

## InnerWave Center Outcome Analysis 2013 using NeuroOptimal Neurofeedback ---A retrospective chart review

NeuroOptimal neurofeedback is designed to interface with the nervous system as a Non-Linear Complex Dynamical System, whereas traditional 'evidence based' research tends to measure linearly. Therefore, it seems reasonable to measure individual outcomes because that's what prospective clients and referral sources really want to know. Since NeuroOptimal is training at the source of complaints, the nervous system's turbulence, rather than treating diagnostic categories, it also seemed reasonable to look at outcomes across diagnostic categories rather than try to compare medically defined groups where fallible diagnostic judgments create more issues.

Over the past five years, InnerWave Center's clients have been asked to fill out an intake questionnaire, pre NeuroOptimal neurofeedback training sessions. Then after 7-10 sessions and between 15-30 sessions, they were asked again to fill out the same questionnaire. The questionnaire was based on Sue Cheshire Brown's checklist (Zengar Institute) with the modification of recording the intensity for each item, on a scale of 1-10 where 10 is high end; and frequency of each item, on a scale of 1-4 where 4 = daily; 3 = 1xweek; 2 = more than once a month but less than weekly; 1 = once a month or less. The clients were also asked to rate their stress level on a scale of 1-10, where 10 is high. The same questionnaire was used for all clients irrespective of their diagnostic category except for 4 autistic spectrum clients who had an autistic appropriate checklist using only intensity measures, 1-10.

All clients who had an intake and at least one follow-up questionnaire were included in this clinical review, i.e. not randomly selected but all clients who had 2 questionnaires that could be compared for before/after results. 62 clients met this requirement.

The self rated numbers for each item on the checklist were then tallied separately in 3 categories: stress level, intensity of symptoms, and frequency of symptoms. The intake & follow-up checklists could then be compared numerically as to improvement or not in the three categories. A positive(+) change, no change, no response to item or negative(-) change is noted in the following statistics by number of sessions. It was not practical to account for how much each client changed because each person has a different scale of personal judgment. For example, given two people with 20% improvement in intensity and frequency on the questionnaires; one verbally said his total quality of life was only slightly better, but the other person felt his quality of life had been transformed.

To hold the environment as constant as possible, the initial training session included an explanation of how NeuroOptimal neurofeedback works and answered client's questions. Then the environment was maintained in a safe, quiet, warm, friendly, softly lit room. It was also explained to the client that the intent of training was to meet their personal and internal needs, which is why the practitioner avoided as much as possible verbal positive or negative feedback.

Of the 62 clients reviewed unadjusted for number of sessions, 58 or 93% improved in either Stress level, or Intensity of symptoms or Frequency of symptoms.

#Sessions between intake and followup	# clients	Stress Level	Intensity	Frequency
7-9	12	+ change in 8 clients no change in 3 clients no response 1 client - change 0 <b>67% clients improved</b>	+change 7 clients no change 0 no response 1 client - change 4 clients <b>58% clients improved</b>	+change 7 clients no change 1 client no response 1 client - change 3 clients <b>58% clients improved</b>
10-13	19	+change 12 clients no change 2 clients no response 3 clients - change 2 clients <b>63% clients improved</b>	+change 15 clients no change 0 no response 0 - change 4 clients <b>79% clients improved</b>	+ change 12 clients no change 0 no response 3 clients - change 4 clients <b>63% clients improved</b>
14-20	20	+change 11 clients no change 4 clients no response 3 clients - change 2 clients <b>55% clients improved</b>	+change 16 clients no change 1 client no response 0 - change 3 clients <b>80% clients improved</b>	+ change 15 clients no change 0 no response 2 clients - change 3 clients <b>75% clients improved</b>
21 & more	11	+ change 8 clients no change 1 client no response 1 client - change 1 client <b>73% clients improved</b>	+ change 10 clients no change 0 no response 0 - change 1 client <b>91% clients improved</b>	+change 6 clients no change 0 no response 1 client -change 4 clients <b>55% clients improved</b>
	Total 62 clients			