

# The Relationship between Retained Primitive Reflexes and Hemispheric Connectivity in Autism Spectrum Disorders

Robert Melillo<sup>1</sup>, Gerry Leisman<sup>1</sup>, Calixto Machado<sup>2</sup>, Yanin Machado-Ferrer<sup>2</sup>, Mauricio Chinchilla-Acosta<sup>2</sup>, Ty Melillo<sup>3</sup>, and Eli Carmeli<sup>1</sup>

<sup>1</sup>University of Haifa Faculty of Social Welfare and Health Sciences

<sup>2</sup>Instituto de Neurologia y Neurocirugia

<sup>3</sup>Northeast College of Health Sciences

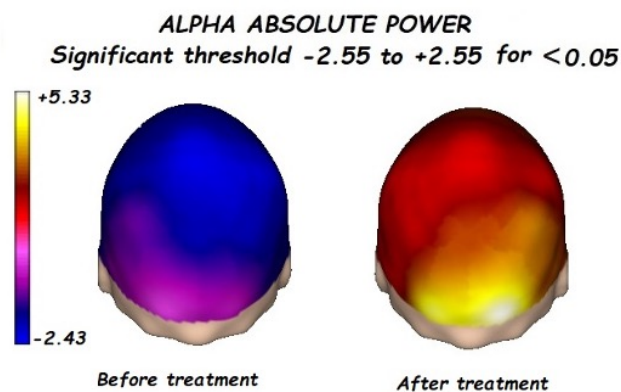
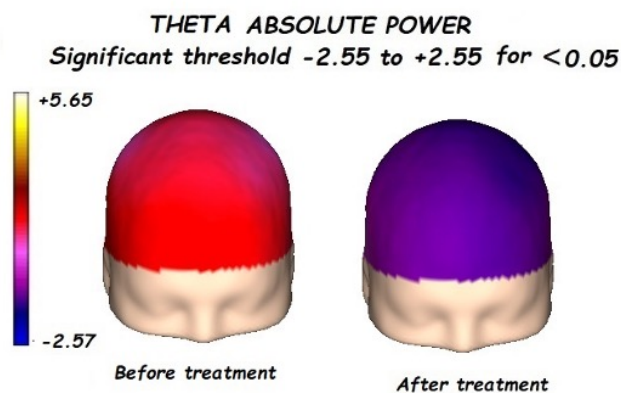
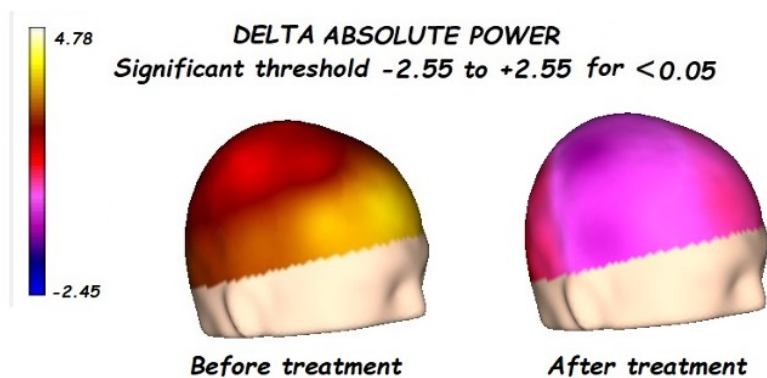
June 8, 2023

## Abstract

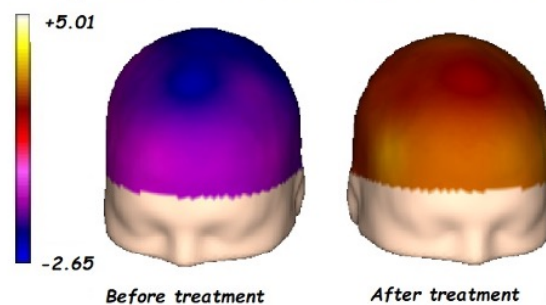
**Objective:** The study assessed autistic spectrum disordered (ASD) children and adults all possessing retained primitive reflexes compared with a control group that did not. **Methods:** qEEG spectral and qEEG functional connectivity analysis was performed. An examination was performed for the presence or absence of RPRs, before and after an intervention based on TENS unilateral stimulation. **Results:** The results support long-range under-connectivity and short-range over-connectivity in ASD, with abnormal lateralization in ASD, specifically an elevated left-over-right qEEG functional connectivity ratio. **Conclusion:** We hypothesize, based on these findings, that ASD is characterized by a general tendency toward an underexpression of low-band, wide-spread integrative processes that are compensated by more localized, high-frequency, regionally dispersed activity. Clinical improvement and the absence of RPRs may be linked to variations in qEEG frequency bands and a more optimized brain networks, resulting in more developmentally appropriate long-range connectivity links, primarily in the right hemisphere. **Significance:** Clinical improvement and the disappearance of RPRs may be associated with a new balance in qEEG frequency bands and a more optimized organization of the brain networks, improving long-range connectivities, mainly in the right hemisphere.

## Hosted file

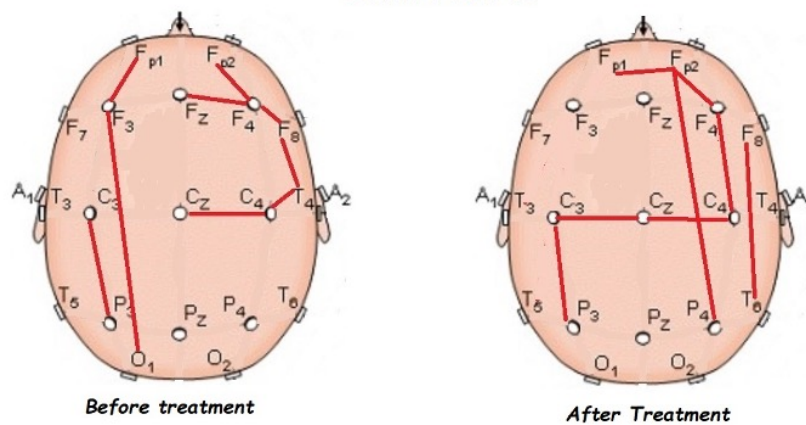
Psychophysiology paper-GL-05-31-2023-FINAL.docx available at <https://authorea.com/users/627135/articles/648192-the-relationship-between-retained-primitive-reflexes-and-hemispheric-connectivity-in-autism-spectrum-disorders>



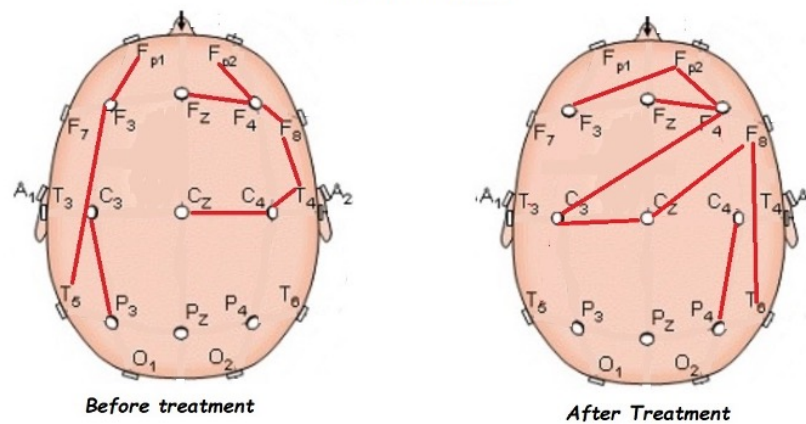
# **GAMMA ABSOLUTE POWER** Significant threshold -2.55 to +2.55 for $<0.05$



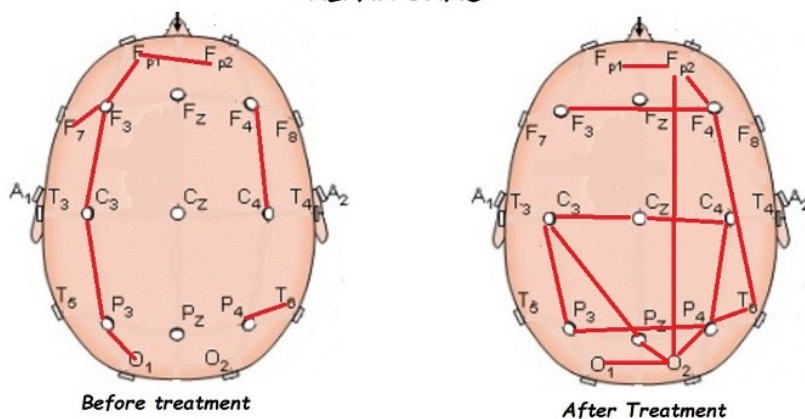
## **DELTA BAND**



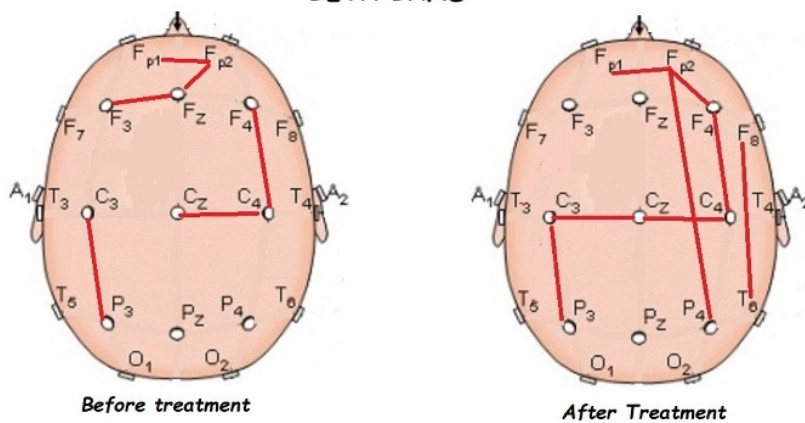
## **THETA BAND**



## ALPHA BAND



## BETA BAND



## GAMMA BAND

