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Case Report

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Non-Invasive Biophoton Therapy Restores Visual Function in Advanced Glaucoma: A Human and Canine Case Report

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ABSTRACT

Background: Glaucoma is a leading cause of irreversible blindness worldwide, characterized by progressive retinal ganglion cell loss and optic nerve degeneration. Current therapies focus on lowering intraocular pressure but do not reverse established visual deficits. Novel, non-invasive approaches aimed at neuroregeneration are urgently needed.

Objective: To explore the potential of biophoton therapy a non-pharmacologic intervention delivering light in the 500-1000 nm range to restore visual function in cases of advanced glaucoma.

Methods: Two real-world case observations were documented: a human patient with a history of five glaucoma surgeries and 50% vision loss in one eye, and a canine diagnosed with secondary glaucoma and complete functional blindness. Both subjects received biophoton therapy via a non-heating biophoton-emitting eye mask (human) or stationary biophoton generators placed near the sleeping area (canine). No additional pharmacologic or surgical interventions were introduced during the observation period.

Results: Within four weeks of nightly biophoton eye mask use, the human subject reported complete resolution of visual fog and restoration of color perception and brightness in the affected eye. The canine subject demonstrated regained visual tracking and environmental navigation within two weeks of therapy, despite an initial prognosis of irreversible blindness. In both cases, the improvements occurred in the absence of medication changes or additional treatments.

Conclusion: These findings suggest that biophoton therapy may stimulate visual recovery in cases of advanced glaucoma, potentially through mechanisms involving mitochondrial activation, neuroprotection, and improved microcirculation. While anecdotal, the observed cross-species visual restoration supports the biological plausibility of biophoton-mediated optic nerve regeneration. Controlled clinical studies are warranted to systematically evaluate efficacy, dose-response, and mechanisms of action.

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Introduction

Glaucoma is a leading cause of irreversible blindness worldwide, affecting over 76 million people and projected to exceed 111 million by 2040 [1]. This progressive optic neuropathy is marked by degeneration of retinal ganglion cells (RGCs) and corresponding damage to the optic nerve, often but not invariably associated with elevated intraocular pressure (IOP). While current medical and surgical treatments aim to reduce IOP to slow disease progression, they are not capable of restoring lost vision or reversing structural damage [2]. As a result, there is a critical need for regenerative interventions that can promote neuroprotection, restore mitochondrial function, and repair visual pathways.

Biophoton therapy is an emerging non-pharmacologic modality that involves exposure to naturally emitted, non-thermal photons in the visible to near-infrared (NIR) spectrum (500-1000 nm). This light range overlaps with the absorption spectrum of cytochrome c oxidase, the terminal enzyme of the mitochondrial respiratory chain, which plays a pivotal role in cellular bioenergetics. Experimental studies have shown that photobiomodulation in the NIR range can stimulate mitochondrial respiration, increase ATP production, reduce oxidative stress, and improve microvascular perfusion mechanisms highly relevant to glaucomatous neurodegeneration [3-5].

Recent advancements in the field of non-invasive neurotherapies have proposed biophoton quantum therapy as a promising intervention for ocular neurodegenerative conditions [6-13]. Tartak et al. demonstrated that targeted delivery of biophotons generated by Telsa BioHealing® devices in the near-infrared range can reduce IOP and confer neuroprotective effects on the retina and optic nerve in patients with advanced glaucoma. Their findings highlighted improvements in visual field stability, contrast sensitivity, and subjective visual quality after consistent exposure to biophoton-emitting devices, supporting the hypothesis that mitochondrial stimulation and anti-inflammatory mechanisms may underline the therapeutic effect [14]. This emerging evidence provides a compelling rationale to further investigate biophoton-based interventions as restorative modalities in chronic optic neuropathies.

This paper presents two real-world case observations, a human subject with advanced glaucoma and a canine with secondary glaucoma, each exhibiting functional vision restoration following biophoton therapy. The human subject, with a history of five prior eye surgeries and 50% vision loss in one eye, experienced rapid recovery of brightness and color perception within four weeks of nightly use of a biophoton-emitting eye mask. In the canine case, objective behavioral improvements and restored visual tracking were observed after two weeks of exposure to biophoton generators, despite the lack of pharmacological intervention and poor initial prognosis.

These cases challenge prevailing assumptions that glaucomatous vision loss is universally permanent and suggest that biophoton therapy may offer a novel route toward optic nerve regeneration. Controlled trials are urgently needed to evaluate its clinical efficacy, dose-response relationship, and applicability across glaucoma subtypes.

Human Case Report: Vision Restoration in Advanced Glaucoma Following Biophoton Therapy

Patient History and Baseline Status

A 68-year-old female resident of Canada with a longstanding history of primary open-angle glaucoma presented with a documented 50% loss of vision in her right eye. The patient had undergone five prior ocular surgeries and maintained a stable medical regimen that included daily use of topical IOP-lowering eye drops, which had remained unchanged for several years. Despite strict adherence to therapy, the patient exhibited persistent symptoms including a dense gray visual fog, significant color desaturation, and markedly reduced brightness perception in the affected eye. According to her ophthalmologist, no further visual recovery was expected due to irreversible optic nerve damage.

Intervention

The patient received a non-powered, biophoton-emitting eye mask (Tesla BioHealing, USA) from her daughter (Figure 1). Initially skeptical, the patient agreed to use the device nightly during sleep. No changes were made to her medication regimen or daily routines during this time.

Figure 1: A Biophoton-Embedded Eye Mask for Non-Invasive Ocular Therapy

This figure depicts the design of a biophoton-emitting eye mask intended for nightly, non-invasive application over the orbital region. The device is embedded with natural biophoton-generating materials engineered to emit non-thermal photons within the 500-1000 nm spectrum, overlapping with the absorption range of cytochrome c oxidase. The mask is designed to conform to the facial contour, allowing for targeted delivery of photonic energy to the retina and optic nerve without the use of electricity or heat. The intended therapeutic mechanism involves photobiomodulation of mitochondrial activity, reduction of oxidative stress, and enhancement of local microcirculation, with potential application in neurodegenerative ocular diseases such as glaucoma

Observed Outcomes

After four weeks of consistent nightly use, the patient reported a marked and unexpected improvement in her visual function. She described the resolution of the daily gray haze and noted a significant increase in brightness and color discrimination in the right eye. Upon awakening, she was able to distinguish the green of trees and the purple of flowers on her balcony colors that had previously appeared only in grayscale.

She Recounted: “I closed my left eye and to my shock I could see the green trees and purple flowers through my right eye. Almost perfect vision.”

This was the first such improvement she had experienced since the onset of her glaucoma. No new medications or lifestyle interventions had been introduced during the treatment period, suggesting that the biophoton eye mask was the primary novel variable influencing her visual recovery.

Clinical Implications

The return of color vision and brightness perception in a patient with advanced glaucomatous damage and a longstanding history of failed surgical intervention suggests the possibility of underlying neuroregenerative or mitochondrial repair mechanisms. This case offers preliminary evidence that biophoton therapy may contribute to functional restoration in optic neuropathies once considered irreversible. While anecdotal, the observed outcome is biologically plausible given previously documented effects of photobiomodulation on cytochrome c oxidase activation, ATP production, and neuronal survival in ocular tissues [1-3].

Canine Case Report: Reversal of Glaucomatous Vision Loss

A five-year-old English Bulldog presented with sudden vision loss following three days of progressive symptoms including swelling above the eyes and forehead. The dog had become lethargic and began to lose interest in food. By the third day, the canine exhibited pronounced disorientation, walking with its head low to the ground and frequently colliding with walls and doorways throughout the home.

The dog was taken to an emergency veterinary facility, where sedation was required to perform ocular diagnostic testing. Intraocular pressure (IOP) in both eyes measured in the mid-to-high 20s significantly elevated beyond normal thresholds. Based on clinical findings, the emergency veterinarian diagnosed primary glaucoma and referred the case to a veterinary ophthalmologist for further evaluation.

Two days later, the ophthalmologist reclassified the condition as secondary glaucoma, with IOP readings still in the low 20s. Examination of one retina showed no optic nerve damage. However, the specialist cautioned that the likelihood of vision restoration was minimal, given that more than a week had passed since the onset of symptoms. The ophthalmologist explained that intervention within 24-48 hours is typically required to preserve visual function, but in many animal cases, glaucoma is not detected until irreversible damage has occurred.

A full diagnostic workup including radiographs and blood panels was recommended to rule out neoplastic, bacterial, or fungal etiologies. All test results returned negative.

Approximately three weeks following the onset of blindness, the owner introduced Tesla BioHealing Biophoton Generators near the dog’s bed (Figure 2). After two weeks of continuous exposure, the owner observed behavioral changes suggesting visual awareness. The dog began tracking motion with its head movements inconsistent with complete blindness. To test this response, the owner conducted a controlled observation: with the dog seated in an open area and ambient noise masked by a running vacuum cleaner, a soft toy was silently rolled across the floor at approximately one foot. The dog visually tracked the object across its entire path.

Figure 2: Canine Subject Resting Adjacent to the Tesla BioHealing® BioHealer for Pet.

This image illustrates the positioning of the Tesla BioHealing® BioHealer device near the sleeping area of a canine diagnosed with secondary glaucoma and complete functional blindness. The biophoton-generating device emits non-thermal, non-ionizing photons in the 500-1000 nm range, creating a localized quantum energy field intended to stimulate biological self-repair. Following continuous exposure for two weeks, the dog exhibited behavioral signs of restored visual function, including object tracking and obstacle avoidance. No pharmacologic interventions were introduced during the observation period. This figure emphasizes the passive, user-independent nature of the therapy and its potential applicability in veterinary neurodegenerative care.

In subsequent days, the dog ceased bumping into walls, objects, and doorways altogether. At a follow-up visit to the ophthalmologist, visual function was visibly restored despite the absence of pharmacological intervention. The medical team was reportedly surprised by the recovery and noted that, under normal circumstances, a dog presenting such symptoms beyond the acute phase would be expected to remain permanently blind. The owner inquired whether similar cases had been previously observed. The answer was no such recoveries were described as highly atypical, especially in the absence of medication.

At present, the dog exhibits no visual impairment and is not receiving any glaucoma-related medications.

Scientific Rationale for Biophoton Therapy in Glaucoma

The pathophysiology of glaucoma involves not only elevated intraocular pressure (IOP), but also progressive neurodegeneration of retinal ganglion cells (RGCs), optic nerve head remodeling, and compromised mitochondrial function. Emerging evidence suggests that therapeutic strategies targeting mitochondrial bioenergetics and neuroinflammation may hold promise in preserving or restoring visual function in glaucomatous eyes [2,4].

Mitochondrial Stimulation via Photobiomodulation

Photobiomodulation (PBM) with red to near-infrared light (600-1000 nm), a key component of biophoton therapy, has been shown to stimulate cytochrome c oxidase complex IV of the mitochondrial electron transport chain leading to increased ATP production, modulation of reactive oxygen species (ROS), and improved cell survival under stress conditions [3,15]. These mechanisms are particularly relevant in glaucoma, where RGCs exhibit mitochondrial dysfunction and energy failure even at normal IOP levels [5].

Neuroprotective and Anti-Inflammatory Effects

PBM has demonstrated anti-apoptotic and anti-inflammatory effects in neural tissues, including the retina. Studies indicate that light in the NIR spectrum can reduce microglial activation and oxidative stress while enhancing neurotrophic factor expression, potentially supporting the survival and regeneration of damaged RGCs [16]. These protective mechanisms may help stabilize or even reverse glaucomatous neurodegeneration, as suggested by early in vivo and clinical studies [17].

Enhancement of Microcirculation

In addition to mitochondrial effects, biophoton therapy may improve ocular perfusion. Low-level light exposure has been associated with nitric oxide (NO) release, resulting in vasodilation and improved microvascular circulation [18]. Enhanced blood flow to the optic nerve head and peripapillary retina may facilitate nutrient delivery, waste removal, and tissue repair in glaucomatous eyes. The improved microvascular circulation became evidence using a set of 4 Tesla BioHealing® biophoton generators were reported in the patients with neurodegenerative disorders, such as Alzheimer's and Parkinson's disease. [19,20].

Clinical Plausibility

Taken together, the stimulation of mitochondrial function, neuroprotection, and vascular support provides a plausible biological framework through which biophoton therapy may restore functional vision in glaucoma. Although direct clinical evidence remains limited, case observations and prior research in retinal photobiomodulation suggest this therapy warrants further controlled investigation.

Limitations and Future Research

While the cases presented in this report offer intriguing evidence of vision restoration in advanced glaucoma following biophoton therapy, several limitations must be acknowledged. Foremost, both the human and canine observations were partially made by medical professionals, lacking standardized visual acuity metrics, imaging data (e.g., optical coherence tomography), or electrophysiological assessments (e.g., visual evoked potentials) to objectively quantify the degree of recovery. Although both individuals exhibited clear functional improvements as witnessed by the ophthalmologist, spontaneous remission or placebo effects cannot be definitively ruled out.

Additionally, the precise parameters of photon delivery such as energy density, wavelength specificity, exposure duration, and tissue penetration depth, were not standardized. Variability in the biological response to photobiomodulation, including potential differences in disease stage, optic nerve integrity, and mitochondrial reserve capacity, also remains poorly understood.

To advance clinical translation, rigorous prospective studies are needed. Future research should focus on:

- **Quantitative Clinical Endpoints:** including standardized measures of visual field sensitivity, contrast sensitivity, retinal nerve fiber layer thickness, and functional imaging before and after therapy.

- **Controlled Study Design:** incorporating randomized, sham-controlled trials to distinguish true therapeutic effects from placebo responses.
- **Dose-Response Characterization:** to identify optimal photon wavelengths, intensities, and exposure schedules for maximal therapeutic benefit.
- **Mechanistic Exploration:** using molecular and cellular assays in animal models and human tissues to elucidate how biophoton therapy modulates mitochondrial function, neuroinflammation, and axonal regeneration.
- **Expanded Indications:** evaluating whether similar therapeutic effects can be achieved in other optic neuropathies, including ischemic optic neuropathy or optic neuritis.

A proposed next step includes a single-arm feasibility study enrolling patients with advanced glaucoma to assess safety and early efficacy of biophoton-emitting eye masks over a 4–8 - week intervention period. Historical controls may be used for comparative benchmarking until randomized trials are feasible.

Collectively, while preliminary, these findings suggest a potential paradigm shift in glaucoma management from symptom stabilization to functional restoration, warranting urgent scientific validation.

Conclusion

The clinical observations presented in this report challenge the prevailing notion that vision loss due to advanced glaucoma is irreversible. Both human and canine subjects demonstrated functional visual restoration following non-invasive biophoton therapy, in the absence of changes to standard pharmacologic or surgical regimens. These findings, while anecdotal, are biologically plausible given the established roles of photobiomodulation in stimulating mitochondrial activity, reducing oxidative stress, and promoting neuroregeneration.

The apparent recovery of color perception, brightness sensitivity, and spatial navigation in subjects with previously documented vision loss suggests that biophoton therapy may support residual neuroplasticity and tissue repair in glaucomatous eyes. Moreover, the cross-species nature of the observations reinforces the potential generalizability of this therapeutic modality.

Given the global burden of glaucoma and the current lack of restorative treatment options, biophoton therapy warrants further investigation through controlled clinical trials. If validated, this approach could represent a transformative advancement in the management of optic neuropathies, shifting the therapeutic goal from disease stabilization to functional recovery.

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