Helping children on the Autism Spectrum

Key features include:

Safe and easy home use
Mente Autism has been designed for home use. Safe and simple to activate, it requires little to no direct supervision and does not restrict users and data collection to a clinical setting.

Portable
Light and portable, Mente Autism can be used outdoors as long as the noise levels in the area will not hinder the child from hearing the sounds emitted by Mente Autism through the earphones.

Personalised therapy
Mente Autism’s unique patented technology creates a personalized neurofeedback therapy that is specific to each user.

Comfortable headband
The headband is ergonomically designed and hypoallergenic for greater comfort and ease.

Daily session reports
Mente Autism creates a report per daily session. These reports record each session and provide graphs that track progress. Users can authorize healthcare professionals to access them.

Scientifically certified
Mente Autism holds Class IIa CE Medical certification. AAT Medical is ISO 13485 certified and is registered with FDA under registration number 150864606. Mente Autism is undergoing FDA review.

Clinical-quality EEG device
Mente Autism provides a clinical-quality 4-channel EEG using state-of-the-art circuitry and sensors. Coherence levels ensure excellent source localization.

Connected to a tablet or phone and a sensor is out of place, the session will stop and the LED light on the headband will turn orange. If this happens, parents / carers can reconnect to the app to check that all sensors are properly positioned.

Advanced sensory and chip technology
Mente Autism’s sophisticated sensors and top-of-the-line built-in circuitry pick up highly detailed and minute electrical signals from the scalp that are key for the groundbreaking therapy sessions and report generation.

Unique Features

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Constant system checks
Throughout the session, the device constantly checks that each sensor is correctly positioned with optimal connection with the head. On the app, the parent or carer can view the status of each sensor. A warning is issued via the app if there is an issue and the session is paused until the sensors’ position is fixed. If Mente Autism is not connected to a tablet or phone and a sensor is out of place, the session will stop and the LED light on the headband will turn orange. If this happens, parents / carers can reconnect to the app to check that all sensors are properly positioned.

Advanced sensory and chip technology
Mente Autism’s sophisticated sensors and top-of-the-line built-in circuitry pick up highly detailed and minute electrical signals from the scalp that are key for the groundbreaking therapy sessions and report generation.

“Myley, 12 years of age. Has been using Mente for the past four years. The changes we have seen in him since he started using Mente have been staggering. Once a highly non-verbal boy, our son’s language and communication skills have improved enormously. Not only does he understand what others are saying, but at times he initiates the conversation. He is more independent in that he has started making decisions for himself. As many boys his age tend to do. Hearing my son talk and engage in discussion was, and still is, the ultimate gift I could have ever hoped for. The change in him over the past four years has been remarkable. His speech therapy has also remarked that his communication abilities have greatly improved. Mente continues to positively change my family’s dynamics and for that, I do recommend it.”

Parent of 12-year-old with Autism Spectrum Disorder (ASD)

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About AAT Medical, a Neurotech International company

Our mission is to improve the lives of people with neurological conditions. Our vision is to become a global leader in home-use and clinical solutions which are accessible and affordable. We are focused on development and commercialization of technological solutions for diagnosis and treatment of such conditions, and to this aim, we are committed to conducting research both internally and in collaboration with international companies, universities and research centres. Our team comprises a number of talented individuals, ranging from neuroscientists and bio-medical engineers to app developers.

Helping children on the Autism Spectrum
What is Mente Autism?

Mente Autism is a clinical-quality EEG device that uses patented neurofeedback technology to help children with autism. Designed for home use, Mente Autism helps relax the minds of children on the spectrum which in turns helps them to focus better and engage positively with their environment.

Mente Autism is an easy-to-use, effective neurofeedback system for safe home use by children with autism. Its unique patented technology creates “audio” made personalized auditory stimulation for the children. After each 40-minute morning therapy session, the system:

- uploads the data registered during the session to the Cloud service via the Mente Autism App (using a Wi-Fi or 3G connection).
- uses this data to generate analyses of the EEG brainwave activity.
- provides professional neurofeedback therapy.
- displays the results of the therapy in the Mente Autism app and a cloud component, the Mente Autism ONLINE dashboard.
- generates a report that the parents can access online, medical professionals can download raw data, and parents can see and prepare for their child’s therapy.

How does it help children with autism?

Mente Autism finds four brain waves. But focuses on three patterns of the brain: Delta and Theta waves. Delta brain waves are associated with closed eyes and people on the autism spectrum have abnormally high levels of these closed eyes and Delta waves. Brain waves, which peak constantly, even when they are awake. The results that people on the autism spectrum are often isolated, in their own world.

Mente Autism uses an auditory system to reduce Delta and Theta brain waves. It does this by creating personalized auditory stimulation to reduce unwanted brain waves. The child listens to these sounds via the Mente Autism headband.

How it works

The Mente Autism headset records brainwave levels in real time, in 4 channels, using five (4 channel) highly sensitive electrodes which record electroencephalography (EEG) potentials from the scalp in real time. This EEG signal is amplified, filtered, and processed to create a therapeutic, auditory stimulation to inwardly calm children.

How is it therapeutic

For children with autism? Mente Autism is a portable system.

To deliver EEG-based neurofeedback, five highly sensitive electrodes which record electroencephalography (EEG) potentials from the scalp in real time. This EEG signal is amplified, filtered, and processed to create a therapeutic, auditory stimulation to inwardly calm children.

Artificial Reduction Algorithms

Electroencephalography (EEG) is a proven technique to record brain activities in natural settings. A problem often encountered is that EEG signals may be contaminated by artefacts, which are easy to blink activities. Using the specificity of algorithms that are applied in real-time, are window-based and confirm with already-established methods of filtering and sampling.

For Medical Professionals

A frontwoman in its field, Mente Autism is a clinical-quality EEG device using state-of-the-art hardware and software to provide an effective neurofeedback system that is designed for home use. Comprising a headset, an application (app) and a cloud component, the technology creates individual “made-to-measure” auditory stimulation which is therapeutic for the children who use it.

Front sensor:
- Dry surface to user’s skin
- Consists of a conductive membrane (typically used in clinical EEG systems)
- Cushioned sensor surface conforms to irregular body surface better
- Low-noise condition between body and sensor
- Stabilized App (Interface)
- Impedance 10 - 100 KΩ on unprepared skin

Connecting patients and medical professionals

Medical professionals authorized by their hospitals or universities have access to a dashboard from where they can observe the user daily performance and progress. Medical professionals can download high-definition EEG results.

Info-graphical statistics about Alpha, Beta, Delta and Theta levels are presented in a report generated after each therapy session. Medical professionals can also download raw neurological information of the brain.

Furthermore, medical professionals can remotely upload routine clinical data for patients with autism. This information is sent to the Cloud service and is accessible online, medical professionals can view and present session coherence assessments. The self-help training of the patients and the effectiveness and potential future benefits of Mente Autism for the group can be monitored.

Superscript:
- Mente Autism also uses coherence, which includes the relationship between two EEG signals, as a biomarker to determine the coherence in the Delta and Theta bands for monitoring purposes. Through the personal medical professional dashboard accessible online, medical professionals can view and present session coherence assessments. The self-help training of the patients and the effectiveness and potential future benefits of Mente Autism for the group can be monitored.

Technical Details

The headset has four (4 channel) ultra-sensitive EEG electrodes that pick up minute waves (Alpha, Beta, Delta and Theta) waves emitted by the brain. The electrodes are placed on the band to provide accurate readings of the child’s brainwave activity and they use the latest technology to lower impedance and artefact generation. One type of sensor is to be worn on the forehead and another type is prepared to be placed on the ear and reach the scalp at the back of the head.

Technical Details

The headset has five (4 channel) highly sensitive electrodes which record electroencephalography (EEG) potentials from the scalp in real time. This EEG signal is amplified, filtered, and processed to create a therapeutic, auditory stimulation to inwardly calm children.

Five top-of-the-line sensors are used to ensure optimum quality EEG recordings. The positioning and polarity of each sensor are located on the band to provide accurate readings of the child’s brainwave activity. The sensors are independent and resistant, the signal is more stable and resolution is much better.

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