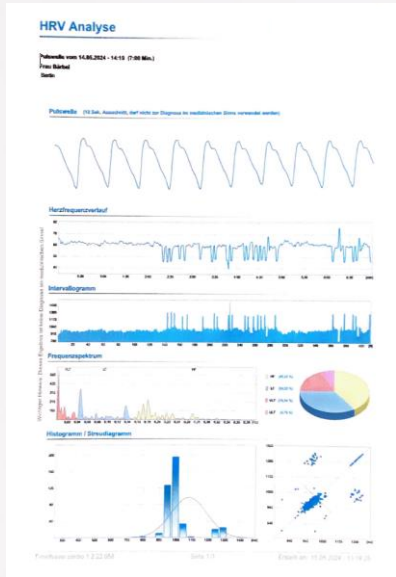


WITH BUBBLE²

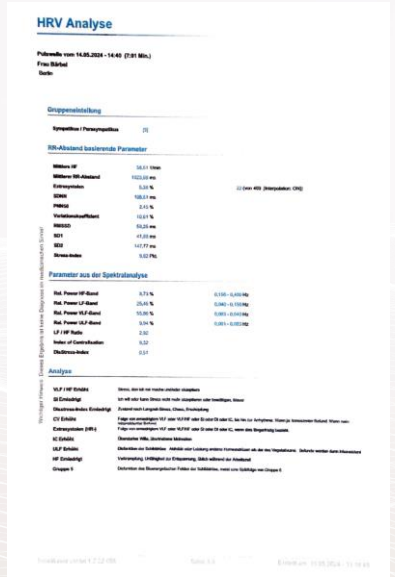
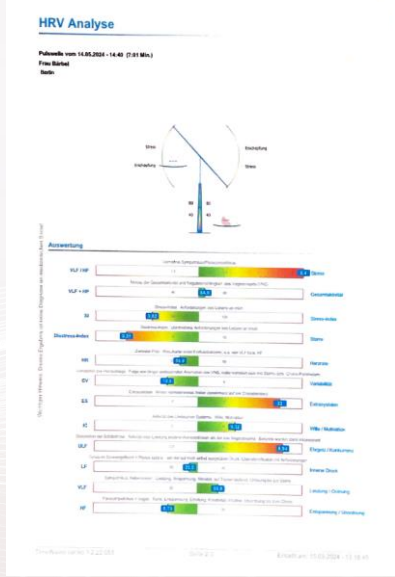
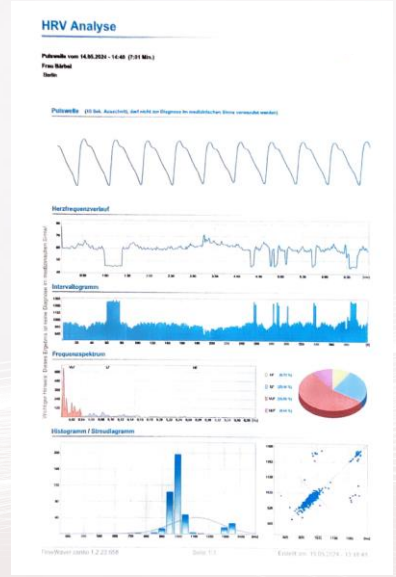


WITHOUT BUBBLE²





WITHOUT BUBBLE²



WITH BUBBLE²

- ▶ 5 samples from 23 subjects Group 2
- ▶ Some parameters have improved

ORIGINAL HRV MEASUREMENTS

1.SUMMARY

- ▶ 28 women and 20 men were tested with the HRV measurement measured and analyzed
- ▶ There were no significant differences in the measurements of women and men
- ▶ 23 subjects Improvement in all parameters
- ▶ 22 test subjects Improvement in individual parameters
- ▶ 1 test person no improvement
- ▶ 3 subjects Deterioration of parameters
- ▶ 1 proband with chronic atrial fibrillation - ECG was quieter

1.CONCLUSIO

- ▶ HRV is an indicator of the general state of health
- ▶ HRV is a measure of the neurological activity/autonomic function of the heart
- ▶ The HRV practice study has shown that the HRV parameters react positively to the **BUBBLE²**.
- ▶ Above all, the improvement in the stress index values
- ▶ The overall variability SDNN and the improved regeneration values RMSSD show that **BUBBLE²** can bring a clear benefit for the general state of health.
- ▶ **BUBBLE²** is suitable as an entry-level device for PEMF therapy

SUMMARY

EFFECTIVENESS OF PEMF DEVICE **BUBBLE²** THROUGH HRV ANALYSIS

- ▶ **HRV Analysis:** Chosen to demonstrate PEMF B2's effectiveness, HRV is a validated, non-invasive diagnostic tool for stress and stress-associated disorders.
- ▶ **Importance:** Vegetative adaptability, linked to cardiovascular and psychosomatic diseases, can be reliably assessed by HRV at rest, providing a solid diagnosis and prognosis.
- ▶ **Conclusion:** Enhanced overall variability (SDNN) and regeneration values (RMSSD) indicate PEMF **B²** is clear benefit for general health.

STUDY FINDINGS

- ▶ **HRV Practice Study:** HRV parameters reacted positively to the BUBBLE², especially the stress index values.
- ▶ **Key Stress Values:** Significant improvements in SI and RMSSD, critical for prognosis.
- ▶ **Positive Reaction:** All parameters showed improvement.
 - ▶ **Variability:** Increased by 42% - 58%
 - ▶ **RMSSD:** Increased by 42% - 58%
 - ▶ **Stress Index:** Lowered by 62% - 38%
- ▶ **Gender Differences:** No significant differences between men and women.
- ▶ **Subject Improvement:**
 - ▶ 23 subjects showed improvement in all parameters.
 - ▶ 22 subjects showed improvement in individual parameters.