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A Breakthrough in Stroke Rehabilitation: Non-Invasive Biophoton Therapy Promotes Neurofunctional Recovery in Chronic Stroke Patients

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ABSTRACT

Background: Effective treatments for chronic stroke remain a critical unmet medical need. Conventional rehabilitation approaches often yield limited functional recovery, especially in patients with long-standing deficits. Emerging evidence suggests that biophoton-based therapies may offer a novel, non-invasive solution to support neuroregeneration.

Objective: To evaluate the therapeutic efficacy and safety of Automatic Biophoton Generators (ABGs) in patients with chronic stroke using validated clinical, neurological, and neurophysiological outcome measures.

Methods: A randomized, triple-blind, placebo-controlled clinical trial was conducted with 46 chronic stroke patients who received either active ABG treatment (n = 26) or placebo devices (n = 20) over two weeks. Participants in the placebo group were later crossed over to receive active treatment for an additional four weeks. Each treatment group received therapy with 4 ABGs placed around a hotel bed. Stroke recovery was assessed using the Stroke Impact Scale (SIS), SF-36 quality-of-life survey, clinician-led neurological examinations, and quantitative Electroencephalography (qEEG) with Event-Related Potentials (ERP). Additional evaluations included 3D Non-Linear Scanning (3D-NLS) for energetic brain imaging and Bio-Well analysis for organ and meridian energy coherence.

Results: Biophoton therapy resulted in statistically significant improvements in SIS scores, stroke recovery rate, neurological exam scores, and quality-of-life measures ($p < 0.01$). qEEG revealed increased posterior alpha frequencies, reduced theta/beta ratios, and improved ERP latencies, indicating enhanced attention, memory processing, and cognitive speed. 3D-NLS imaging showed rapid cortical reactivation and restored hemispheric balance after only 6 days of therapy. Bio-Well analysis demonstrated systemic energy restoration across the brain, cardiovascular system, and endocrine organs. No adverse events were reported.

Conclusion: This study provides strong clinical and neurophysiological evidence that ABG-based biophoton therapy significantly improves functional outcomes in patients with chronic stroke. The therapy was well tolerated and offers a promising, non-invasive approach to address long-standing neurological impairments. These findings support the broader potential of biophoton quantum therapy in treating neurodegenerative and chronic inflammatory disorders.

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Introduction

The treatment of chronic stroke and paralysis remain significant unmet medical challenges, resulting in millions of people worldwide having limited effective treatment options. Traditional rehabilitation methods often fail to restore lost motor function, leaving many patients with long-term disabilities and a reduced quality of life. Current medical approaches primarily focus on managing symptoms rather than promoting functional recovery. This lack of effective therapies highlights the urgent need for innovative solutions that can enhance cellular energy, support tissue repair, and improve motor function in chronic stroke patients.

Biophotons are Ultraweak Photon Emissions (UPE) from biological systems that play a crucial role in DNA replication, cellular communication, metabolic regulation, and overall vitality [1-3]. Traditional biophoton research has primarily focused on biological sources, which often produce emissions of limited strength. Moreover, not all biological biophoton generators are suitable for therapeutic applications. To address these limitations, we developed non-biological Automatic Biophoton Generators (ABGs), which autonomously emit high-strength photons that mimic naturally occurring biophotons. Real-world evidence from over 40,000 users has demonstrated that these powerful ABGs, used as wellness products, have contributed to recovery across more than 100 disorders and conditions without reportable adverse events.

In nature, biophotons exist as longitudinal waves, which are a subset of scalar waves or Tesla waves [4]. In longitudinal waves, particles vibrate parallel to the direction of wave propagation, whereas in transverse waves—such as those produced by non-biological photon sources—particles vibrate perpendicular to the wave's direction. Notably, the photons emitted by our newly developed ABG devices can penetrate metal barriers, further distinguishing them from conventional light sources. Therefore, we have determined whether strong biophoton generators can significantly impact chronic stroke recovery. Our research also aims to characterize the properties of ABGs and assess their therapeutic potential in chronic stroke rehabilitation, emphasizing cellular energy activation, stem cell production, tissue regeneration, functional improvements, and overall quality of life enhancements for stroke patients. We further aim to extend these findings to other unmet chronic conditions.

Materials and Methods

Study Design

Based on the real-world evidence collected from previous years, this study was conducted as a randomized, triple-blind, placebo-controlled, prospective interventional clinical trial approved by an Independent Institutional Review Board (IRB). A total of 46 patients with chronic stroke participated in a live-in clinical protocol at a wellness hotel setting. The objective was to evaluate the therapeutic efficacy and safety of Automatic Biophoton Generators (ABGs) over a four-week treatment period.

Randomization and Blinding

A qualified biostatistician generated the randomization schedule using coded identifiers for both treatment and placebo devices. Each device was labeled with a unique code, and participants were assigned corresponding subject numbers. All study staff, including physicians, coordinators, data analysts, participants, and caregivers, remained blinded to group allocation throughout the initial two-week randomized phase. Subsequently, the placebo group was ethically crossed over to the treatment arm for an additional four weeks to allow for both within-subject and between-group analyses.

Intervention Protocol

Participants were instructed to use either the active or placebo devices for up to eight hours during sleep and additional optional time throughout the day. Four biophoton generators (or corresponding placebo devices) were placed around hotel bed during the treatment period. All outcome assessments were conducted at baseline, and again at two- and four-weeks post-treatment.

Study Population

Eligible participants were adults aged 18 or older with a history of stroke occurring at least six months prior, leading to significant functional impairment that prevented independent living. All participants were required to have a supportive caregiver, provide informed consent, and be fluent in English (or have a caregiver who could translate). Exclusion criteria included unmanaged psychiatric disorders, ventilator dependence, comorbidities interfering with participation, or enrollment in another clinical trial.

Outcome Measures

The primary outcome was the change in Stroke Impact Scale (SIS) score—a validated, patient-reported measure of post-stroke recovery—assessed at 2 and 4 weeks compared to baseline.
Secondary Outcomes included:

- Neurological examination by study physicians.
- Quantitative EEG (qEEG) and event-related potential (ERP) testing using the BrainView Neurotherapy Platform.
- Quality of life assessed via the SF-36 questionnaire.
- Energetic mapping using Bio-Well GDV Camera 3.0.
- 3D Non-Linear Scanning (3D-NLS) for energetic brain diagnostics.

Participants also retrospectively rated their SF-36 scores for the 4-week period prior to enrollment to enable intra-subject comparisons.
Safety Outcomes included the monitoring of any adverse events reported by participants or observed by caregivers and study personnel.

Statistical Analysis

Based on prior pilot data suggesting a 73% success rate in stroke recovery using biophoton therapy (vs. 0% with standard care), a conservative sample size calculation was performed assuming 50% success in the treatment group versus 5% in the control. A sample size of 12 per group provided 80% power to detect significant differences ($\alpha = 0.05$).

Comparisons of SIS, SF-36, and neurological scores were performed using chi-square tests and paired or unpaired t-tests as appropriate. Adverse event rates were compared using chi-square analysis.

Ethics and Study Timeline

The study began enrolling participants in May 2023 and concluded in December 2023. All procedures were carried out in accordance with ethical standards, and the crossover design was implemented to ensure that all participants had access to potentially therapeutic intervention. The clinical study was IRB approved and registered at ClinicalTrials.gov IDs: NCT05898334.

Results

Real-World Outcomes from Over 40,000 Users. Since the commercial release of Automatic Biophoton Generators (ABGs) in the U.S. in September 2020, more than 40,000 individuals have used the devices across a wide range of chronic health conditions. Self-reported data from over 2,300 users indicate a satisfaction rate exceeding 97%, with no adverse events reported. These individuals experienced noticeable improvements in quality of life across more than 100 conditions, including pain (n = 1,107), arthritis (n = 76), cancer (n = 91), cardiovascular disease (n = 2), Parkinson's disease (n = 10), Alzheimer's disease/dementia (n = 13), depression (n = 13), and stroke (n = 41). Ongoing clinical validation efforts include registered studies (ClinicalTrials.gov NCT06147999).

Pilot Study: Improvements in Stroke Recovery

In a non-randomized, open-label pilot study, 17 chronic stroke patients resided at a wellness hotel and received biophoton therapy using 4 ABGs placed around hotel beds over four weeks. Significant functional improvements were observed in all validated outcome measures:

- **Stroke Impact Scale (SIS):** Average scores improved by 20% at Week 2 and by 25% at Week 4 compared to baseline (Figure 1A).
- **Stroke Recovery Rate:** All patients reported improved recovery; by Week 4, 67% (10/15) achieved ≥50% improvement, and 53% (8/15) reached ≥70% (Figure 1B).
- **Neurological Examination Scores:** Weekly assessments showed progressive and statistically significant improvements by Weeks 2, 3, and 4 (Figure 1C).

- **Quality of Life (SF-36):** No change was observed in the four weeks prior to the study. However, significant gains occurred post-treatment—25% by Week 2 and 46% by Week 4 (Figure 1D).

All study outcomes were significantly better than those in Baseline ($P<0.01$). No adverse events were reported during the study. (Figure 1)

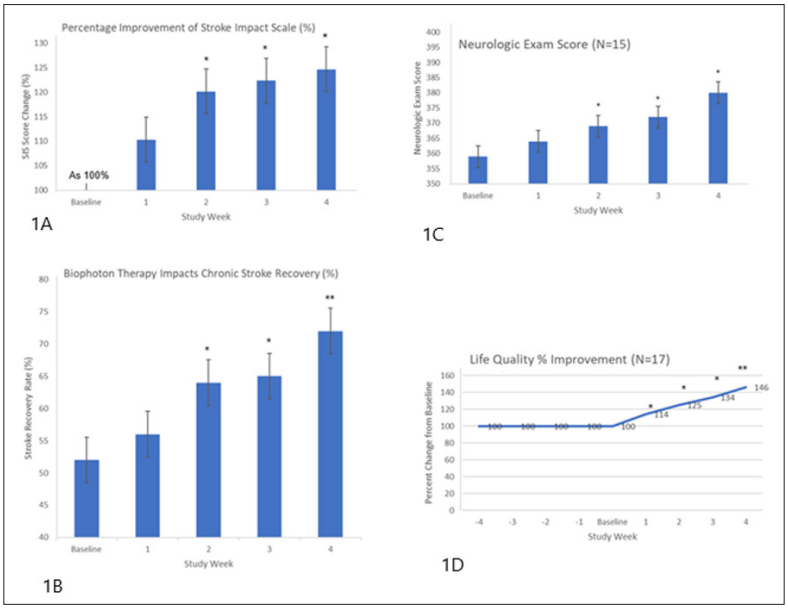

Figure 1: Clinical Outcomes from a Pilot Study Evaluating the Effects of Biophoton Therapy in Chronic Stroke Patients.

1A. Weekly Improvement in Stroke Impact Scale (SIS) score (N = 17).
1B. Weekly Increase in stroke recovery rate as reported by participants (N = 17).
1C. Weekly Improvement in neurologic examination scores assessed by clinicians (N = 15).
1D. Weekly Improvement in quality of life as measured by the SF-36 questionnaire (N = 17).
By **Week 2**, all four indicators showed statistically significant improvement compared to baseline, demonstrating rapid and measurable benefits from Biophoton Therapy.

Neurofunctional Restoration via Quantitative EEG
Eleven participants underwent qEEG and ERP assessments. All showed positive improvements. Four of them were randomly selected to be presented here.
Subject SS-109 (77-year-old male) patient: After Baseline, the patient randomly received Placebo for the first 2 weeks, then actively treated for 4 more weeks. His EEGs (Figure 2) indicated that alpha frequency decline and worsened cognitive markers by Week 2. Therefore, Placebo had no improvement in EEG. After ABG treatment, improvements were observed in theta/beta ratio, ERP latencies (visual and auditory), motor response accuracy, and reaction time variability (Figure 2). Below is a detailed EEG report.

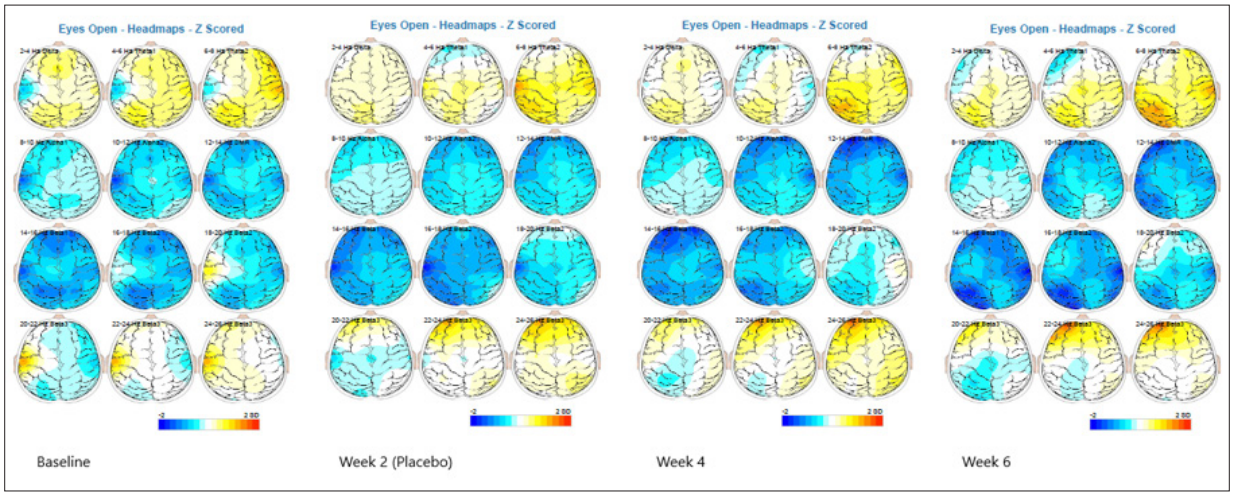

Figure 2: Quantitative EEG assessments of Subject SS-109 were recorded at four timepoints: Baseline, Week 2 (Placebo phase), and Weeks 4 and 6 following active Biophoton Therapy. The Data Demonstrate progressive improvements in Posterior Peak Frequency, Event-Related Potentials (ERP), and behavioral motor performance following treatment with four Biophoton Generators, Indicating Enhanced Cortical Activation, Faster Cognitive Processing, and Improved Attentional Control.

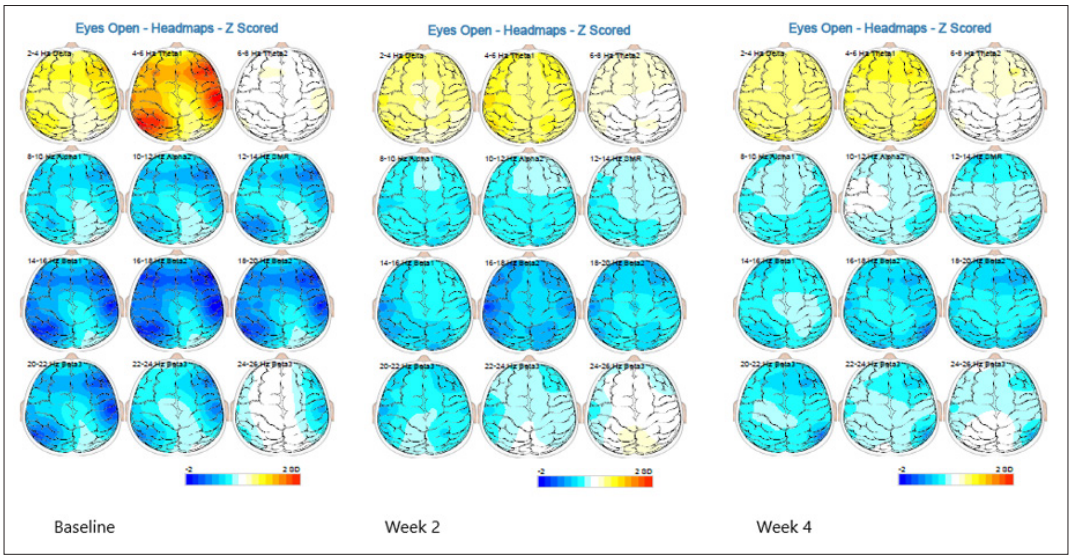

Figure 3: Quantitative EEG data for Subject SS-170 collected at Baseline, Week 2 (placebo phase), and Week 4 following active Biophoton Treatment. The recordings show a Progressive Increase in Posterior Peak Frequency, Reduction in Theta/Beta Ratio, and Marked Improvements in ERP latency and Behavioral Motor Responses, Indicating enhanced Cortical Function, Cognitive Processing Speed, and Attentional Performance during Biophoton Therapy.

• EEG Frequency Analysis

Metric	Baseline	Week 2 (Placebo)	Week 4 (Biophoton)	Week 6 (Biophoton)
Posterior Peak Frequency (Eyes Open)	9.5 Hz	7.9 Hz	7.8 Hz	7.8 Hz
Posterior Peak Frequency (Eyes Closed)	8.9 Hz	8.3 Hz	8.3 Hz	8.1 Hz
Theta/Beta Ratio (Eyes Open)	0.80 Hz	0.58 Hz	0.68 Hz	0.82 Hz

Interpretation: (1) Baseline to Week 2 showed a sharp decline in posterior alpha frequencies, consistent with cognitive slowing and placebo effects. (2) Despite a continued low alpha peak frequency at Week 4 and 6, theta/beta ratio stabilized, and eventually returned to baseline by Week 6, indicating a neuroadaptive effect and improved attention control under biophoton therapy.

- **Event-Related Potentials (ERPs)**

ERP Component	Baseline	Week 2	Week 4	Week 6
Visual Processing (P2 latency)	152 ms	160 ms	148 ms	220 ms
Auditory Processing (P2 latency)	128 ms	252 ms	248 ms	256 ms
Attention/Vigilance (P3 latency)	388 ms	420 ms	428 ms	416 ms
Working Memory (P3b latency)	444 ms	384 ms	416 ms	404 ms

Interpretation: (1) Week 2 (placebo): Showed worsening auditory and attentional processing, with auditory latency rising from 128 ms to 252 ms and P3b improving unexpectedly. (2) Week 4: Visual and working memory latencies improved, suggesting short-term synaptic enhancement from biophoton exposure. (3) Week 6: Regression in visual and auditory speed; however, attention and memory latencies remained improved compared to Week 2, implying cognitive stabilization.

- **Behavioral Motor Test**

Motor Metric	Baseline	Week 2	Week 4	Week 6
Reaction Time (ms)	813	924	885	853
Reaction Time Variance (ms)	38.4	22.2	23.5	11.0
Missed Responses (%)	14.0	4.7	11.6	3.4
Wrong Responses (%)	8.4	1.5	1.5	1.5

Interpretation: 1. Biophoton therapy led to a progressive and consistent reduction in motor response variability, indicating enhanced neuro-motor control. 2. Missed responses dropped sharply by Week 6, and incorrect responses remained low after Week 2, suggesting better sustained attention and reduced impulsivity.

- **Summary of Functional Improvements**

Category	Week 2 (Placebo)	Week 4 (Biophoton)	Week 6 (Biophoton)
Cognitive Speed	Declined	Improved	Stabilized
Attention/Vigilance	Impaired	Partial Recovery	Maintained
Memory Processing	Mixed	Recovered	Maintained
Motor Performance	Declined	Recovered	Enhanced
Overall EEG Health	Worsened	Improved	Stabilized

Clinical Interpretation. Following a placebo phase marked by EEG worsening (Week 2), the introduction of biophoton therapy at Week 4 led to: (1) Marked improvements in ERP response times and attention markers. (2) Stabilization of alpha frequencies. (3) Sustained reduction in behavioral errors and reaction time variability. These findings suggest a neurorestorative effect of biophoton therapy, particularly in cognitive domains impaired by chronic stroke, such as attention regulation, reaction control, and working memory. **Subject SS-170's** EEGs were conducted at Baseline, Week 2 & Week 4 of active biophoton Therapy.

(1). Overview: This analysis compares EEG, ERP (event-related potentials), and behavioral motor findings across three timepoints in a 62-year-old female patient with chronic stroke undergoing biophoton therapy using 4 biophoton generators.

- **Summary of Key Metrics**

Parameter	Baseline	Week 2	Week 4	Trend
Posterior Peak Frequency (Closed)	8.6 Hz	8.8 Hz	9.3 Hz	↑
Posterior Peak Frequency (Open)	8.2 Hz	8.2 Hz	9.0 Hz	↑
Theta/Beta Ratio (Eyes Open)	0.67	0.61	0.49	↓
Visual ERP (N2 latency)	264 ms	260 ms	214 ms	↑
Auditory ERP (P2 latency)	120 ms	112 ms	101 ms	↑
Attention/Vigilance (P3 latency)	412 ms	392 ms	328 ms	↑
Working Memory (N4 latency)	488 ms	432 ms	392 ms	↑
Reaction Time (ms)	469 ms	440 ms	378 ms	↑
Reaction Time Variability (ms)	6.2 ms	5.9 ms	4.3 ms	↑
Missed Responses (%)	3.0%	0.0%	0.0%	↑
Wrong Responses (%)	2.5%	1.5%	0.0%	↑

- Interpretation of EEG Frequency Analysis. Posterior Peak Frequency increased progressively from Week 2 to Week 6, both eyes-open and eyes-closed, approaching the optimal cognitive performance range (8–12 Hz).
- Theta/Beta Ratio, a marker of inattention, decreased steadily, indicating improved attention and cognitive control during the treatment phase.
- ERP (Evoked Potentials)
- Visual (N2) and Auditory (P2) latencies decreased substantially during biophoton treatment, reflecting faster sensory processing.
- P300 (P3) Latency, associated with attention and cognitive engagement, showed significant reduction—from 412 ms (delayed) at Week 2 to 328 ms (within normal limits) at Week 6.
- N4 Latency, linked to working memory, improved from delayed (488 ms) to optimal (392 ms), showing restoration of cognitive processing capacity.

Behavioral Motor Performance: Reaction Time improved notably (from 469 ms to 378 ms), along with reduced reaction time variability, missed responses, and error rate, indicating enhanced motor control and consistent attentional engagement.

4. Clinical Insights. (1) Week 2 placebo data confirmed persistent deficits in attention, memory, and motor coordination. (2) Weeks 4 and 6 data show clear and progressive improvements across nearly all neurophysiological domains. (3) The reduction in ERP latencies and improvement in behavioral metrics align with enhanced brain processing speed and cognitive function, potentially facilitated by biophoton therapy.

5. Conclusion. The EEG and ERP profiles reveal substantial neurological recovery after 2–4 weeks of active biophoton treatment in this chronic stroke patient. Improvements were observed in cognitive processing speed, attention regulation, and motor performance—supporting the therapeutic potential of biophoton generators as a non-invasive modality for chronic neurorehabilitation.

Subject SS-105 (70 -year-old male): Marked improvements were noted in posterior alpha, frontal asymmetry, ERP latencies (visual/auditory P2, P3, P3b), and behavioral metrics (reaction speed and accuracy) after 4 weeks of biophoton therapy. (1) EEG power spectrum normalized with increased posterior alpha and reduced frontal asymmetry. (2) Cognitive processing (ERP latencies) showed consistent acceleration across all domains. (3) Behavioral and motor tasks demonstrated large improvements in both speed and accuracy. (4) Attention, memory, and emotional regulation were all measurably enhanced. These findings suggest that biophoton therapy significantly improved neurocognitive and motor function in this chronic stroke patient within 4 weeks, consistent with a restorative neuroplastic effect and enhanced cortical efficiency.

Subject SS-101 (75-year-old male): A stepwise progression was observed—Week 2 reflected initial neural recalibration, and by

Week 4, EEG biomarkers demonstrated improved vigilance, emotional balance, and cortical activation. Here is the summary of EEG Response to Biophoton Therapy.

Domain	Baseline → Week 2	Week 2 → Week 4
Cognitive Rhythm	Stable (8.3 → 8.1 Hz)	Recovered (→ 8.7 Hz)
Focus & Control	Slight decline (↑ θ/β)	Improved attention (↓ θ/β)
Emotional State	More anxious (↓ asymmetry)	Normalized frontal balance
Arousal/Vigilance	Reduced (↓ alpha ratio)	Enhanced (↑ alpha ratio)
Cortical Activation	Suppressed in key regions	Functionally restored

2. Clinical Conclusion. The EEG biomarkers clearly show that biophoton therapy resulted in progressive neurophysiological recovery: (1) Week 2 EEG showed signs of early-stage neural recalibration. (2) By Week 4, strong markers of cognitive restoration, emotional balance, and motor integration emerged. (3) These effects correlate well with reported clinical improvements in stroke patients using biophoton therapy. This subject's case offers compelling evidence that non-invasive biophoton treatment supports neural plasticity and functional brain recovery in chronic stroke.

Collectively from all EEG evidence, the EEG findings support biophoton-induced neuroplasticity and functional brain restoration in chronic stroke patients.

Rapid Brain Functional Recovery via 3D Non-Linear Scanning
The image shows in Figure 4, 3D non-linear brain scans of a patient with chronic stroke, comparing Baseline (Left) and After 6 Days of Biophoton Therapy (Right). Visualization highlights change in brain function across multiple cortical regions using symbol-coded markers.

Visual Interpretation of the Brain Scans. Panel 1: Baseline. (1) The left hemisphere shows many teal diamonds, indicating underactive or suppressed regions—commonly associated with impaired blood flow, electrical activity, or metabolic function due to chronic stroke. (2) The right hemisphere is marked predominantly by purple-outlined red downward triangles, indicating dysfunctional or stressed regions, though less severely than the left side. Figure 4, Figure 5

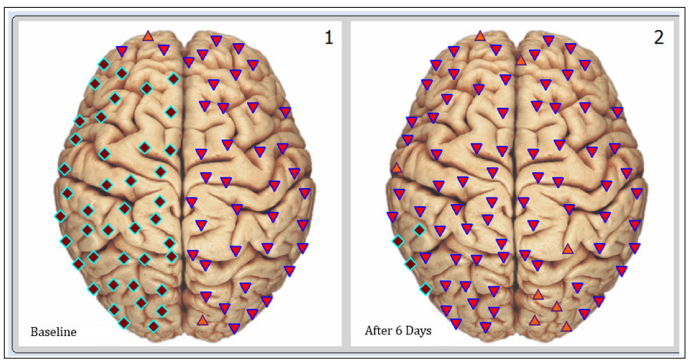

Figure 4: 3D Non-Linear Brain scans of a Chronic Stroke Patient taken before (left) and after 6 days of biophoton treatment (right). The pre-treatment scan shows widespread cortical suppression and energetic imbalance, particularly in the left hemisphere, as indicated by teal diamond markers. Post-treatment imaging reveals marked reactivation of suppressed regions, Reduced Biochemical Stress Indicators, and Improved Inter-Hemispheric Balance—Demonstrating Rapid Neuroenergetic Restoration associated with Biophoton Therapy.

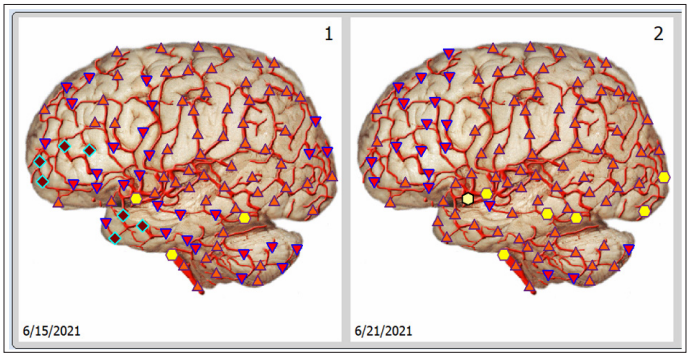

Figure 5: 3D Non-linear Scan of the Left Hemisphere of the Brain before (left) and 6 days after Biophoton Treatment (right) in a Chronic Stroke Patient. The Baseline scan reveals suppressed Cortical activity and regional Metabolic Dysfunction, as shown by teal diamonds and yellow Hexagons. After 6 days of Therapy, the scan demonstrates a clear reduction in suppressed zones, reorganization of bioenergetic activity, and restoration of cortical function—supporting the rapid Neuroregenerative Effects of Biophoton Exposure.

Panel 2: After 6 Days of Biophoton Therapy. (1) A striking reduction in teal diamonds is observed—only a few remain in the left posterior quadrant—suggesting a reversal of suppressed cortical activity. (2) The red/purple triangle markers now dominate both hemispheres more uniformly, indicating that the brain has re-engaged functionally across the cortex. (3) The symmetry between hemispheres has improved, which is a hallmark of recovery in stroke rehabilitation, reflecting restored inter-hemispheric communication.

Clinical Interpretation. The left hemisphere, which was significantly more compromised at Baseline (as seen by the teal markers), shows notable functional reactivation within just 6 days of biophoton exposure. (1) The overall shift from teal diamonds to red/purple triangles indicates a transition from cortical hypoactivation to more normalized, though still recovering, brain activity. (2) The enhanced hemispheric balance suggests improvement in functional integration, which is often linked to better motor control, speech processing, and memory recall—functions commonly impaired in chronic stroke patients.

These 3D non-linear brain scans visually confirm rapid neurofunctional recovery within 6 days of biophoton therapy in a chronic stroke patient. The reduction of hypoactive areas and restoration of cortical symmetry point to robust neuromodulatory effects, aligning with observed EEG and behavioral improvements. These findings support the hypothesis that biophoton therapy promotes cortical reactivation and neural repair in damaged brain tissue.

In summary, brain scans from two patients were performed using 3D-NLS before and after 6 days of biophoton therapy (Figures 4 and 5).
Key findings included:

- Reduction in Suppressed Cortical Regions: Teal diamond markers indicating underactive areas were significantly

reduced.

- Improved Hemispheric Symmetry: Enhanced functional balance between hemispheres, suggesting restored inter-hemispheric communication.
- Increased Bioelectrical Coherence: Improved cortical activation and reduced biochemical stress markers were visually evident within 6 days of therapy.

These scans provide visual confirmation of rapid neurofunctional reactivation consistent with EEG results.

Increased Meridian Energy Levels

Bio-Well analysis of 12 classical meridians revealed statistically significant energy increases after 4 weeks of therapy (Table 1): (1) 10 out of 12 meridians showed increased energy by Week 4. (2) 8 meridians reached statistical significance ($p < 0.05$), including the Heart, Spleen, Large Intestine, and Kidney pathways. (3) Improvements suggested enhanced cardiovascular, digestive, renal, and emotional balance support, correlating with clinical recovery. Table 1 is a summary of the meridian energy.

Table 1: Bioenergy levels of the 12 Meridians Impacted by Biophoton Generators

	Baseline	Week 2 (N = 9)			Week 4 (N = 9)		
Meridian (Joules ×0−2)	**Mean ± STD**	**Mean ± STD**	**T-statistic**	**P-value**	**Mean ± STD**	**T-statistic**	**P-value**
Yin of lungs	5.45 ± 1.43	5.72 ± 1.31	0.716	0.494	6.47 ± 0.48	2.202	0.059
Yang of large intestine	4.46 ± 1.25	5.19 ± 0.97	1.822	0.106	5.73 ± 0.42	3.531	0.008
Yang of stomach	4.06 ± 1.09	4.89 ± 1.24	2.408	0.043	5.40 ± 1.26	4.576	0.002
Yin of spleen	4.33 ± 1.49	5.07 ± 1.05	2.163	0.062	5.21 ± 1.18	3.791	0.005
Yin of heart	3.81 ± 0.89	4.50 ± 0.94	3.908	0.004	4.65 ± 0.41	3.305	0.011
Yang of small intestine	3.96 ± 1.22	4.73 ± 1.56	3.940	0.004	4.94 ± 0.80	4.057	0.004
Yang of bladder	6.26 ± 2.68	6.33 ± 1.43	0.129	0.900	6.80 ± 0.87	0.654	0.531
Yin of kidneys	5.07 ± 1.25	5.93 ± 1.54	3.121	0.014	6.13 ± 0.41	2.428	0.041
Yin of pericardium	3.62 ± 1.13	4.85 ± 1.05	3.856	0.005	4.90 ± 0.63	3.950	0.004
Yang of triple warmer	4.47 ± 1.37	5.07 ± 0.75	1.952	0.087	5.16 ± 0.81	2.384	0.044
Yang of gallbladder	4.28 ± 1.30	4.82 ± 1.15	1.183	0.271	5.26 ± 0.63	2.023	0.078
Yin of liver	6.55 ± 1.45	7.48 ± 1.18	2.266	0.053	7.18 ± 0.67	1.363	0.210

Clinical Implications: (1) Cardiovascular and Circulatory Support: *Heart and Pericardium* Yin meridians showed strong and sustained increases in energy, indicating enhanced energetic flow to the cardiovascular system—relevant for stroke recovery. (2) Digestive System Improvement: *Stomach, Spleen*, and *Large Intestine* meridians all improved significantly, suggesting support for nutrient assimilation and metabolism. (3) Renal and Detox Pathways: The *Kidney Yin* meridian, essential for energy reserves and recovery, was significantly enhanced. (4) Neurological and Emotional Balance: *Pericardium, Triple Warmer*, and *Heart* support reflects better autonomic and emotional regulation, likely translating to cognitive recovery and better mood in patients.

In summary, biophoton therapy using ABGs significantly boosted energy flow in nearly all primary meridians, with strong statistical support for improvement in heart, kidney, spleen, and digestive pathways by Week 4. These results provide energetic evidence for system-wide physiological restoration, in alignment with the observed cognitive and motor gains in chronic stroke patients.

Organ-Level Energy Enhancement

Bio-Well GDV scans showed increased energy in 85% of the 54 analyzed organs and systems after two weeks of therapy (Table 2).

Table 2: Bioenergy of All Systems and Organs Impacted by Biophoton Generators

Organ	Baseline	Week 2	Difference
	Energy, Joules ($\times 10^{-2}$)	Energy Joules ($\times 10^{-2}$)	Week 2 -Baseline
Entire body	**46.00**	**55.00**	**9.00**
Head	**3.65**	**4.71**	**1.06**
Eyes	3.78	3.35	−0.43
Ears, nose, maxillary sinus	3.56	3.78	0.22
Jaw, teeth	4.26	4.12	−0.14
Cerebral zone (cortex)	3.57	3.76	0.19
Cerebral zone (vessels)	3.08	4.94	1.86
Hypothalamus	3.86	6.53	2.67
Epiphysis	3.07	5.27	2.20
Pituitary gland	4.01	6.19	2.18
Cardiovascular system	4.15	5.99	1.84
Cardiovascular system	5.06	7.78	2.72
Heart	4.48	5.56	1.08
Cerebral zone (vessels)	3.08	4.94	1.86
Coronary vessels	3.98	5.70	1.72
Respiratory system	6.23	6.37	0.14
Throat, larynx, trachea	7.54	6.98	−0.56
Respiratory system	7.54	7.61	0.07
Thorax zone	3.61	4.52	0.91
Endocrine system	4.59	5.96	1.37
Hypothalamus	3.86	6.53	2.67
Epiphysis	3.07	5.27	2.20
Pituitary gland	4.01	6.19	2.18
Thyroid gland	5.80	6.48	0.68
Pancreas	4.84	5.81	0.97
Adrenal glands	5.78	5.78	0.00
Spleen	4.78	5.67	0.89
Musculoskeletal system	4.32	5.49	1.17
Spine, cervical zone	3.08	4.08	1.00
Spine, thorax zone	2.99	3.59	0.60
Spine, lumbar zone	3.86	4.79	0.93
Sacrum	5.35	6.98	1.63
Coccyx, pelvis minor zone	6.34	8.02	1.68
Digestive system	4.60	5.50	0.90
Colon, descending	2.32	4.00	1.68
Colon, sigmoid	3.33	5.73	2.40
Rectum	5.25	7.64	2.39
Colon, ascending	4.40	4.39	−0.01
Colon, transverse	3.06	4.21	1.15
Duodenum	3.90	5.63	1.73
Ileum	3.97	5.33	1.36
Jejunum	4.40	5.87	1.47
Liver	6.53	6.57	0.04
Pancreas	4.84	5.81	0.97
Gallbladder	5.19	4.76	−0.43
Appendix	4.69	4.80	0.11

Abdominal zone	4.94	4.85	−0.09
Urogenital system	6.00	6.86	0.86
Urogenital system	6.34	6.41	0.07
Kidneys	5.74	6.64	0.90
Prostate	5.94	7.52	1.58
Nervous system	4.44	6.34	1.90
Immune system	4.39	4.10	−0.29

Key Observations:

- Total Body Energy: Increased by 19.6% (from 46.00 to 55.00 Joules $\times 10^{-2}$).
- Brain and Nervous System: Energy in cerebral vessels (+1.86), hypothalamus (+2.67), pituitary (+2.18), and overall nervous system (+1.90) significantly improved.
- Cardiovascular and Digestive Systems: Coronary vessels (+1.72), colon (+1.68 to +2.40), and pancreas (+0.97) showed meaningful gains.

These organ-level changes reflect systemic bioenergetic restoration relevant to stroke rehabilitation.

Confirmatory Clinical Trial Findings

In a randomized, double-blind, placebo-controlled study, 46 chronic stroke patients received either placebo or ABG treatment for 2 weeks, after which placebo participants crossed over into the active treatment arm. Their demographics information is provided in Table 3. Key findings (Figure 6):

Table 3: Demographics of Chronic Stroke Study Participants

	Control	Treatment
Age	63	68
Total participants	17	26
Female	8	12
Male	9	14
Ischemic stroke	12	24
Hemorrhagic stroke	5	2
Mean duration after last stroke (years)*	5.6	2.7
Shortest duration after last stroke (years)	0.8	0.6
Longest duration after last stroke (years)*	24	14

- SIS Scores: Improved significantly by Week 2 in the treatment group ($p < 0.05$) but remained unchanged in the placebo group. After crossover, the former placebo group also showed significant improvement.
- Stroke Recovery Rate: Significant gains were detected as early as Week 1 in the treatment group. No improvement occurred in the placebo group until crossover (Figure 6D).
- SF-36 Scores and Energy Levels: Significant improvements in quality of life, energy, and pain levels were seen by Week 2 in the treatment group ($p < 0.05$), with further gains by Week 4.
- Neurological Exams: The treatment group showed weekly improvements starting in Week

1. Placebo participants showed no change until receiving active treatment.

Throughout the trial, no adverse events were reported, reaffirming the safety profile of ABG therapy.

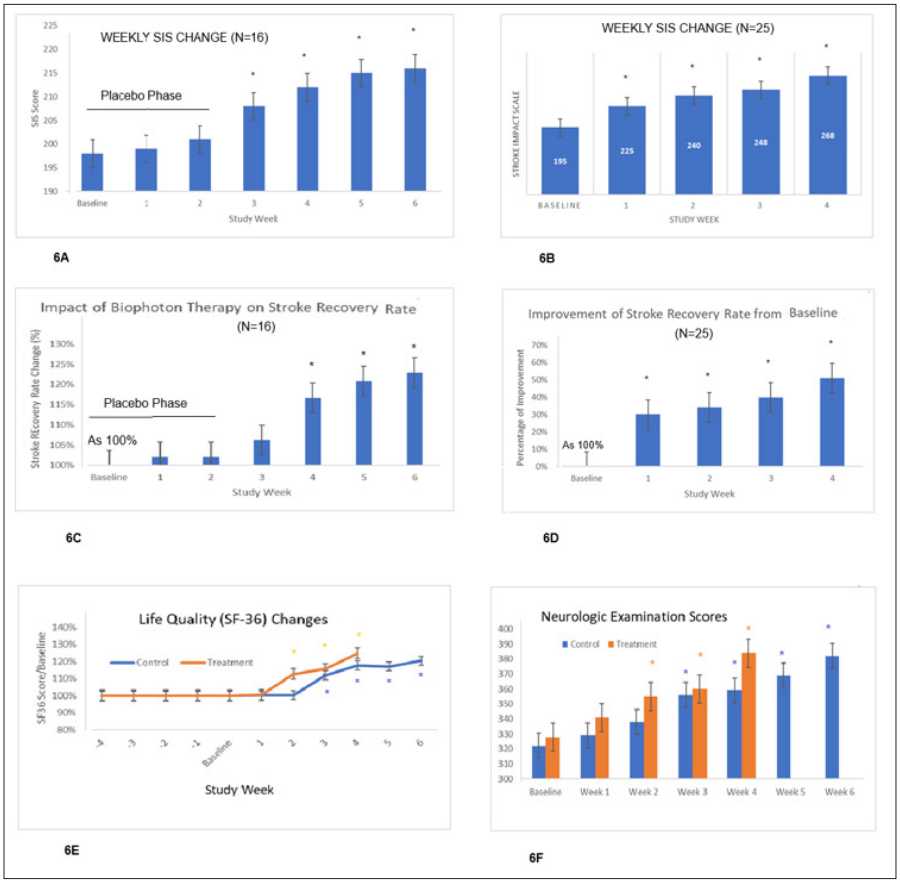

Figure 6: Clinical outcomes from the Confirmatory Clinical study evaluating biophoton therapy in patients with chronic stroke. Multiple validated outcome measures, including functional recovery, neurological assessment, and quality-of-life scores—demonstrated statistically significant improvements over the treatment period. These findings confirm and extend the results observed in the pilot study, supporting the reproducibility and therapeutic potential of biophoton therapy in stroke rehabilitation.

Discussion

Clinical Benefits of Biophoton Therapy in Chronic Stroke

The results from both pilot and confirmatory clinical studies provide compelling evidence that biophoton therapy using Automatic Biophoton Generators (ABGs) leads to significant functional recovery in chronic stroke patients. Improvements were consistently observed in Stroke Impact Scale (SIS) scores, SF-36 quality-of-life indices, and neurological examinations. Importantly, these gains occurred in individuals with long-standing disabilities, a population often excluded from conventional rehabilitation programs due to limited expected benefit.

After four weeks of ABG therapy, patients demonstrated statistically and clinically meaningful gains across all eight SIS domains, including motor, cognitive, and psychosocial functions. These changes translated into increased independence and reduced caregiver burden. Notably, the control group experienced no improvements during the placebo phase but demonstrated significant recovery once switched to active treatment, indicating the specific and rapid efficacy of biophoton exposure.

Stroke and the Need for Regenerative Therapies

Stroke remains a leading cause of long-term disability, and few therapies exist that can reverse neural damage after the acute phase. Most interventions manage symptoms rather than stimulate recovery. Photobiomodulation, particularly strong biophoton generators, have emerged as a promising strategy for neurorehabilitation, shown to improve cerebral blood flow, reduce inflammation, and support tissue repair mechanisms [5-19, 31-40].

The rapid improvement observed in this study suggests that biophoton therapy promotes neuroplasticity and reactivation of suppressed cortical regions. This aligns with prior reports indicating that non-invasive light-based interventions can restore brain function and improve clinical outcomes, even years post-stroke or traumatic brain injury [16, 17].

Unique Characteristics of the Biophoton Generators

ABGs emit high-density longitudinal biophotons, also known as scalar or Tesla waves, which differ from conventional transverse electromagnetic waves (31, 32). These biophotons can penetrate metal barriers and do not require an external power source. Each ABG emits over 8.2 million photons—more than four times the number naturally emitted by the human body (31). Independent studies have confirmed these emissions last for years and possess torsional field properties that affect cellular systems throughout the body [31].

The 3D biophoton field generated by ABGs creates an environment that supports ongoing self-repair, neuroactivation, and systemic rebalancing. Because the field extends across the entire bed, both patients and caregivers benefit simultaneously—a unique advantage for those managing long-term disabilities.

Mechanisms of Action: Molecular and Cellular Levels

Biophoton therapy appears to exert its therapeutic effects through several interconnected biological mechanisms:

- Anti-inflammatory Activity: Light-based therapies, including biophoton exposure, reduce neuroinflammation and oxidative

stress—both of which contribute to neural damage in chronic stroke [20, 21].
- Synaptic Plasticity: Biophotons improve cell-to-cell communication and synaptic transmission, facilitating the reorganization of neural networks [22, 23].
- Mitochondrial Activation: By enhancing ATP production, biophotons improve cellular energy metabolism and support regeneration of neurons and glial cells [12, 27].
- Stem Cell Stimulation: Biophotons have been shown to activate endogenous stem cells and promote neurogenesis, offering a pathway to structural repair [1, 29].

These mechanisms are consistent with observed improvements in EEG parameters, ERP latencies, motor performance, and bioenergy levels in brain and cardiovascular tissues.

Energetic Effects on Meridians and Organs

Biophoton therapy significantly increased energy flow across the 12 classical meridians, especially in the Heart, Pericardium, Spleen, and Kidney pathways. These meridians are traditionally associated with cardiovascular and neurological health and are often targeted in acupuncture-based stroke therapy [10, 11]. The improvement in meridian energy is consistent with findings from photobiomodulation studies showing improved autonomic regulation and organ coherence [24, 25].

Bio-Well analysis further demonstrated significant energy increases in cerebral vessels, the hypothalamus-pituitary axis, and the spinal cord. These findings indicate improved neurovascular coupling and endocrine support—both critical to long-term stroke recovery [12, 21].

Quantum-Level Mechanisms

Recent research suggests that neurodegenerative disorders may involve reduced coherence in biophoton signaling and intracellular communication [1, 17, 18]. Biophoton therapy addresses these disruptions by restoring quantum coherence, improving electromagnetic alignment across cells, and facilitating more efficient biological signaling [13-18].

Though a direct causal relationship between biophoton dysfunction and neurodegeneration remains under investigation, the strong therapeutic outcomes observed in this and other studies suggest that biophoton deficiency may be a contributing factor to chronic diseases. As in functional medicine, when treatment relieves symptoms, it also offers diagnostic insight into the underlying condition [16, 20, 21].

Advantages Over Conventional Therapies

Biophoton therapy provides several unique benefits compared to conventional stroke treatments:
- Non-invasive and Safe: No drugs, injections, or surgeries are required, reducing risk and side effects.
- Whole-Body Regeneration: The biophoton field stimulates the brain, organs, muscles, and immune system simultaneously [12, 14].
- Home-Based Convenience: The passive therapy can be administered during sleep, enhancing adherence.
- Energetic Recovery: The treatment recharges energetic systems, including meridians and chakras, enabling comprehensive rehabilitation [22, 25].
- Dual User Impact: Caregivers sharing the biophoton field often report increased vitality, improving their capacity to assist the patient [13].

Broader Therapeutic Potential

Beyond stroke, biophoton therapy has demonstrated early success in treating numerous chronic conditions, including Alzheimer's disease, Parkinson's disease, traumatic brain injury, arthritis, diabetes, and chronic fatigue. Its ability to energize tissues, regulate immune function, and improve mitochondrial performance supports its potential as a broad-spectrum therapy for age-related and degenerative diseases (31-40).

ABG therapy may also complement traditional modalities such as acupuncture, light therapy, and physical rehabilitation. Biophotons likely enhance nitric oxide production and cerebral blood flow, reduce inflammation, and promote removal of neurotoxic waste like beta-amyloid [27, 28].

Conclusion and Future Directions

Biophoton therapy represents a transformative, non-invasive approach to chronic stroke recovery. Supported by objective neurophysiological data (EEG, ERP), imaging (3D-NLS), and energetic mapping (Bio-Well), ABG therapy offers a new paradigm for regenerative neuromodulation. The absence of adverse effects and consistent patient-reported benefits position it as a safe and scalable option.

Future research should focus on large-scale trials, identification of biophoton biomarkers, quantification of quantum coherence, and synergistic use with existing neurological therapies. With continued validation, biophoton quantum therapy may become a foundational modality in the future of integrative, energy-based medicine.

Competing Interests

Tesla BioHealing, Inc., provided the biophoton generators used in this case study and approved the study design, but did not influence data collection, analysis, or using the original medical data for writing the manuscript. JZL and HYG are co-inventors and co-founders of Tesla BioHealing, Inc.

Data and Materials Availability

All data are available in the main text or the supplementary materials. The datasets generated and analyzed during the current study are available from the corresponding author on reasonable requests after signing Materials Transfer Agreements (MTAs).

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Author contributions

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