Does NeurOptimal® Improve Focus and Attention?

A Kid, An Idea, A Study
And A Big Payoff

Presented By Julian Ford
How Did I Get Here?
My Search For Non-Prescription ADHD Interventions

ADD
The 20-Hour Solution

A Symphony in the Brain

The Balanced Brain
Neurofeedback Brain Training Center
Wait, this thing could really help...

• Me → Anger, Stress, Distraction
• Husband → Focus, Peak Performance
• Eldest Son → Mood Swings
• Middle Son → Migraines
• Youngest Son → Continuing ADHD control
Agnostic Neurofeedback
The Big Idea
The Design

- 18 study participants
- 9 would receive 5 neurofeedback sessions
- 9 would receive no neurofeedback
- A measure of attention given to each group at similar intervals will determine whether brain training can enhance attention.
The Attention Measure

Lumosity.com’s *Lost In Migration*

Focusing on just the middle bird, subjects pressed the arrow key corresponding to the direction the middle bird was flying.
Anyone repeating tasks improves with time.

BUT--

Could NeurOptimal® make them improve more?
More to the point - could we get them to do it?

OMG, Was I supposed to be there today?
What’s neurofeedback?
WHERE do those wires go?
Do I have to listen to this music?
What kept them in the chair
About the groups

• Each group had 8 males and 1 female.
• All subjects were high average to gifted students (all maintained Bs or better)
• There was one high functioning Asperger’s boy in the test group, no other diagnoses were acknowledged.
• Offline analyses all showed no out-of-the-ordinary analyses except my “noisy” one.
Individual Results Test Group

Baseline | Result 1 | Result 2 | Result 3 | Result 4 | Result 5

- T1
- T2
- T3
- T4
- T5
- T6
- T7
- T8
- T9
Individual Results Control Group
The Results – Neurofeedback Group

<table>
<thead>
<tr>
<th>Test Subject</th>
<th>Base Reaction Time</th>
<th>Final Reaction Time</th>
<th>% Decrease in Reaction Time</th>
<th>Final Test Accuracy/ % Accuracy Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1258 ms</td>
<td>950 ms</td>
<td>24.48%</td>
<td>100% / 13.63%</td>
</tr>
<tr>
<td>2</td>
<td>1072 ms</td>
<td>856 ms</td>
<td>20.15%</td>
<td>98% / 1.03%</td>
</tr>
<tr>
<td>3</td>
<td>1084 ms</td>
<td>751 ms</td>
<td>30.72%</td>
<td>100% / 6.38%</td>
</tr>
<tr>
<td>4</td>
<td>918 ms</td>
<td>744 ms</td>
<td>18.95%</td>
<td>100% / 9.89%</td>
</tr>
<tr>
<td>5</td>
<td>1255 ms</td>
<td>900 ms</td>
<td>28.29%</td>
<td>100% / 9.89%</td>
</tr>
<tr>
<td>6</td>
<td>1042 ms</td>
<td>721 ms</td>
<td>30.81%</td>
<td>100% / 0%</td>
</tr>
<tr>
<td>7</td>
<td>948 ms</td>
<td>719 ms</td>
<td>24.16%</td>
<td>100% / 9.89%</td>
</tr>
<tr>
<td>8</td>
<td>1047 ms</td>
<td>620 ms</td>
<td>40.78%</td>
<td>100% / 3%</td>
</tr>
<tr>
<td>9</td>
<td>1100 ms</td>
<td>800 ms</td>
<td>27.27%</td>
<td>100% / 3.09%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>1080.44 ms</strong></td>
<td><strong>784.56 ms</strong></td>
<td><strong>27.39%</strong></td>
<td><strong>6.31%</strong></td>
</tr>
<tr>
<td>Most Improved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Least Improved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Most Improved: 40.78%, 13.63%

Least Improved: 18.95%, 0%
## The Results – Control Group

<table>
<thead>
<tr>
<th>Control Subject</th>
<th>Baseline Reaction Time</th>
<th>Final Reaction Time</th>
<th>% Decrease in Reaction Time</th>
<th>Final Test Accuracy/ % Accuracy Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1182 ms</td>
<td>955 ms</td>
<td>19.20%</td>
<td>94% / 0%</td>
</tr>
<tr>
<td>2</td>
<td>1137 ms</td>
<td>1035 ms</td>
<td>8.97%</td>
<td>89% / 7.22%</td>
</tr>
<tr>
<td>3</td>
<td>955 ms</td>
<td>902 ms</td>
<td>5.55%</td>
<td>98% / 3.15%</td>
</tr>
<tr>
<td>4</td>
<td>995 ms</td>
<td>993 ms</td>
<td>.002%</td>
<td>100% / 0%</td>
</tr>
<tr>
<td>5</td>
<td>976 ms</td>
<td>889 ms</td>
<td>8.91%</td>
<td>93% / 5.68%</td>
</tr>
<tr>
<td>6</td>
<td>948 ms</td>
<td>812 ms</td>
<td>14.34%</td>
<td>95% / 4.31%</td>
</tr>
<tr>
<td>7</td>
<td>1043 ms</td>
<td>975 ms</td>
<td>6.52%</td>
<td>93% / 0%</td>
</tr>
<tr>
<td>8</td>
<td>988 ms</td>
<td>955 ms</td>
<td>3.34%</td>
<td>88% / 2.22%</td>
</tr>
<tr>
<td>9</td>
<td>845 ms</td>
<td>755 ms</td>
<td>10.65%</td>
<td>100% / 0%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>1007.67 ms</strong></td>
<td><strong>919 ms</strong></td>
<td><strong>8.61%</strong></td>
<td><strong>2.51%</strong></td>
</tr>
<tr>
<td>Most Improved</td>
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<td>.002%</td>
<td>0%</td>
</tr>
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The Big Picture – The Study Data

On average, reaction times improved 27.39% for test subjects whereas control subjects’ reaction times improved just 8.61%. All test subjects had 98-100% accuracy at the end. Only 3 control subjects were this accurate by the end.

Conclusion: Neurofeedback is an attention booster as it is recorded in this game.
The Big Picture – My Practice

It’s all good. NeurOptimal® training can cut through the distraction and work well even if a client isn’t focused on the training. Movies, talking, reading, computer games, texting, drawing, sleeping, or focusing intently, NeurOptimal® WORKS!

Cell phones and computers in the training room made no 60 Hz impact on offline analyses in this study.
The Really Important Stuff

• Track star set records, attributed it to training.
• Tuba player finally understood algebra.
• Very sick kid had big health improvements.
• Better reading speed and comprehension.
• Better focus in class.
• Better familial relations.

*These real life changes are what NO is about!*
Max won the science fair overall award for Outstanding Experimental Design.

He was thrilled beyond words.
Which is saying a lot for a kid who loves talking.
BEST SCIENCE FAIR PROJECT AWARD

This award is presented to

MAXIMILLIAN ZECKOWSKI

for having one of the best science fair projects in this history of Luther Burbank Middle School.

Signature

Date 5/23/13
Where do we go from here?  
(An Encouraging Shout Out To Fellow Newbies)

Offering free training to others is great *trainer* training for you– the sessions you give away may have impacts you can’t foresee.

Just start. Think outside the box as you set up an office and use your rich PASS resources.

Above all, **TRAIN YOURSELF REGULARLY!**

You don’t need to have alphabet soup after your name to be an effective trainer. You don’t require a medical pedigree because expertise is built into the NeurOptimal® system.
The only prescriptions your brain really needs.
And What If....