

Analogies for WAVi Reports

Oftentimes, the most effective way to gain understanding about the markers provided in a WAVi report is to utilize analogies when discussing them. The following analogies are intended to increase the general understanding of basic WAVi markers. These analogies are not intended to take the place of definitions provided by the current scientific literature regarding evoked responses and EEG.

- **Brain Reaction Time (Audio P300 Delay)**
 - This measures how fast your brain processes the fact that something different has happened, in this case that an odd tone has occurred.
 - Think: computer processing speeds. An old computer can begin to run slow, particularly if too many tasks are running or a virus is stealing energy.
- **Physical Reaction Time**
 - Partly the reptilian brain's response.
 - Imagine when you catch a baseball flying at your face without thinking about it.
- **Brain Reaction Voltage (Audio P300 Voltage)**
 - Horsepower (how much power are you putting into your reaction)
 - "Packing a punch": everyone CAN throw a punch, but how strong is yours? Maximum uV will change based on a person's genetics, lifestyle, etc.--the same way the strength of throwing a punch would (this addresses differences in maximum voltage from person to person).
 - A measure of cognitive resources: if you have a bucket containing all available cognitive resources, this measures how many of them you are able to give to the task at hand. Ideally, you put ALL of your resources into the task (i.e. larger voltage, or at least, your maximum voltage). We see depletions in this marker when cognitive resources must be allocated to other tasks (i.e. healing a concussion)
 - Think jumping your car battery. If the jumper cables were really small, then not enough power gets to the battery for it to start. Concussion can cause disruption in some of the connections, making them in a sense "smaller", or less efficient.
- **Frontal Alpha Balance (F3/F4 Alpha Magnitude)**
 - Think of a crowd doing a stadium "wave:" hands moving up at the same time signal an emotionally-unified crowd. Likewise, frontal alpha may be signaling better emotional health if a person is more symmetric.
- **Theta/Beta Ratio**
 - Free versus focused brain waves.
 - Think of a song. Too much free-forming from the lead singer without the focus of the drummer could lead to a dysfunctional song, or band.



- We have found that people who have a high theta/beta ratio tend to self identify as having ADHD.
 - Clinicians often prescribe stimulants for ADHD (Adderall, etc.), which makes sense in high theta/beta cases where the beta power might need to be increased to lower the theta/beta ratio back to normal.
 - Not all clinicians believe in ADHD and some people try to use their TBR to their advantage. Example: PJ has a high TBR and understands his personality (social, “multi-tasks,” and is good in sales BUT needs organization), versus Erin’s TBR which is normal and allows for organization in sales and supported customers.
- **Peak Frequency**
 - Part of a complex fingerprint-- In the same way you don't expect your fingerprint to change (unless something drastic like a burn on your hand occurs), we don't expect much change in these alpha peak values (unless something drastic like TBI, trauma, or change in central nervous system occurs).

Note: WAVi is not intended to diagnose or treat any conditions. Please keep this in mind when reading WAVi reports. The WAVi Desktop software is provided as a service for use in collaborative clinical and research settings where a combination of research-EEG with evoked responses and public domain assessment tools is desired. WAVi reports have not been evaluated by the FDA and are provided for research, education, and information. WAVi makes no warranty as to the accuracy of the screening and assessment tools.