



### Multi Sensorial Perception of Music- in Comparison to Tone-Incorporation

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#### Background

Since the beginning of time, sound & music played an essential role for humans in order to reduce their feeling unwell. Sound therapy or music medicine treated individuals by hearing and feeling (vibration) multisensorially since ancient times. The investigation is to demonstrate the same effects to the human organism perceiving multisensorially by stereo headphone and a specific vibroacoustic mat only one specific individual tone (sound) instead of music composed out of different tones.

#### Object

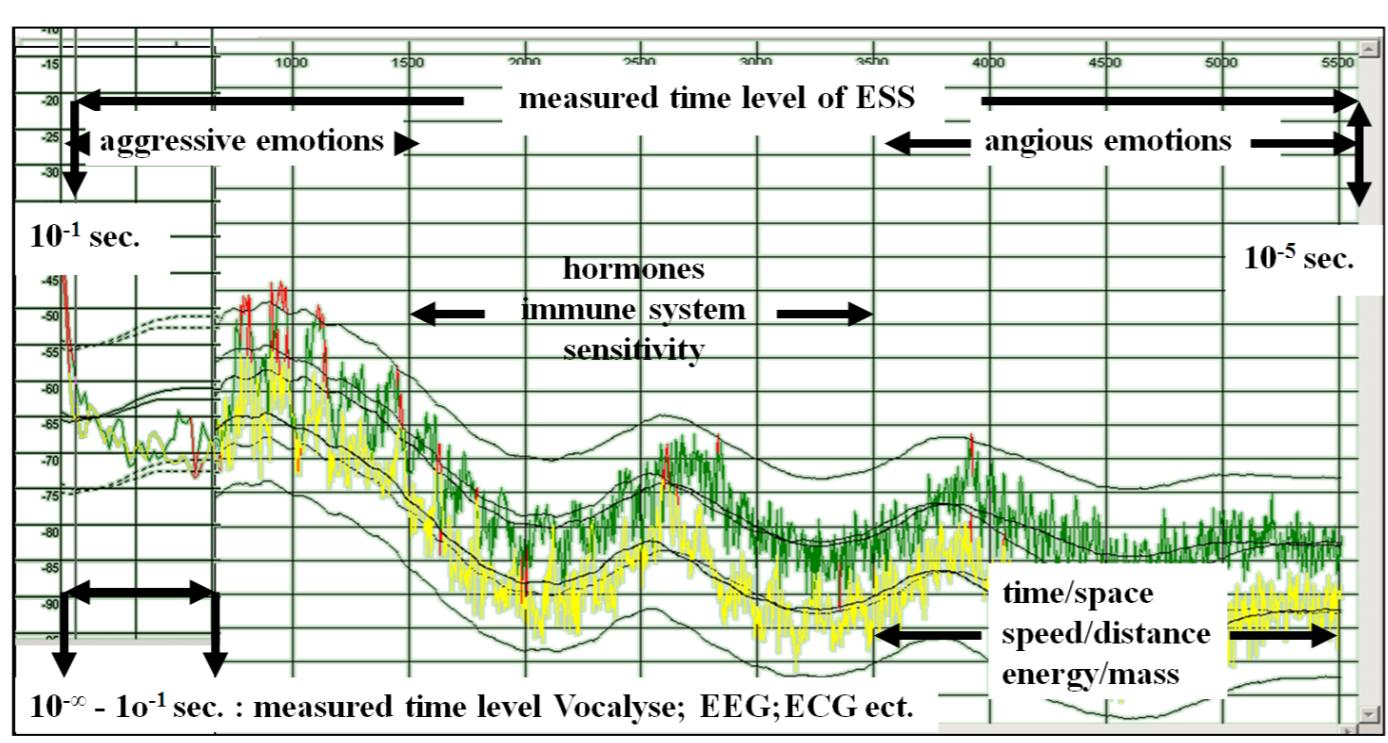
Does the experience of one individual rhythmic, modulated tone (sound), which is in context with a specific event, make the same intense change of feeling well to the organism by simultaneously hearing and feeling via a vibroacoustic mat, than composed music, which is in same context with the specific event? (Weinberger, 2005; Hofmann, 2009)

#### Thesis

Multisensory perception of one rhythmic, modulated tone (sound), which is in same context with a specific event as a piece of composed music, effects the same significant reduction of the individual stress state and of feeling unwell to the sound consumer experience as the specific music.



Picture1: Multisensoric test setup + test person



Picture 2: Analysing Range of VAF

#### Design of study

During the study 16 healthy probands experienced special rhythmic, modulated individual tone or music on the basis of standardized conditions. With an interval of 8 days, 8 of the subjects experienced a specific music first only by listening, then 1 week afterwards by listening and feeling on the vibroacoustic mat and 3 month after a specific individual tone (sound) similarly. The other 8 probands experienced the same tone and music first by listening and feeling, then 1 week later only by listening.

#### Methods

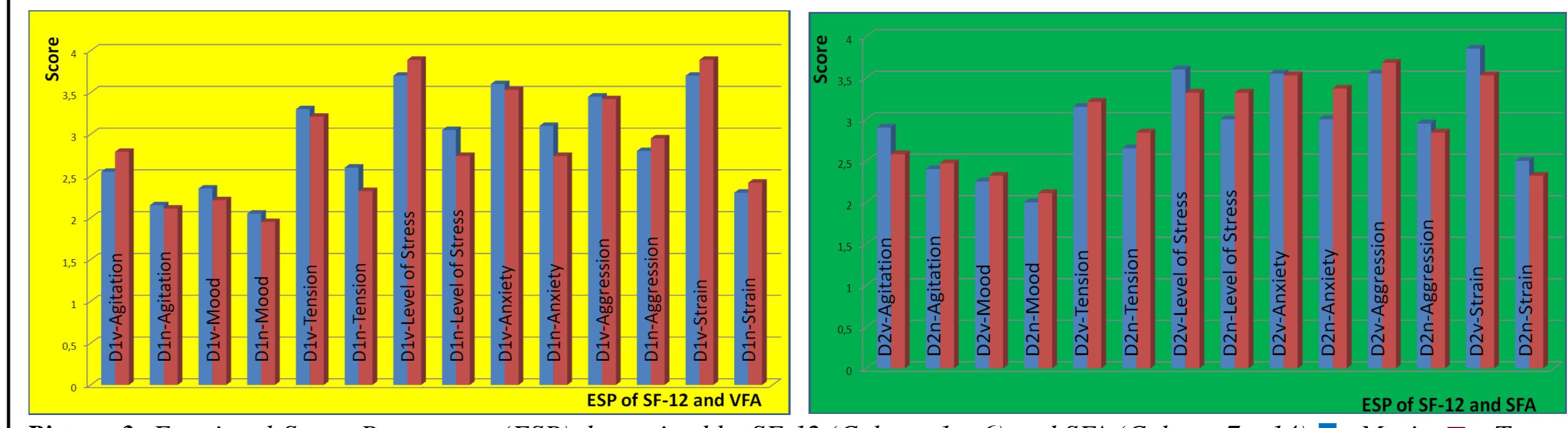
A modified SF12-core was taken to evaluate physiological and psychological mood symptoms and common health status. With a specific Voice-Frequency-Analysis (VFA) different stress parameters and changes in personality profiles has been measured. (Scherf, 2008)

#### Result

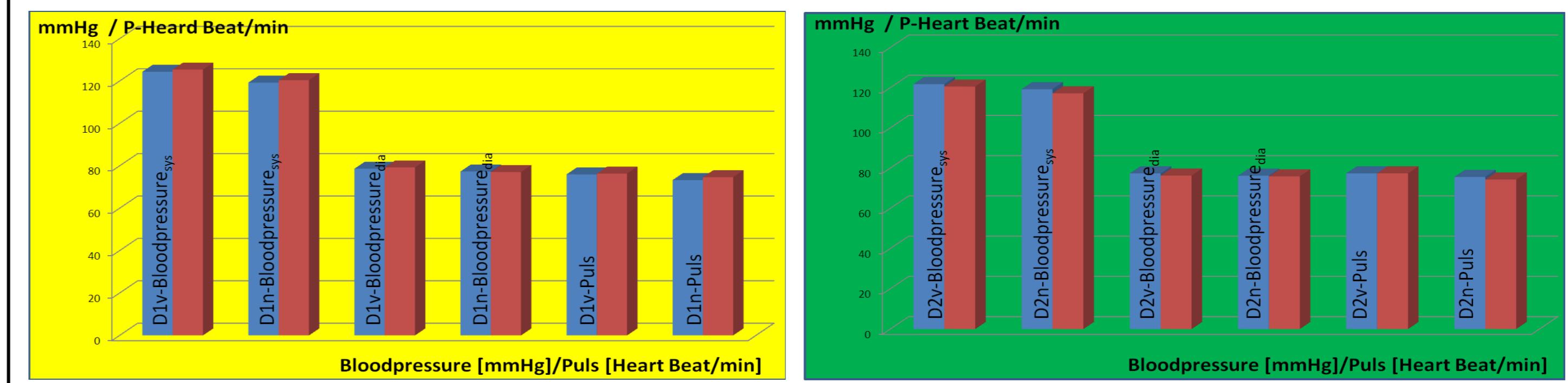
Table 1: Statistical results of the different compared groups of the study and the two measuring periods. GR = Group, H = Hearing, H&F = Hearing and Feeling.

measuring period: 1				measuring period: 2			
Music first time		Music second time		Tone first time		Tone second time	
Gr A	Gr B						
H	H & F	H & F	H	H	H & F	H & F	H
↑	↑	↑	↑	↑	↑	↑	↑
objektiv: P > 0,05, r > 0,5 bei P < 0,05	subjektiv: P < 0,05, r > 0,5 bei P < 0,05	objektiv: P > 0,05, r > 0,5 bei P < 0,05	subjektiv: P < 0,05, r > 0,5 bei P < 0,05	objektiv: P > 0,05, r > 0,5 bei P < 0,05	subjektiv: P < 0,05, r > 0,5 bei P < 0,05	objektiv: P > 0,05, r > 0,5 bei P < 0,05	subjektiv: P < 0,05, r > 0,5 bei P < 0,05
P > 0,05, r > 0,5 bei P < 0,05		P > 0,05, r > 0,5 bei P < 0,05		P > 0,05, r > 0,5 bei P < 0,05		P > 0,05, r > 0,5 bei P < 0,05	

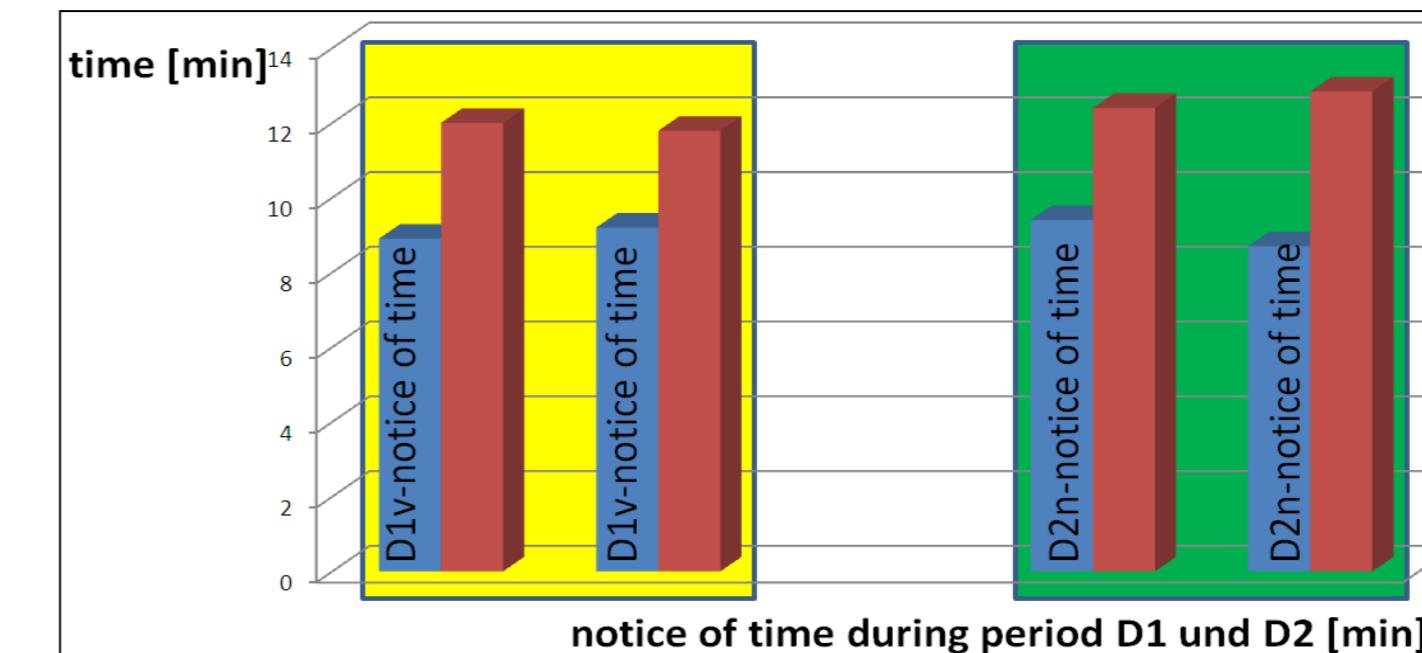
Table 1 shows, that Music correlates significantly with Tone, music first time correlates with music second time, tone first time with tone second time, group A with group B, when given music or tone to the probands, but there is only a subjective significant better feeling well during the periods of hearing & feeling from music and/or tone. This subjective feeling well couldn't be supported by the objective measuring methodes of SF-12 and VFA, see also picture 3 - 5.



Picture 3: Emotional-Stress-Parameters (ESP) determined by SF-12 (Column 1 – 6) and SFA (Column 7 – 14); ■= Music, ■= Tone; left picture: measuring period 1 (D1); right picture: measuring period 2 (D2); v = before, n = after.



Picture 4: Bloodpressure; ■= Music, ■= Tone; left picture: measuring period 1 (D1); right picture: measuring period 2 (D2); v = before, n = after.



Picture 4: notice of time; ■= Music, ■= Tone; left picture: measuring period 1 (D1); right picture: measuring period 2 (D2); v = before, n = after.

#### Discussion

One tone effects the same improvement of functional-emotional stress parameters related to the individual's mental and somato-emotional status as composed music does.

Multisensory application intensifies subjectively the experience of individual, rhythmic tone, which bears upon a specific event, as well as a composed music, which bears upon the same specific event.

Because the subjective estimation of one's condition depends on one's actual emotional status, an additional objective measurement system like VFA proves to be an important instrument to validate subjective statements.

#### References

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