

A Program for Ameliorating Combat Stress and Resolving Post Traumatic Stress Disorder

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PTSD and Neurofeedback

- A few years ago, a person who had been tortured in Namibia came for neurofeedback suffering from severe PTSD.
- After seven sessions, the PTSD was totally remediated.
- No further therapy was required
- Letters of gratitude have been arriving every year thereafter from Namibia

- This quick recovery was very unusual.
- Typically some twenty to forty sessions are required.

However:

- Other than neurofeedback, no known technique could have achieved these results
- With neurofeedback, such results are achievable consistently

- Show PTSD video

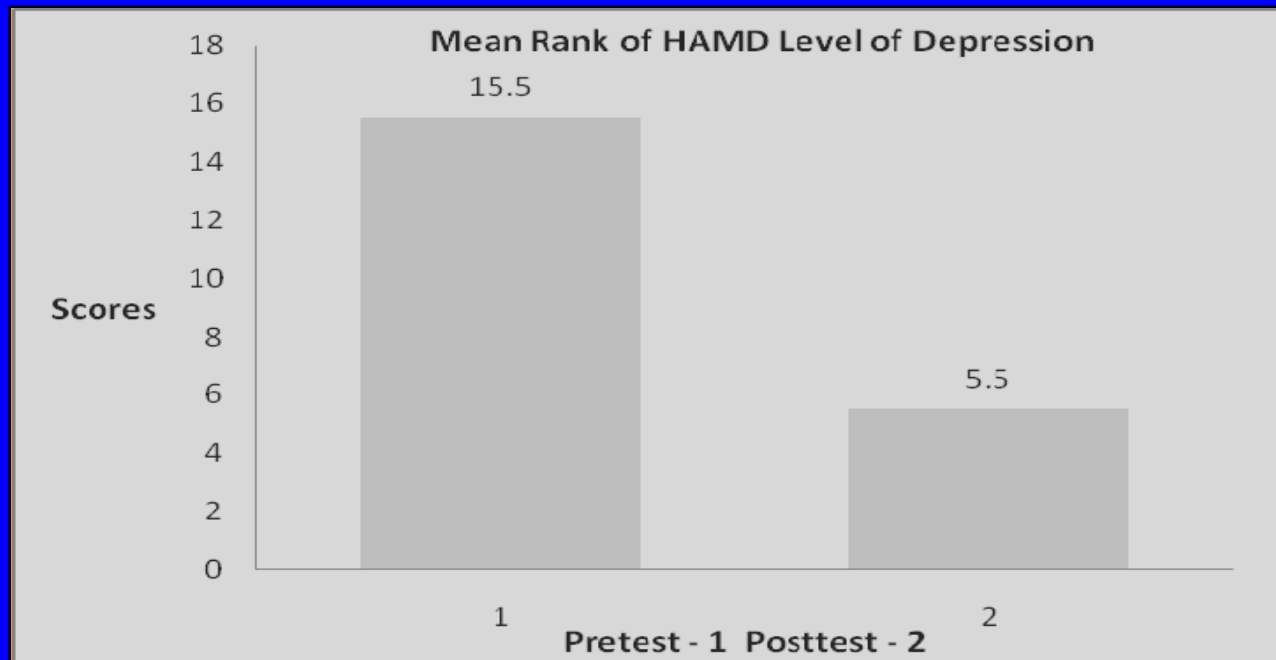
PTSD Research Project

- 10 Subjects
- Rank: E5-O6
- Age: 26-64
- Combat: Vietnam, Iraq, Afghanistan
- 30 sessions of treatment in 30 days
- Project conducted in 2007, Newport News, VA

STUDY RESULTS:

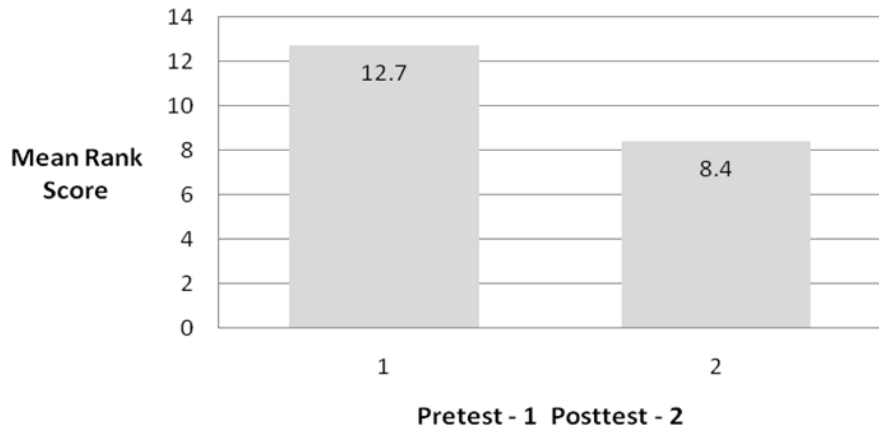
- HAMD Scale

Normal	0 to 7
Mild Depression	8 to 13
Severe Depression	19 to 22
Very Severe Depression	over 22

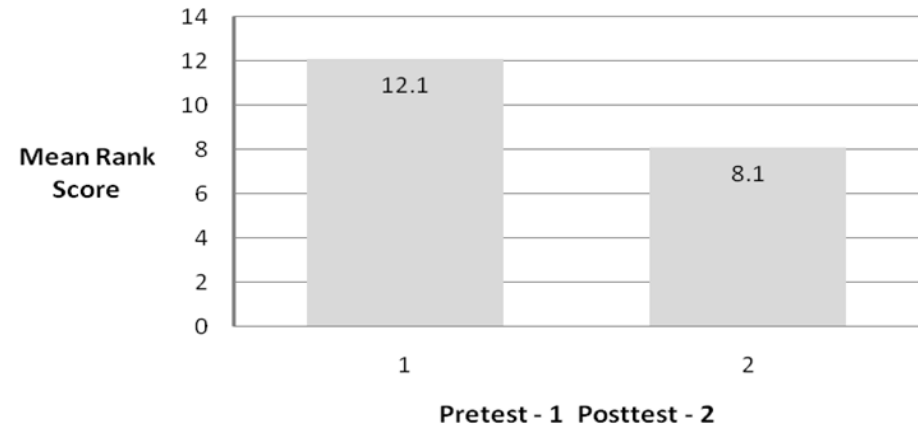


TOVA

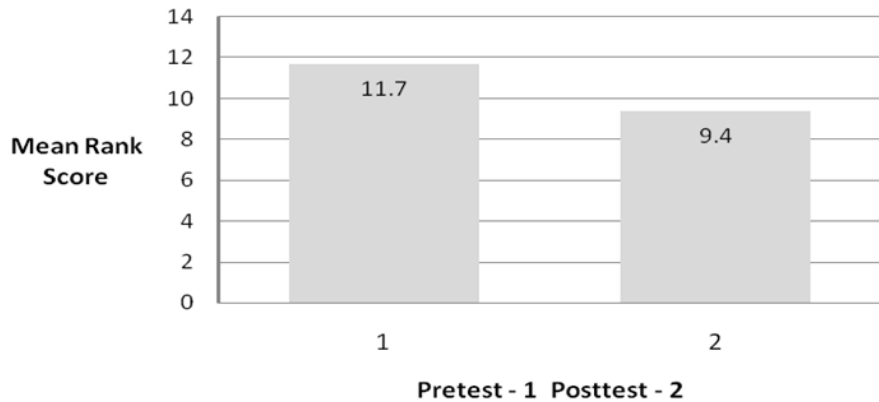
Mean Rank of T.O.V.A. Score for Omissions



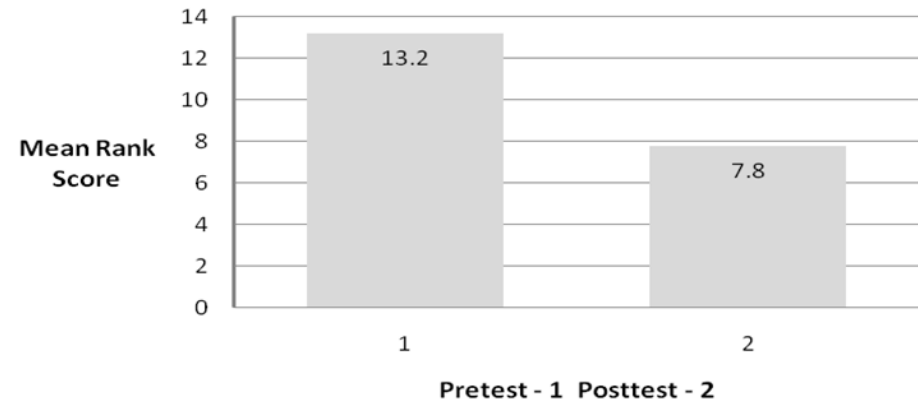
Mean Rank of T.O.V.A. Score for Commissions



Mean Rank of T.O.V.A. Score for Response Time



Mean Rank of T.O.V.A. Score for Variability



PTSD

- The stress response is one of our most basic biological response mechanisms
- It is a “system” response that involves our entire being
- A life-threatening event is recorded in brain and body
- And alters future response patterns

PTSD

- A traumatic event is “seared” into the “body-mind”
 - Because of its importance to survival
 - Proof lies in the fact that recall evokes the entire body response to the event
 - The memory is not just encoded in the mind

Therefore:

- *It cannot be healed through the mind alone*

- This is a learned response
- It's "one-shot learning" in the case of trauma
- The brain "unifies" the memory as a coherent event
- The memory is encoded in brain networks and in the peripheral nervous system
- For trauma, recall means re-experiencing because the body memory is also evoked

- The remedy then lies in altering the memory so that the historical memory is decoupled from the body memory
- This can be accomplished with simple reinforcement techniques,
 - acting on brain networks
 - mediated by the EEG

- This remedy works consistently and reliably and predictably to eliminate re-experiencing
- It allows the traumatic memory to take its place alongside other historical memories
- It will simply have been defanged
- This sets the stage for more comprehensive resolution of PTSD

The method also:

- Remediates hyper-arousal
- Calms emotional reactivity, volatility
- Promotes recovery from emotional numbing
- Dissipates withdrawal and avoidance

- This all transpires in parallel as one single process

The Model

- Just as trauma is encoded physiologically, it must be resolved through addressing the physiology
- Just as the body and mind (brain) are coupled in the traumatic memory through our neuronal networks
- We have access to our whole regulatory regime through our neuronal networks

The Model

- Plasticity in our neuronal networks is sufficient to resolve PTSD in all of its aspects
- We are in fact altering memory, but we are not inducing amnesia for the event
- We are altering “state memory,” not event memory

State memory

- State memory refers to the learned “pattern of responding” under particular duress
- It was once learned; it can be unlearned
- It is part of the functional repertoire of our neuronal networks

The tactics

- Tactically, we allow the body/mind to re-experience a state of
 - Utter calmness
 - Of being in complete control
 - Of feeling utterly safe
- If life is reviewed from this vantage point, traumatic memories are effectively reprogrammed as safe to visit

The essence of the method

- The essence of the method is that we will have separated the event memory from the body memory
- This then allows recovery of function on the other dimensions as well

The method has broad application:

- Psychological Trauma is often seen in conjunction with substance dependency
- This method is also effective for recovery from addiction

The method has broad application:

- A similar description applies to physical trauma
 - Minor traumatic brain injury
 - Blast injury
 - Whiplash and concussion
 - Chemical injury

PTSD: the remedy

- Through feedback, we alter the way the memory is perceived
- By calming the body-mind, we alter its response to the recall of the trauma
- We detach the memory from the body response
- The traumatic memory becomes a memory like all others

EEG Feedback: the method

- We observe the brain in action through the EEG
- We reward the brain for altering its activity in a favorable direction
- We repeat the process until the brain learns the new behavior

Validation:

We focus on three issues

- PTSD
- Addictions
- Traumatic Brain Injury

PTSD: Long-term case

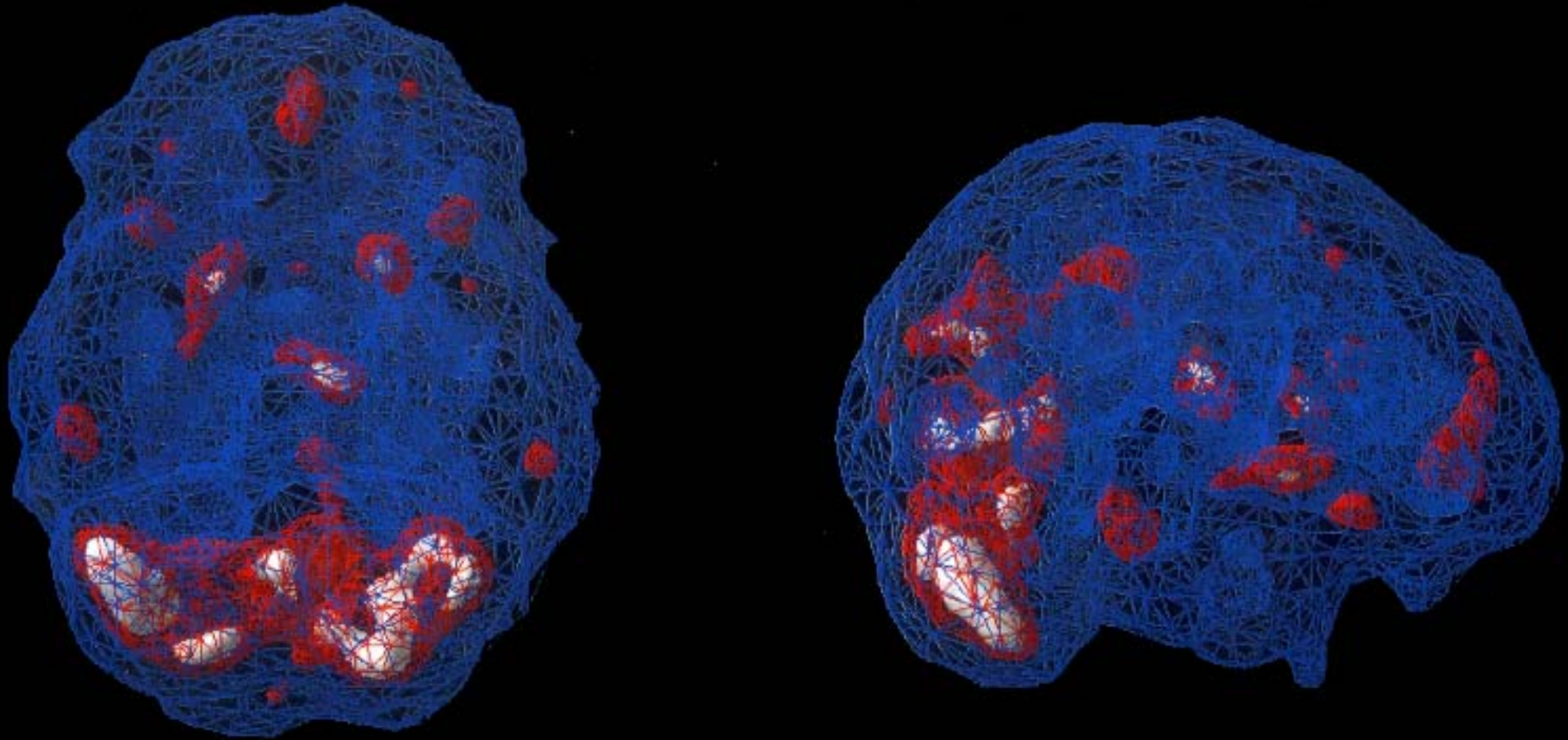
Example of a veteran of Bosnia war:

- 10 years of psychotherapy did not touch his deepest traumas
- He came for some 24 sessions of EEG feedback
- The PTSD was entirely resolved
- He is continuing with home training to improve function further

Recent case of veteran

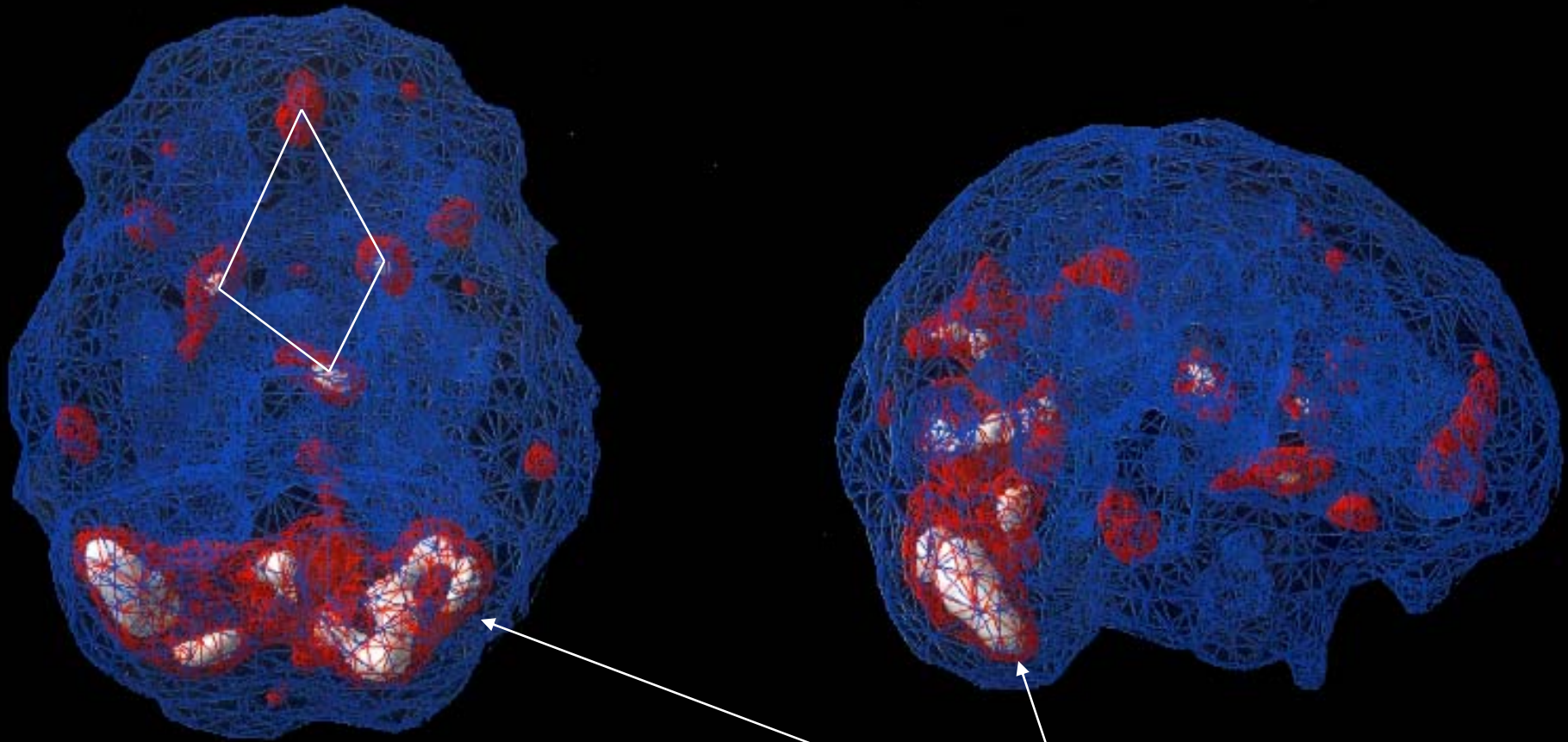
- This veteran came with both PTSD and an addiction to alcohol
- Unfortunately, he had no intention of giving up alcohol
 - He continued to drink throughout his training
- Nevertheless, PTSD was resolved
- Alcohol remains an issue, though it too has improved, and attitude is now better

SPECT scan of veteran: Pre



With thanks to the Amen Clinics

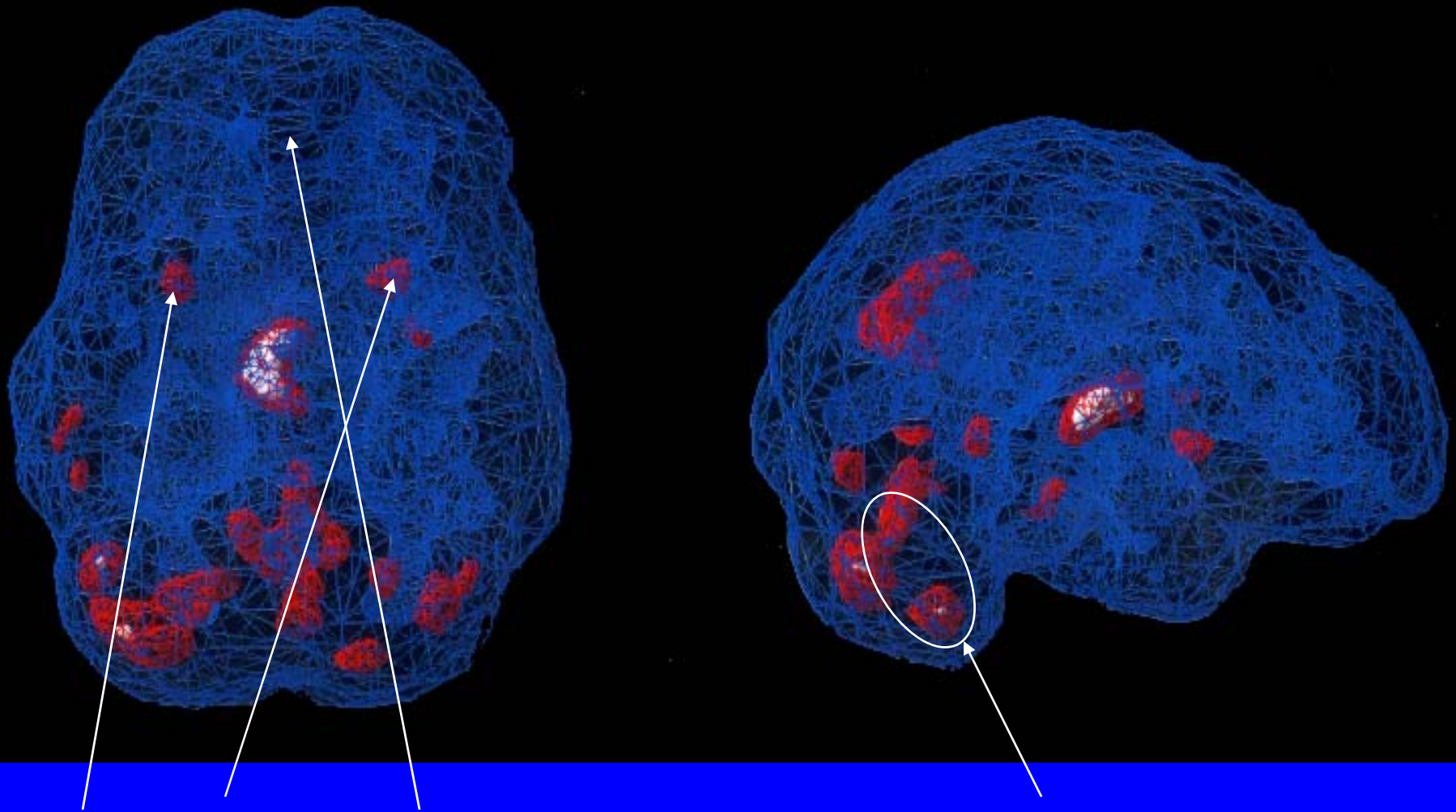
SPECT scan of veteran: Pre



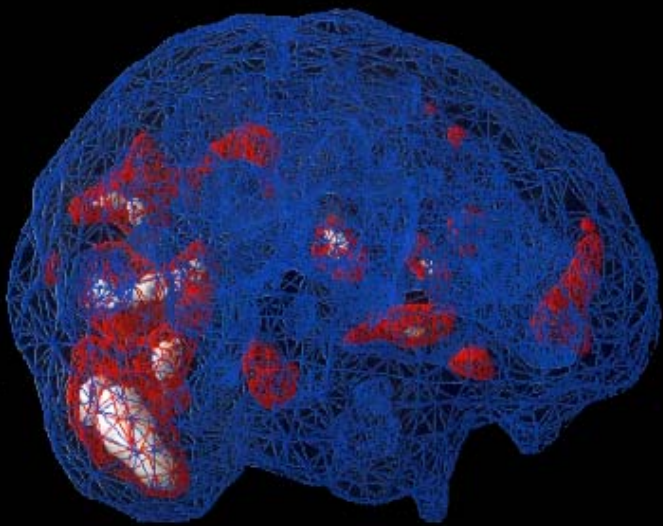
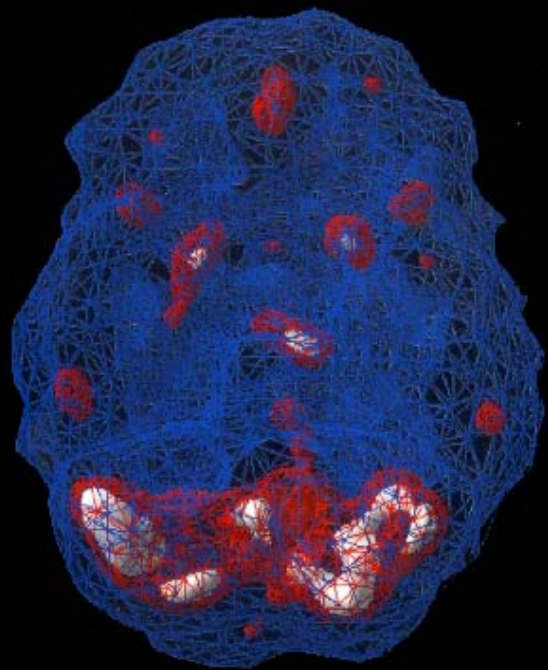
Diamond pattern is characteristic of PTSD

Over-active cerebellum

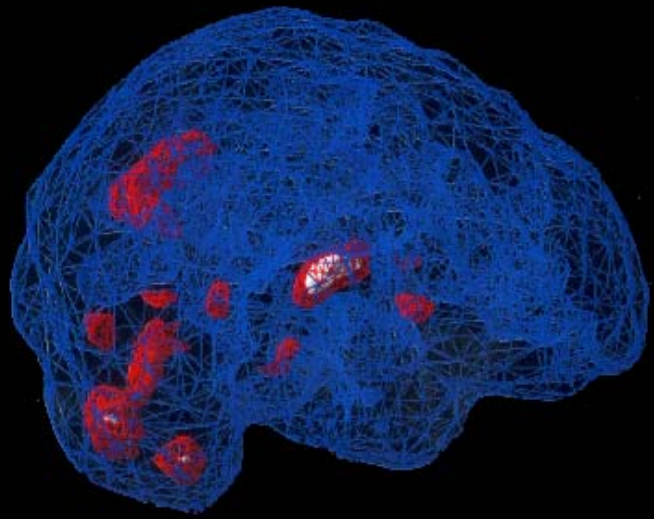
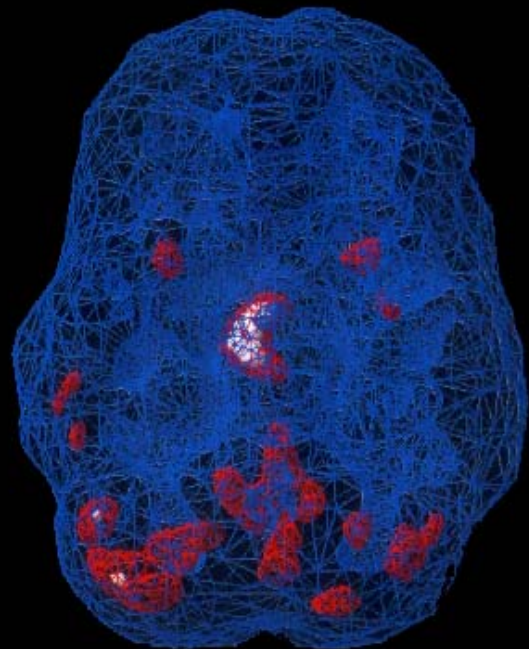
SPECT scan of veteran: Post



Calmer basal ganglia Calmer anterior cingulate Calmer cerebellum



Pre



Post

Minor Traumatic Brain Injury

The model:

- Most of the symptoms attendant to MTBI do not relate to the locus of injury
- Most of the consequences of TBI lie in the functional domain
- They are accessible to remediation by EEG feedback

Traumatic Brain Injury, Summary of 16 successive cases

- 83% Average recovery premorbid functioning, by self- report
- 85% Median improvement
- 32 Average number of training sessions
- 30 Median number of training sessions
- Jonathan Walker, MD (neurology), Dallas

