The following excerpt is from the Appendices of "The Rediscovery of Audio-Visual Entrainment" by Dave Siever, C.E.T. copyright 1997

The Effect of Repetitive Audio-Visual Stimulation on Skeletomotor and Vasomotor Activity

In a 1988 study, by Dr. Norman Thomas and David Siever, participants were primed with autosuggestions and asked to relax. The participants all had neck and TMJ problems and when asked to relax, they actually tensed up, indicating some type of a performance anxiety. As seen in Figure 1, during the first five minutes, the participants showed an increase in masseter (jaw closing muscle on side of face) muscle tension and a decrease in finger temperature. This phenomenon often occurs in biofeedback training, so many people actually become discouraged with biofeedback when they don't see improvements quickly enough.

When the participants, in this study, were placed on a DAVID 1, an audio-visual entrainment (AVE) device, with stimulation delivered at a rate of 10 Hz, they all relaxed dramatically. After only six minutes, they relaxed even further. With biofeedback, this deeply relaxed state is exceptionally difficult for most people to achieve, even after several sessions. As the graph indicates, the participants' fingers also started to warm. This is a typical sign of whole brain alpha production, similar to that experienced during meditation. At the end of the session, some temporary muscle tension occurred during the removal of the eyeset and headphones, otherwise the relaxing effects of AVE lasted 15 minutes after the stimulation ended.

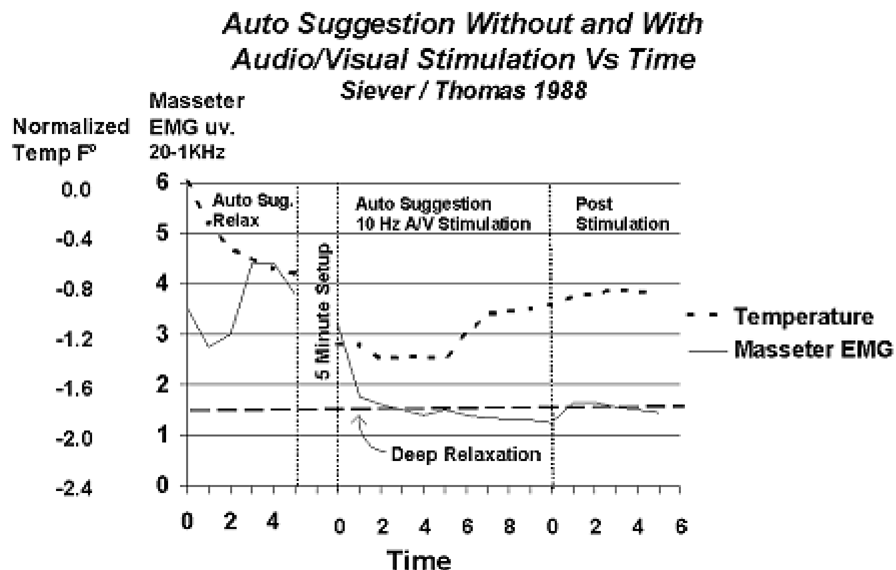
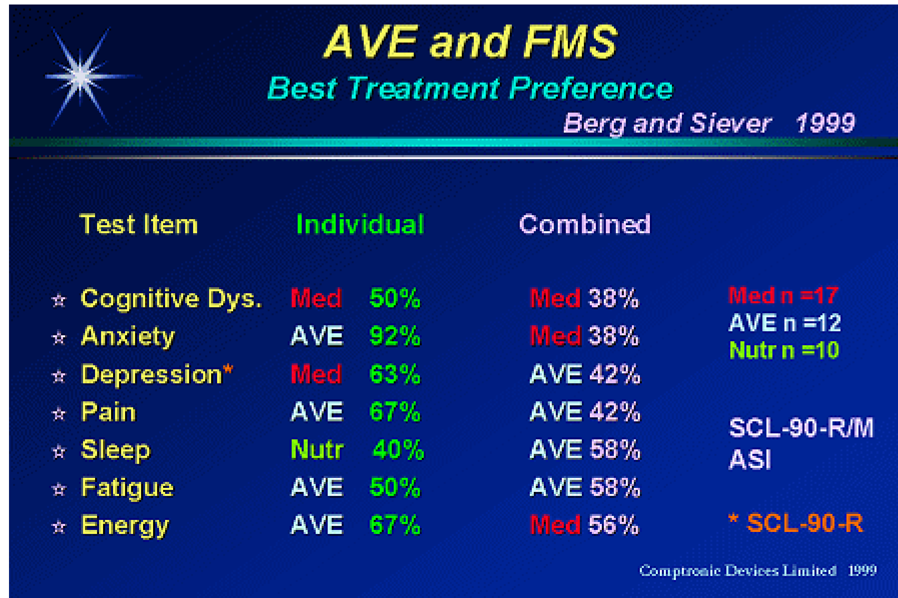


Table 2



AVE and FMS

Best Treatment Preference

Berg and Siever 1999

Test Item	Individual		Combined
☆ Cognitive Dys.	Med	50%	Med 38%
☆ Anxiety	AVE	92%	Med 38%
☆ Depression*	Med	63%	AVE 42%
☆ Pain	AVE	67%	AVE 42%
☆ Sleep	Nutr	40%	AVE 58%
☆ Fatigue	AVE	50%	AVE 58%
☆ Energy	AVE	67%	Med 56%

Med n =17
AVE n =12
Nutr n =10

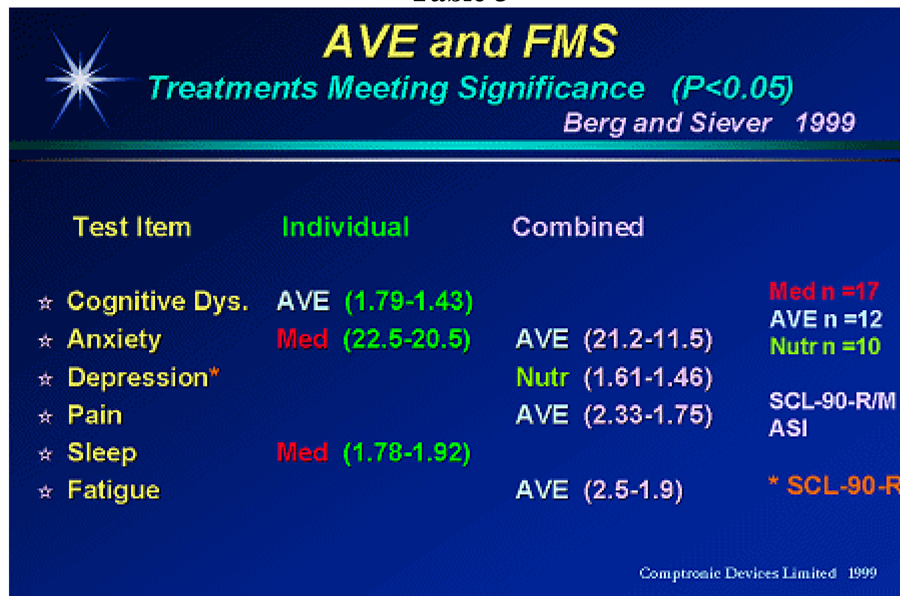
SCL-90-R/M
ASI

* SCL-90-R

Comptronic Devices Limited 1999

All groups showed decreased anxiety. The Control Group showed increases in anxiety (9%), sleep (31%), pain (29%) and depression (27%). In terms of what was statistically significant, the single treatment data suggests the Medical Group lowered anxiety the most. The AVE Group, in the combination of all three treatments, lowered anxiety, pain and fatigue the most, shown in Table 3. Keep in mind that the AVE and nutrition groups were both smaller than the medical group and would require greater improvements to reach significance. The ASI normative scores are the following: Male 15 ± 8, Females 20 ± 10.

Table 3



AVE and FMS

Treatments Meeting Significance (P<0.05)

Berg and Siever 1999

Test Item	Individual		Combined	
☆ Cognitive Dys.	AVE	(1.79-1.43)		
☆ Anxiety	Med	(22.5-20.5)	AVE	(21.2-11.5)
☆ Depression*			Nutr	(1.61-1.46)
☆ Pain			AVE	(2.33-1.75)
☆ Sleep	Med	(1.78-1.92)		
☆ Fatigue			AVE	(2.5-1.9)

Med n =17
AVE n =12
Nutr n =10

SCL-90-R/M
ASI

* SCL-90-R

Comptronic Devices Limited 1999

During the study, most participants used alpha stimulation in the afternoon to reduce anxiety and pain. They also used them in the evening to relax prior to retiring to bed. Delta sessions were used while in bed. Participants either removed the eyesets and headphones when the session ended or fell asleep with the DAVID AVE unit running. The participants preferred the alpha, theta and delta sessions to be longer than 30 minutes. Beta sessions were used immediately upon awakening in the morning to assist in clearing fog and increasing alertness. The participants preferred the beta sessions to be shorter than 30 minutes. Although the participants were encouraged to use the beta sessions (FMS being a slow brainwave disorder), most participants found beta stimulation interfered with their progress and chose to abstain. The distribution of the frequencies preferred is shown in Table 4.

Table 4

AVE and FMS

AVE Frequencies Used

Berg, Siever, Mueller, Seibel

AVE Freq.	Individual	Combined
Beta	25%	17%
Alpha	83%	92%
Theta	3%	5%
Delta	96%	97%

Med n =17
AVE n =12
Nutr n =10

Comptronic Devices Limited 1999

The medical treatment participants chose acupuncture as the most popular medical method. This procedure may have decreased depression in both the Medical Group and the AVE Group.

Magnesium was preferred to be the most popular nutritional supplement. Supplements were chosen on the basis of Dr. Seibel's nutrition FMS list, affordability, and digestibility. As a result, every participant's nutritional list was unique. To conclude, there were multiple confound variables to isolate magnesium's effect to FMS symptoms.

Conclusion

Administering certain treatment steps may show positive results. As a single treatment, the AVE Group either improved or stayed the same in the tested variables. When exposed to all three treatments, the AVE Group improved in all the tested variables. The Medical and Nutrition Groups declined in one or more of the variables in both the single treatment and the combination of all three treatments. These results suggest the DAVID AVE unit could be used first as a single treatment followed by the introduction of other treatments. The DAVID unit could be used to treat anxiousness, pain and fatigue while other specific treatments could be used to treat other variables