Effects of NeurOptimal Neurofeedback on Symptoms of Depression and Anxiety

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Kingston Institute of Psychotherapy and Neurofeedback

- Roots in Psychotherapy
- NF Clinic Established 2010
- Initially 4 systems
- Currently 8 NF rooms with 10 NeurOptimal systems
- Training 350 to 400 people per week
- Staff: 2 Physicians, Nurse Specialist,
  2 MSW therapists, 8 technicians
- Also: HRV, HEG, BAUD, QEEG & Targeted NF
- Volunteer run Yoga, Meditation, Cranial Sacral Therapy
Depression
Anxiety
At Sessions 0 and 8

Data at Sessions 0 and 8
Who did we include?

Everyone

- ALL Adults 18+
- ALL diagnoses
- ALL length of illness
Beck Depression Inventory

• 21 groups of statements
  (0) I do not feel sad.
  (1) I feel sad much of the time
  (2) I am sad all the time.
  (3) I am so sad or unhappy that I can't stand it.

• Higher scores = more severe symptoms
  0–9: minimal depression
  10–18: mild depression
  19–29: moderate depression
  30–63: severe depression.

• Beck Anxiety Inventory
Beck Anxiety Inventory

- 21 cognitive and somatic symptoms
  - (0) Not at all
  - (1) Mildly (It did not bother me much)
  - (2) Moderately (It was very unpleasant, but I could stand it)
  - (3) Severely (I could barely stand it.)

- Higher scores = more severe anxiety
  - 0-7: minimal level of anxiety
  - 8-15: mild anxiety
  - 16-25: moderate anxiety
  - 26-63: severe anxiety
### Beck Depression Inventory Results

#### Session 0 vs. Session 8

<table>
<thead>
<tr>
<th>Category</th>
<th>Session 0</th>
<th>Session 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>32.26</td>
<td>22.67</td>
</tr>
<tr>
<td>Severe</td>
<td>38.49</td>
<td>26.89</td>
</tr>
<tr>
<td>Moderate</td>
<td>23.40</td>
<td>16.66</td>
</tr>
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- **N=235**
- **p=0.00001**
Beck Depression Inventory Results

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N=138

N=97

p=0.00001
## Beck Anxiety Inventory Results

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<tr>
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<td>21.11</td>
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<tr>
<td>Severe</td>
<td>37.51</td>
<td>24.94</td>
</tr>
<tr>
<td>Moderate</td>
<td>20.10</td>
<td>13.23</td>
</tr>
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**N=214**

**p=0.00001**
Beck Anxiety Inventory Results

- **Severe**
  - N=144
  - Session 0: 37.51
  - Session 8: 24.94
  - p=0.00001

- **Moderate**
  - N=70
  - Session 0: 20.10
  - Session 8: 13.23
  - p=0.00001

- All
  - Session 0: 31.81
  - Session 8: 21.11
  - p=0.00001
BDI Score Improvement from Session 0 to 8
Depression Score Improvement by Age

- 20s: N=24
- 30s: N=43
- 40s: N=52
- 50s: N=71
- 60s: N=30
- 70+: N=11
Depression Score Improvement by Gender

- Female (N=160)
- Male (N=75)

- All: N=160, N=75
- Severe: N=93, N=45
- Moderate: N=67, N=30
Beck Anxiety Inventory Results

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Beck Anxiety Inventory Results

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**p=0.00001**

N=144

N=70
BAI Score Improvement from Session 0 to 8
Anxiety Score Improvement by Gender

- **All**: N=150
- **Severe**: N=95
- **Moderate**: N=55

- Female
- Male
How Does This Compare with Antidepressants?
How Does This Compare with Cognitive Behavioural Therapy (CBT)?
Post Traumatic Checklist

<table>
<thead>
<tr>
<th>Drop in PCL score</th>
<th>Session Number</th>
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<tbody>
<tr>
<td>-30</td>
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<tr>
<td>-25</td>
<td></td>
</tr>
<tr>
<td>-20</td>
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<tr>
<td>10</td>
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<tr>
<td>12</td>
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Drop in PCL score over time, showing a linear relationship with a significance level of $P = 0.005$. 

Δ PCL score

Linear(Δ PCL score)