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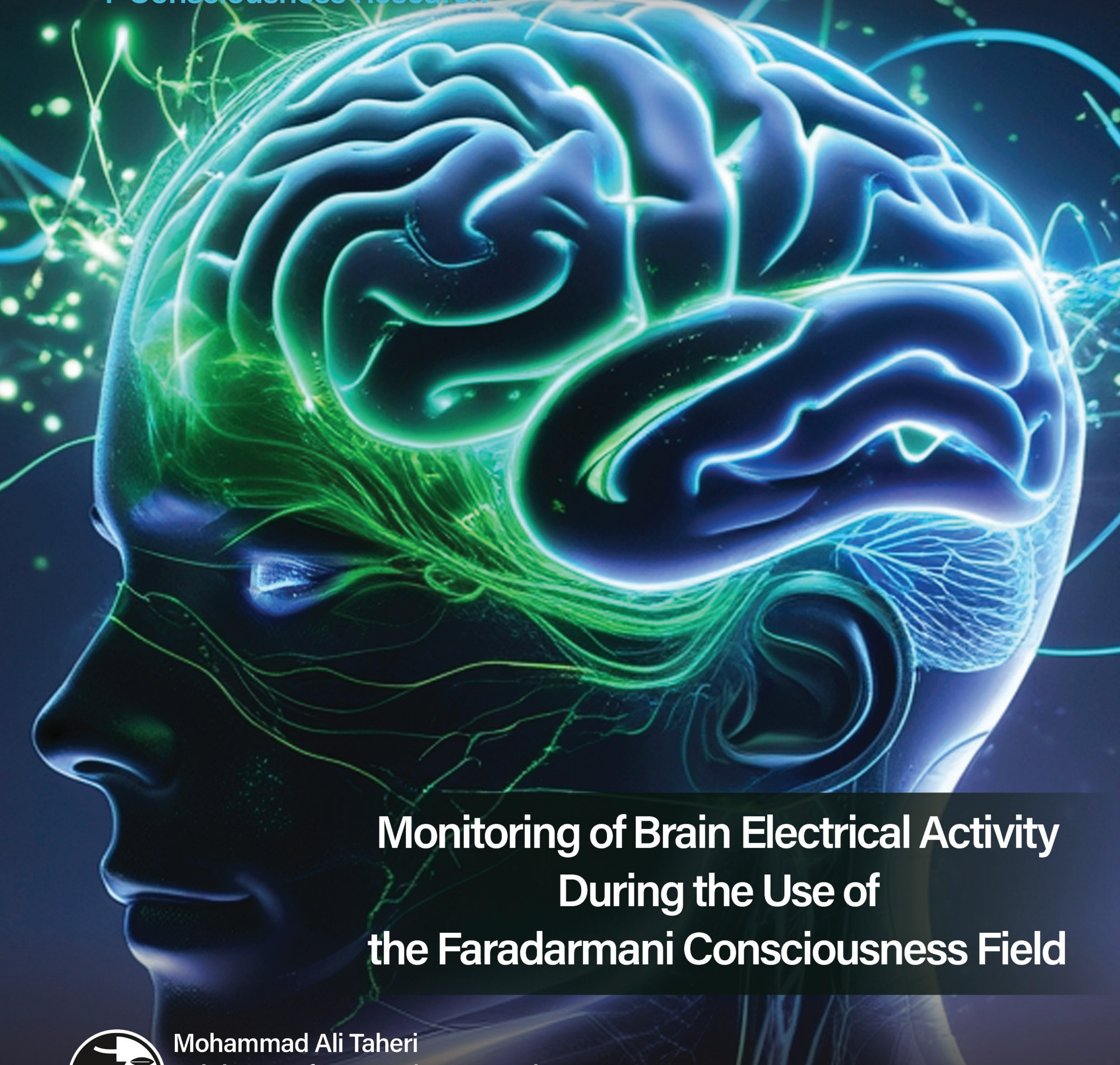

Monitoring of Brain Electrical Activity During the Use of the Faradarmani Consciousness Field

Mohammad Ali Taheri
Originator of T-Consciousness Theory

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Editorial

Mohammad Ali Taheri
Founder of T-Consciousness Theory

Monitoring of Brain Electrical Activity During the Use of the Faradarmani Consciousness Field

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The concept and nature of consciousness and awareness remain unknown. However, conventional science, particularly neuroscience, considers the brain to be the primary source and main seat of consciousness. Yet, the unanswered question is how an organ, which has evolved over time in living organisms, becoming increasingly complex, and was not present in early, brainless life forms, can be the origin and center of consciousness creation and management?! This is especially puzzling, given that intelligent behavior can still be observed in microorganisms and simple organisms even before the evolution of the brain. Thus, the emergence and manifestation of consciousness remain one of the most challenging topics in this field.

Sciencefact offers enlightening theories on various complex and ambiguous issues in the world of science, including this matter. In this perspective, the brain is not the origin or seat of consciousness, but rather the place where the effects of consciousness and awareness manifest. Given that T-Consciousness Fields can be tested practically, it is possible to design experiments to study the interaction between the brain and these non-physical fields. Unlike other mind-body influence methods, where individuals play an active role by performing techniques and exercises, the effect of T-Consciousness Fields begins with a brief and instantaneous attention. This crucial point has been experimentally confirmed in previous Sciencefact studies, which demonstrate the brain's role as a detector or revealer of consciousness. This will be explored further in upcoming issues of the *Journal of Cosmointel*, the first of which is now before you.

In recent studies in this field, some of which are presented in this issue, more comprehensive information has been obtained regarding brain activity during interaction with the Faradarmani Consciousness Field, using EEG techniques and 128 electrodes, in the Faradarmangar[1] population. In the first study, the total absolute power, or overall brain electrical activity, is analyzed. The second study compares absolute power across different frequency ranges, considering statistical parameters of the amplitude values. In the third study, the relative power of various frequency ranges is compared across different time segments. The fourth study examines changes in various types of entropy, previously explored in other T-Consciousness Field studies, with respect to brain electrical activity during the interaction.

It is worth mentioning that the analysis of the activity levels and their correlation with different structural regions of the brain, the examination of functional connectivity between the involved brain regions, and the analysis of biological parameters such as heart rate, respiratory rate, and body

1. A person who has been trained to assign TCFs

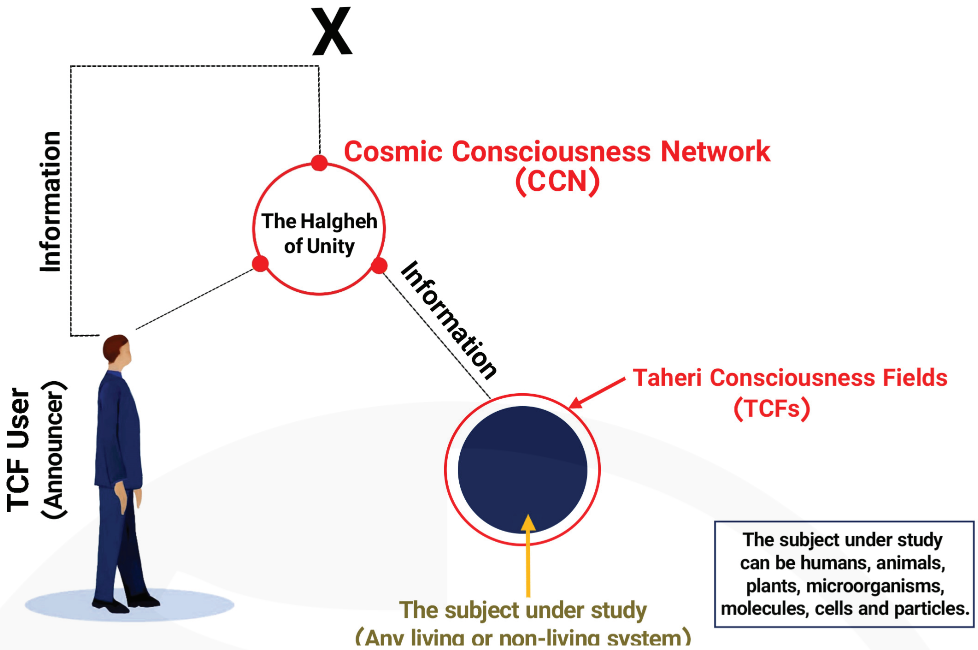
temperature during the interaction with the Faradarmani Consciousness Field are still ongoing and will be addressed in a separate issue.

In conclusion, the results from the studies presented in this issue indicate that brain signals change when an individual interacts with the Faradarmani Consciousness Field. As mentioned, unlike other well-known techniques such as various forms of meditation, the application of this field occurs without personal intervention. Therefore, the observed changes are a result of the effect of the Faradarmani, not individual techniques. For example, in the analysis of several cases from the study population, it is observed that when the brain's absolute power is low during the rest phase (without the influence of the Faradarmani or control), the absolute power significantly increases during the first three minutes of interaction. In contrast, in other cases, a reducing effect of the field on the absolute power is observed. These results suggest that the brain, as a receiver in the role of an antenna, receives information during the interaction with the Faradarmani Consciousness Field, leading to changes in brain signals.

Based on observations from these experiments, several valuable findings can be highlighted. First, the most significant changes were observed during the first three minutes of applying the Faradarmani Consciousness Field, indicating the rapid effect of this field. Regarding the brain's slow waves, which have the lowest frequency and the highest amplitude (Delta, Theta, Alpha, and Beta 1-3), the application of the field led to a decrease in absolute power. It seems that the information transmitted from the Faradarmani Consciousness Field resulted in a change in behavior. According to Shannon's theory, an increase in information is associated with a decrease in entropy[2] . In these studies, entropy was calculated, revealing that the field significantly reduced the entropy of the distribution of absolute power in fast waves during the first three minutes of interaction. Therefore, from an entropy perspective, these fast waves, which have the highest frequency and the lowest amplitude (High Beta and Gamma), serve as good indicators of the initiation of interaction with the field. Additionally, regarding relative power, the waves that more clearly exhibit the field's effect are the slow waves, which showed significant and distinct increasing (Delta) and decreasing (Theta) trends compared to the other waves.

Beyond the results of the studies in this issue, as well as previous and forthcoming issues, what is of utmost importance is understanding the purposeful and practical influence of T-Consciousness Fields within the framework of scientific studies and in accordance with standard methods. The use of these tools could serve as a common ground with conventional science and pave the way for a groundbreaking and transformative shift in the history of science. These experiments provide evidence of a non-material and non-energy factor, called T-Consciousness, which has the ability to influence the world of matter and energy. In this process, humans play an active and key role as intermediary observers. It is hoped that aware and open-minded researchers from all corners of the world will join this scholarly movement and contribute to a near and different future in science.

2. Shannon, C. E., & Weaver, W. (1949). A mathematical model of communication. Urbana, IL: University of Illinois Press, 1-117.



A schematic on applying T-Consciousness Fields (TCFs). The effect of TCFs begins with connecting to the Cosmic Consciousness Network (CCN) and through the TCFs user (announcer). Variable T-Consciousness Fields are a subset of CCN, and by applying each TCF, specific information is transmitted. In this way, the subject of study, which can be living or non-living creatures, is exposed to this information. It should be noted that TCFs and the information do not have a material or energetic nature; therefore, they cannot be measured directly and quantitatively. However, it is possible to record and examine their effects by designing different experiments. For this purpose, the behavior or indicators measured by the researchers in the subject under study after being exposed to the TCFs are compared with the control samples (without the effect of TCFs), and the results are reported after statistical data analysis.

T-Consciousness and the New Science of Sciencefact

In the past few decades, the nature of Consciousness and its place in science have received considerable attention. Many philosophical and scientific theories have been presented so far in this field. In the 1980s, Mohammad Ali Taheri introduced new fields of non-material and non-energy nature, known as T-Consciousness Fields (TCFs). In Taheri's view, T-Consciousness, along with matter and energy, are the three main constituents of the universe, with T-Consciousness being different from matter and energy. According to his theory, there are a wide variety of TCFs, with each having certain functionalities. TCFs are also considered a subset of "Cosmic Internet Network" in Taheri's theory, which is named the Cosmic Consciousness Network (CCN).

The main difference between the theory of TCFs and other concepts introduced so far for describing the nature of consciousness is the applicability and practicability of TCFs. In other words, these fields can be applied to all living organisms and non-living objects, such as plants, animals, microorganisms, materials, molecules, atoms, etc. In this respect, Mohammad Ali Taheri introduced "Sciencefact" in 2020 as one of the subgroups of the "Erfan-e-Keyhani-e-Halgheh" school, which he had previously founded. The name "Sciencefact" was chosen to confirm the existence of T-Consciousness as a "fact", and a scientific research method is utilized. Although Mainstream science merely considers the study of matter and energy, Sciencefact investigates the effects of TCFs (which are neither material nor energy) on matter and energy and all their manifestations (such as humans, animals, plants, microorganisms, cells, materials, molecules, atoms, etc.). By repeatably conducting laboratory research experiments in various fields of science and applying TCFs, Sciencefact has emerged as a common ground between science and TCFs and uses this capability to investigate T-Consciousness and T-Consciousness Fields resulting from it.

The influence of TCFs begins with the connection (Etesal) between the Cosmic Consciousness Network as the Whole Consciousness and the subject under study as a component. The connection is established by the mind of the Faradarmangar (a person who has been trained to assign TCFs). The human mind has the role of an intermediary (announcer) that acts with short and immediate attention to the subject under study, and the main achievement is obtained due to the effects of TCFs. These fields cannot be directly measured by science, but their effects on various subjects can be investigated through repeatable experiments.

Methodology of T-Consciousness Fields Research

The research methodology followed in the study of T-Consciousness is based on *Assumption, Argument, and Proof*:

The basic *Assumption* is that the universe is formed by a third element, called T-Consciousness, and that is different from matter and energy.

The *Argument* is that the existence of TCFs can be shown through their effects on matter and energy (e.g., humans, animals, plants, microorganisms, cells, materials, molecules, atoms, etc.)

The *Proof* is the scientific verification of the TCFs' effects on matter and energy (according to the *Argument*) through various reproducible scientific experiments

Study phases in Sciencefact

To investigate and verify the existence, effects, and mechanisms of TCFs, the five following research phases (Phase 0 to Phase 4) and their objectives are outlined below:

In Phase 0 of the studies, the goal is to demonstrate the existence of TCFs by observing their influence on matter and energy. The nature of T-Consciousness and what it is will not be addressed in this phase. Phase 1 is dedicated to exploring various effects of different TCFs. In Phase 2, one examines the reasons behind the effects of these fields. Then, during Phase 3, the mechanisms of TCFs' effects on matter and energy are investigated. Finally, the goal of Phase 4 is to draw conclusions, particularly with regard to the mind and memory of matter and their relation to T-Consciousness, etc.

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Common Introduction

History of the Method

Electroencephalography (EEG) has come a long way since its discovery approximately 140 years ago by the English physician Richard Caton. In 1875, he obtained the first brainwave recordings from monkeys and rabbits. Nearly 50 years later, in 1924, Hans Berger, using simple radio equipment to amplify brain electrical activity, conducted the first human EEG recording on the scalp and produced a written output on paper. He claimed that brain activity observed through EEG could change in a consistent, reliable, and recognizable way as the state of the patient changed, such as transitioning from relaxation to alertness, sleep, or oxygen deficiency. This advancement led to subsequent research and the diverse applications of EEG that are in use today (Müller-Putz, 2020).

Structure and function of the brain in relation to EEG data

The human brain contains approximately 86 billion neurons on average, and the communication between them is the key and primary activity of the brain. Neurons are excitable cells with inherent electrical properties, and their activity generates both magnetic and electrical fields, which can then be recorded using specialized electrodes (Kramarenko and Tan, 2003). There are two main types of neural activity: action potentials and postsynaptic potentials. Action potentials are the result of a very rapid depolarization of a neuron, primarily caused by changes in membrane permeability to sodium and potassium ions. This occurs when the cell depolarizes by a certain amount from its resting negative potential. Once this threshold is reached, a rapid action potential (approximately 1 millisecond) propagates from the beginning of the axon in the neuron's cell body to the axon terminals (Chen and Lui, 2023).

On the other hand, postsynaptic potentials represent changes in electrical charge outside the membrane, and this change in the extracellular space lasts up to 200 milliseconds. The extracellular charge, whether positive or negative, is what is measured by electrodes placed on the scalp. Pyramid-shaped cells act like small batteries with polarity – if one end of the dendrite is positive, the other end is negative (Grider et al., 2023). Postsynaptic potentials are mediated by several neurotransmitter systems and, as a result of synaptic activation, they generally cause slower changes in membrane potentials. These are voltages produced when neurotransmitters bind to receptors on the postsynaptic cell membrane, causing ion channels to open or close. It can be reliably claimed that EEG can only record postsynaptic potentials. Since action potentials are very fast and brief, and must travel along the axon at a constant speed, it seems that electrodes placed on the scalp cannot easily detect them.

The positivity or negativity of the extracellular charge on the dendrite's surface of the pyramidal cell depends on two factors: first, whether an inhibitory or excitatory stimulus has arrived at the synaptic junction from the axon of another cell, and second, whether the synapse is located proximally or distally to the cell body. For example, if an excitatory stimulus arrives near the distal end of the dendrite (closer to the cortical surface), a change in membrane permeability will lead to the entry of Na^+ into the cell, making the extracellular space negative (since the pyramidal cell acts like a battery, the extracellular space at the proximal end of the dendrite will be positive). Thus, if a similar event occurs at the dendrites of many pyramidal cells, the EEG electrode will record a negative extracellular potential. Therefore, EEG represents the algebraic sum of excitatory and inhibitory postsynaptic potentials (Kress and Mennerick, 2009).

Event-related brain potentials (ERPs)

For several decades, EEG recordings have been widely used in research and clinical settings (Figure 1). However, studying specific cognitive processes using this method is challenging. This is because using continuous, raw recordings to examine specific neural activity as a function of specific cognitive processes is, if not impossible, extremely difficult. Event-related potentials (ERPs) are small sections of continuous EEG recordings that are elicited in response to stimuli (such as viewing images or words on a computer screen, or in this study, interaction with the Faradarmani Consciousness Field) (Ogrim and Kropotov, 2020).

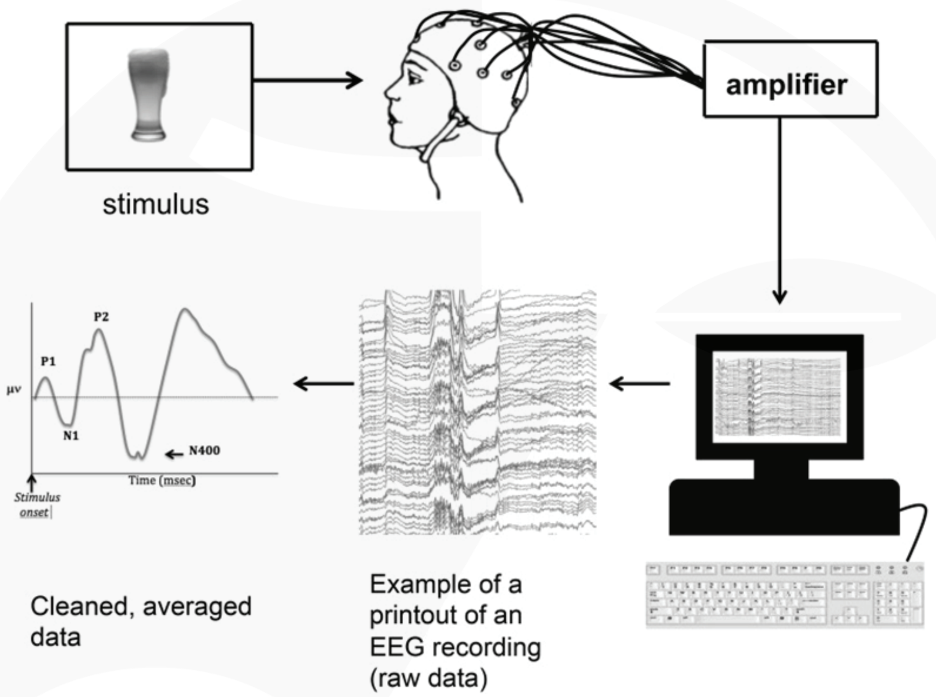

Figure 1. In an experimental setup, a number of electrodes, typically 32, 64, or 128, are placed on the participant's scalp, allowing for the measurement of brain electrical activity.

ERPs are used in a wide range of psychological experiments aimed at investigating various aspects of cognitive processes, such as language comprehension and production, memory, attention, and many others. Due to their very small amplitude, ERPs are typically not visible in raw EEG recordings. Therefore, they need to be separated from continuous recordings by averaging epochs of the recordings (Al-Ezzi et al., 2020).

After the stimulus is presented, a response is elicited by the brain, which is continuously recorded on a computer. The recording is then averaged, and individual ERPs are extracted. The EEG signal is obtained by recording the electrical activity produced by the brain using electrodes placed at different locations on the scalp (Figure 2). In fact, the electrical potential difference between two sites (the active site and the reference site) is measured over time (Light et al., 2010).

An important point in extracting and analyzing ERP components from continuous data in research is obtaining the average activity in repeated tests with fixed conditions. Only the activity that is repeated and time-locked is not canceled out, and therefore it carries meaning and is visible in the output. The resulting output resembles a wave with a series of positive and negative peaks. These peaks are referred to as "components" and are labeled according to their polarity, with "P" representing positive and "N" for negative, along with their approximate latency in milliseconds. Negative waves are associated with activation, while positive waves are related to inhibition. In each field of study, components are derived based on existing studies and tests (Woodman, 2010). The names and numbers of the electrodes used in the studies of this issue are presented in Table 1. Figure 3 shows an EEG data acquisition setup in the studies presented in this issue.

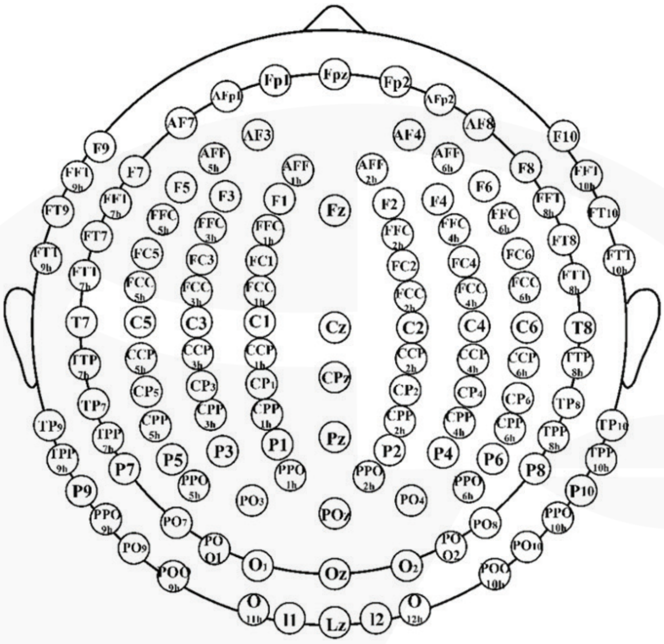

Figure 2. The names and locations of the 126 electrodes used in this study.

Table 1. The names and numbers of the electrodes used in the studies of this issue.

Number	Labels	theta	radius	X	Y	Z	sph_theta	sph_phi	sph_radius
1	FP1	-18.1	0.5	0.95	0.31	0	18.1	0	0.999
2	FPz	0	0.5	1	0	0	0	0	1
3	FP2	18.1	0.5	0.95	-0.31	0	-18.1	0	0.999
4	AF7	-36.1	0.5	0.81	0.59	0	36.1	0	1
5	AF3	-28.1	0.426	0.86	0.46	0.23	28.1	13.3	1
6	AF4	28.1	0.426	0.86	-0.46	0.23	-28.1	13.3	1
7	AF8	36.1	0.5	0.81	-0.59	0	-36.1	0	1
8	F9	-59.7	0.577	0.49	0.84	-0.24	59.7	-13.9	1
9	F7	-53.9	0.5	0.59	0.81	0	53.9	0	1
10	F5	-46.7	0.426	0.67	0.71	0.23	46.7	13.3	1
11	F3	-39.2	0.356	0.7	0.57	0.44	39.2	26	1
12	F1	-22.1	0.295	0.74	0.3	0.6	22.1	36.9	0.999
13	Fz	0	0.25	0.71	0	0.71	0	45	1
14	F2	22.1	0.295	0.74	-0.3	0.6	-22.1	36.9	0.999
15	F4	39.2	0.356	0.7	-0.57	0.44	-39.2	26	1
16	F6	46.7	0.426	0.67	-0.71	0.23	-46.7	13.3	1
17	F8	53.9	0.5	0.59	-0.81	0	-53.9	0	1
18	F10	59.7	0.577	0.49	-0.84	-0.24	-59.7	-13.9	1
19	FT7	-71.9	0.5	0.31	0.95	0	71.9	0	0.999
20	FC5	-67.8	0.394	0.36	0.88	0.33	67.8	19.1	1.01
21	FC3	-61.2	0.288	0.38	0.69	0.62	61.2	38.2	1

22	FC1	-42.1	0.187	0.41	0.37	0.83	42.1	56.4	0.997
23	FCz	0	0.125	0.38	0	0.92	0	67.6	0.995
24	FC2	42.1	0.187	0.41	-0.37	0.83	-42.1	56.4	0.997
25	FC4	61.2	0.288	0.38	-0.69	0.62	-61.2	38.2	1
26	FC6	67.8	0.394	0.36	-0.88	0.33	-67.8	19.1	1.01
27	FT8	71.9	0.5	0.31	-0.95	0	-71.9	0	0.999
28	T7	-90	0.5	6.12E-17	1	0	90	0	1
29	C5	-90	0.375	5.63E-17	0.92	0.38	90	22.4	0.995
30	C3	-90	0.25	4.35E-17	0.71	0.71	90	45	1
31	C1	-90	0.125	2.33E-17	0.38	0.92	90	67.6	0.995
32	Cz	0	0	6.12E-17	0	1	0	90	1
33	C2	90	0.125	2.33E-17	-0.38	0.92	-90	67.6	0.995
34	C4	90	0.25	4.35E-17	-0.71	0.71	-90	45	1
35	C6	90	0.375	5.63E-17	-0.92	0.38	-90	22.4	0.995
36	T8	90	0.5	6.12E-17	-1	0	-90	0	1
37	TP7	-108	0.5	-0.31	0.95	0	108	0	0.999
38	CP5	-112	0.394	-0.36	0.88	0.33	112	19.1	1.01
39	CP3	-119	0.288	-0.38	0.69	0.62	119	38.2	1
40	CP1	-138	0.187	-0.41	0.37	0.83	138	56.4	0.997
41	CPz	180	0.125	-0.38	-4.65E-17	0.92	-180	67.6	0.995
42	CP2	138	0.187	-0.41	-0.37	0.83	-138	56.4	0.997
43	CP4	119	0.288	-0.38	-0.69	0.62	-119	38.2	1
44	CP6	112	0.394	-0.36	-0.88	0.33	-112	19.1	1.01
45	TP8	108	0.5	-0.31	-0.95	0	-108	0	0.999
46	P7	-126	0.5	-0.59	0.81	0	126	0	1
47	P5	-133	0.426	-0.67	0.71	0.23	133	13.3	1
48	P3	-141	0.356	-0.7	0.57	0.44	141	26	1
49	P1	-158	0.295	-0.74	0.3	0.6	158	36.9	0.999
50	Pz	180	0.25	-0.71	-8.69E-17	0.71	-180	45	1
51	P2	158	0.295	-0.74	-0.3	0.6	-158	36.9	0.999
52	P4	141	0.356	-0.7	-0.57	0.44	-141	26	1
53	P6	133	0.426	-0.67	-0.71	0.23	-133	13.3	1
54	P8	126	0.5	-0.59	-0.81	0	-126	0	1
55	PO7	-144	0.5	-0.81	0.59	0	144	0	1
56	PO3	-152	0.426	-0.86	0.46	0.23	152	13.3	1
57	POz	180	0.375	-0.92	-1.13E-16	0.38	-180	22.4	0.995
58	PO4	152	0.426	-0.86	-0.46	0.23	-152	13.3	1
59	PO8	144	0.5	-0.81	-0.59	0	-144	0	1
60	O1	-162	0.5	-0.95	0.31	0	162	0	0.999
61	Oz	180	0.5	-1	-1.22E-16	0	-180	0	1
62	O2	162	0.5	-0.95	-0.31	0	-162	0	0.999
63	AFp5	-27.3	0.475	0.89	0.46	0.08	27.3	4.57	1.01
64	AFp1	-11.7	0.449	0.97	0.2	0.16	11.7	9.18	1
65	AFp2	11.7	0.449	0.97	-0.2	0.16	-11.7	9.18	1
66	AFp6	27.3	0.475	0.89	-0.46	0.08	-27.3	4.57	1.01
67	AFF7h	-41.3	0.462	0.75	0.66	0.12	41.3	6.85	1.01
68	AFF5h	-37.5	0.426	0.77	0.59	0.23	37.5	13.3	0.997
69	AFF3h	-25.4	0.362	0.82	0.39	0.42	25.4	24.8	1
70	AFF1h	-13.4	0.333	0.84	0.2	0.5	13.4	30.1	0.998
71	AFF2h	13.4	0.333	0.84	-0.2	0.5	-13.4	30.1	0.998

72	AFF4h	25.4	0.362	0.82	-0.39	0.42	-25.4	24.8	1
73	AFF6h	37.5	0.426	0.77	-0.59	0.23	-37.5	13.3	0.997
74	AFF8h	41.3	0.462	0.75	-0.66	0.12	-41.3	6.85	1.01
75	FFT9h	-65	0.545	0.42	0.9	-0.14	65	-8.02	1
76	FFT7h	-60.3	0.455	0.49	0.86	0.14	60.3	8.05	1
77	FFC5h	-53.5	0.362	0.54	0.73	0.42	53.5	24.8	1
78	FFC3h	-40.8	0.278	0.58	0.5	0.64	40.8	39.9	0.998
79	FFC1h	-16.3	0.208	0.58	0.17	0.79	16.3	52.6	0.995
80	FFC2h	16.3	0.208	0.58	-0.17	0.79	-16.3	52.6	0.995
81	FFC4h	40.8	0.278	0.58	-0.5	0.64	-40.8	39.9	0.998
82	FFC6h	53.5	0.362	0.54	-0.73	0.42	-53.5	24.8	1
83	FFT8h	60.3	0.455	0.49	-0.86	0.14	-60.3	8.05	1
84	FFT10h	65	0.545	0.42	-0.9	-0.14	-65	-8.02	1
85	FTT7h	-80.1	0.442	0.17	0.97	0.18	80.1	10.4	1
86	FCC5h	-77.1	0.323	0.19	0.83	0.53	77.1	31.9	1
87	FCC3h	-69.4	0.204	0.21	0.56	0.8	69.4	53.2	0.999
88	FCC1h	-43.6	0.0934	0.21	0.2	0.96	43.6	73.2	1
89	FCC2h	43.6	0.0934	0.21	-0.2	0.96	-43.6	73.2	1
90	FCC4h	69.4	0.204	0.21	-0.56	0.8	-69.4	53.2	0.999
91	FCC6h	77.1	0.323	0.19	-0.83	0.53	-77.1	31.9	1
92	FTT8h	80.1	0.442	0.17	-0.97	0.18	-80.1	10.4	1
93	TTP7h	-99.9	0.442	-0.17	0.97	0.18	99.9	10.4	1
94	CCP5h	-103	0.323	-0.19	0.83	0.53	103	31.9	1
95	CCP3h	-111	0.204	-0.21	0.56	0.8	111	53.2	0.999
96	CCP1h	-136	0.0934	-0.21	0.2	0.96	136	73.2	1
97	CCP2h	136	0.0934	-0.21	-0.2	0.96	-136	73.2	1
98	CCP4h	111	0.204	-0.21	-0.56	0.8	-111	53.2	0.999
99	CCP6h	103	0.323	-0.19	-0.83	0.53	-103	31.9	1
100	TTP8h	99.9	0.442	-0.17	-0.97	0.18	-99.9	10.4	1
101	TPP7h	-120	0.455	-0.49	0.86	0.14	120	8.05	1
102	CPP5h	-126	0.362	-0.54	0.73	0.42	126	24.8	1
103	CPP3h	-139	0.278	-0.58	0.5	0.64	139	39.9	0.998
104	CPP1h	-164	0.208	-0.58	0.17	0.79	164	52.6	0.995
105	CPP2h	164	0.208	-0.58	-0.17	0.79	-164	52.6	0.995
106	CPP4h	139	0.278	-0.58	-0.5	0.64	-139	39.9	0.998
107	CPP6h	126	0.362	-0.54	-0.73	0.42	-126	24.8	1
108	TPP8h	120	0.455	-0.49	-0.86	0.14	-120	8.05	1
109	PPO9h	-133	0.554	-0.68	0.72	-0.17	133	-9.74	1
110	PPO7h	-139	0.462	-0.75	0.66	0.12	139	6.85	1.01
111	PPO5h	-143	0.426	-0.77	0.59	0.23	143	13.3	0.997
112	PPO3h	-150	0.358	-0.78	0.45	0.43	150	25.5	0.998
113	PPO1h	-167	0.333	-0.84	0.2	0.5	167	30.1	0.998
114	PPO2h	167	0.333	-0.84	-0.2	0.5	-167	30.1	0.998
115	PPO4h	150	0.358	-0.78	-0.45	0.43	-150	25.5	0.998
116	PPO6h	143	0.426	-0.77	-0.59	0.23	-143	13.3	0.997
117	PPO8h	139	0.462	-0.75	-0.66	0.12	-139	6.85	1.01
118	PPO10h	133	0.554	-0.68	-0.72	-0.17	-133	-9.74	1
119	POO5	-153	0.475	-0.89	0.46	0.08	153	4.57	1.01
120	POO1	-168	0.449	-0.97	0.2	0.16	168	9.18	1
121	POO2	168	0.449	-0.97	-0.2	0.16	-168	9.18	1

122	POO6	153	0.475	-0.89	-0.46	0.08	-153	4.57	1.01
123	POO9h	-153	0.571	-0.87	0.44	-0.22	153	-12.7	0.999
124	OI1h	-171	0.567	-0.97	0.15	-0.21	171	-12.1	1
125	OI2h	171	0.567	-0.97	-0.15	-0.21	-171	v	1
126	POO10h	153	0.571	-0.87	-0.44	-0.22	-153	-12.7	0.999

Figure 3. EEG data acquisition setup in the studies presented in this issue.

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The Changes in the Absolute Total Power of the Faradarmangars' Brain During, Before, and After the Use of the Faradarmani Consciousness Field

Mohammad Ali Taheri[1], Sara Torabi[2], Farid Semsarha[3*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Plant Biology, School of Biology, College of sciences, University of Tehran, Tehran, Iran
3.Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

* Corresponding author: Farid Semsarha Ph.D., Institute of Biochemistry and Biophysics (IBB), University of Tehran, P.O. Box: 13145-1384, Tehran, Iran
Tel.: +98-9121786577
Email: Semsarha@ut.ac.ir

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Abstract

Based on Taheri's theory, the Faradarmani Consciousness Field is a non-physical field introduced as a complementary therapy. The effect of this field is initiated by a trained individual, known as a *Faradarmangar*, through a brief moment of focused attention. Changes in brain activity under the influence of Faradarmani have attracted the interest of researchers in this field. Previously, the brain activity of *Faradarmangars* was evaluated using an EEG device with 16 electrodes. The aim of this study was to investigate the absolute total power of a *Faradarmangar*'s brain using a 128-channel electroencephalograph cap in 32 adult participants. Absolute total power reflects the overall electrical activity of the brain and the direct response of the system under study. The results showed that power was reduced to varying degrees across different channels. Moreover, the average reduction in total brain power among the studied population was approximately 24% at the points of highest contrast across the channels.

Keywords: Brain electrical activity, Total absolute power, Electroencephalography

Introduction

Electroencephalogram (EEG) is an essential tool for studying the brain's electrical activity. The electrical properties of the brain were first discovered by an English scientist named Richard Caton in 1875, and about 50 years later, Hans Berger, a German psychiatrist, recorded the first human EEG (Haas, 2003; Tudor et al., 2005). EEG records the cumulative electrical activity of a population of nerve cells called pyramidal cells, measured using electrodes placed on the scalp and graphed over time. This electrical activity is an alternating current that fluctuates between positive and negative, depending on various factors, including changes in the permeability of the cell membrane caused by excitatory or inhibitory inputs from other neurons.

Several studies have demonstrated that mental practices such as meditation and mindfulness can lead to measurable changes in brain electrical activity. EEG studies have shown that meditation is associated with increased alpha and theta oscillations, reflecting states of relaxation and focused attention (Cahn and Polich, 2006). Similarly, mindfulness practices have been linked to enhanced frontal midline theta and alpha activity, indicating changes in attention and awareness (Lomas et al., 2015). These findings suggest that non-physical factors, particularly those related to mental states, can influence neural activity.

Furthermore, absolute total power serves as a comprehensive measure of the brain's electrical activity, reflecting the overall level of cortical engagement across all frequency bands (Tan et al., 2024). This parameter is frequently used in studies investigating consciousness, and the impact of non-invasive interventions such as meditation and neurofeedback (Lutz et al., 2004; Hammond, 2005; Chennu et al., 2014)

Based on Taheri's theory, there are various T-Consciousness Fields (TCFs), which are subcategories of the Cosmic Consciousness Network (CCN). The Faradarmani Consciousness Field is one of these non-physical fields. In this approach, these fields can be utilized by humans. In fact, information transmitted from TCFs can induce alterations in the subject under study. This hypothesis has been examined in a series of experiments, ranging from studies on plants and animals to material studies (Taheri et al., 2021; Torabi et al., 2023; Taheri et al., 2024).

The effect of the Faradarmani Consciousness Field (FCF) is initiated through a brief attention to this field. Unlike meditation or mindfulness, Faradarmani does not involve breathing control, visualization, or bodily focus, and requires no training or practice by the recipient. In other words, what induces an alteration under the influence of Faradarmani is attributed to the transmitted information from this field, not to the intervention of individuals.

Previous studies have reported an increase in gamma wave power and enhanced activity in brain regions associated with memory, attention, perception, and the default mode network under the influence of Faradarmani Consciousness Field (Taheri et al., 2022). However, the direct influence of T-Consciousness Fields on the brain's electrical behavior, as an immediate system response, and the timing of this effect by determining time intervals from the onset of the connection with the field have not yet been investigated. In the present study, absolute total power was utilized to assess the brain's general response to the Faradarmani Consciousness Field, allowing for a system-level evaluation of the influence of this non-physical treatment.

Method

Forty-four healthy adult participants (mean age: 41 ± 7 years), none of whom had used any neurological or psychiatric medications in the six months prior to the test day, were included in the study group. Of these participants, 41% were male (n=18) and 59% were female (n=26). The Faradarmani Consciousness Field treatment was initiated by the participants themselves at a predetermined time (upon hearing a soft beep sound from the computer system located on the desk in front of the seating area). In this study, a task referred to the action in which Faradarmangars personally initiated a connection with the Cosmic Consciousness Network. The study was approved by the Ethics Committee of Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1402.940).

The time intervals were defined as follows:

1. Rest 1: In this stage, the trained participants, referred to as *Faradarmangars*, were asked not to engage any type of T-Consciousness Fields and to remain simply relaxed and tension-free. The aim of this stage was to collect baseline data for each individual as a control before applying the FCF, which is useful for creating a collective control dataset.

2. Task: At the beginning of Rest 1, upon hearing the sound of a horn, predefined before the experiment, the participants initiated their connection with the FCF, marking the beginning of Task 1. In fact, the task involved a continuous connection for 10 minutes. During this stage, data was continuously collected from the participants' brains. In the analysis phase, the data was examined both as a whole and in three equal, consecutive intervals, referred to as Task 1, Task 2, and Task 3. The purpose of this segmented analysis was to evaluate how the FCF affects the brain over time.

3. Rest 2: Another three-minute stage followed, during which the participants disengaged from their connection with the FCF upon hearing the second horn sound, as defined prior to the experiment. Similar to Rest 1, they remained relaxed and tension-free without using the FCF.

EEG data acquisition

The participants' brain electrical activity was recorded at the National Brain Mapping Laboratory (NBML) of Iran using the g.tec g.HIamp system (g.tec, Graz, Austria) with a 128-channel cap equipped with passive Ag/AgCl electrodes. The electrodes were evenly distributed across the scalp based on the international 10/20 system for electrode placement. The ground electrode was placed on the forehead, and the online reference was positioned on the right earlobe. Data was recorded with a sampling frequency of 512 Hz, and impedance was maintained below 10 kΩ.

Data Processing

The EEG data were preprocessed using the EEGLAB (Delorme and Makeig, 2004) and FieldTrip (Oostenveld et al., 2011) toolboxes for MATLAB (MATLAB R2016a, The MathWorks, Inc., Natick, MA, USA). High-pass filters (with a cutoff frequency of 2 Hz) and band-stop filters (to remove 50 Hz line noise and its harmonic frequencies) were applied to the raw data. The data were re-referenced to the common average reference, and artifacts were manually rejected through visual inspection using EEGLAB. Independent Component Analysis (ICA) was performed to remove artifact-related components (e.g., head and eye movements, heartbeat, and muscle tone). The preprocessed data, containing minimal artifacts, were segmented into different rest and task phases according to the study design. FieldTrip was then used for further EEG data processing.

Data analysis

Descriptive statistical analysis, frequency distribution analysis, and chart plotting were performed using GraphPad software version 9. Entropy calculations were carried out using SPSS software version 28. Differences between time-based populations were analyzed using two-way ANOVA. A p-value threshold of 0.05 was considered for significance; any change with a p-value less than this threshold was regarded as statistically significant, while changes above this value were considered non-significant (ns).

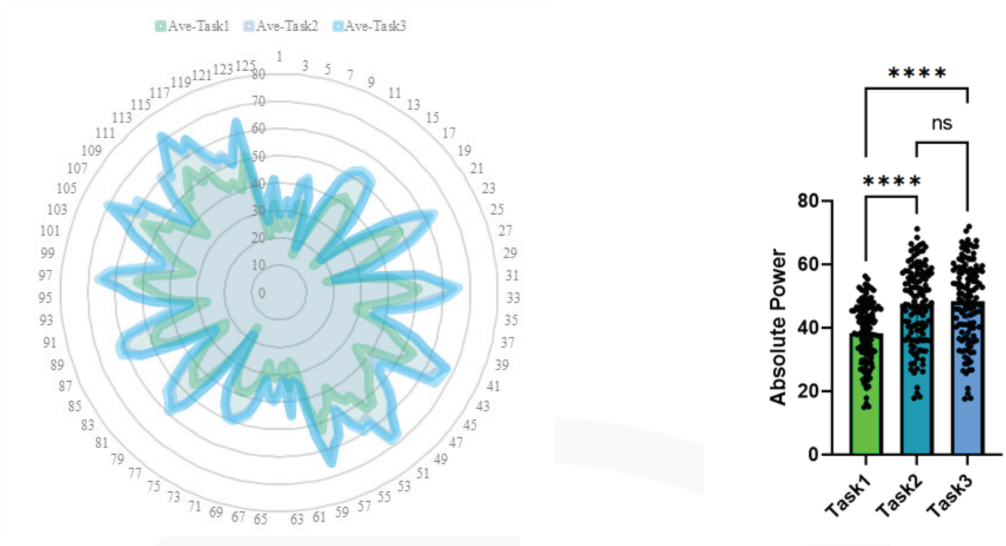

Figure 1. (Left) Radar chart illustrating the average absolute total power across different channels in the study population, segmented into three consecutive time intervals during the task phase. (Right) Statistical comparison of the population data obtained from the channels across the three analyzed segments of the task. ****: p-value < 0.0001.

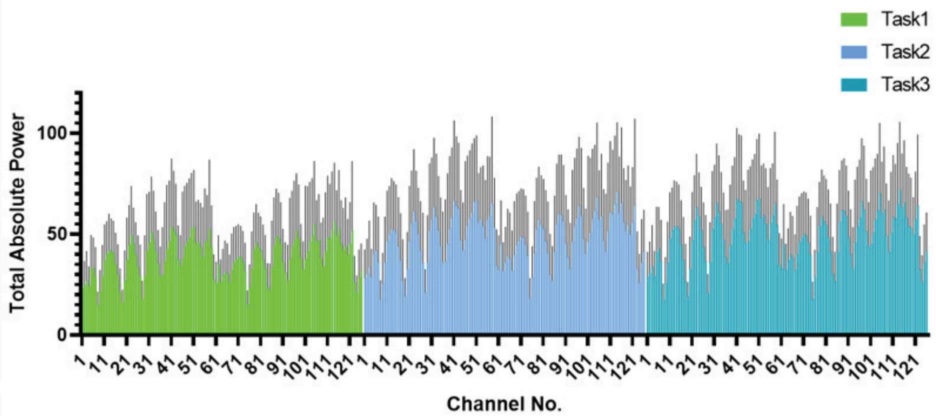

Figure 2. Illustration of the recorded absolute total power across the three consecutive task phases.

As shown in Figure 1, when comparing the absolute total power across all 128 channels, calculated as the average of this parameter for the entire study population, Task 1 exhibits a statistically significant difference from the subsequent two tasks. In contrast, Tasks 2 and 3 do not show significant differences from each other at the population level. The comparison between Task 1 and the other two tasks clearly demonstrates a reduction in absolute total power across the population. This finding, also illustrated in Figure 2 (showing changes along with standard deviations across all channels), reflects a noticeable effect of the Faradarmani Consciousness Field on brain power, specifically as a consistent decrease during the first 3 minutes of the connection. Subsequently, this reduction was further analyzed statistically across individual channels. Only the channels that showed significant differences between Task 1 and Task 2 (Table 1), and between Task 1 and Task 3 (Table 2) are included in the corresponding tables.

Table 1. Display of channels with significant differences in the contrast between Task 1 and Task 2, based on Tukey's statistical analysis in the two-way ANOVA test.

Channel No.	Mean Diff.	Summary	Adjusted p-value	Channel No.	Mean Diff.	Summary	Adjusted p-value
22	-7.904	*	0.0287	80	-8.002	*	0.0241
23	-8.94	**	0.004	81	-7.717	*	0.04
24	-8.385	*	0.0118	87	-8.106	*	0.0199
31	-8.767	**	0.0056	88	-8.543	**	0.0087
32	-9.485	**	0.0013	89	-8.559	**	0.0085
33	-8.53	**	0.009	90	-8.127	*	0.0192
34	-7.823	*	0.0332	95	-7.604	*	0.0486
39	-8.172	*	0.0176	96	-8.931	**	0.0041
40	-9.33	**	0.0018	97	-9.638	***	0.0009
41	-10.1	***	0.0003	98	-8.298	*	0.0139
42	-9.373	**	0.0016	103	-9.32	**	0.0018
43	-10.16	***	0.0003	104	-10.09	***	0.0003
46	-7.847	*	0.0318	105	-10.26	***	0.0002
47	-9.202	**	0.0023	106	-8.397	*	0.0116
48	-9.769	***	0.0007	107	-8.936	**	0.004
49	-10.59	***	0.0001	110	-8.37	*	0.0122
50	-11.25	****	<0.0001	111	-10.67	****	<0.0001
51	-11.2	****	<0.0001	112	-10.23	***	0.0003
52	-7.739	*	0.0384	113	-11.27	****	<0.0001
53	-8.71	**	0.0063	114	-13.28	****	<0.0001
54	-8.178	*	0.0174	115	-9.861	***	0.0006
55	-7.601	*	0.0488	116	-10.74	****	<0.0001
56	-9.669	***	0.0009	117	-8.552	**	0.0086
57	-10.58	***	0.0001	118	-7.733	*	0.0388
58	-11.1	****	<0.0001	119	-9.254	**	0.0021
59	-8.04	*	0.0225	120	-8.148	*	0.0184
62	-7.755	*	0.0373	121	-8.639	**	0.0072
79	-8.245	*	0.0154	122	-10.88	****	<0.0001

Table 2. Display of channels with significant differences in the contrast between Task 1 and Task 3, based on Tukey's statistical analysis in the two-way ANOVA test.

Channel No.	Mean Diff.	Summary	Adjusted p-value	Channel No.	Mean Diff.	Summary	Adjusted p-value
14	-10.45	*	0.0308	107	-12.99	***	0.0007
15	-10.21	*	0.0423	113	-12.1	**	0.0028
22	-10.47	*	0.0298	114	-15.01	****	<0.0001
23	-12.07	**	0.003	115	-13.06	***	0.0006
24	-11.68	**	0.0054	116	-11.68	**	0.0053
25	-10.43	*	0.0314	117	-11.56	**	0.0064
31	-10.94	*	0.0157	118	-10.38	*	0.0335
32	-12.89	***	0.0008	121	-11.36	**	0.0086
33	-12.06	**	0.003	122	-11.5	**	0.007
34	-12.25	**	0.0022				
41	-12.17	**	0.0025				
42	-12.81	***	0.0009				
43	-14.24	****	<0.0001				
44	-11.02	*	0.0141				
48	-10.36	*	0.0348				
49	-10.58	*	0.0256				
50	-13.26	***	0.0004				
51	-13.44	***	0.0003				
52	-11.36	**	0.0086				
53	-11.81	**	0.0044				
57	-12.21	**	0.0024				
58	-11.82	**	0.0044				
59	-10.08	*	0.0498				
79	-11.28	**	0.0096				
80	-10.93	*	0.0158				
81	-10.63	*	0.024				
87	-10.32	*	0.0365				
88	-11.52	**	0.0068				
89	-11.7	**	0.0052				
90	-11.77	**	0.0047				
91	-10.55	*	0.0268				
97	-12.76	**	0.001				
98	-12.16	**	0.0026				
99	-11.3	**	0.0093				
104	-11.43	**	0.0077				
105	-13.46	***	0.0003				
106	-12.62	**	0.0012				

Comparison of the total absolute power across the entire population at all test intervals

After evaluating the tasks in the previous section, the current section presents an analysis of all the time segments of this study together.

As shown in Figure 3, Rest 1 demonstrates the highest absolute total power predominantly in the approximate range of channels 37 to 57 and 95 to 120. On the other hand, Tasks 2 and 3 exhibit dominant absolute total power across a greater number of channels (3–37; 65–95).

Additionally, Rest 2 shows increased absolute total power—though not higher than Rest 1, but comparable to it—in channels 57–65 and 117–126. When the data presented in Figure 3 are analyzed at the channel level, a clearer and more precise understanding of Rest 2's performance emerges.

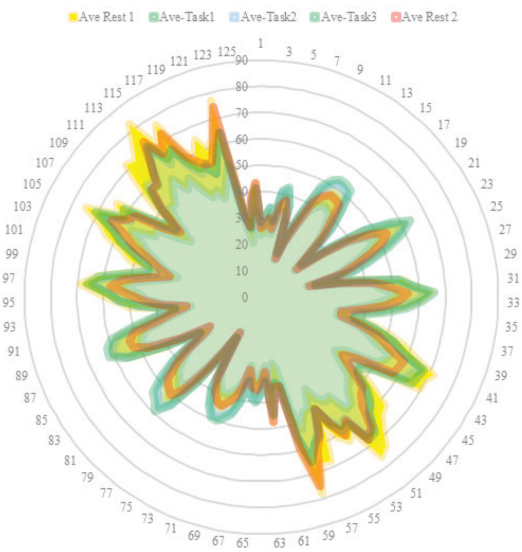

Figure 3. Illustration of the recorded absolute total power across all test intervals in the population.

Table 3. Display of channels with significant differences in pairwise comparisons of absolute total power across all test intervals, based on Tukey's statistical analysis in the two-way ANOVA test.

Rest1 — Task1				Rest1 – Task2			
Channel No.	Mean Diff.	Summary	Adjusted p-value	Channel No.	Mean Diff.	Summary	Adjusted p-value
43	21.75	*	0.0313	122	17.5	*	0.0362
47	21.43	*	0.0384	Task1 — Rest2			
50	22.25	*	0.0226	51	-17.17	*	0.0166
51	23.58	**	0.0092	53	-18.35	**	0.0056
52	25.46	**	0.0024	57	-19.01	**	0.0030
57	24.56	**	0.0046	58	-26.55	****	<0.0001
58	23.25	*	0.0115	59	-19.00	**	0.0030
59	28.8	***	0.0002	113	-16.49	*	0.0298
106	21.52	*	0.0362	114	-20.97	***	0.0004
112	26.38	**	0.0012	115	-20.00	**	0.0011
113	25.24	**	0.0028	116	-23.64	****	<0.0001
114	26.59	**	0.001	117	-18.71	**	0.0040
115	29.72	****	<0.0001	118	-18.87	**	0.0034
116	22.37	*	0.021	120	-17.22	*	0.0158
117	26.85	***	0.0008	121	-20.73	***	0.0005
120	23.63	**	0.0089	122	-26.42	****	<0.0001
121	21.36	*	0.04	Task2 — Rest2			
122	21.01	*	0.0497	58	-15.45	*	0.0170
123	28.38	***	0.0002	122	-15.54	*	0.0154

As shown in Table 3, significant differences at the channel level and in the specified contrasts lead to the following multiple conclusions:

1. In the comparison between Rest 1 and the Tasks, it is revealed that the channels contributing to the difference with Task 1 (19 out of 128 channels) indicate a connection with the Field. Only one of these channels (channel 122) showed a significant difference in the contrast with Task 2, and there was no significant difference between Rest 1 and Task 3.

2. In the contrast between Rest 2 and Task 1, 14 out of the same 19 channels (equivalent to 74%) showed a significant difference, indicating that Rest 2 reflects the disconnection from the Faradarmani Consciousness Field in terms of absolute total power across the population. In the contrast between Task 2 and Rest 2, channels 58 and 122 appear to be particularly indicative of this effect.

Comparison of brain activity before and after the application of the Faradarmani Consciousness Field (Rest 1 and Rest 2)

Rest 1 refers to the stage before the application of Faradarmani, while Rest 2 refers to the period after 10 minutes of exposure to the field and the subsequent announcement of its termination, lasting for three minutes.

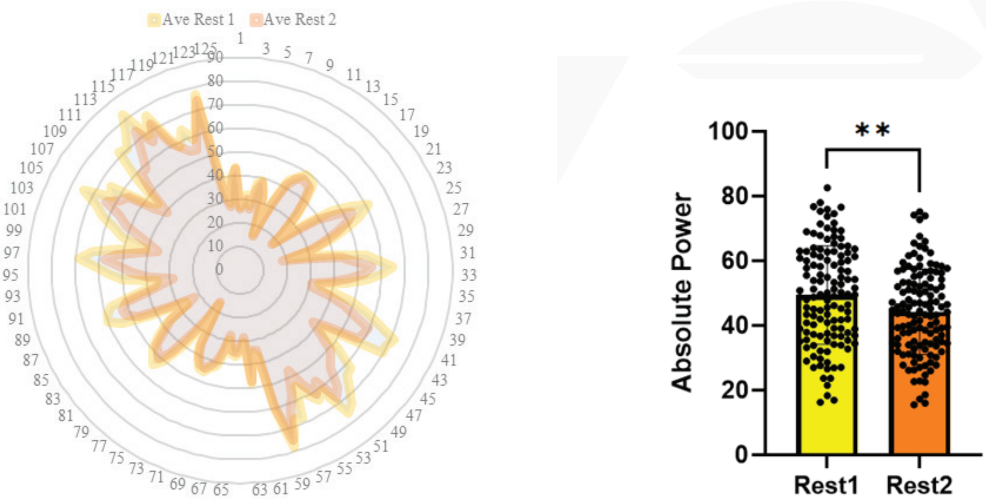

Figure 4. (Left) Radar chart showing the average total absolute power across different channels in the study population during Rest 1 and Rest 2. (Right) Statistical comparison of the population data obtained from the channels between the two rest states. p-value < 0.0039.

Despite the analysis in the previous section indicating that Rest 2 reflects the disconnection from the field, Figure 4 shows a noticeable difference between Rest 1 and Rest 2, with the total absolute power in the population during Rest 2 being lower than in Rest 1. This suggests that the diminishing effects of the Faradarmani connection may persist for up to 15 minutes after its initiation. While this observation may reflect a form of residual effect or memory, clear signs of termination are still evident, particularly in the channels identified in the previous section.

To gain a more precise understanding of the changes induced by the Faradarmani Consciousness Field, four cases with threshold-level values were selected. As shown in Figure 5, different patterns of behavior can be observed. In one case, the absolute power during Rest 2 is lower than in Rest 1, while in another case, the opposite is true. In one instance, the values of the two rest states are nearly identical, whereas in another, the comparison of absolute power between the two rest states across corresponding channels shows a varied increase in power. Notably, in the case where Rest 2 shows a decrease compared to Rest 1, the power levels in most channels range between 100 and 200, whereas in the case with an increase in Rest 2, the values rise from around 30–40. From these observations, a key takeaway appears to be that, in addition to the absolute total power serving as an indicator of the Consciousness Field's effect, the brain's power adjustments (as a system influenced by the Faradarmani Consciousness Field) following the termination of the connection are also noteworthy and supported by the data. In other words, the observed variations suggest that the Faradarmani Consciousness Field may apply changes based on the individual's specific needs.

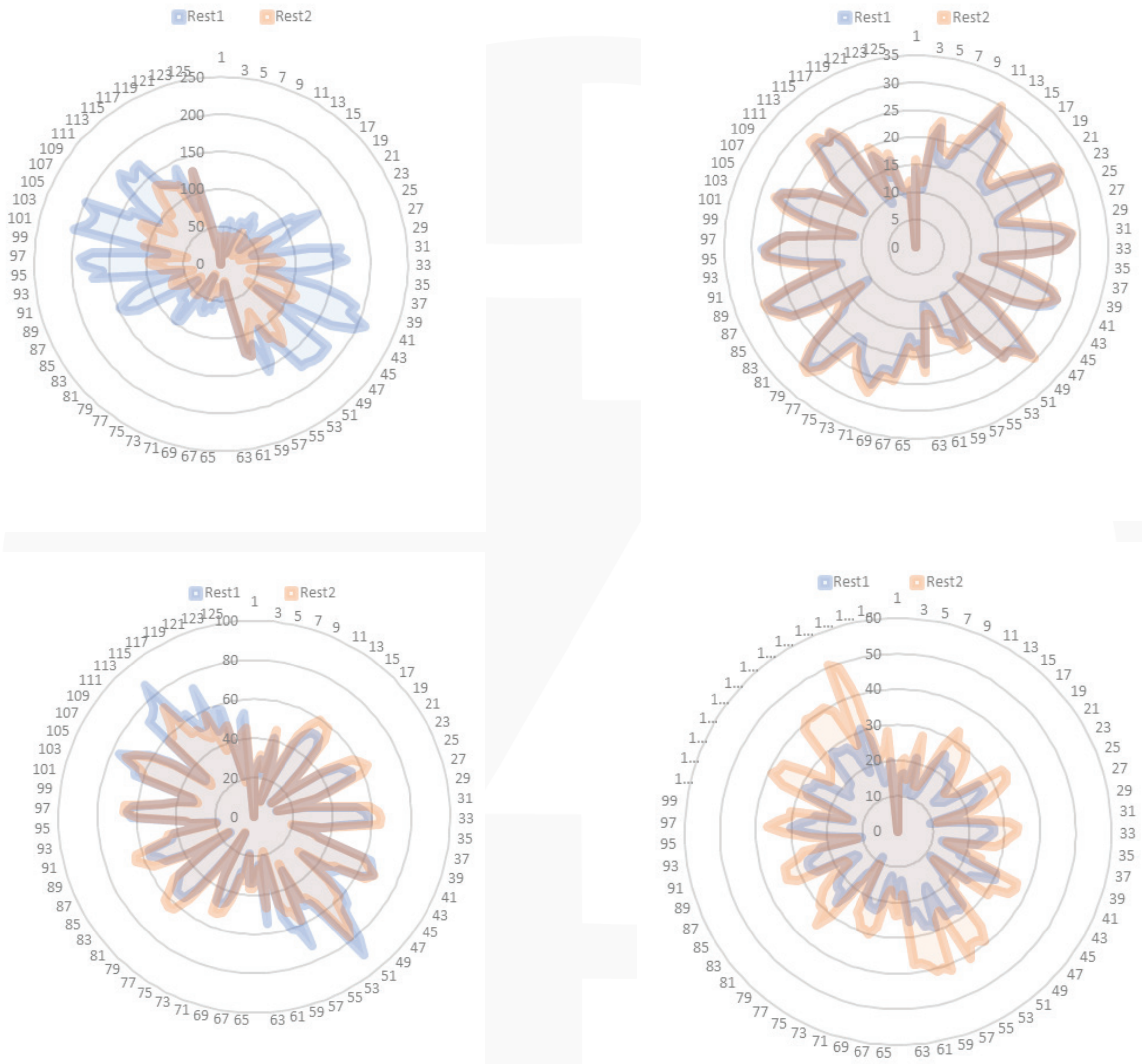

Figure 5. Radar chart showing the average total absolute power across different channels in the study population during Rest 1 and Rest 2 in four cases.

Analysis of brain activity in cases at different stages of the task

Analyzing the stages of the task in selected cases, alongside the population-level analysis presented above, can offer deeper insight into the effects of Faradarmani at the brain level.

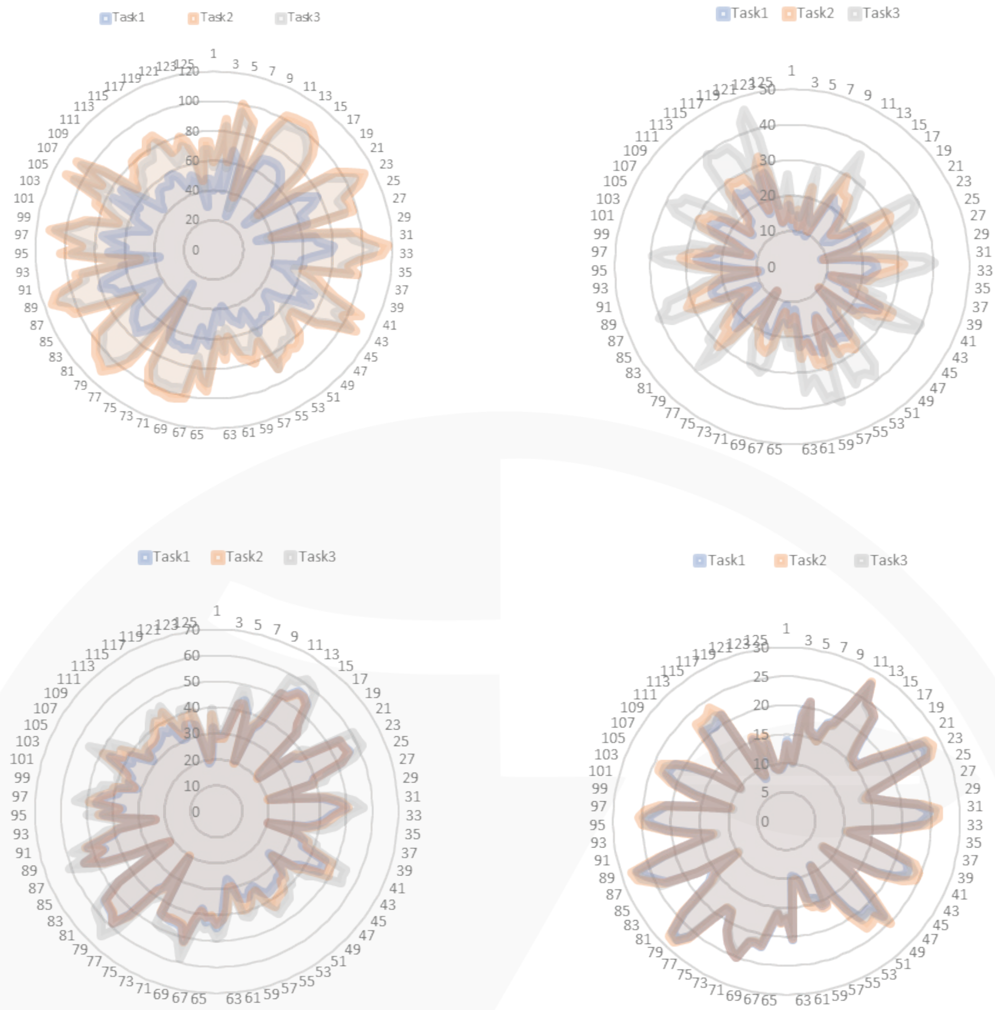

Figure 6. Radar chart showing the average total absolute power across different channels in the study population at various stages of the task in four cases.

As shown in Figure 6, Task 1 exhibits a decrease in absolute power, reaching a range of approximately 20–80. This reduction in absolute power, compared to the Rest state or Tasks 2 and 3, not only indicates the effect of the T-Consciousness Field but also represents an approach to brain modulation and power regulation within a specific range during the connection.

Analysis of brain activity in cases at the onset of the Faradarmani Consciousness Field application compared to the pre-application state

Continuing the analysis of brain activity in the cases, the contrast between Rest 1 and Task 1 is also noteworthy. In line with previous comparisons, this contrast reflects the regulation of absolute power within a specific range as a result of the Faradarmani Consciousness Field treatment, indicating the purposeful effect of this field (Figure 7).

Figure 7. Radar chart showing the average total absolute power across different channels in the comparison between Rest 1 and Task 1 in six cases.

Analysis of brain activity across all stages of the study in the cases

Analyzing all the time segments of this study together provides additional evidence of the effect of the Faradarmani Consciousness Field on the brain's absolute power over time. As observed, Task 3 and Rest 2 act as enhancers of approximately 100% power compared to Rest 1 for Case 1 (below 30), while for Cases 2 and 3, the effect is the complete opposite (Figure 8).

Figure 8. Radar chart showing the average total absolute power across different channels in the comparison of all stages in three cases.

Average percentage change in total absolute power in the study population in contrast with the most significant channel (Task 1 – Rest 1)

Following the population-level analysis, the examination of channels across different contrasts and the related cases, the average percentage change across all channels serves as a notable metric for the preliminary assessment of the Faradarmani Consciousness Field's effect on brain power. As shown in Figure 9, despite varying levels of reduction across different channels, the average decrease in absolute brain power across the population and channels is approximately 24%.

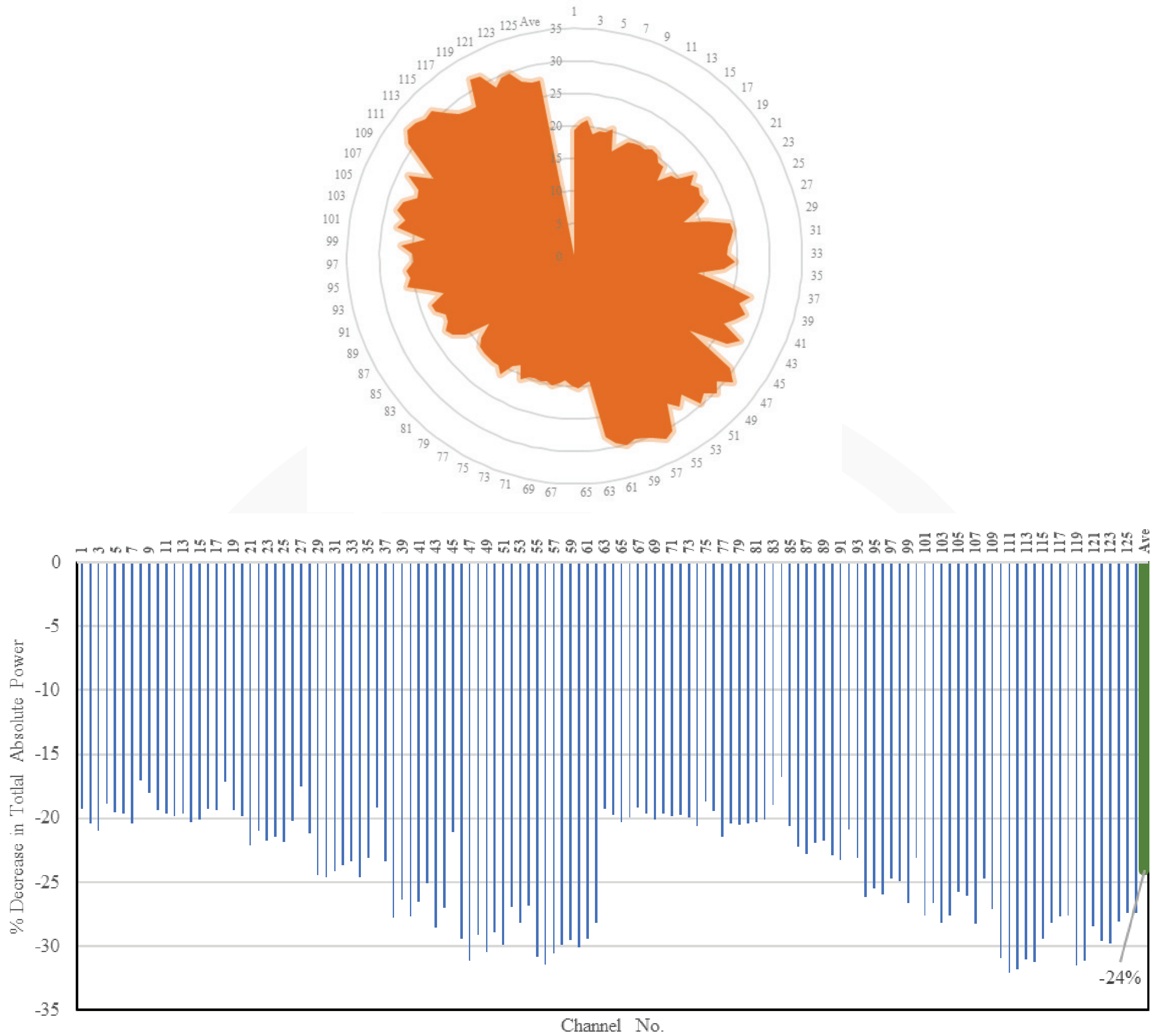

Figure 9. Radar chart (top) and bar chart (bottom) showing the average reduction in total absolute power across different channels in the study population in the comparison between Rest 1 and Task 1.

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Investigation of the Effect of the Faradarmani Consciousness Field on the Absolute Brain Power of Faradarmangars with a Focus on Brainwave Types

Mohammad Ali Taheri[1], Sara Torabi[2], Farid Semsarha[3*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Plant Biology, School of Biology, College of sciences, University of Tehran, Tehran, Iran
3.Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

* Corresponding author: Farid Semsarha Ph.D., Institute of Biochemistry and Biophysics (IBB), University of Tehran, P.O. Box: 13145-1384, Tehran, Iran
Tel.: +98-9121786577
Email: Semsarha@ut.ac.ir

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Abstract

There have been numerous studies evaluating changes in absolute power and brainwaves under various treatments, including mind-body interactions. In the present study, the effects of the Faradarmani Consciousness Field on these parameters were investigated. The influence of this field is initiated through a brief moment of attention via the human mind. Although the human announcement plays a key role in initiating Faradarmani, the observed changes are attributed to the effects of the field itself, as the process does not involve any techniques such as breathing exercises, visualization, or other conventional mind-body practices. In the experimental design, during Rest 1, the trained participants, referred to as Faradarmangars, were asked to remain simply relaxed and tension-free. After that, upon hearing the sound of a horn, the individual initiates a 10-minute application of the Faradarmani Consciousness Field, referred to as the task. Following the second beep, the termination of the Faradarmani effect is announced, and the next three minutes are considered Rest 2. The data obtained from the task were also analyzed in three equal time intervals, labeled Task 1, Task 2, and Task 3. The results show the greatest contrast between Rest 1 and Task 1, indicating that the Faradarmani Consciousness Field caused a reduction of approximately 10% to 35% in absolute power across frequency bands up to, but not including, the high-frequency and fast waves. This average reduction in absolute power within the high beta and gamma ranges appears, showing values between 6-8% during Task 2 and Task 3, demonstrating that these segments are also capable of reflecting the field's effects.

Keywords: Fast waves, Slow waves, Absolute power, Electroencephalography

Introduction

Consciousness has been a central topic in neuroscience as well as in other scientific fields, such as physics and philosophy. Modern advances in neuroimaging and electrophysiology have enabled researchers to investigate the neural correlates of consciousness with increasing precision (Yen et al., 2023). One prominent approach in this field involves the analysis of brain activity patterns, particularly through electroencephalography (EEG), which offers a non-invasive method to measure electrical activity in the brain with high temporal resolution. EEG-based parameters, including brainwave frequency bands and absolute power values, are commonly used to explore changes associated with different mental states, levels of awareness, and states of altered consciousness such as sleep, meditation, or focused attention (Perrottelli et al., 2021; Corona-González et al., 2021).

Brainwave activity is typically categorized into five main frequency bands, each associated with specific mental states. Gamma waves, with frequencies above 35 Hz, are often linked to heightened concentration and cognitive processing. Beta waves, ranging from 12 to 35 Hz, are dominant during active mental states, external attention, and sometimes anxiety, though they can also reflect a relaxed but alert state. Alpha waves, occurring in the 8 to 12 Hz range, are associated with deep relaxation and passive attention, often observed during restful wakefulness. Theta waves, between 4 and 8 Hz, are linked to a deeply relaxed state and inward-focused mental activity, such as daydreaming or meditation. Finally, delta waves, ranging from 0.5 to 4 Hz, are characteristic of deep sleep and unconscious states. These frequency bands provide a valuable framework for interpreting EEG data in both clinical and consciousness-related research (Abhang et al., 2016; Siuly et al., 2016).

Additionally, EEG signals provide valuable insights into brain function and dysfunction in clinical settings. Abnormalities in brainwave activity have been associated with a range of neurological and psychiatric conditions (Başar and Güntekin, 2008). For instance, increased theta and delta activity is often reported in epilepsy, while imbalances in alpha and beta waves have been linked to depression and attention-deficit/hyperactivity disorder (ADHD) (Clarke et al., 1998; Ksibi et al., 2023). Furthermore, studies of mind-body interactions, such as mindfulness, meditation, and other consciousness-based practices have shown that such interventions can modulate brainwave patterns, revealing their potential therapeutic benefits and underlying mechanisms (Tang et al., 2015; Travis and Shear, 2010).

Method

Forty-four healthy adult participants (mean age: 41 ± 7 years), none of whom had used any neurological or psychiatric medications in the six months prior to the test day, were included in the study group. Of these participants, 41% were male (n=18) and 59% were female (n=26). The Faradarmani Consciousness Field treatment was initiated by the participants at a predetermined time (upon hearing a soft beep sound from the computer system located on the desk in front of the seating area). In this study, a task referred to the action in which Faradarmangars personally initiated a connection with the Cosmic Consciousness Network. The study was approved by the Ethics Committee of Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1402.940).

The time intervals were defined as follows:

1. Rest 1: In this stage, the trained participants, referred to as *Faradarmangars*, were asked not to engage any type of T-Consciousness Fields and to remain simply relaxed and tension-free. The aim of this stage was to collect baseline data for each individual as a control before applying the FCF, which is useful for creating a collective control dataset.

2. Task: At the beginning of Rest 1, upon

hearing the sound of a horn—predefined before the experiment—the participants initiated their connection with the FCF, marking the beginning of Task 1. In fact, the task involved a continuous connection for 10 minutes. During this stage, data was continuously collected from the participants' brains. In the analysis phase, the data was examined both as a whole and in three equal, consecutive intervals, referred to as Task 1, Task 2, and Task 3. The purpose of this segmented analysis was to evaluate how the FCF affects the brain over time.

3. Rest 2: Another three-minute stage followed, during which the participants disengaged from their connection with the FCF upon hearing the second horn sound, as defined prior to the experiment. Similar to Rest 1, they remained relaxed and tension-free without using the FCF.

EEG data acquisition

The participants' brain electrical activity was recorded at the National Brain Mapping Laboratory (NBML) of Iran using the g.tec g.HIamp system (g.tec, Graz, Austria) with a 128-channel cap equipped with passive Ag/AgCl electrodes. The electrodes were evenly distributed across the scalp based on the international 10/20 system for electrode placement. The ground electrode was placed on the forehead, and the online reference was positioned on the right earlobe. Data was recorded with a sampling frequency of 512 Hz, and impedance was maintained below 10 kΩ.

Data Processing

The EEG data were preprocessed using the EEGLAB (Delorme and Makeig, 2004) and FieldTrip (Oostenveld et al., 2011) toolboxes for MATLAB (MATLAB R2016a, The MathWorks, Inc., Natick, MA, USA). High-pass filters (with a cutoff frequency of 2 Hz) and band-stop filters (to remove 50 Hz line noise and its harmonic frequencies) were applied to the raw data. The data were re-referenced to the common average reference, and artifacts were manually rejected through visual inspection using EEGLAB. Independent Component Analysis (ICA) was performed to remove artifact-related components (e.g., head and eye movements, heartbeat, and muscle tone). The preprocessed data, containing minimal artifacts, were segmented into different rest and task phases according to the study design. FieldTrip was then used for further EEG data processing.

Frequency domain analysis is performed using the Fast Fourier Transform (FFT) algorithm (with a resolution of 0.125 Hz) to calculate the absolute power density ($\mu V^2/Hz$). The absolute power of a band is the integral of all power values within its frequency range. The mean (overall) frequency (Hz) is also obtained from the entire analyzed spectrum (1 to 30 Hz) (Yuvaraj et al., 2024).

Data analysis

Descriptive statistical analysis, frequency distribution analysis, and chart plotting were performed using GraphPad software version 9. Entropy calculations were carried out using SPSS software version 28. Differences between time-based populations were analyzed using two-way ANOVA. A p-value threshold of 0.05 was considered for significance; any change with a p-value less than this threshold was regarded as statistically significant, while changes above this value were considered non-significant (ns).

Results and Discussion

As shown in Figure 1, when comparing total absolute power, Task 1 shows the greatest difference compared to Rest 1, which serves as the main control in this study. Following that, significant decreases in absolute power are also observed between Rest 1 and Rest 2, which is considered the secondary control in this research. These changes indicate that the effect of the Faradarmani Consciousness Field persisted after the task and showed significant differences compared to before the application of this field.

As mentioned in the Introduction section, delta waves are typically associated with unconscious states. The significant reduction observed in Task 1 compared to Rest 1 may reflect a shift toward information reception or an elevated state of alertness. The subsequent significant increase during the middle and later stages of exposure to Faradarmani may reflect a phase of internal regulation and processing, possibly resulting from the reception of information and leading toward a return to a modulated state. Notably, the reduction observed in Rest 2, which mirrors the pattern seen in Task 1, suggests that the effects of Faradarmani extend beyond the immediate period of exposure. Instead of reverting to the pre-Faradarmani baseline, the brain may remain in a more attuned or regulated state, indicating a lasting influence. In the context of meditation and neural oscillations, the functional role of delta frequency remains relatively underexplored (Lee et al., 2018). However, in meditation studies, delta activity often increases or exhibits complex dynamics related to attentional engagement and internalized awareness (Cahn et al., 2013).

Theta wave activity showed a significant reduction at nearly all measured time points after Rest 1. This observation may underscore a key difference between the effects of Faradarmani and typical meditation practices, as the latter are generally associated with an increase in theta activity (Baijal et al., 2010; Pasquini et al., 2015).

Unlike typical meditative states, particularly mindfulness, which are often associated with increased alpha activity (Lomas et al., 2015), a significant reduction in both alpha-1 and alpha-2 bands was observed during Task 1 compared to Rest 1. This pattern closely resembles the alterations seen in delta activity under the influence of the Faradarmani Consciousness Field. These findings suggest a shift from a passive resting state toward heightened alertness, potentially reflecting the brain's response to receiving information from the Faradarmani Consciousness Field.

Beta waves are typically associated with engaged mental activity (Magazù and Caccamo, 2024). The initial sharp reduction observed during Task 1 may reflect an immediate calming effect of the Faradarmani Consciousness Field on the neural system, possibly by disengaging habitual patterns of mental activity. The gradual increase in beta wave activity during Tasks 2 and 3 may suggest that the brain was undergoing a reorganization process under the influence of a new state, reflecting dynamic system behavior. The increase observed during Rest 2 could indicate a homeostatic adjustment following the earlier downregulation. Moreover, this upward trend may be associated with a form of alertness or expanded awareness, potentially arising from the reception of information through Faradarmani.

In the high beta range, changes in Task 1 are not significant, but in Tasks 2 and 3, they are significantly lower compared to Rest 1. Similarly, in the gamma range, a significant decrease is observed in the middle and end of the task, which then increases during Rest 2, returning to the level of Rest 1. In fact, the application of the Faradarmani Consciousness Field does not immediately lead to an intense activation or reduction in brain activity. The effects of this field become evident in the middle and end of the task, showing a decreasing trend, which then increases again after the field is no longer applied, during Rest 2, and returns to the level of Rest 1 or the pre-experiment baseline. It has been reported that in mental processes such as attention, learning, and conscious perception, as well as in meditations and mental practices, gamma wave activity increases (Fries et al., 2001; Lutz et al., 2004; Sahu and Tseng, 2023). According to the T-Consciousness Fields theory, the brain has a passive and receptive role. A major distinction of this theory compared to other mind-body approaches is the assumption that information is transmitted from these fields, and after mental processing, its effects become measurable in the brain as the receiver. In the current study, the reduction in gamma waves under the influence of the Faradarmani Consciousness Field demonstrates the distinct effect of these fields compared to meditation methods, and suggests a reduction in neural activity.

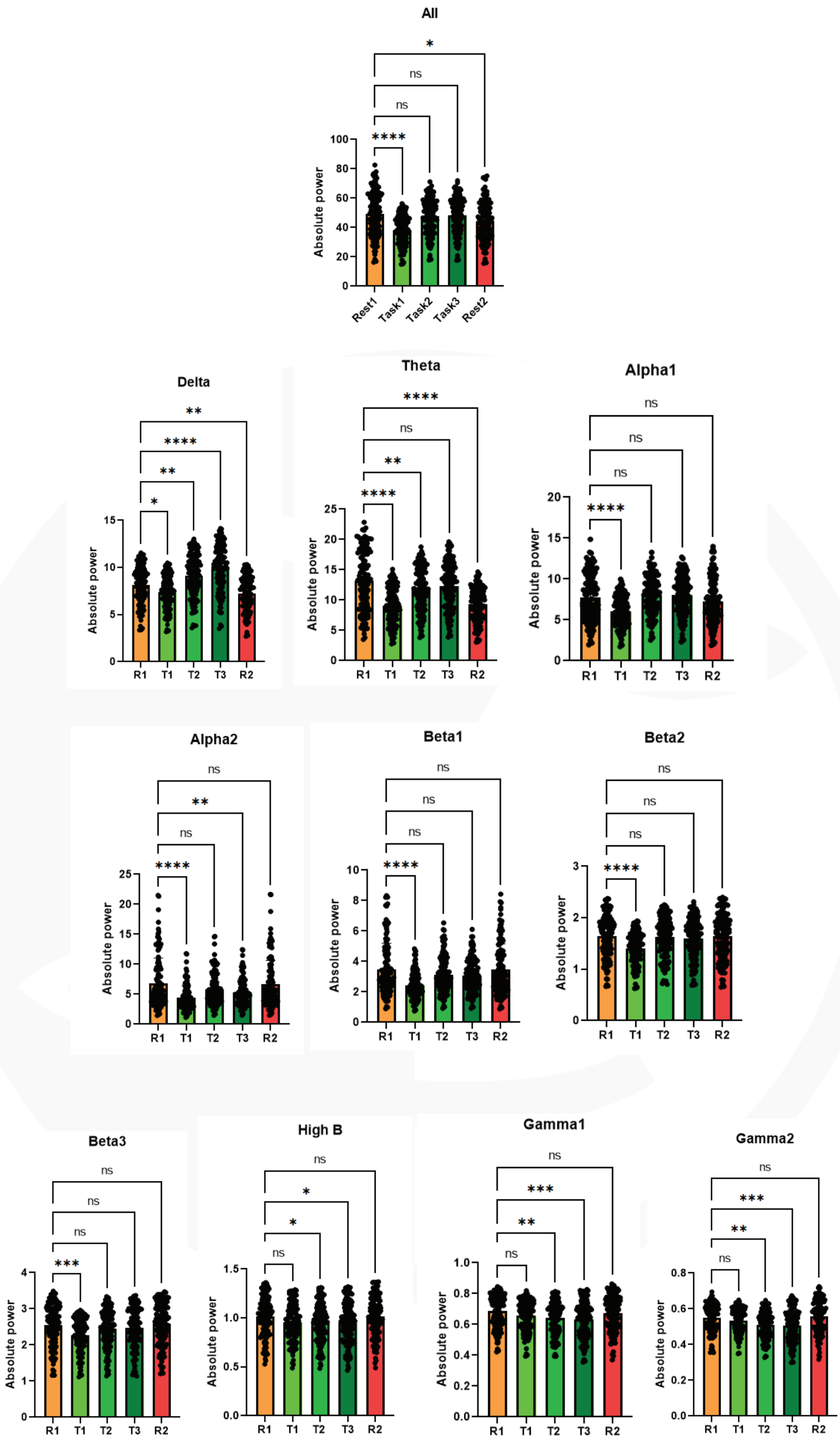

Figure 1. Comparison of the mean absolute power across the study population, categorized by different brainwave bands in various rest and task regions.

To observe the trend of changes, the values related to the mean absolute power are presented in their original form and in contrast to Rest 1 in Tables 1 and 2, respectively. Additionally, the normalized values relative to the absolute power of the R1 segment for each frequency band are shown in Figures 2 to 4.

Table 1. Absolute power values across the frequency bands in this study.

Mean of absolute power					
Time Frame	1: R1	2: T1	3: T2	4: T3	5: R2
All	49.42	38.28	47.51	48.37	44.21
Delta	8.168	7.319	9.147	9.846	7.249
Tetha	13.23	9.069	11.7	12.26	9.338
Alpha1	7.743	6.027	8.092	8.003	7.249
Alpha2	6.82	4.434	5.761	5.354	6.63
Beta1	3.485	2.433	3.118	3.072	3.481
Beta2	1.645	1.404	1.623	1.591	1.65
Beta 3	2.555	2.271	2.444	2.476	2.584
High B	1.019	0.9563	0.9477	0.9474	1.017
Gamma1	0.6856	0.6552	0.641	0.6326	0.6744
Gamma2	0.5483	0.5325	0.5093	0.5063	0.5573

Table 2. Comparison of percentage changes in mean values across different brain frequency bands relative to the R1 (Rest or Control 1) segment – significant changes are shown in italics. Colors matching the total power indicate similar changes within ±3%; lighter green indicates smaller or decreasing changes, while darker green represents changes in the same direction as total power but with greater magnitude. Red indicates changes that are not aligned with total power or reflect increases.

Change in the absolute power				
	T1-R1	**T2-R1**	**T3-R1**	**R2-R1**
All	**-22.5415**	**-3.86483**	**-2.12465**	***-10.5423***
Delta	*-10.3942*	*11.9858*	*20.54358*	*-11.2512*
Tetha	*-31.4512*	*-11.5646*	-7.33182	*-29.418*
Alpha1	*-22.162*	4.507297	3.357872	-6.37996
Alpha2	*-34.9853*	-15.5279	*-21.4956*	-2.78592
Beta1	*-30.1865*	-10.5308	-11.8508	-0.11478
Beta2	*-14.6505*	-1.33739	-3.28267	0.303951
Beta3	*-11.1155*	-4.34442	-3.09198	1.135029
Hbeta	-6.15309	*-6.99706*	*-7.0265*	-0.19627
Gamma1	-2.88163	*-7.11289*	*-7.66004*	1.641437
Gamma2	-4.43407	-6.50525	*-7.73046*	-1.63361

As shown in Tables 1 and 2, the total absolute power in Task 1 decreases by more than 20% compared to Rest 1, while this reduction is not statistically significant in Tasks 2 and 3. On the other hand, Rest 2 also shows a difference from Rest 1, though to a lesser extent. Regarding the slow waves, delta and theta, the changes in contrast to Rest 2 are aligned with and approximately equal to those observed in Task 1 contrast. For delta waves, after a significant decrease in Task 1 contrast, similar to the trend seen in most other waves, a significant increase in absolute power is observed in Tasks 2 and 3 contrast, unlike theta waves. This pattern is not seen in any other frequency bands in the subsequent regions. Delta waves are typically recorded during deep sleep when brain activity is at its lowest (Roohi-Azizi et al., 2017), and they have also been reported in states of deep meditation (Kora et al., 2021).

The changes in absolute power in the contrast related to Rest 2, from the alpha wave range onward, are less than approximately 6% (in both decreasing and increasing directions), and consistent with statistical analysis, the differences in means are not significant. In fact, in this range, the average values indicate no notable difference between the rest conditions. On the other hand, in the alpha and beta wave ranges, the significant differences are predominantly observed in the Task 1 contrast (except for the alpha 2 band in Task 3), which highlights the practical value of Task 1 in detecting the effects of the field within the alpha and beta ranges. Moreover, in the high-frequency ranges (high beta, gamma 1, and gamma 2), Tasks 2 and 3 show the field's effects through changes in mean absolute power.

Figure 2 compares the normalized trend of changes relative to the absolute power of the total Rest 1 segment across three low-frequency brainwave bands (Delta, Theta, and Alpha 1). A trend similar to the overall pattern is observed; the absolute power in Rest 2 for Delta and Alpha 1 tends to return to the level seen in Rest 1.

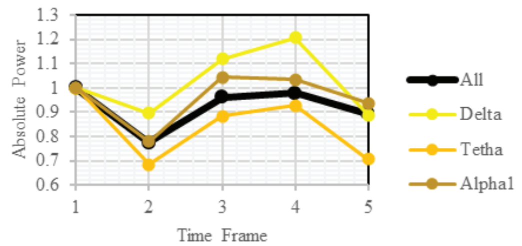

Figure 2: Normalized trend of changes relative to the absolute power of the R1 segment, compared across the three low-frequency brainwave bands (Delta, Theta, and Alpha 1). 1: Rest 1; 2: Task 1; 3: Task 2; 4: Task 3; 5: Rest 2.

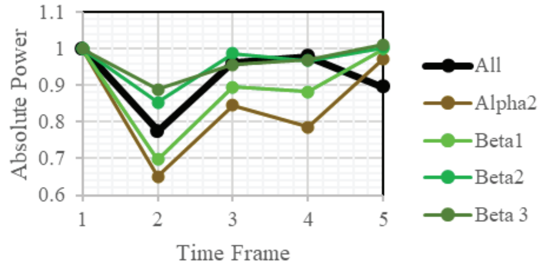

Figure 3. Normalized trend of changes relative to the absolute power of the total R1 segment across four mid-frequency brainwave bands (Alpha 2, Beta 1–3). 1: Rest 1; 2: Task 1; 3: Task 2; 4: Task 3; 5: Rest 2.

Figure 3 shows the normalized trend of changes relative to the absolute power of the total R1 segment across four mid-frequency brainwave bands (Alpha 2, Beta 1–3). As observed, the trend of changes up to the end of Task 3 closely follows the overall pattern of total absolute power. The absolute power values in Rest 2 tend to return to the level seen in Rest 1.

Figure 4 presents the normalized trend of changes relative to the absolute power of the total R1 segment across three high-frequency brainwave bands (High Beta, Gamma 1, and Gamma 2). In this range, except for Task 1, the trend of changes is opposite to that of the total absolute power. The absolute power values in all three bands in Rest 2 tend to return to the level observed in Rest 1.

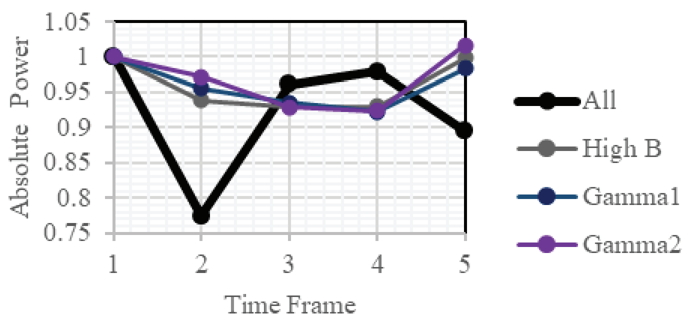

Figure 4. Normalized trend of changes relative to the absolute power of the total R1 segment across three high-frequency brainwave bands (High Beta, Gamma 1, and Gamma 2). 1: Rest 1; 2: Task 1; 3: Task 2; 4: Task 3; 5: Rest 2.

Based on the obtained results, it can be concluded that for average absolute power, a similar pattern is observed across frequency ranges up to the high-frequency bands at the beginning of the task. This initial phase, identified as Task 1, showed a reduction in average absolute power ranging from 10% to 35%. However, in the high beta and gamma ranges (the highest-frequency waves), changes became apparent in the mid and final stages of the task, corresponding to Tasks 2 and 3.

Moreover, in 7 out of the 10 brainwave frequency bands, the contrast difference between Task 1 and Tasks 2 and 3 was statistically significant and clearly indicates a shift in the intensity of the Consciousness Field's influence over time. This may reflect the mental processing of information received from the Consciousness Field, subsequently altering brain activity.

This study provides evidence of the effects of the Faradarmani Consciousness Field on absolute power, with a focus on brainwave activity. Further investigations will explore changes in relative power across different brainwave frequency bands under the influence of the Faradarmani Consciousness Field.

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Investigation of Relative Brain Power Changes Across Brainwave Frequencies in Faradarmangars Under the Influence of the Faradarmani Consciousness Field

Mohammad Ali Taheri[1], Sara Torabi[2], Farid Semsarha[3*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Plant Biology, School of Biology, College of sciences, University of Tehran, Tehran, Iran
3.Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

* Corresponding author: Farid Semsarha Ph.D., Institute of Biochemistry and Biophysics (IBB), University of Tehran, P.O. Box: 13145-1384, Tehran, Iran
Tel.: +98-9121786577
Email: Semsarha@ut.ac.ir

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Abstract

The Faradarmani Consciousness Field (FCF) is described as a non-physical entity, with its effect initiated through a brief mental attention by a human. It is hypothesized that information transmitted via this field can lead to alterations in brain activity. In this study, we investigated how exposure to the Faradarmani Consciousness Field influences the relative power distribution of EEG brainwave frequencies during both task performance (with Faradarmani) and resting states (without announcing Faradarmani). The results revealed both increases (in delta, alpha 1, beta 2, beta 3, and high beta waves) and decreases (in theta, alpha 2, and beta 1 waves) in relative power under the influence of the Faradarmani Consciousness Field.

Keywords: Relative Power, Absolute Power, Brain Waves, Faradarmani Consciousness Field, Faradarmangar

Introduction

Brainwaves, or neural oscillations, represent the electrical activity of the brain and can be categorized into different frequency bands, Delta (0.5–4 Hz), Theta (4–7 Hz), Alpha (8–12 Hz), Beta (13–30 Hz), and Gamma (30–80 Hz), each associated with distinct cognitive and physiological states (Attar, 2022). The EEG analysis provides insights into both absolute power, which reflects the overall energy in each band, and relative power, which shows the proportional contribution of each band to the total power (Govindan et al., 2017). These measures are widely used to evaluate cognitive processes, mental states, and the effects of interventions such as meditation, neurofeedback, or consciousness-related practices (Jeong, 2004; Tosti et al., 2024; Treves et al., 2024).

According to Taheri's theory, various Consciousness Fields with different functions exist. These fields, which are subsets of the Cosmic Consciousness Network, can be utilized through the human mind. One of these fields is called Faradarmani. To initiate its influence, a brief and spontaneous moment of attention is sufficient. It is hypothesized that upon this connection, information is transmitted from the field and, after being processed by the mind, its effects become evident at the level of the brain as the receiver (Taheri, 2013). In this study, a population of Faradarmangars, or trained individuals, was selected, and the brain's relative power across different frequency bands was assessed during phases without the Consciousness Field (rest) and with the Consciousness Field (task). Comparing changes over a period of time allows for the evaluation of this non-material and non-energy field's effects at the brain level.

Method

Forty-four healthy adult participants (mean age: 41 ± 7 years), none of whom had used any neurological or psychiatric medications in the six months prior to the test day, were included in the study group. Of these participants, 41% were male (n=18) and 59% were female (n=26). The Faradarmani Consciousness Field treatment was initiated by the participants at a predetermined time (upon hearing a soft beep sound from the computer system located on the desk in front of the seating area). In this study, a task referred to the action in which Faradarmangars personally initiated a connection with the Cosmic Consciousness Network. The study was approved by the Ethics Committee of Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1402.940).

The time intervals were defined as follows:

1. Rest 1: In this stage, the trained participants, referred to as Faradarmangars, were asked not to engage any type of T-Consciousness Fields and to remain simply relaxed and tension-free. The aim of this stage was to collect baseline data for each individual as a control before applying the FCF, which is useful for creating a collective control dataset.

2. Task: At the beginning of Rest 1, upon hearing the sound of a horn—predefined before the experiment—the participants initiated their connection with the FCF, marking the beginning of Task 1. In fact, the task involved a continuous connection for 10 minutes. During this stage, data was continuously collected from the participants' brains. In the analysis phase, the data was examined both as a whole and in three equal, consecutive intervals, referred to as Task 1, Task 2, and Task 3. The purpose of this segmented analysis was to evaluate how the FCF affects the brain over time.

3. Rest 2: Another three-minute stage followed, during which the participants disengaged from their connection with the FCF upon hearing the second horn sound, as defined prior to the experiment. Similar to Rest 1, they remained relaxed and tension-free without using the FCF.

EEG data acquisition

The participants' brain electrical activity was recorded at the National Brain Mapping Laboratory (NBML) of Iran using the g.tec g.HIamp system (g.tec, Graz, Austria) with a 128-channel cap equipped with passive Ag/AgCl electrodes. The electrodes were evenly distributed across the scalp based on the international 10/20 system for electrode placement. The ground electrode was placed on the forehead, and the online reference was positioned on the right earlobe. Data was recorded with a sampling frequency of 512 Hz, and impedance was maintained below 10 kΩ.

Data Processing

The EEG data were preprocessed using the EEGLAB (Delorme and Makeig, 2004) and FieldTrip (Oostenveld et al., 2011) toolboxes for MATLAB (MATLAB R2016a, The MathWorks, Inc., Natick, MA, USA). High-pass filters (with a cutoff frequency of 2 Hz) and band-stop filters (to remove 50 Hz line noise and its harmonic frequencies) were applied to the raw data. The data were re-referenced to the common average reference, and artifacts were manually rejected through visual inspection using EEGLAB. Independent Component Analysis (ICA) was performed to remove artifact-related components (e.g., head and eye movements, heartbeat, and muscle tone). The preprocessed data, containing minimal artifacts, were segmented into different rest and task phases according to the study design. FieldTrip was then used for further EEG data processing.

Frequency domain analysis is performed using the Fast Fourier Transform (FFT) algorithm (with a resolution of 0.125 Hz) to calculate the absolute power density ($\mu V^2/Hz$). The absolute power of a band is the integral of all power values within its frequency range. The mean (overall) frequency (Hz) is also obtained from the entire analyzed spectrum (1 to 30 Hz) (Yuvaraj et al., 2024).

Data analysis

Descriptive statistical analysis, frequency distribution analysis, and chart plotting were performed using GraphPad software version 9. Entropy calculations were carried out using SPSS software version 28. Differences between time-based populations were analyzed using two-way ANOVA. A p-value threshold of 0.05 was considered for significance; any change with a p-value less than this threshold was regarded as statistically significant, while changes above this value were considered non-significant (ns).

Table 1. Relative power across different brainwave frequency bands and brain regions in the study population. R1: Rest 1, T1: Task 1, T2: Task 2, T3: Task 3, R2: Rest 2.

Power	Abs. Power					Relative Power				
Time Frame	1: R1	2: T1	3: T2	4: T3	5: R2	1: R1	2: T1	3: T2	4: T3	5: R2
All	49.42	38.28	47.51	48.37	44.21	-	-	-	-	-
Delta	8.168	7.319	9.147	9.846	7.249	0.177956	0.208513	0.207967	0.220326	0.179299
Tetha	13.23	9.069	11.7	12.26	9.338	0.288242	0.258369	0.266012	0.274345	0.230969
Alpha1	7.743	6.027	8.092	8.003	7.249	0.168697	0.171705	0.18398	0.179085	0.179299
Alpha2	6.82	4.434	5.761	5.354	6.63	0.148587	0.126321	0.130982	0.119808	0.163988
Beta1	3.485	2.433	3.118	3.072	3.481	0.075928	0.069314	0.070891	0.068743	0.0861
Beta2	1.645	1.404	1.623	1.591	1.65	0.03584	0.039999	0.036901	0.035602	0.040812
Beta 3	2.555	2.271	2.444	2.476	2.584	0.055666	0.064699	0.055567	0.055406	0.063913
High B	1.019	0.9563	0.9477	0.9474	1.017	0.022201	0.027244	0.021547	0.0212	0.025155
Gamma1	0.6856	0.6552	0.641	0.6326	0.6744	0.014937	0.018666	0.014574	0.014156	0.016681
Gamma2	0.5483	0.5325	0.5093	0.5063	0.5573	0.011946	0.015171	0.011579	0.01133	0.013784
Sum	45.8989	35.101	43.983	44.6883	40.4297					

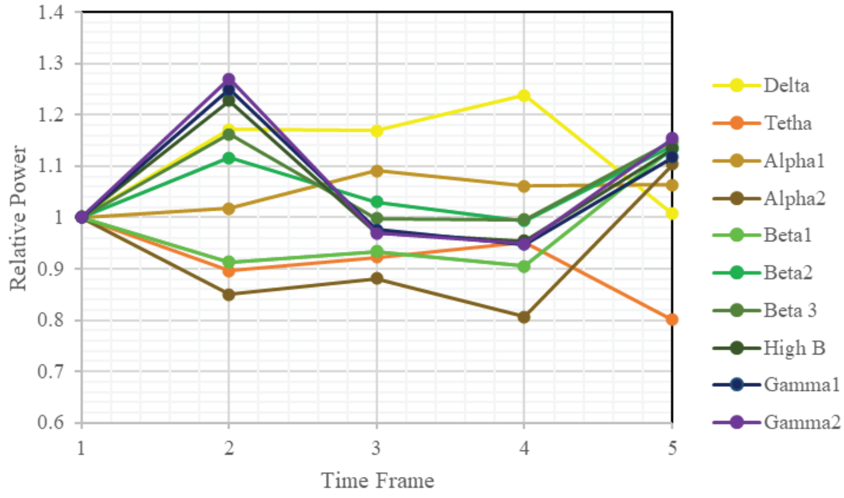

Figure 1. Examination of relative brain power trends in Faradarmangars across different frequency bands and phases of the study compared to the control (Rest 1). 1: Rest 1; 2: Task 1; 3: Task 2; 4: Task 3; 5: Rest 2.

Results and Conclusion

In Table 1, in addition to presenting absolute power, the calculated values of relative power across different brainwave frequency bands are also shown. Additionally, changes in the relative power trends across different frequency bands compared to Rest 1 are presented in Figure 1.

As shown in Table 1 and Figure 1, with the initiation of the connection (Task 1), 7 out of 10 frequency bands exhibit an increase in relative power. The three waves that display a different pattern during this phase are theta (from the low-frequency range), alpha 2, and beta 1 (from the mid-frequency range). The greatest increase in relative power is observed in the high-frequency waves (high beta, gamma 1, and gamma 2). This observation suggests that the application of Faradarmani Consciousness Field did not affect uniformly brain electrical activity.

As mentioned above, under the influence of the Faradarmani Consciousness Field, a reduction in relative theta power was observed during the task condition. According to previous findings, theta power shows context-dependent relationships with cognitive function. While increased theta activity during cognitive tasks is typically associated with enhanced performance, elevated theta at rest has been linked to lower cognitive abilities, particularly in children and adolescents (Tan et al., 2024). In the current study, despite the task condition being associated with minimal cognitive effort (i.e., a short attention to the field without active engagement), a reduction in theta power was observed under the influence of the Faradarmani Consciousness Field. This reduction might reflect a distinct modulation of brain dynamics, possibly indicating increased clarity or reduced mind-wandering, rather than conventional task-related theta increases.

It is worth noting that, based on this approach, information transmitted from the T-Consciousness Field is first received by the mind, and consequently, observable changes in brain activity may emerge. The observed reduction in relative power in the alpha 2 and beta 1 bands under the influence of the Faradarmani Consciousness Field may reflect this internal reception and subtle processing of information. This interpretation aligns with findings linking decreases in alpha/beta power to enhanced information processing (Griffiths et al., 2019), suggesting that the brain may receive and process information via Faradarmani even in the absence of active cognitive engagement.

After the Task 1 phase, the brainwaves that had shown an increase in relative power exhibited three different patterns:

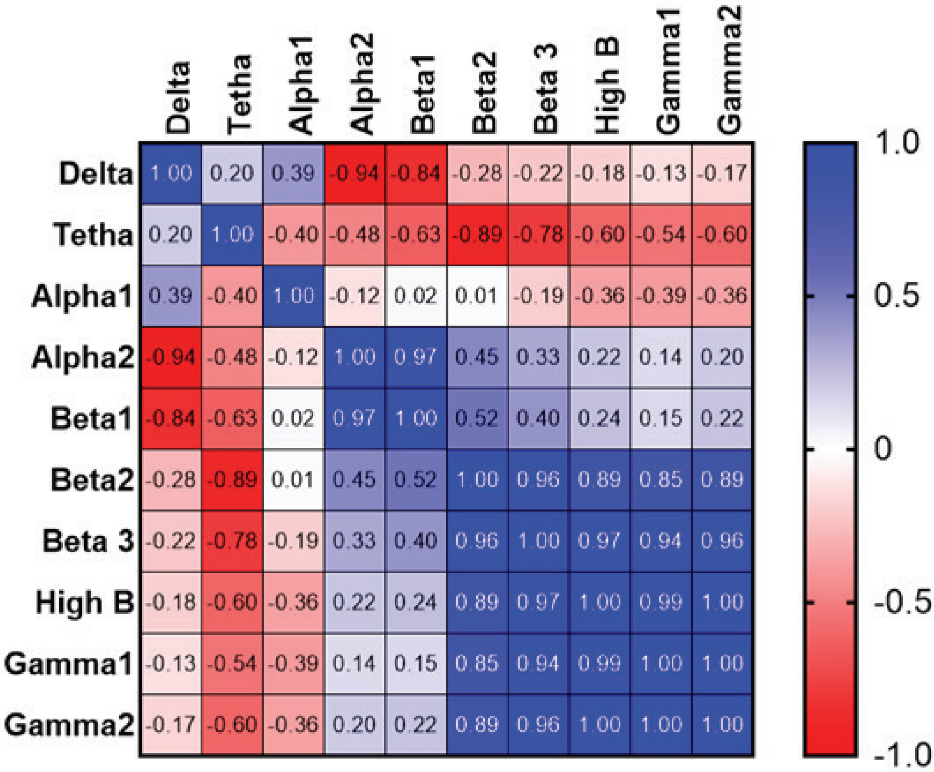

Figure 2. Pearson correlation analysis of different frequency bands, along with the correlation coefficient values across all time points of this study.

First pattern: Low-frequency waves (delta and alpha 1) showed higher relative power compared to their baseline (rest 1) levels. For the lowest-frequency wave (theta), this increasing trend continued until the end of Task 3. After that, in the Rest 2 phase, the relative power approached the baseline state, and in the case of delta, this return to the Rest 1 level was almost complete; in other words, the relative power of delta in the initial and final resting states was exactly the same.

Second pattern: The mid-frequency waves (beta 2 and 3) return to their baseline relative power levels (Rest 1) during Tasks 2 and 3, and then in Rest 2, they once again exhibit a pattern similar to Task 1, showing an increase in relative power. Alpha 2 and Beta 1, which are considered borderline waves between the slow and mid-range regions, exhibit behavior similar to the other two mid-range waves, with a difference observed in Task 3.

Third pattern: The high-frequency waves (high beta and gamma 1 and 2), after Task 1, show a return and reduction in relative power during Task 2, followed by a continued decrease in Task 3. In Rest 2, similar to the response in the second pattern, they exhibit an increase in relative power.

Among the waves that exhibited a decrease in relative power during Task 1, alpha 2 and beta 1 followed a similar trend and, by Rest 2, reached the range of other waves. The only wave that consistently showed a reduced relative power throughout all stages of this study, from the beginning of the tasks to the end, was the theta wave.

Figure 2 presents the Pearson correlation coefficients between the trends of relative power changes across different frequency bands. As shown in this figure, from the beta 2 range onward, the trends in relative power changes exhibit high correlations, indicating a consistent pattern of variation among these faster waves. The alpha 2 and beta 1 bands show stronger alignment with the higher-frequency bands that follow them. In contrast, the low-frequency waves, delta, theta, and alpha 1, follow distinctly different patterns compared to the others, with theta displaying the most divergent behavior.

In summary, two dominant patterns of change in relative power can be identified: an overall increase across a variety of brainwaves (delta, alpha 1, beta 2 and 3, high beta, gamma 1 and 2), and a general decrease (theta, alpha 2, beta 1). The most prominent relative power changes were observed in the slow waves. Specifically, delta showed a marked increase in relative power throughout the task phases, followed by a return to baseline comparable to the control in Rest 2. In contrast, the next slow wave, theta, demonstrated an opposite trend, with a continuous decrease in relative power from the beginning of Task 1 to the end of Rest 2.

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Investigation of Shannon Entropy and Minimum Entropy Changes Across the Entire Brain Frequency Spectrum and by Individual Brainwave Bands in Faradarmangars

Mohammad Ali Taheri[1], Sara Torabi[2], Farid Semsarha[3*]

1. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada
2. Department of Plant Biology, School of Biology, College of sciences, University of Tehran, Tehran, Iran
3.Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran

* Corresponding author: Farid Semsarha Ph.D., Institute of Biochemistry and Biophysics (IBB), University of Tehran, P.O. Box: 13145-1384, Tehran, Iran
Tel.: +98-9121786577
Email: Semsarha@ut.ac.ir

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Abstract

The Faradarmani Consciousness Field, which is a subset of the Cosmic Consciousness Network, is non-physical in nature. Although its characteristics cannot be identified using quantitative instruments, it is possible to detect its effects through experimental design. In this context, the brain's response under the influence of this field has been investigated in previous studies, and changes in electrical activity have been recorded. It is hypothesized that information transmitted under the influence of this field leads to observable changes at the brain level. Based on information theory introduced by Shannon, entropy calculation provides a quantitative measure of the information content within the data. Accordingly, this study assessed two types of entropy, Shannon entropy and minimum entropy, based on total absolute power and absolute power across various brainwave frequency bands. It is worth noting that although entropy has been examined in previous studies related to consciousness fields in other contexts, this is the first time it has been applied to brain electrical activity. According to the findings, both Shannon and minimum entropy of total brain activity decreased under the influence of the Faradarmani Consciousness Field, which may serve as a meaningful indicator of its impact on the brain and its electrical activity. From a frequency-based perspective, this entropy reduction, in terms of Shannon entropy, was observed across all frequency bands at the onset of using the Faradarmani Consciousness Field (Task 1), while the reduction in minimum entropy was seen in all bands except high beta and gamma 1.

Keywords: Shannon entropy, minimum entropy, brain waves, Faradarmani Consciousness Field

Introduction

Information theory, introduced by Claude Shannon in 1948, provides a mathematical framework for quantifying the amount of information in data by measuring uncertainty and the efficiency of information transmission (Shannon, 1948). One of the central concepts in information theory is entropy, which measures the degree of disorder or unpredictability within a system (Saraiva, 2023). In the context of EEG (electroencephalography) experiments, information theory is an essential tool for analyzing brain wave patterns and understanding brain activity (Bein, 2006). By calculating Shannon entropy, researchers can assess the complexity of neural signals and quantify the information processed by the brain (Keshmiri, 2020).

In studies examining tinnitus, entropy calculations have been shown to reveal differences in brain activity between healthy individuals and those suffering from chronic tinnitus, highlighting the role of increased entropy in reflecting the chaotic behavior of the brain (Sadeghijam et al., 2021). Similarly, entropy-based analysis has shown promise in distinguishing individuals with schizophrenia from healthy controls (Sabeti et al., 2009).

According to Taheri, Consciousness is not a product of brain activity; rather, it is a fundamental element of the universe from which information, matter, and energy originate. He coined the term T-Consciousness to distinguish his viewpoint from other theoretical concepts. In this framework, various T-Consciousness Fields exist as subcategories of the Cosmic Consciousness Network. The Faradarmani Consciousness Field is one such field (Taheri, 2013). Its effect is initiated by a brief moment of attention through the human mind. It is hypothesized that information transmitted from this field can lead to detectable changes in brain activity.

Such changes have been reported in previous experiments (Taheri et al., 2022; Taheri et al., 2022a). In the current study, based on Information Theory, alterations in entropy values were calculated using data from the entire brain frequency spectrum and specific brain wave bands, to estimate changes in information content under the influence of the Faradarmani Consciousness Field.

Method

Forty-four healthy adult participants (mean age: 41 ± 7 years), none of whom had used any neurological or psychiatric medications in the six months prior to the test day, were included in the study group. Of these participants, 41% were male (n=18) and 59% were female (n=26). The Faradarmani Consciousness Field treatment was initiated by the participants at a predetermined time (upon hearing a soft beep sound from the computer system located on the desk in front of the seating area). In this study, a task referred to the action in which Faradarmangars personally initiated a connection with the Cosmic Consciousness Network. The study was approved by the Ethics Committee of Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1402.940).

The time intervals were defined as follows:

1. Rest 1: In this stage, the trained participants, referred to as *Faradarmangars*, were asked not to engage any type of T-Consciousness Fields and to remain simply relaxed and tension-free. The aim of this stage was to collect baseline data for each individual as a control before applying the FCF, which is useful for creating a collective control dataset.

2. Task: At the beginning of Rest 1, upon hearing the sound of a horn, predefined before the experiment, the participants initiated their connection with the FCF, marking the beginning of Task 1. In fact, the task involved a continuous connection for 10 minutes. During this stage, data was continuously collected from the participants' brains. In the analysis phase, the data was

examined both as a whole and in three equal, consecutive intervals, referred to as Task 1, Task 2, and Task 3. The purpose of this segmented analysis was to evaluate how the FCF affects the brain over time.

3. Rest 2: Another three-minute stage followed, during which the participants disengaged from their connection with the FCF upon hearing the second horn sound, as defined prior to the experiment. Similar to Rest 1, they remained relaxed and tension-free without using the FCF.

EEG data acquisition

The participants' brain electrical activity was recorded at the National Brain Mapping Laboratory (NBML) of Iran using the g.tec g.HIamp system (g.tec, Graz, Austria) with a 128-channel cap equipped with passive Ag/AgCl electrodes. The electrodes were evenly distributed across the scalp based on the international 10/20 system for electrode placement. The ground electrode was placed on the forehead, and the online reference was positioned on the right earlobe. Data was recorded with a sampling frequency of 512 Hz, and impedance was maintained below 10 kΩ.

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Frequency domain analysis is performed using the Fast Fourier Transform (FFT) algorithm (with a resolution of 0.125 Hz) to calculate the absolute power density ($\mu V^2/Hz$). The absolute power of a band is the integral of all power values within its frequency range. The mean (overall) frequency (Hz) is also obtained from the entire analyzed spectrum (1 to 30 Hz) (Yuvaraj et al., 2024).

Entropy Calculation

To assess entropy in this study, the absolute power values were used in the total state as well as separately for each individual frequency band. These values were binned with unit intervals, and the frequency of values generated in each bin was measured. Based on this, the frequency distribution entropy was calculated using the following Shannon equation (1):

1. $$S = -\sum p_i ln p_i$$

Where p_i is the probability of values occurring in the *i*th bin, and n_i is the number of values in that bin.

Additionally, the minimum entropy (2), which is a measure of the randomness of the generated values, is obtained using the following equation:

2. $$\boldsymbol{S_{min} = -\log_2 P_{max}}$$

Where P_{max} is the probability of the highest frequency in the distribution of the generated values.

Data analysis

Descriptive statistical analysis, frequency distribution analysis, and chart plotting were performed using GraphPad software version 9. Entropy calculations were carried out using SPSS software version 28. Differences between time-based populations were analyzed using two-way ANOVA. A p-value threshold of 0.05

was considered for significance; any change with a p-value less than this threshold was regarded as statistically significant, while changes above this value were considered non-significant (ns).

Results

The data related to the calculated Shannon entropy and minimum entropy values are presented in Tables 1 to 3, and the trends of their changes, normalized to the R1 values in each frequency range, are shown in Figures 1 to 6.

Table 1. Shannon entropy values in the frequency ranges of this study

Shannon Entropy					
Time Frame	1: R1	2: T1	3: T2	4: T3	5: R2
All	2.49	2.04	2.24	2.26	2.32
Delta	2.05	1.92	2.15	2.27	1.96
Tetha	2.87	2.43	2.62	2.67	2.33
Alpha1	2.37	2.00	2.22	2.26	2.36
Alpha2	2.50	1.97	2.20	2.08	2.45
Beta1	2.41	1.94	2.22	2.14	2.45
Beta2	2.72	2.45	2.65	2.67	2.80
Beta 3	2.34	2.16	2.32	2.33	2.36
High B	2.06	2.02	2.05	2.07	2.09
Gamma1	1.99	1.96	2.07	2.16	2.15
Gamma2	2.61	2.51	2.63	2.85	2.79

Table 2. Minimum entropy values in the frequency ranges of this study

Min Entropy					
Time Frame	1: R1	2: T1	3: T2	4: T3	5: R2
All	3.07	2.28	2.58	2.52	2.52
Delta	2.39	2.22	2.66	2.73	2.39
Tetha	3.39	2.81	3.17	3.17	2.58
Alpha1	2.81	2.33	2.73	2.45	2.58
Alpha2	2.45	1.89	2.22	2.07	2.45
Beta1	2.52	2.02	2.45	2.39	2.52
Beta2	2.98	2.89	3.17	2.98	3.39
Beta 3	2.81	2.39	2.58	2.73	2.89
High B	2.28	2.33	2.02	2.17	2.28
Gamma1	2.12	2.17	2.17	2.39	2.52
Gamma2	3.07	2.89	3.07	3.52	3.39

Table 3. Comparison of the percentage change in Shannon entropy values across different frequency ranges of the brain, compared to the R1 range (rest or control 1); colors similar to the total entropy indicate changes within ±3% of the total value. Smaller and aligned changes are shown in lighter green, while larger and aligned changes are shown in darker green. Red indicates changes that are not aligned with the total.

Shannon Entropy Change				
	T1-R1	T2-R1	T3-R1	R2-R1
All	-18.3604	-10.1577	-9.49575	-6.92812
Delta	-6.64923	4.960002	10.74217	-4.54802
Tetha	-15.1928	-8.48946	-6.79966	-18.7441
Alpha1	-15.6947	-6.34428	-4.97059	-0.58094
Alpha2	-21.229	-11.9004	-16.7901	-2.03418
Beta1	-19.5929	-7.83402	-11.2239	1.783805
Beta2	-9.73926	-2.55356	-1.5518	3.170758
Beta3	-7.80993	-0.55485	-0.47878	1.066345
Hbeta	-1.92068	-0.80133	0.385851	1.422277
Gamma1	-1.22172	3.894434	8.455378	8.231027
Gamma2	-3.91715	0.765034	9.098894	6.98985

R1: Rest 1, T1: Task 1, T2: Task3, R2: Rest2

As seen in Table 3, the only section with completely decreasing changes in Shannon entropy across all frequency ranges is the contrast related to Task 1. Additionally, in all contrasts of total absolute power, the Shannon entropy value is negative, with its maximum corresponding to the Task 1 and Rest 1 contrast, indicating that the values of Task 1 are about 18% lower than those of Rest 1. The start of changes in Rest 2, in the opposite direction to Task 1, begins from the Beta 1 frequency range, and the only section with negative Shannon entropy for Gamma waves is the contrast related to Task 1.

For Delta waves, a decrease in Shannon entropy is observed in Task 1 and Rest 2 in a similar manner. After the Theta range, where entropy changes in the different sections show a smaller decrease and align with Task 1, a distinct decrease in entropy is observed in the contrast of Rest 2 in the Alpha wave range (Alpha 1 and 2). Further, in the frequency range of Beta waves 1 to 3, a clear increase in entropy is observed in the contrast of Rest 2. From the High Beta range (starting boundary of Gamma) to the end (Gamma 1 and 2), a completely different entropy response in Task 1 compared to other sections is observed: in High Beta, Task 3 and Rest 2 show an increase in entropy, and in both Gamma waves, Tasks 2 and 3, along with Rest 2 (all sections except the Task 1 contrast), show an increase in entropy. The trend of changes observed in minimum entropy is largely similar to the changes in Shannon entropy, with the difference that the increase in entropy in Rest 2 for high-frequency waves is only observed in Gamma waves, and Beta 1 wave shows a behavior similar to Alpha 2 in Rest 2.

The trend of changes normalized to the total absolute power of the R1 section across different brain wave ranges also provides insight into the entropy changes. Figure 1 shows the trend of changes for Delta and Theta waves. The trend of changes up to Task 3 is similar to the trend of total Shannon entropy changes, and even in the continuation and Rest 2 section, the decreasing trend continues. As shown in Figure 2, the trend of changes becomes closer to the trend of total Shannon entropy changes with an increase in wave speed. The Shannon entropy values in all waves in Rest 2 tend to approach those in Rest 1. According to Figure 3, among the high Beta and Gamma waves, the trend of changes in high Beta waves most closely resembles the trend of total Shannon entropy changes, and in Rest 2, it tends to approach the values seen in Rest 1.

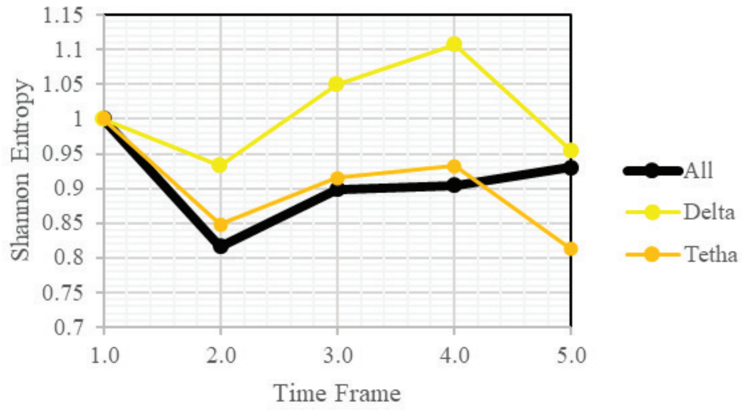

Figure 1. The trend of changes normalized to the total absolute power of the R1 section, compared to the two frequency ranges with the minimum brain wave speeds (Delta and Theta). 1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2.

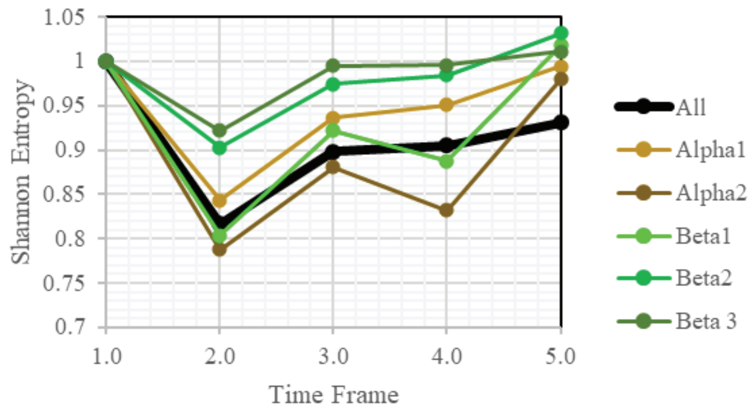

Figure 2. The trend of changes normalized to the total absolute power of the R1 section, compared to five frequency ranges with intermediate wave speeds (Alpha 1 and 2, and Beta 1-3). 1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2

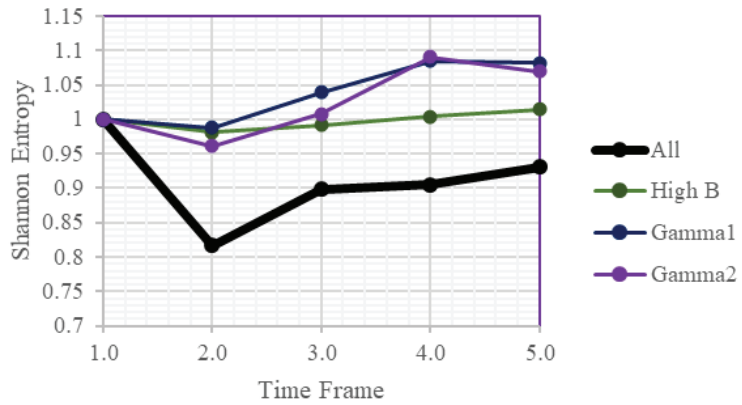

Figure 3. The trend of changes normalized to the total absolute power of the R1 section, compared to three frequency ranges with maximum wave speeds (High Beta, Gamma 1, and Gamma 2). 1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2.

The minimum entropy values are presented in the following charts. The trend of changes normalized to the total absolute power of the R1 section, compared to the two frequency ranges with the minimum wave speeds (Delta and Theta), shows that the trend of changes up to Task 3 is similar to the trend of total minimum entropy changes (Figure 4). According to Figure 5, in comparison with the four frequency ranges with intermediate wave speeds (Alpha 1 and 2, Beta 1 and 2), the trend of changes up to Task 3 is similar to the trend of total minimum entropy changes. In the case of Alpha 2 and Beta 1 waves, the return of minimum entropy values in Rest 2 to Rest 1 is complete. Regarding the four frequency ranges with maximum wave speeds (High Beta, Gamma 1, and Gamma 2), the trend of changes in Task 1 increasingly deviates from the trend of total minimum entropy changes as wave speed increases. Beta 3 and High Beta waves in Rest 2 tend to approach the values observed in Rest 1.

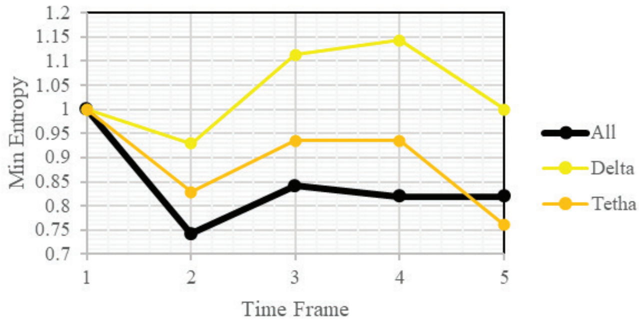

Figure 4. The trend of changes normalized to the total absolute power of the R1 section, compared to the two frequency ranges with the minimum wave speeds (Delta and Theta).
1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2.

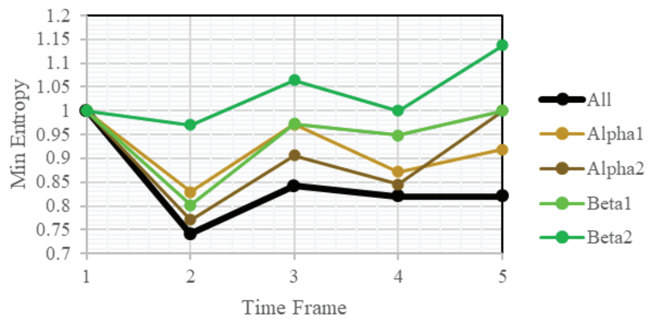

Figure 5. The trend of changes normalized to the total absolute power of the R1 section, compared to the four frequency ranges with intermediate wave speeds (Alpha 1 and 2, Beta 1 and 2).
1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2.

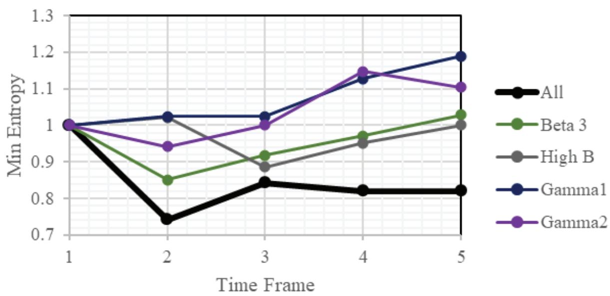

Figure 6. The trend of changes normalized to the total absolute power of the R1 section, compared to the four frequency ranges with maximum wave speeds (Beta3, High Beta, Gamma 1, and Gamma 2).
1: Rest 1, 2: Task 1, 3: Task 2, 4: Task 3, 5: Rest 2

In summary, it can be said that the calculation of entropy provides a useful perspective on the effects of T-Consciousness Fields at the brain level. Initially, these changes offer evidence of information transmission under the influence of the Faradarmani Consciousness Field. In the next step, by comparing different time segments, especially Task 1 (or the onset of the Faradarmani Consciousness Field effect) and Rest 2 (or the declaration of the end of the effect), clear fluctuations are observed, indicating information processing and changes at the brain level.

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Monitoring of Brain Electrical Activity During the Use of the Faradarmani Consciousness Field

The nature of consciousness is one of the most fundamental questions in scientific studies. Neuroscience, in particular, has been intensely focused on understanding what consciousness is and how it arises in the brain. According to Taheri's theory, T-Consciousness is a fundamental element of the universe, from which matter, energy, and information originate. Therefore, the human brain is not the producer of consciousness or awareness; rather, it functions as a detector, playing the role of an antenna and receiver.

The practical and laboratory testing of consciousness is one of the most significant challenges. According to Taheri's theory, there are various T-Consciousness Fields with different functions that humans can practically utilize. One of these fields, known as Faradarmani, is introduced as a complementary therapy. This concept has prompted researchers to investigate the interaction between the brain and these fields. Furthermore, it provides an opportunity to explore the role of the brain, the non-physical nature of T-Consciousness, and the effects of T-Consciousness Fields.

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