

(full study)

Prepared For

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BACKGROUND

Many instruments, currently available on the market, purport to entrain and balance the right and left hemispheres of the brain, while simultaneously lowering its alpha rhythm. They achieve these states by visual, kinetic, and/or electronic stimulation of the cerebral cortex. On the other hand, the BRAIN SUPERCHARGER is the first device to facilitate whole-brain synchrony entirely through sound, thus representing a major breakthrough in safe, inexpensive, and potentially effective psychotechnology.

The question, of course, is whether this innovation delivers what it promises. That is, does the BRAIN SUPERCHARGER, as its name suggests, increase such aspects of mental functioning as INTELLIGENCE, ALERTNESS and EMOTIONAL STABILITY? And if so, do these functions improve to a greater extent than they would by listening to a recording of merely pleasant, meditative music?

OBJECTIVES

With these considerations in mind, the present study was designed to determine:

- The extent to which listening to the BRAIN SUPERCHARGER is more psychologically effective than listening to an identical “placebo” sound track.
- The “critical” psychological dimensions which the BRAIN SUPERCHARGER alters.
- The effect of these “critical dimensions” on the overall personality of people who listen to the BRAIN SUPERCHARGER.

- The pattern of conscious responses to the BRAIN SUPERCHARGER compared to that of a placebo tape.

These objectives were addressed through an empirical, “double blind” experiment in which respondents believed they were evaluating a new “meditation tape”. Nevertheless, half the sample listened to an unmarked copy of the BRAIN SUPERCHARGER (the “Experimental Group”) while the other half listened to a “placebo” tape, identical in every respect except for the absence of the SUPERCHARGER technology (the “Control Group”). The details of these methods are described in the following section. METHODS

This section discusses: 1) Sample; 2) Psychological Measurements; and 3) Analysis of the Data used in the study.

Sample

An invitation to participate in our study (see Appendix A) was sent to the following institutions:

- Ryokan College (Los Angeles)
- International Academy of Behavioral Medicine, Counseling and Psychotherapy
- Bedanta Society of Southern California
- Southern California Counseling Center
- Family Study Center of Southern California
- The Center for Transpersonal Studies

In addition, respondents were solicited on the street, by fliers left under the windshield wipers of cars, and by random mailings. This resulted in a sample, as of this writing, of 52 respondents—a surprisingly large number considering the two-week listening requirement and associated daily questionnaires. (A cutoff date of September 30, 1990 was set by PSI/Metrics for data collection.)

Respondent Groups. Each respondent received an unmarked “meditation tape” which he or she was asked to use every day for two weeks. Of these, roughly half (58%) were the BRAIN SUPERCHARGER, while the remainder (42%) were PLACEBO tapes, identical to the Supercharger in every way except for the underlying, brain-synchrony sound track. Thus, any differences between the SUPERCHARGER and PLACEBO groups would be due primarily to the whole-brain technology present in the former, but lacking in the latter.

Sample Demographics. Table 1, on the following page, is a breakdown of the sample by its demographic characteristics. It shows that our respondents, on the average, are

affluent (\$54K a year), well educated (75% post-graduate degrees), professional (90% professional/managerial occupations) women and men (58% and 42% respectively). Significantly, for the objectives of this study, the vast majority are also religious, affiliated primarily with the Eastern/New Age denominations (45%) in which meditation plays such an important role. Moreover, these characteristics, for the most part, are equally represented in the SUPERCHARGER and PLACEBO groups, once again suggesting that any differences between them, after listening to their respective “meditation” tapes, could only be due to the Supercharger soundtrack present in one but not the other.

Psychological Measurements. A significant feature of this study is its measurement of the personality structure of respondents in the SUPERCHARGER and PLACEBO groups both before and after listening to their unmarked, “meditation” tapes for two weeks. This design permits us to determine which psychological dimensions, if any, are affected by the Supercharger technology to a greater extent than its PLACEBO counterpart.

Personality Measurement. Respondents in both the SUPERCHARGER and PLACEBO groups completed a standardized psychological test before and after listening to their tapes. This instrument, the “16PF”, was developed by the renowned psychologist, Dr. Raymond B. Cattell, and his associates at the Institute for Personality and Ability Testing in Champaign, Illinois.¹ For the past forty years, it has been the instrument of preference in studies of normal personality functioning. In this regard, it has several advantages. First, it was developed scientifically rather than intuitively; secondly, it has different but parallel forms, thus permitting uncontaminated “before” and “after” measurements such as used in this study; third, it measures a broad spectrum of personality dimensions, including INTELLIGENCE, which may or may not be related to the BRAIN SUPERCHARGER tape; and finally, a vast body of psychological literature on the 16PF over the past forty years has permitted the development of computer programs for actuarial analysis of its profile results, the significance of which will become clear later in this report. ²

Table 1

Demographic Characteristics of the Sample

	TOTAL	SUPERCHARGER	PLACEBO
	(N=52)	(N=30)	(N=22)
GENDER			
Male	42%	47%	36%
Female	58%	53%	64%

EDUCATION

Ph.D.40% 30% 50%

M.A.35400

B.A.1530--

H.S.10--20

OCCUPATION

Professional75% 70% 80%

Managerial1530--

Student5--10

Retired5--10

RELIGIOUS PREFERENCE

Catholic5%--10%

Protestant303030

Jewish10--20

Eastern/New Age455040

None1020--

The dimensions of personality measured by the 16PF are as follows:

- Warmth
- Intelligence
- Emotional Stability
- Dominance
- Impulsivity
- Conscientiousness
- Boldness
- Sensitivity
- Skepticism
- Creativity
- Awareness
- Insecurity
- Liberality
- Self-Sufficiency
- Self-Discipline
- Tension

As indicated earlier, the psychological meaning of these dimensions are described in Appendix B. At this point, it is sufficient to note that any or all of them could be the “critical factors” related to the impact of the BRAIN SUPERCHARGER on its listeners.

Daily Listening Diary. In addition to completing the 16PF before and after listening to their tapes, respondents in the SUPERCHARGER and PLACEBO groups were asked to complete the same “Daily Listening Diary” on each of the fourteen days of their participation in the study (see Appendix B). For each day, this specially designed instrument measured the respondent’s:

- Reaction to the tape on that occasion
- Reaction to the tape compared to the previous day

Thus, this instrument measured conscious reactions to the SUPERCHARGER and PLACEBO tapes, while the 16PF measured their unconscious influence, if any, on the listener’s personality. FINDINGS

The statistical findings of this study are presented under three headings: 1) Individual Components Analysis; 2) Actuarial Profile Analysis; and 3) daily Listening Diary Analysis. The meaning of these will become clear when we discuss them under later headings.

Individual Component Analysis. Table 2, on the following page, shows the average scores on the 16PF before and after listening to the SUPERCHARGER and PLACEBO tapes. These differences were analyzed to determine which, if any, are statistically significant. Briefly, “statistical significance”, in this research context, means that the difference between two average scores on the 16PF is LARGE and STABLE enough to occur by chance factors alone in 3 only 5 cases out of 100—i.e., the “.05 level of confidence” universally accepted as “significant” in most psychological research. These differences can be summarized as follows:

STATISTICALLY SIGNIFICANT CHANGES

Supercharger Group Placebo Group

Intelligence

Emotional Stability

Alertness

Self-Discipline Self-Discipline

TABLE 2 Psychological Impact of Supercharger and Placebo Tapes

AVERAGE 16PF SCORES

SUPERCHARGER GROUP (N=30) PLACEBO GROUP
(N=22)

	Pre	Post	Dif	Pre	Post	Dif
Warmth	3.64	4.00	+0.44	5.50	6.00	+0.50
Intelligence	6.88	8.00	+1.2*	6.45	7.90	+1.45
Emotion. Stab.	5.97	7.00	+1.1*	6.36	7.40	+1.04
Dominance	5.96	6.00	+0.16	6.16	6.10	---
Enthusiasm	4.84	5.10	+0.26	4.64	5.50	+0.86
Conscientious	5.64	6.90	+1.26	5.34	6.90	+1.56
Boldness	5.55	6.60	+1.05	5.16	6.60	+1.44
Sensitivity	6.46	7.80	+1.34	6.76	7.30	+0.54
Skepticism	5.75	6.50	+0.75	5.15	6.40	+1.25
Creativity	6.87	7.50	+0.63	6.37	7.20	+0.83
Alertness	4.95	5.90	+0.95	5.35	6.40	+1.05
Insecurity	5.65	6.50	+0.85	5.05	6.60	+1.55
Liberality	6.35	6.50	+0.15	6.16	6.50	+0.34
Self-Sufficncy	7.98	8.50	+0.52	7.66	8.90	+1.24
Self-Discipline	4.95	6.90	+1.95	5.16	7.30	+2.14
Tension	5.85	6.40	+0.55	5.45	6.60	+1.15

*NOTE: This difference is statistically significant at or beyond the .05 level of confidence previously described.

The fact that SELF-DISCIPLINE increases in both groups (and, therefore, cancels each other out) is not surprising since the requirement to listen to the tapes every day for two weeks in itself could increase this dimension. On the other hand, there are no other significant changes in the PLACEBO group, while INTELLIGENCE, EMOTIONAL STABILITY, and ALERTNESS improve markedly among listeners to the SUPERCHARGER tape.

These findings strongly suggest that the SUPERCHARGER technology does what it claims to do: that is, it provides the human brain with a psychophysical “workout”, as it were, that improves its mental functioning. Furthermore, a PLACEBO tape—identical to the SUPERCHARGER in every way respect except for its psychophysical technology—has no such effect on its listeners and, in fact, has little if any effect at all.

Profile Analysis

An obvious question, of course, is how do the psychological gains a person realizes from listening to the SUPERCHARGER tape alter his or her total personality? Recent advances in computer technology have made possible actuarial analyses of 16PF results. That is, the profile for an individual or group can be interpreted in its totality, rather than as a collection of individual scores. Just such an actuarial analysis was

conducted for the SUPERCHARGER and PLACEBO groups, and the results are reported below.

The Profiles. Figures 1 and 2 on the following pages graphically represent the previous data in Table 2 from which the actuarial analysis in Appendix C was made. As discussed earlier, the SUPERCHARGER group showed statistically significant gains in INTELLIGENCE, EMOTIONAL STABILITY, ALERTNESS, and SELF DISCIPLINE, while the PLACEBO group only increased on the latter dimension. The question, however, is what do these changes mean in terms of the overall psychology of each type of respondent? That is, as mentioned earlier, who do the psychological gains results from the SUPERCHARGER tape translate into new personality structures for its users? The Actuarial Analyses reported in Appendix C answer this question.

Chi-Square Analysis. Before discussing them, however, another analysis of Figures 1 and 2 is can be most revealing. Putting aside, for the moment, the issue of each dimension's statistical significance (as described earlier), we can look at the overall patterns they from before and after exposure to the SUPERCHARGER and PLACEBO tapes. That is, the question can be raised, "How many personality dimensions show a positive increase of one or more points in the SUPERCHARGER vs. PLACEBO groups—and is this multi-dimensional difference statistically significant, without reference to the significance of each of its individual factors? Table 3, below, shows the results of this procedure.

TABLE 3

Overall Profile Changes

DIRECTION OF CHANGE

Positive Negative TOTAL

Supercharger Profile 10010

Placebo Profile 437

TOTAL 14317

The data in Table 3 suggest that SUPERCHARGER listeners, on the average, experienced more positive changes in personality than their PLACEBO counterparts. And, indeed, this is the case. By applying the appropriate test of statistical significance to this distribution³, we find that the differences between the two groups is significant at and beyond the .05 level of confidence.⁴ Moreover, the actual dimensions summarized in Table 3 are as follows:

TABLE 4
DIRECTION OF CHANGE

	SUPERCHARGER	PLACEBO	Positive	Negative	Positive	Negative
Intelligence						
Boldness						
Sensitivity						
Emotion. Sta.						
Imagination						
Insecurity						
Seriousness						
Experimen.						
Tension						
Sensitivity						
Self-Discip.						
Imagination						
Alertness						
Self-Sufficent						
Self-Discipline						
Tension						
Less Conforming						

Intelligence
Boldness
Sensitivity
Emotion. Sta.
Imagination
Insecurity
Seriousness
Experimen.
Tension
Sensitivity
Self-Discip.
Imagination
Alertness
Self-Sufficent
Self-Discipline
Tension
Less Conforming

Thus, on an overall basis, SUPERCHARGER users appear to become more Intelligent, Emotionally Stable, Serious, Sensitive, Imaginative, Alert, Self-Sufficient, Disciplined, Relaxed, and “hand loose”. PLACEBO listeners, on the other hand, while becoming more bold, imaginative, experimenting and self-disciplined also become less sensitive, secure, and relaxed. And finally, these differences, on an overall basis, are statistically significant in favor of the SUPERCHARGER experience.

Actuarial Analysis. Turning now to yet another level of analysis, the psychological scores in Figures 1 and 2 were submitted to a computer interpretation developed by Dr. Bruce Duthie. (See Appendix C for the results of this procedure.) This shows that both groups were unremarkable in their personality structures before listening to their respective tapes. That is, they were solidly average in their overall, pre-exposure personalities. What emerges as significant, however, is that the PLACEBO group remained average after listening to its tape, while the SUPERCHARGER group showed marked changes in its overall personality structure.

The Supercharger Effect. How do the four psychological dimensions effected by the SUPERCHARGER tape alter the overall personality of its listeners? The computer reports in Appendix C answer this question. Compared to the PLACEBO group, whose reactions remain essentially the same, the SUPERCHARGER listeners, as a result of its psychotechnology, experience a “high morale”, also “persevering under difficult circumstances.” They become “more efficient” and “insightful” as well as “quick learning and intellectually adaptable.” Moreover, listening to the SUPERCHARGER promotes “better than average judgment” and an “imaginative inner life”. The “intuitive” and “feeling” functions also increase, along with a deepened concern for “theory, art, philosophy and other abstract interests.” On the

other hand, a certain amount of “impracticality” accompanies these interests, but these are compensated for by an “independent, resourceful and self-sufficient” point of view which results in the SUPERCHARGER listener “making his own decisions when at all possible”.

The Daily Listening Diary. Respondents were asked to complete the “Daily Diary” in Appendix B. The results of their entries are shown in Table 4 on the following page. These data show that the overwhelming difference between the PLACEBO and SUPERCHARGER groups was that the former was “agitated”, “restless” and “put to sleep”, while the latter had a more “peaceful” “spiritual” and “hallucinatory” experience. As one experienced meditator, a male member of the Hindu religion put it (See Appendix E for other typical comments):

“[I] felt an incredible lightness of body & mind. My mind traveled up and out, beyond the limits of the world. Almost an out-of-body experience. Felt very peaceful for some time after.” (Respondent No. 47)

TABLE 5
Verbatim Daily Diary Comments

PERCENT
TOTALS SUPERCH PLACEBO
(N=52)(N=30)(N=22)

RESPONSE

Relaxing/Peaceful/Soothing	24%	27%	20%
Unusual Body/Visual Experience	10%	14%	7%
Agitated/Restless/Mind Wandered	4%	9%	--
A Spiritual Experience	5%	8%	1%
More Centered/Less Stressed	5%	7%	3%
At Peace/Happy/Joyous	5%	8%	1%
Alert/Aware/Less Tired	6%	5%	7%
Quieted the Mind	2%	4%	--
Fell Asleep/Became Sleepy	17%	4%	29%
Had Personal Realizations	2%	3%	1%

Reaction to the PLACEBO tape, on the other hand, was more negative. In the words of one participant, also an experienced meditator:

“[I felt] agitation, disgust. Wished it to be over soon.” (Respondent No. 11)

Thus, on an objective basis, as well as a subjective level, reactions to the SUPERCHARGER tape were more favorable than those of the PLACEBO.

DISCUSSIONS AND CONCLUSIONS

The findings of this study are sufficiently clear to suggest several important conclusions about the SUPERCHARGER. These are discussed below, first in general and then in terms of their marketing implications.

General Conclusions To begin with, it appears that the BRAIN SUPERCHARGER “works.” That is, it does what its name implies it does: daily usage seems to have a profound effect on the mental functioning of its listener, increasing his or her...

- INTELLIGENCE
- EMOTIONAL STABILITY
- ALERTNESS

Conversely, a comparable group of people, exposed for the same period of time to a PLACEBO tape—?identical in every respect except that it lacked the SUPERCHARGER technology — showed essentially no changes at all.

These psychological gains from the SUPERCHARGER, in turn, translate into increased judgment, greater creativity, a broader occupation outlook, and a generally more relaxed view of life—as indicated by an actuarial profile analysis of the data. Once again, the PLACEBO group showed no such modifications in their personalities. Instead, they found their tape “agitating” and “annoying” causing their mind to wander and making them “restless.”

Marketing Implications. In conclusion, the BRAIN SUPERCHARGER appears to alter the personality of its users in essentially positive and life-enhancing ways. Therefore, although not “therapy” it is therapeutic. Its impact on EMOTIONAL STABILITY, as noted earlier, an essential factor in the ego strength of normally functioning men and women, testifies to this fact.

These findings correspond nicely with the growing trend toward short-term and/or “self-help” psychotherapy. The traditional models of extended, one-on-one counseling are giving way to new and innovative technologies -- including even computerized psychotherapy—and it might do well to position its product somewhere along that trend, as indicated below.

Mental Health Professionals. In such a marketing effort, the EST model should be kept in mind. That is, the service offered is “therapeutic” without claiming to be

therapy. Within that context, the BRAIN SUPERCHARGER could be offered to mental health professionals as an adjunct to, rather than a replacement for, counseling and psychotherapy. For example, mailing lists of its members are available from the American Psychological Association and a mail campaign, including reprints of this report, could be directed to them.

The General Public. Among the general public, the BRAIN SUPERCHARGER could be positioned as...

THE MOST POWERFUL TOOL FOR
PSYCHOLOGICAL
CHANGE SHORT OF PROFESSIONAL
PSYCHOTHERAPY.