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Research Article

Improving the Speed of Brain Waves of the Electroencephalogram through the Practice of Hekalogy

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Abstract

Introduction: The human brain is one of the most complex systems in the universe, composed of millions of neurons that transmit electrical signals. On the other hand, Hekalogía proposes integrating the body, emotions, and consciousness as a single intelligence, demonstrating that humans can regenerate and release stress by connecting with deep inner awareness.

Objective: To demonstrate short-term improvement in EEG brain wave speed in participants of an emotional self-healing retreat through the practice of hekalogy.

Materials and Methods: Explanatory research, experimental design, prospective longitudinal, with a census sample of 54 participants who attended an emotional self-healing retreat through the practice of hekalogy called Who Am I?, chakra 1, in San Miguel de Allende, where brain wave mapping was performed with the electroencephalogram of the scio bioresonance device.

Results: An improvement in the speed of alpha, beta and thetha brain waves was observed in 100% of the participants, in a period of 2 days after the practice of hekalogy, demonstrated through electroencephalogram brain wave mapping with the scio bioresonance device.

Conclusion: It is concluded that hekalogy has a positive impact on the brain wave velocity of participants. The results show that hekalogy has beneficial effects on brain health and greater harmony in central nervous system activity, which translates into various benefits for the participant.

Keywords: Hekalogía; Emotions; Self-healing; Electroencephalogram (EEG); Brainwaves; Bioresonance

Introduction

The human brain is undoubtedly one of the most complex systems in the known universe and interest in understanding how it works dates back to antiquity. It is made up of about one hundred billion nerve cells called neurons, which share the characteristics and parts of other cells, but unlike these, their electromechanical character allows them to transmit electrical signals over long distances [1].

Our understanding of brain function has increased dramatically in recent decades due to the development and refinement of various technologies for recording brain signals. Some of these technologies indirectly measure metabolic processes in the brain, such as functional magnetic resonance imaging or functional near-infrared spectroscopy; while others monitor electrical activity directly, such as the invasive Electrocorticogram. On the other hand, the Magnetoencephalogram or the Electroencephalogram are non-invasive techniques, since they make indirect measurements of these signals [1].

In recent decades, the study of brain waves by means of electroencephalogram (EEG) has allowed significant advances in the understanding of the functioning of the human brain, as well as in the analysis of various practices that promote mental and emotional well-being [1]. The EEG is generated from inhibitory and excitatory postsynaptic potentials from cortical nerves. These postsynaptic potentials coalesce in the cortex and extend throughout the skull and scalp. The rhythmic EEG activity is a function of cortical neuronal postsynaptic potentials that are synchronized by the complex interactions of large numbers of cortical cells. Cortical neurons interact with subcortical pacemakers. Together there is a synchronicity that results from this interaction. Subcortical structures can send synchronizing impulses to cortical neurons and induce widespread synchronous rhythmic changes. The system must filter out ECG activity, external pulses, eye movements, and other artifacts [2].

Emotional self-healing is the ability that every human being has to heal their emotions through feeling the emotion, defining emotion as energy in motion, as it has been practiced for over 16 years in different people around the world, in how the human body to let this energy flow throughout the body in complete surrender, resulting in a significant change in the short-term transformation of the physical and mental state of the practitioner (Ponce R. [3]. Hekalogy was born as an integrative science that studies and activates the inner healing power of the human being through the transformation of its internal energy, the conscious emotional movement and the expansion of its level of consciousness. Inspired by the ancestral Egyptian concept of Heka, understood as the creative and transforming vital force that connects the human being with his innate capacity for self-healing [4].

Hekalogy proposes a path where the body, emotion and consciousness are integrated as a single living intelligence, beyond any external technique or control system, this discipline demonstrates, from direct experience and scientific validation, that the human being can regenerate, balance and free himself from physical, mental and energetic stress by surrendering to deep feeling [5]. Several investigations have explored the effects of meditation, conscious breathing and other similar techniques on brain activity, however, there are no scientific references documenting the impact of hekalogy on brain wave velocity. In this context, the present study aims to provide evidence on the immediate effects of this practice, specifically on the improvement of brain wave velocity recorded by electroencephalogram.

The objective of the present research is based on demonstrating the short-term improvement in the electroencephalogram brain wave velocity in the participants of the emotional self-healing retreat through the practice of hekalogy.

Materials and Methods

The type of research was explanatory, experimental design, prospective longitudinal cut. The census sample consisted of 54 participants between 18 and 60 years of age between men and women of different ages with informed consent to perform a mapping of the brain waves of the electroencephalogram with SCIO equipment before and after the emotional self-healing to determine the improvement in the speed of electromagnetic waves alpha, beta, tetha and gamma of the human brain in the participants who attended the retreat.

People who go to an emotional self-healing event what they take away is the discovery of all that they have always carried inside. When they go to the depths of their mind they realize emotions that they had not released since childhood, there they have a space to free themselves from all those burdens that have repercussions on their physical and mental health. At the end of the event people take with them a deep feeling of peace and above all the awareness that they themselves create their reality and can transform it. This generates great empowerment and peace.

Brain waves are low amplitude waves, in the case of the human brain we are talking about microvolts, and of different types of frequency, some being faster and others slower. Thus, brain waves are classified into different types according to their frequency in alpha, beta, tetha and gamma.

Alpha waves represent a state of low brain activity and relaxation. In patients who have experienced major trauma or people with addictions, alpha amplitudes may be low and this leads to rigidity and avoidance of the inner world. On EEG, alpha waves can

have an amplitude of 50 microvolts (μV) in the occipital and parietal lobes. Beta waves are produced when the brain is involved in mental activities. They have the highest transmission speed among the four. When a person is ordering a task to his brain is emitting this type of waves. The predominance of beta waves may indicate a state in which the person is focused on the external world. In EEG, beta waves can have an amplitude of 10-20 μV in the frontal region. Tetha waves are reached in states of deep calm, when our senses are focused on our inner world. The person who is daydreaming is in this state, as well as people who meditate are observed during light sleep, deep relaxation, meditation and creativity. In the EEG, theta waves usually have an amplitude of 20-100 μV. Gamma waves are the fastest waves and are associated with perception, intense concentration, memory and information processing. In EEG, gamma waves are difficult to identify, but can have an amplitude of 10-20 μV.

Our brain waves are changeable and will vary according to what we are doing and feeling. When slower brain waves predominate, we will feel more tired, sluggish or sluggish. When higher frequency waves dominate, we will feel more alert or even anxious. We can associate the different types of waves to different states of activation, mood or concentration. When the activity of a certain type of wave is altered in some area of our brain is when it will produce a specific symptom. Since brain waves are a reflection of the activity and function of the central nervous system, when the central nervous system suffers an imbalance, an alteration in brain wave activity can be observed.

The SCIO Biofeedback system was created to address the deeper cause of our body's malfunction. This device functions as a "scanning device" that maps our internal electrical, magnetic and electromagnetic characteristics. Therefore, it tests our body according to the laws of electricity. From this, it is possible to observe what are the predetermined responses and reactions of our body to different stimuli. SCIO is officially a certified medical device with the ISO classification of medical devices which indicates that the medical device complies with the applicable EU regulations.

The device performs a reading of the electromagnetic frequency of the human body through a safe, relaxing, non-invasive method without side effects, and can be used by all people, at any age, We will use this device in our study to perform an electroencephalogram as a mapping to measure the speed and pattern of brain waves of the human body before and after the emotional self-healing in order to study how was the speed and pattern of brain waves in the participants before starting the self-healing and after this to assess whether there is any significant improvement in the participants, All this with the objective of assessing the short-term improvement of the speed of brain waves in the participants through hekalogy in order to validate its importance and application as a medical science today.

The research design used was quantitative experimental because a random population of 54 participants who attended the emotional self-healing retreat called Who am I, Chakra 1, where brain wave measurements were taken by mapping the electroencephalogram on April 26 before the retreat at 8:00 am and on April 28 at the end of the retreat at 8:00 am with the SCIO Biofeedback device serial SX0411245113.

Data collection system: The information will be collected with the SCIO device on April 26 and 28 around 8:00 am and 12:00 pm and will be captured in an Excel matrix where these results will be noted, likewise the relationship of these results will be taken before and after the emotional self-healing retreat of the participants in a randomly selected population of 54 people who attended the retreat. It should be noted that the participants did not make any change in their daily eating habits, exercise, nor was there any relaxation technique or exercise such as meditation, yoga, breathing, but on the contrary they were induced to feel stressors such as feeling their emotions, feeling pain, crying, vomiting, which makes our practice and research extremely interesting and unique.

Results and Discussion

Graph 1 shows the relationship of the Alpha brain wave taken with the EEG from the SCIO device on dates 1 and 2 corresponding as follows:

- Alpha Brainwave Take #1 dated April 26, 2025 at 8:00 am prior to Hekalogy practice.
- Alpha Brainwave Shot #2 on April 28, 2025 at 8:00 a.m. after Hekalogy practice.

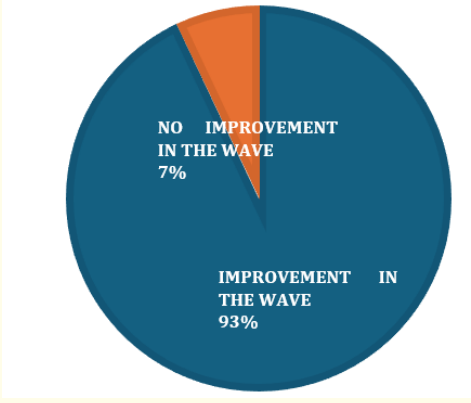

Figure 1: % Participants with improvement in alpha wave velocity.

We can observe that, out of 54 participants (93%) presented an improvement in the Alpha brain wave velocity in relation to the intake 1 and 2, while only 4 participants (7%) had no improvement in the Alpha wave velocity in relation to the intake 1 and 2.

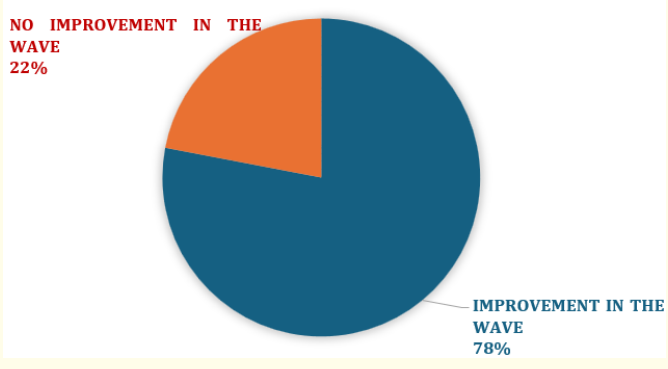

Figure 2: % Participants with beta wave velocity improvement.

Graph 2 shows the relationship of the Beta brain wave taken with the electroencephalogram of the SCIO device on dates 1 and 2 corresponding as follows:

- Beta Brainwave Take #1 dated April 26, 2025 at 8:00 am prior to Hekalogy practice.
- Beta Brainwave Shot #2 on April 28, 2025 at 8:00 a.m. after the Hekalogy practice.

We can observe that, out of 54 participants, 42 participants (78%) had an improvement in Beta brain wave velocity relative to intake 1 and 2, while 12 participants (22%) had no improvement in Beta wave velocity relative to intake 1 and 2.

Figure 3 shows the relationship of the Theta brainwave taken with the EEG from the SCIO device on dates 1 and 2 corresponding as follows:

- Theta Brainwave Take #1 dated April 26, 2025 at 8:00 am prior to Hekalogy practice.
- Theta Brainwave Shot #2 on April 28, 2025 at 8:00 am after the Hekalogy practice.

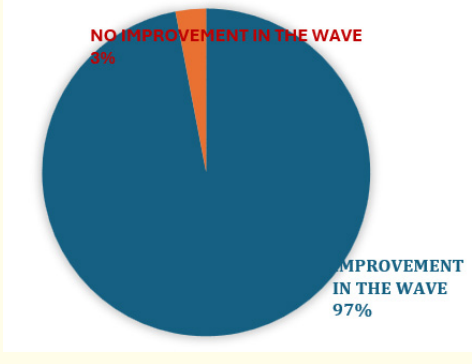

Figure 3: % Participants with improved theta wave velocity.

We can observe that, out of 54 participants, 52 participants (97%) had an improvement in Theta brain wave velocity relative to take 1 and 2, while 2 participants (3%) had no improvement in Theta wave velocity relative to take 1 and 2.

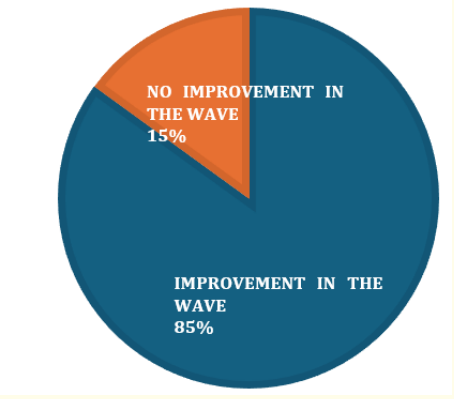

Figure 4: % Participants with improved gamma wave velocity.

Figure 4 shows the relationship of the Gamma brain wave taken with the EEG from the SCIO device on dates 1 and 2 corresponding as follows:

- Take #1 of Gamma Brainwave dated April 26, 2025 at 8:00 am prior to Hekalogy practice.
- Gamma Brainwave Shot #2 on April 28, 2025 at 8:00 a.m. after the Hekalogy practice.

We can observe that, out of 54 participants, 45 participants (85%) had an improvement in Gamma brain wave velocity relative to take 1 and 2, while 15 participants (15%) had no improvement in Gamma wave velocity relative to take 1 and 2.

The objective of this study is to demonstrate the short-term improvement in the speed of brain waves in participants through Hekalogy and it was possible to identify in 97% of the participants the significant improvement of the Theta brain wave, 93% in the Alpha brain wave, 85% in the Gamma wave and 78% improvement in the Beta wave speed, in conclusion we had a significant improvement in the speed of brain waves in about 90% of the participants with only 2 days of Hekalogy practice, which leads us to differentiate to other practices performed for the improvement in brainwaves as the one published on January 30, 2015 called brainwave analysis to determine emotions from visual stimuli where they subjected 22 participants to visual stimuli of happiness and fear where they concluded that about a quarter of the human brain is involved in visual processing, more than for any other sense. The cerebral cortex is responsible for a wide variety of perceptual and cognitive processes. The frontal lobes help you plan and perform actions, the occipital lobes allow you to see and recognize the world, in this study there was a measurement of brain waves with significant increase in beta waves since for the brain beta waves indicate the activity of an awake person and in this case when subjected to visual stimuli there was a greater relationship to these waves in the experiment. Analysis of brain waves to determine emotions from visual stimuli [8].

Another study published in 2022 about 3 ways to alter your brainwaves to improve your well-being was firstly a brainwave measurement and training with neurofeedback and as a result of the training, the practitioner can experience an improvement in their concentration, spatial/motor skills, mood and general well-being, as well as an improvement in different types of memory and attention over prolonged times of 1 month, secondly synchronizing brain waves with music where they demonstrated that music with a strong beat can stimulate brain waves to resonate in sync with the beat, and that faster beats generate sharper concentration, more alert thinking and a slower tempo promotes a calmer state of mind, as a third method they studied brain waves with meditation where the brain waves that the EEG detects most frequently are theta and alpha waves in a relaxed state. These brain frequencies are often associated with increased learning ability and general mental well-being, but may also enhance creativity and problem-solving ability. The effects of various forms of meditation revealed that students needed 40 days of practice to convert alpha waves into their dominant brainwave. Once alpha waves reached prevalent levels, participants experienced better sleep quality, lower stress levels, and improved learning and memory. To achieve significant changes in their brain activity, the students had to make meditation a habit. And so it is with neurofeedback brain training: nothing is more effective at changing the brain than practice. In fact, if you're consistent, you have a 70% chance of achieving the results you're looking for. 3 ways to alter your brainwaves to improve your wellbeing [9].

In the study conducted in 2022 called system for monitoring brain signals during therapies in children from 3 to 7 years old di-

agnosed with ASD was conducted during an interval of one year, which allowed to perform a large part of the requirements requested by the therapists, having as main axis the detection of the three functional blocks of the brain according to the organizational model of Luria, for which it was crucial a previous research along with an interview with a specialist in therapies to children diagnosed with ASD to define the requirements of the project. (System for monitoring brain signals during therapies in children from 3 to 7 years old diagnosed with ASD) [10]. On the other hand, in the study algorithm for the classification of brain waves by means of deep learning techniques focused on the movement of lower limbs using a brain-machine interface carried out in 2020, it is concluded that the purpose of the project was successfully fulfilled and the research question was answered since the overall balance of accuracy of the neural network was 85. (Algorithm for the classification of brain waves by means of deep learning techniques focused on the movement of lower limbs making use of a brain-machine interface), it is evident that the problem posed was solved with a recurrent neural network [11].

In 2023 they conduct the first study to show that transmitting information at the natural rate of our neural impulses accelerates our ability to learn. Participants who received a simple 1.5-second visual cue at their brainwave rate improved at least three times faster on a cognitive task. When the researchers retested the participants the next day, those who had improved the fastest still did just as well: learning was maintained [12]. In July 2023 conduct research brain waves synchronize when people interact demonstrates synchrony between interacting brains and, even more intriguingly, that correlations in some brain regions are greater between people telling a joint story than during independent stories, particularly in the parietal cortex [13]. EEG Neurofeedback: Revolutionizing Brainwave Training and Mental Health was a study in July 2023 concluded that EEG Neurofeedback has emerged as a powerful tool to revolutionize brainwave training and mental health. By harnessing the principles of neuroplasticity and giving people the ability to self-regulate their brainwave activity, EEG Neurofeedback opens up new possibilities for improving cognitive functioning, reducing symptoms of mental disorders, and promoting overall well-being [14].

It is worth highlighting that in April 2017 they show a study of Neurofeedback as complementary training to optimize athlete performance: a systematic review with implications for future research, where they conclude that neurofeedback training (NFT) has been recognized as a method to improve self-regulation. Recent studies demonstrate its efficacy in alleviating symptoms in clinical samples and in improving performance in non-clinical samples, e.g., musicians. Sport is an area that could benefit greatly from the use of NFT. However, there is a lack of studies on the application of NFT in sport, i.e., evaluating its efficacy in improving sports performance [15]. In the study applicability of estimators for attention span in a school environment conducted in June 2018, it could be observed that it is feasible to use EEG for the measurement of brain waves in the classroom, the Theta/Beta and Delta/Alpha estimator can be used which catalog motor and attention state of the person for that purpose, and the above can be used in the future in a NeuroFeeback context, it should be noted that the tests of the same should be developed on a larger scale to ensure the effectiveness of the tool [16].

Likewise, in May 2013, in the study Effectiveness of neurofeedback treatment in mood, anxiety and fibromyalgia disorders, they concluded that neurofeedback had positive effects; however, the type of studies used positioned them as studies with weak scientific evidence. Among the methodological weaknesses was the use of parallel treatments to training [17]. In June 2019 they conducted the research Brain electrical activity of attention in adolescent polydrug users by means of BCI (Brain Control Interface) equipment, where the results suggest that the consumption of psychoactive substances generates changes in the brain electrical activity of adolescents, and that this activity is reflected in the attentional deficits observed in adolescent polydrug users and, therefore, constitutes a possible risk factor for the initiation and maintenance of substance use, this research contributes important data to the field of psychophysiology of brain electrical activity that allow and help characterize possible electrophysiological profiles associated with the adolescent population that consumes psychoactive substances, and could be taken into account when evaluating, designing and planning new intervention strategies, such as feedback in this type of population [18]. It is a wake-up call for the society of how to con-

trol the emotions there is a great increase of physical and psychological diseases in the human being, this related to all the previous studies mentioned evidencing that there is an improvement in the brain waves with different practices already known but however these practices lead us to raise some issues such as the time required, the constancy, discipline to achieve the desired results, it should be noted that these practices also indicate that we must avoid stressors with relaxation techniques, visual, in projections to a result of a welfare in the future.

What calls us to the reflection that the human being currently lives in the psychological time of the past, present and future. The past is what we believe we are and it is also what we call ego, it is the thought that takes us to that record stored in our mind, since this is the movement of our memory and, when the memory moves, we can enter that record, that past, that data. Then we realize that memory is past. In our mind are stored the records of painful experiences that we have had in our past and this generates the fear of reliving that pain again, therefore; through the experiences of our past, it is our mind that creates our emotions.

What calls our attention to question how the control, management and manipulation of our emotions is one of the major causes of imbalance and disease in our modern society and how we have noticed a great short-term improvement of well-being in people who have participated in different retreats, events and talks of emotional self-healing for more than 16 years in different countries dictated by Ricardo Ponce, in this way we want to assess how through emotional self-healing through the practice of Hekalogy we can improve the speed in the brain waves shown in the mapping of the electroencephalogram done before and after this practice, raising what we have learned so far with the control, fight or flight management of emotions and applying the acceptance and surrender of emotion in order to transform our state of human consciousness today and the medical-scientific importance of our practice called Hekalogy.

Now, this state of control and management of what we feel leads us to a state of resistance over time, thus generating more stress—in short, inflammation of the body's cells. This leads us to consider that the chronic degradation of our body's cells generates the progressive deterioration of the adequate speed of brain waves in humans, since today we live in a constant state of survival, as a response to the constant rejection of what we feel through the movement of our memory. What self-healing does is cut off from the past, that is, generate the death of the ego. When the ego dies and breaks with the past, the perception of the present is transformed. This is how we notice the improvement in the speed of brain waves in participants. This is a result of connecting our body to the present, since the present is the only truly true time that exists, in which we can connect with what we feel.

This is also known as Hekalogy, which is the integrative science that studies the inner healing power of the human being, beyond any external technique or control system. This discipline demonstrates, through scientific validation, that human beings can regenerate, balance, and release physical, mental, and energetic stress by surrendering to deep feeling. Therefore, by giving movement to emotion through attention to it, its release is generated; that is Hekalogy. And for this to happen, the human being must be in that mental state of surrender, that is, where they are willing to die. This is how this dense energy (emotion) can move through the body, and as a result, the body seeks a way to express what it feels, generating crying, vomiting, or diarrhea, thus physically releasing the density of that energy. In other words, In this research paper, we show how there are two paths: the familiar path of controlling and managing what we feel, which generates more tension (stress), and the path of total surrender of what we feel, which leads to the death of the ego, where there is life. It is important to note that the information we break down from other authors emphasizes the interaction of human beings with the outside world. Here in Hekalogía, we will demonstrate how the only relevant aspect of the outside world is what it shows us internally. We will avoid the mistake of focusing on modifying the outside world, but rather focus on transforming our inner selves to transform our perception of the outside world.

Conclusion

The present study has shown that emotional self-healing studied through Hekalogy has a positive impact on the improvement of short-term brain wave speed in participants, this has been medi-

ated by the improvement of Alpha, beta, theta and gamma brain wave speed, the results of which have been shown in graphs 1, 2, 3 and 4. The results obtained in this research clearly and rapidly demonstrate the positive influence of Hekalogy on improving brain activity, specifically the speed and coherence of brain waves. With 93% of participants showing significant improvement, it reaffirms the human capacity to activate internal balancing processes that transcend conventional methods of medical intervention.

Hekalogy, as an integrative discipline that works with consciousness, speech, vibration, and purpose, demonstrates transformative potential in the field of mental and neurological health. Its systematic application not only positively impacts neurophysiology but also strengthens the connection between emotional state and nervous system self-regulation. In a context where contemporary medicine is seeking complementary and effective alternatives for the treatment of stress, anxiety, depression, and other disorders related to brain dysfunction, Hekalogy is presented as an emerging scientific tool that deserves greater attention, validation, and incorporation into clinical protocols. This study opens the door to future interdisciplinary research that delves deeper into its mechanisms of action, thus consolidating its contribution to human well-being and the development of a more conscious and humanized medicine.

This research demonstrates that the emotional self-healing studied through Hekalogy has a direct and positive impact on brain activity. These results suggest that practices based on consciousness, purpose, and vibration can activate internal mechanisms of self-regulation and neurological balance. Hekalogy is positioned as an emerging tool within medical science, with the potential to complement conventional mental health treatments, reduce stress, and harmonize the nervous system. Its application represents a step towards a more comprehensive, humane and conscious medicine.

Conflict of Interest

There was no conflict of interest on the part of any of the authors involved in the completion of this article.

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