

Photobiomodulation And The Aging Brain – How Can Near Infrared Light Impact Neurodegenerative Diseases?

As our population ages, healing neurodegenerative diseases such as Alzheimer's and Parkinson's are becoming a primary focus for researchers. Is photobiomodulation the treatment they're looking for?



Here's the good news: we're living longer. The [WHO](#) reports that global life expectancy "increased by more than six years between 2000 and 2019." Of the many reasons that this number is going up, advances in medicine [top the list](#).

Now, the bad news: while we know how to heal the body like never before in human history, longer life expectancy is exposing how little we understand about treating the mind.

The number of seniors living with neurodegenerative diseases like dementia is [projected to double every 20 years](#). A rise in cases of Parkinson's disease has become so unignorable that some researchers are considering it an "[epidemic](#)."

We can give modern medicine and healthcare its due—celebrating a sustained win on the topic of life expectancy—but we also have to recognize that the true victory comes when we're all living longer and keeping all our mental facilities strong until the very end.

This is one of the many reasons why we continue to hear about treatments such as photobiomodulation (PBM). While this emerging innovation is still undergoing research to determine the scope of its potential, there are early pieces of evidence that have both the medical and scientific community excited about what this technology offers the aging brain.

For over a decade, [Vielight Inc.](#) has been pioneering technology that can harness the power of PBM therapy at home. Founded by CEO Dr. Lew Lim, the company's Vielight Neuro represents one of the most advanced applications of PBM to date.

"The Neuro is a near infrared based device," explains Peter Adams, Vielight's VP of Business Development. "Originally, it

was pulsed at 10 Hz and then at 40, and we did some early Alzheimer's trials with that. Neuro was developed because near infrared is powerful enough to penetrate the brain, but it's not so powerful like infrared, where it would burn the skin. It's in that sweet spot. Since then, there have been hundreds of studies using near infrared pulse in the brain. Most of them are with Vielight. There are more studies with our technology than anybody else."

Seeing the early results and positive impact that PBM technology such as the Vielight Neuro is having on the brain—one wonders what potential this innovation has for the aging mind that suffers from neurodegenerative disease.

Ann Liebert, an Adjunct Senior Lecturer in The University of Sydney's Faculty of Medicine and Health, recently had a [study utilizing Neuro Gamma 3](#). Six of twelve participants underwent 12 weeks of PBM therapy, while the others waited 14 weeks before starting the same process. Later on, participants received the Vielight device and continued the therapy at home.

Liebert et al's results showed that "measures of mobility, cognition, dynamic balance and fine motor skill were significantly improved ($p < 0.05$) with PBM treatment for 12 weeks and up to one year." Amongst the group, individual results varied.

"We've seen everything from miracles to nothing," Adams says, citing that more research is needed to make the immense potential of this technology consistent when treating diseases like Parkinson's—for which we currently have no cure.

On the miracle side of things, Adams offers an anecdote about neurotechnology expert Penijean Gracefire, who wrote custom programs for Vielight's NeuroPro which were given to a psychologist in Ohio.

"He gave it to a lady who had Parkinson's for 19 years," Adam says. "After one treatment, she got up and all of her tremors had stopped."

While individual cases like these inspire hope, the real impact of PBM can only be properly measured in the form of published research.

One such [study](#) found that PBM treatment came with no adverse side effects and was "well tolerated" by participants, supporting "the potential of PBM therapy as a viable home treatment for individuals with dementia."

Vielight is currently undergoing a [pivotal clinical trial](#) involving Alzheimer's patients in both Canada and the United States. This is expected to involve 228 patients across 12 sites and should be considered a major milestone in the

research of at-home, PBM treatment for this neurodegenerative disease.

PBM technologies such as Vielight Neuro are designed to be lean, versatile, and easy to use, making them great candidates for aiding our aging population.

"Having devices where you have to go to a clinic for treatment doesn't solve the global problem," Adams says. "We need devices which are easy to use at home. That's always been our goal: everything we develop is battery-powered and rechargeable. You put it on, you press a button, and it turns off 20 minutes later. It has to be that simple—that's where we focused."

To do something about the rise of diseases such as Alzheimer's and Parkinson's, we need a treatment that doesn't just work—it has to be accessible. Companies like Vielight continue to develop a solution that meets both of these needs.

To see how [Vielight](#) is pioneering the field of photobiomodulation, visit their [website](#).