

Neurofeedback Therapy: *The Core of Clinical Psychoneurophysiology*

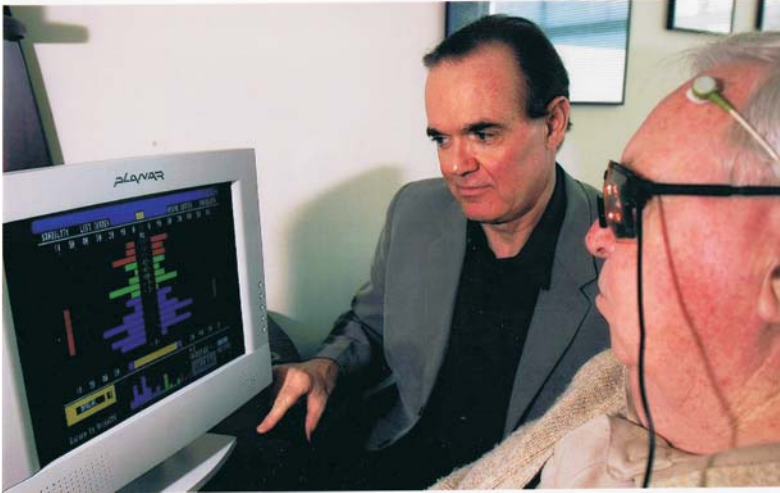


Photo: Debra Brash, Times Colonist/ Electrodes attached to his head allow stroke patient Jim Whelan to watch his own brain waves on a computer screen, while psychologist Dr. Brian MacLean helps him learn to manipulate them by thinking in different ways.

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Writer: Grania Litwin

Relaxing in a chair, wearing a serene smile and some outrageous sparkling goggles, Sharone McDonald listens to music and observes her own inner light show.

“I look like an alien,” she jokes, or an Elton John impersonator, but she doesn't care because the debilitating headaches she has suffered for 30 years suddenly stopped during her first “goggle” treatment three weeks ago.

“I used to get pressure headaches in the back of my head and temporal regions,” said the former operating room nurse who also has a degree in Ayurvedic medicine. “Not migraines, just bad headaches...brought on by constantly getting up very early, travelling, doing tense negotiations. Over the years I'd tried yoga, meditation, aromatherapy...nothing worked except Tylenol.”

When a doctor friend suggested Neurofeedback, the commercial realtor booked an appointment with Victoria psychologist, Brian MacLean, a specialist in brain-wave function and its relationship to health, at Aegis Psychological Services. He did a basic assessment, then slid some therapeutic goggles on her.

“Within minutes the dull pressure I'd felt for years went away totally. It was a complete surprise,” said McDonald, 57. “I now feel clear, focused, energetic, better coordinated. It's miraculous.”

“I've been looking for help for 20 years and found it in 20 minutes. It's extraordinary to think you can actually improve brain function,” she said, adding her sugar cravings have vanished and she has taken on about 80 per cent more work.

Dr. MacLean also finds the results “quite startling.”

Several of my patients are getting these effects with Neurofeedback,” said the expert who studied in New York, Miami, and Vienna before taking his Ph.D. in Ottawa.

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Biofeedback involves measuring a process such as skin temperature or blood pressure and relaying that data back to the subject, who

then tries to modify their behavior. It is a conscious process, like learning to ride a bicycle, where a person refines their balance until biking becomes easy and automatic. Neurofeedback, also known as EEG (Electroencephalograph) Biofeedback, works on the same principle and uses computerized psycho-technology to train the brain, and thus seeks to improve mental performance, normalize behavior, and stabilize mood.

When Dr. MacLean treats a client, he starts by attaching small sensors to their head. He then analyzes their brain waves and designs a protocol to boost ripples that need increasing, or lower rollers of too high amplitude. In the case of Attention

Deficit Disorder (ADD), for instance, there may be too many Alpha (slower, relaxation) waves in the frontal lobes and not enough Beta (high frequency, thinking) waves. The treatment is as fun as playing a video game and can be done by young or old alike. Subjects simply sit in front of a computer screen and experiment with thoughts and moods that alter their brain waves.

“Neurofeedback challenges the brain in the same way an exercise program challenges the body,” says Dr. MacLean, and as the brain becomes “fitter,” mental functioning improves. Many of his clients now include athletes and professionals interested in training for peak

Performance. He also treats children with ADD, adults who have had strokes, those suffering from depression, anxiety, sleep disorders, brain injury even those seeking spiritual growth. First attempted in the 1960's by Joe Kamiya at the University of Chicago, it was first used to condition brain waves and induce deep relaxation. Being the era of psychedelic trips, it was soon linked to dubious attempts at mind expansion, and a rash of unproved claims that damaged its reputation.

Yet some scientists had success even then, using it to treat patients with intractable seizures, and in 1989, Eugene Peniston of the Fort Lyon VA Medical Center undertook a landmark study of alcoholics who received Neurofeedback training in addition to the standard program. Five years after treatment, 70 per cent were still abstinent.

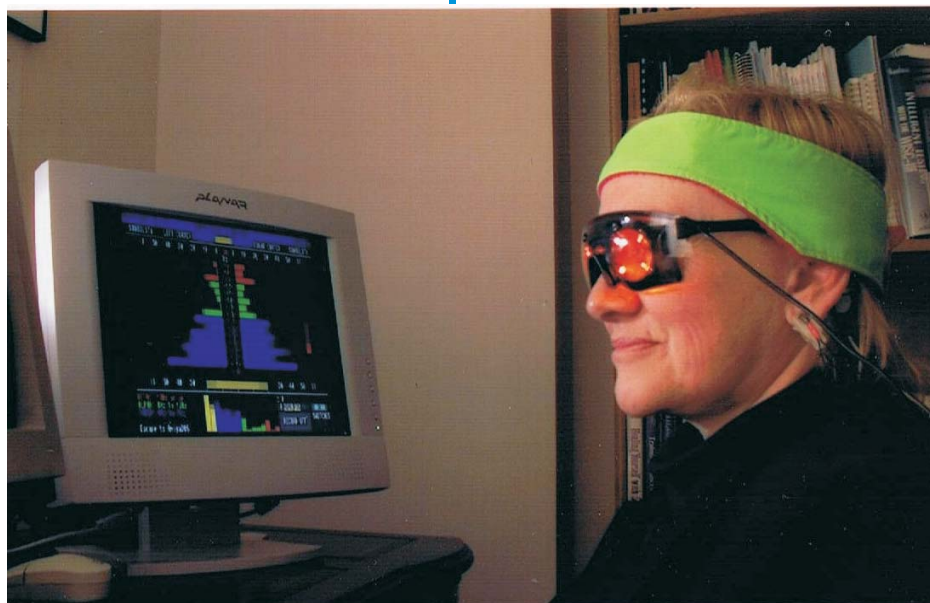
Dr. MacLean notes the science has moved a long way since then and universities such as Harvard Medical School are now doing brain mapping. Computers are more powerful today, software is “more elegant” and technology is advancing rapidly with innovations such as the Roshi goggles, which are so new, that Dr. MacLean just spent a month in the U.S. studying their use.

Designed to give patients a reflection of their brain waves in real time (i.e., instantaneously), the goggles hold up a mirror to the brain. The theory is that when the brain sees itself, it tries to move away from the image, thus dislodging the old brain wave patterns.

“Many patients with stress, anxiety, depression, or

traumatic brain injuries are stuck in certain patterns, so this can be very helpful.”

Dr. MacLean used the goggles on a Victoria woman with fibromyalgia who was so impressed. Danielle Strom, 37, says the therapy saved



“Neurofeedback therapy has helped me work more efficiently and be more focused.”

Sharone McDonald

her life and gave her hope. “The pain I had used to send me through the roof, but after wearing the goggles for 10 minutes I was pain-free for three hours. I now use them for 15 minutes twice a week, and 99 per cent of my pain is gone, about 75 per cent of the time. I would

absolutely recommend it to others.” She no longer takes pain, sleeping or anti-depressant pills and is going back to UVic to finish her degree. She still checks in with Dr. MacLean for brain mapping now and then, to ensure that changes are in the right direction, and that she is using proper frequencies for the goggles.

Dr. MacLean says, “There are reams of evidence and hundreds of studies showing the effectiveness of Neurofeedback.”

“When different parts of the brain don't work in concert, normal function is upset,” he explains. “And these functioning disturbances, or fragmentation, can result in a variety of problems ranging from physical pain to depression, learning difficulties, anxiety, addictions.”

But, can you defrag a brain the way you defrag a computer, to remove the fragmentation and speed operation? Dr. MacLean thinks so. “Studying brain

waves can instantly tell you about dysfunctional patterns and, once revealed, we can treat them.”

Dr. MacLean is currently working with an elderly stroke patient who has had about 60 sessions, and keeps coming because he enjoys them so much. “Brian has become a good friend,” says Jim Whelan, 77, a former chemical and electrical engineering professor at the University of Southern California, who retired here in 1994. “This is an entirely different branch of science than I am used to, but I'd like to see it progress. We are working on my cognitive function, trying to get the alpha waves down. When I am doing it right I have a sense of being very alert.”

Dr. MacLean points out that Neurofeedback also has advantages over medications used to treat disturbances such as hyperactivity or depression. “With Neurofeedback the results are long lasting, whereas when patients go off drugs, they are often right back to square one. And Neurofeedback has none of the side effects associated with psychostimulants.”

A professional Victoria man, who asked not to be identified, agrees. The 30-year-old Victoria lawyer, who was diagnosed with ADD eight years ago, was on the psychostimulant Dexedrine and anti-depressant Effexor for seven years. He told how he was able to wean himself off all medications after 28 sessions with Dr. MacLean last year.

Dr. MacLean, who spent a decade as a monastic Zen Buddhist, still practices Vipassana meditation and has also studied Shiatsu, Reiki, Cranio-Sacral Therapy, Thai Massage and Chinese Abdominal Massage.

Dr. MacLean sees Neurofeedback as the meeting place of body and mind.