magstim EGI

Quick and Painless HD-EEG

makes more autism research possible

To study the neurophysiology of sensitive populations, High density EEG (HD EEG) offers the comfort, speed, and ease-of-use often required.[1-11] Distinctive from traditional EEG systems, these advantages serve to improve each participant's experience as well as the opportunities for your findings.

Advantages of HD EEG supported by publications

Advantages	Clearly defined and objective
High compliance	98.6% compliance on the first attempt in a study of over 2,000 children including ASD, ADHD, and other developmental conditions.[1] Further studies show similar results with large, diverse populations that include all age groups.[2,3,4]
Comfortable	The Geodesic Sensor Nets provide flexible, individualized fit with soft sponge sensors for recordings <90 min. No abrasion or glue is needed as each of the sensors rest gently on the head.[5,6]
Applies quickly and easily	Three simple measurements are needed to correctly size the Nets for each participant and the sensors do not require individual prep. They are applied in one fluid motion and all sensors come to rest almost simultaneously. Trained technologists complete the process for good quality signals on most individuals in less than 10-15 minutes.[5]
Individualized fit	Robust sizing allows consistent fit across ages from neonatal infants to adult.[5] Demonstrated to work effectively across diverse populations and hair types, the fit remains comfortable throughout recordings.[7]
Demonstrated publication history	Over the past several years, several publications featuring the Geodesic EEG System have appeared in top tier journals including Science and others.[8,9,10,11]

1. Szklarski L., Mintz M., Catterall K. (2016, August). High Density Electroencephalography (HD-EEG) and Desensitization Techniques Improve Compliance Without Sedation or Restraint for Children and Adults with Behavioral Challenges. Poster session presented at the ASET Annual Conference, Pittsburgh, PA.
2. J. McPartland1, S. J. Webb2, F. Shic3, A. Naples1, (2018, May). The Autism Biomarkers Consortium for Clinical Trials: Study Design and Progress to Interim Analysis. presentation at the INSAR, the International Society for Autism Research Annual Conference, Rotterdam, Netherlands.
3. Johnson, M. H., de Haan, M., Oliver, A., Smith, W., Hatzakis, H., Tucker, L. A., & Csibra, G. (2001). Recording and analyzing high-density event-related potentials with infants using the Geodesic Sensor Net. Developmental Neuropsychology, 19(3), 295-323.
4. DiStefano, C., Dickinson, A., Baker, E., & Jeste, S. S. (2019). EEG data collection in children with ASD: The role of state in data quality and spectral power. Research in Autism Spectrum Disorders, 57, 132-144.
5. Akano, A. J., Haley, D. W., Dudek, J. Investigating Social Cognition in Infants and Adults Using Dense Array Electroencephalography (dEEG). J. Vis. Exp. (52), e2759, doi:10.3791/2759 (2011).
6. United States Food and Drug Association 510(k) Summary – K112353 Nov 2011 Geodesic EEG Mobile 100 (GEM 100).
7. Tucker, D. M. (1993). Spatial sampling of head electrical fields: the geodesic sensor net. Electroencephalography and clinical neurophysiology, 87(3), 154-163.
8. Kouider, Sid et al. "A neural marker of perceptual consciousness in infants." Science. 340 6130 (2013): 376-80.
9. S Ortiz-Mantilla, C Cantiani, VL Shafer, AA Benasich. (March 2019). Minimally-verbal children with autism show deficits in theta and gamma oscillations during processing of semantically-related visual information. Scientific Reports. 9, Article number: 5072 (2019).
10. Charlotte D, Abigail D, Elizabeth B, Shafali SJ. (January 2019). EEG data collection in children with ASD: The role of state in data quality and spectral power. Research in Autism Spectrum Disorders. Volume 57, January 2019, Pages 132-144.
11. Abigail D, Kandice J. V Mustafa S, Charles A. N III, Shafali S. J. (March 2019). Early patterns of functional brain development associated with autism spectrum disorder in tuberous sclerosis complex. Biorxiv.

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