BRAIN PHOTOBIOMODULATION MACHINE

It can effectively treat traumatic diseases, degenerative diseases, and mental diseases, improve microcirculation, increase blood flow, reduce inflammation, etc.

Stroke

Alzheimer's Disease

Parkinson

Mental Illness

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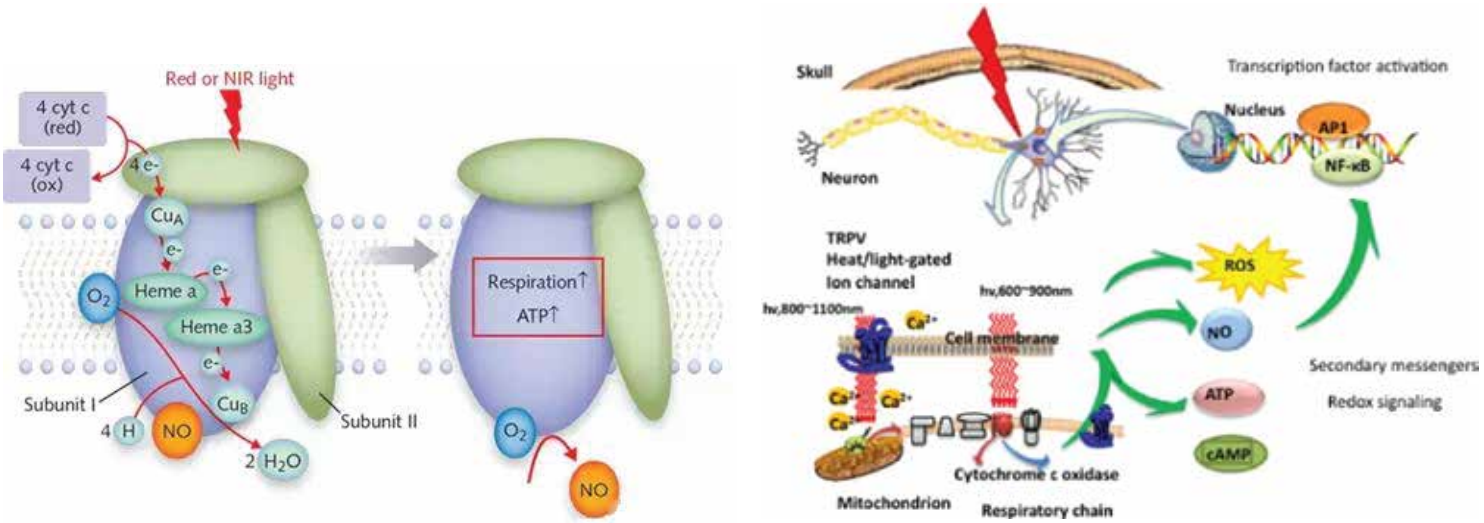
$ 2,695.00

BEST PRICE

What is Photobiomodulation?

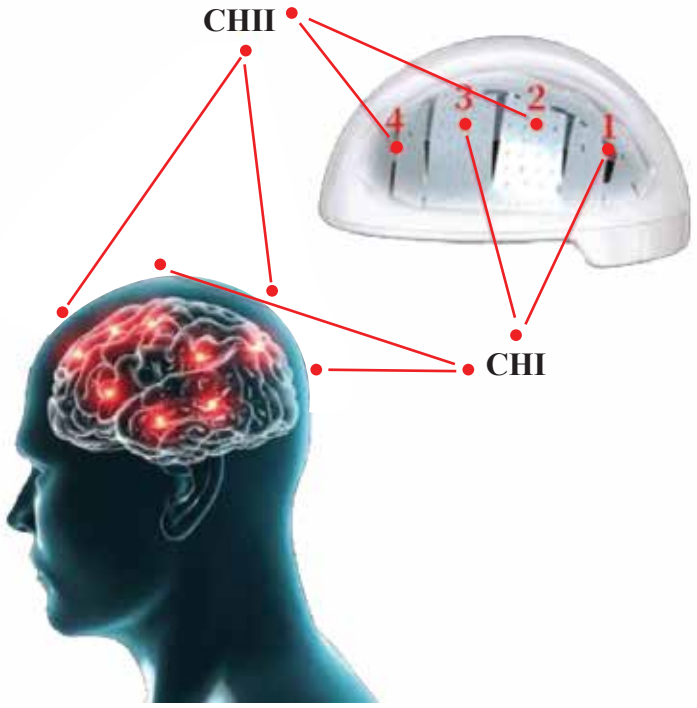
Photobiomodulation (PBM) describes the use of red or near-infrared light to stimulate, heal, regenerate, and protect tissue that has either been injured, is degenerating, or else is at risk of dying. One of the organ systems of the human body that is most necessary to life, and whose optimum functioning is most worried about by humankind in general, is the brain.
The brain suffers from many different disorders that can be classified into three broad groupings: traumatic events (stroke, traumatic brain injury, and global ischemia), degenerative diseases (dementia, Alzheimer's, and Parkinson's), and psychiatric disorders (depression, anxiety, post-traumatic stress disorder). There is some evidence that all these seemingly diverse conditions can be beneficially affected by applying light to the head. There is even the possibility that PBM could be used for cognitive enhancement in normal healthy people.
810nm near-infrared light can penetrate the scalp and skull. Transcranial LEDs from the near-infrared spectrum have been shown to provide anti-inflammatory and antioxidant effects. Heat shock proteins can also be added to prevent protein misfolding and unwanted synthesis; Has the potential to increase neuron regeneration and synaptic regeneration.

Principle



Cytochrome C oxidase (CCO, also known as complex IV) is a specific structure in mitochondria that ACTS as a photon receptor and thus plays the PBM effect.PBM prevents respiratory inhibition (and correspondingly reduces energy storage) in stress cells by isolating nitric oxide (NO) and reversing the shift of oxygen in cytochrome Coxidase. This triggers transcription factors that alter gene expression levels. The binding of nitric oxide (NO) to copper (or heme) centers in the mitochondrial cytochrome C oxidase (CCO) inhibits cell respiration. But cytochrome C oxidase, which absorbs red or near-infrared (NIR) light, dissociates nitric oxide, restoring oxygen, increasing cellular respiration, and forming adenosine triphosphate (ATP). This triggers a cascade of intracellular reactions involving nitric oxide, reactive oxygen species (ROS), and cyclic adenosine phosphate (cAMP) that produce beneficial effects of PBM.

Main Function

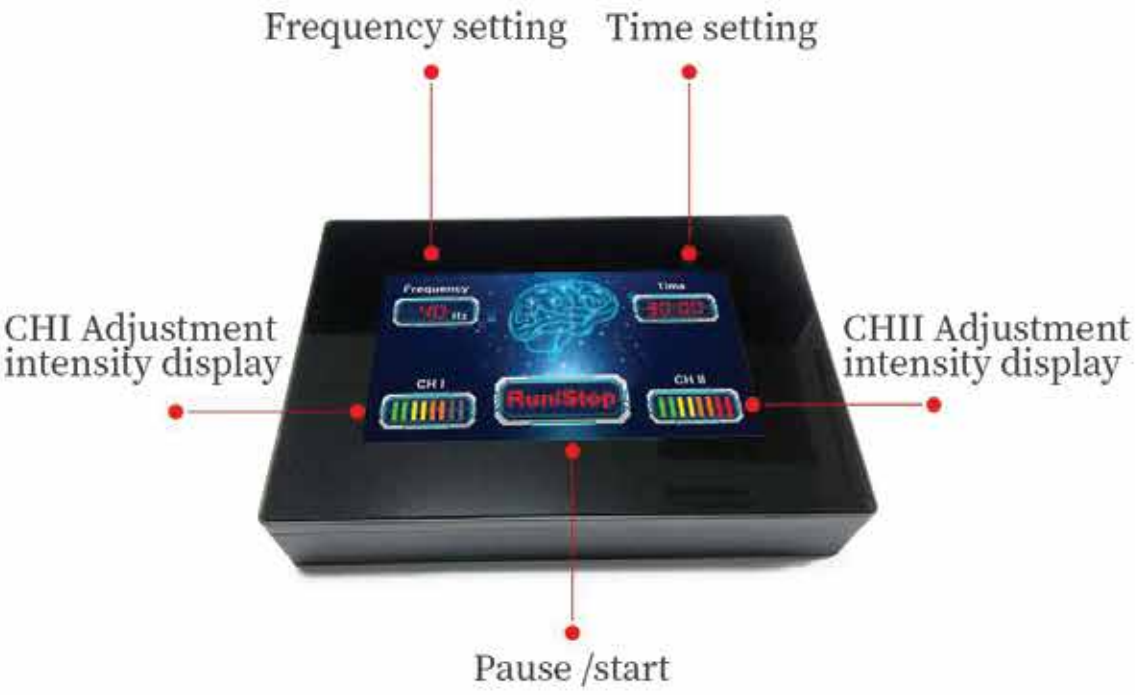


- Open heat-gated ion channels and modulate the transcription factors
- Improves cytochrome c oxidase function in mitochondria
- Enhance neuroprotective proteins and growth factors
- Increases active oxygen content inside the brain
- Promotes cerebral ATP energy production
- Accelerate intracranial blood flow

Parameters

Name	Brain Photobiomodulation Helmet		
Model	GY-PDT1	**Wavelength**	810 nm
Led Quantity	256 pcs	**Power(Each LED)**	50 mW
Output Power	15 W	**LED Frequency**	1 - 20000 Hz
Input Voltage	100 - 240 V	**Work Voltage**	5V - 6V
Input Current	800 mA	**Certificate**	CE, FDA
Function	Two channel independently control Time/Power/Frequency adjustable	**OEM ODM**	Support

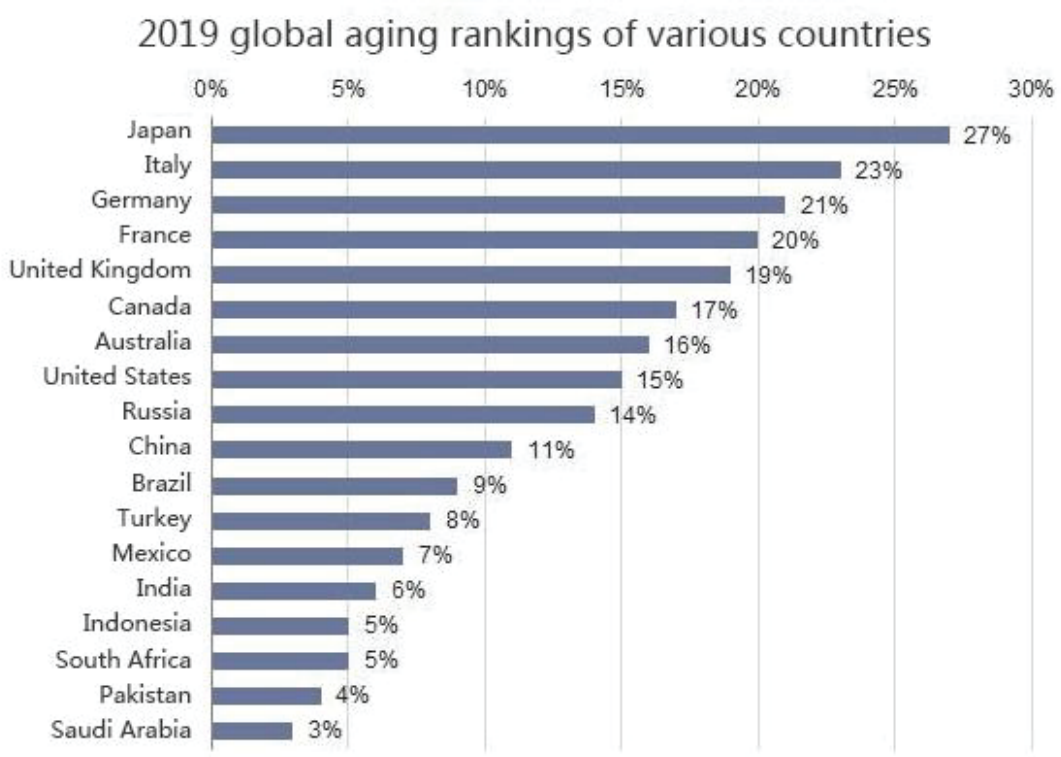

Main machine
Handbag
Stabilizer
power cable
Controller
Control line
Sponge pad

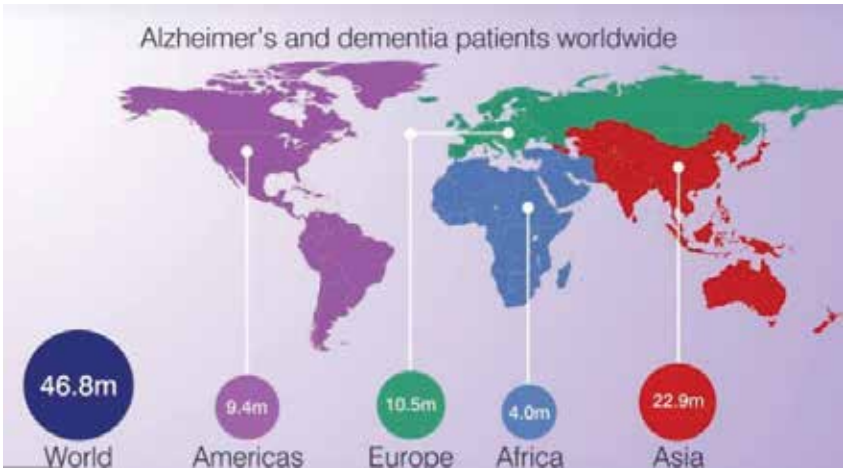

Frequency setting
Time setting
CHI Adjustment intensity display
CHII Adjustment intensity display
Run/Stop
Pause /start

Product Comparison

Name	PBM Brain Treatment Helmet	Neuro Brain PBM Device	(PBM) Console Light System
Picture			
Shape	Full head covering	Open-Type	Open-Type without fixation
LED System	256 pcs LED, 4 Layers FPC	4 LED modules	1 Led Probe
Frequency	1 - 20000 Hz adjustable	Preset 10 Hz, 40 Hz	Preset specific Hz
Wevelength	Infrared 810nm	Infrared 810nm	Infrared 870 nm and visible Red 633nm
Main Accessories	1 Host Helmet Machine 1 Controller	1 Transcranial Headset, 1 Intran-asal applicator	1 Console 1 Handheld laser
Laser Output	15W	Low Power range regulated	450 mW
Treatment Time	0 - 30 min adjustable	Auto off time 20 min	/
Other	Two channel which can control the pwoer (0%, 25%, 50%, 100%) of two areas indepen-dently	/	/

Potential Market





Parkinson's and Alzheimer's are the leading brain degenerative diseases in the elderly. Currently, there are more than 46 million Alzheimer's and dementia patients and about 10 million Parkinson's disease patients worldwide.

Those who suffered from traumatic events (stroke, traumatic brain injury, and global ischemia) and psychiatric disorders (depression, anxiety, post-traumatic stress disorder) also have a huge number.

These kinds of brain diseases can have a huge impact on a family physically, mentally, and financially. The cost of one patient's caregiver per month is very huge, and the potential market for this device is tremendous.

Experiment we do

One of the experiments cooperate with the Complementary and Integrative Laser Medicine, Biomedical Engineering in Anesthesia and Intensive Care Medicine, Medical University.

Showed a clear response of cerebral rSO2 in relation to the our PBM helmet stimulation.
December, 2018

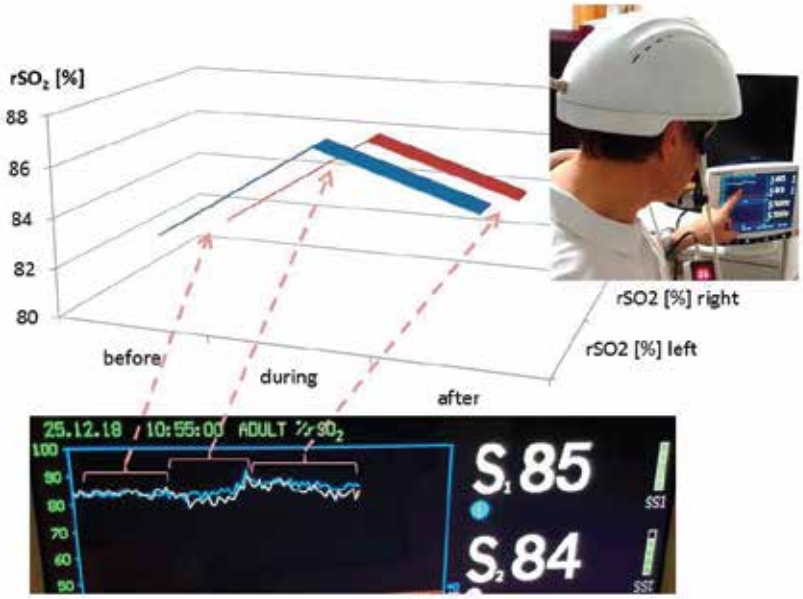


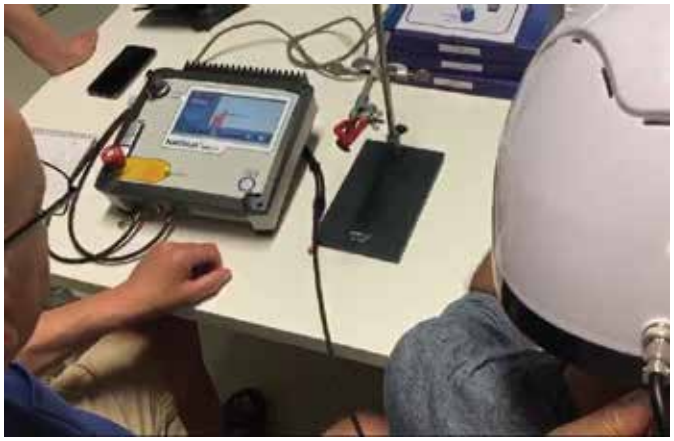
Figure 1:
Results of the increase in the regional cerebral oxygen saturation during and after stimulation on the left and right side.

Figure 2:
Results from thermal imaging of the first pilot measurement using the new stimulation helmet. Note the increase in temperature on the helmet (upper row; a before, b during, and c after stimulation) on the forehead (middle row; d–f) and on the chin (lower row; g–i)

One of the experiments cooperate with the German Healthcare field organization

Showed a clear response of NADH reduction, which means the increasing of ATP in relation to our PBM helmet stimulation.

May, 2019



NAD: Coenzyme to control the energy metabolism

The cell needs energy to maintain its vital functions and to provide its functional performance. NAD (nicotinamide adenine dinucleotide) is the molecular control system of the energy metabolism of the cell. It is involved in numerous redox reactions of the cell metabolism. NAD^+ can be reduced to NADH (= energy rich) by the uptake of two electrons and one proton (H^+). This is the switch function between aerobic and anaerobic glycolysis.

There are two alternative ways of energy supply for the cell. The decision which one of the two ways is taken depends on the energy demand and the availability of the fuel glucose and oxygen and is taken by NAD.

Option 1: **aerobic glycolysis**

Combustion of glucose under oxygen supply in the citrate cycle and biological oxidation in the mitochondria:

energy efficiency: 100% **degradation product: CO_2 and H_2O**

control enzym: NAD ↑ NADH ↓

Option 2: **anaerobic glycolysis**

Combustion of glucose without oxygen supply:

energy efficiency: 25% **degradation product: lactate ↑**

control enzym: NAD ↓ NADH ↑

Lactate leads to a reduction of the pH value in the cytoplasm and thereby to a change of the protein structures (denaturation). This means stress for the cell and leads to cell damage.

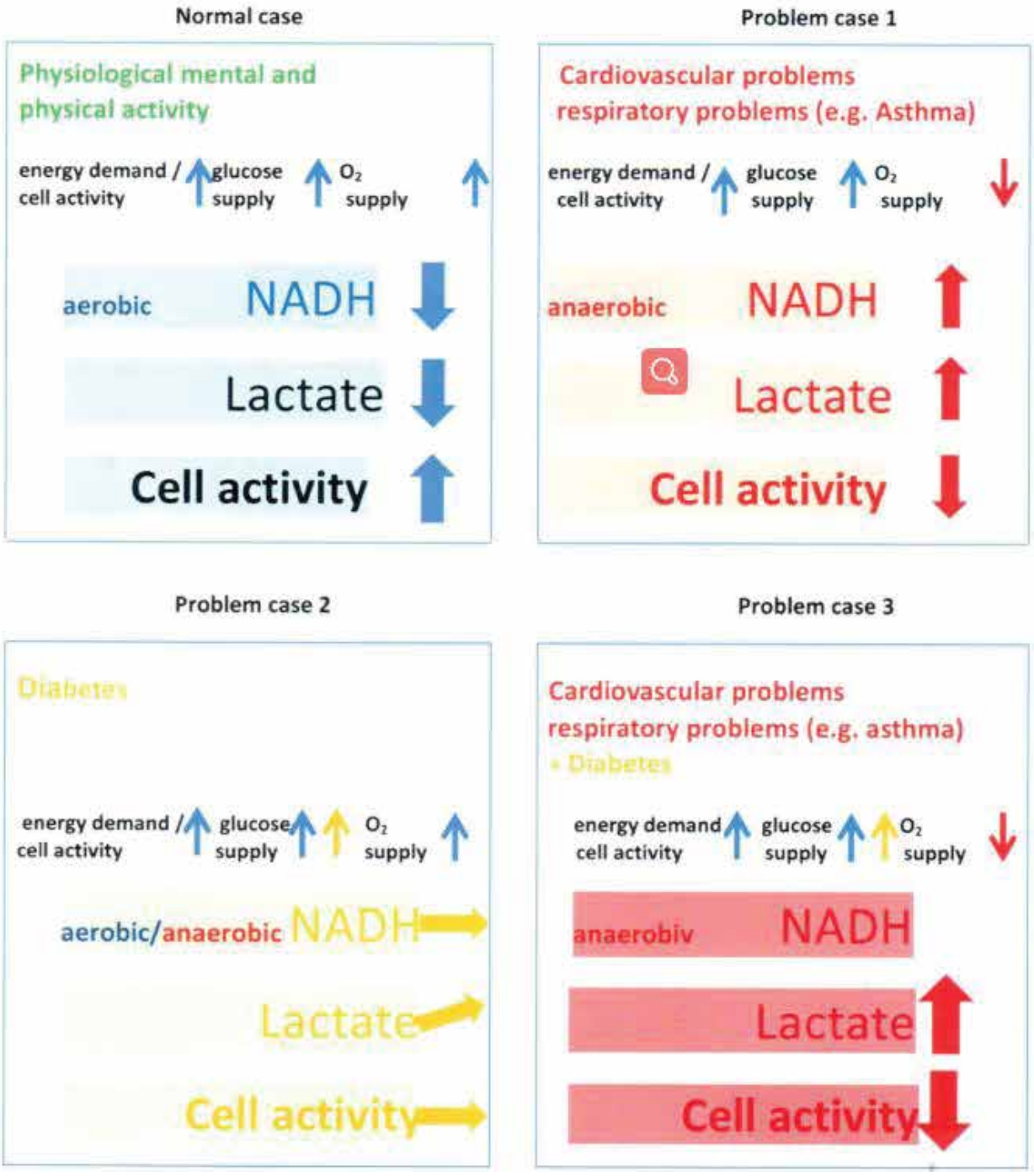
A permanent measurement of the NADH level in the cell is essential for monitoring the stress level of the cell and in particular for:

- intense stress with high energy demand, e.g. sport
- lack of O_2 supply, e.g. asthma or cardiovascular diseases
- cell damage (especially mitochondria), e.g. by toxins

With the device NADHJA * it is for the first time possible to measure NADH continuously, invasively or non-invasively, in real time and by laser induction of the photon emission (autofluorescence) .

Lactate can only be measured by blood sample collection in time cycles. Continuous measurement in real time is not possible.

NAD - the molecular controller of the energy metabolism



One of the experiments conducted by Italy brain health organization
29 Italian patients underwent NIR stimulation therapy for 1-month, tested before and after and shown good results
March, 2020

ECRONICON OPEN ACCESS

EC NEUROLOGY
Research Article

A Pilot Study of Photobiomodulation Therapy Using Nir: Pre and Post 810 Nm Stimulation in Patients Affected by Neurological Diseases

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	F	M	TOT
Alzheimer	2	3	5
Atherosclerosis	1	-	1
Cognitive Impairment	-	1	1
Dementia	2	-	2
Migraine with Aura	1	-	1
Cerebral Vasculopathy	12	7	19
TOT	18	11	29

Table 1: *Classification by pathology, in alphabetical order, and gender of the patients.*

Figure 1: *Shows the NIR helmet by Cerebro®.*

Conclusion

This kind of wavelengths is described as activating different chromophores at the cortical level promoting the modulation of cellular oxidative stress, neurometabolic and neuroinflammatory processes involved in different neurological disease. Our sample, since it is a pilot study, is small but may start to increase our work with this type of NIR device and proving the effect on everyday life in different diseases. The results from the compilation of the Cognitive Self-Assessment Questionnaire, in the two time period before (Test 1) and after (Test 2) NIR therapy, show a clear improvement in the perception of the symptoms in all the analyzed clusters: concentration, inattention/distraction, interpersonal intelligence and memory.
Specifically, Alzheimer's patients noticed a significant improvement in all the questions merged in the clusters with the greatest perceived improvement in the memory cluster. The same level of improved perception is observed by patients with Cerebral Vasculopathy. In patients with Dementia, the improvement is particularly evident in the "concentration" cluster. The other patients not mentioned in the result section for reductive sample size reason, also showed good improvements in all the clusters investigated.

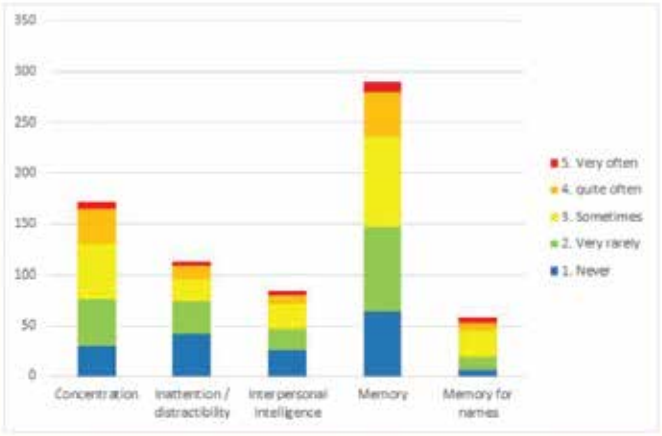

Figure 4: *Shows how many positive answers were given by the 29 patients to each question that were merged in the 5 cluster at Test 2 (after 1-month NIR treatment).*

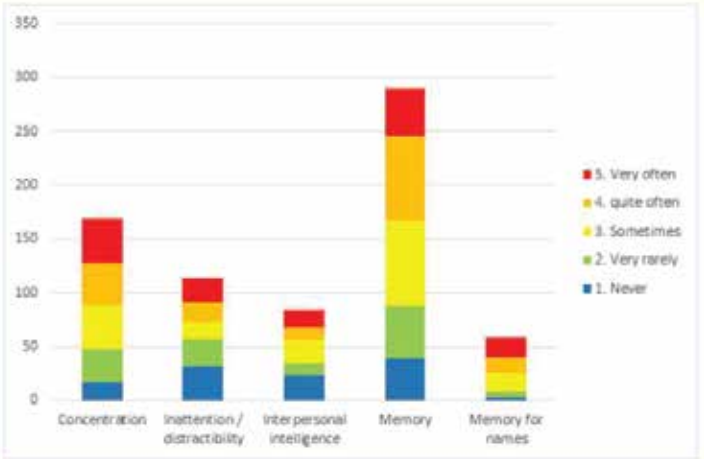

Figure 3: *Shows how many positive answers were given by the 29 patients to each question that were merged in the 5 cluster at Test 1 (before starting NIR treatment).*

Feedback

It was the interenational therapist fair, we received nice reactions, a lot of people wanted to try it (6 minutes stand 2 for the fair) and a lot felt something right away. Even a woman with Parkinson's could clearly experience a positive reaction!

Other Scientific Studies

PBM for Stroke
https://www.ncbi.nlm.nih.gov/pubmed/30983970
https://www.ncbi.nlm.nih.gov/pubmed/29472564
https://www.ncbi.nlm.nih.gov/pubmed/22967677
PBM for Traumatic brain injury
https://www.ncbi.nlm.nih.gov/pubmed/28001756
https://www.ncbi.nlm.nih.gov/pubmed/26990361
https://www.ncbi.nlm.nih.gov/pubmed/25966949
PBM for Psychiatric disorder
https://www.ncbi.nlm.nih.gov/pubmed/22334326
https://www.ncbi.nlm.nih.gov/pubmed/19995444
https://www.ncbi.nlm.nih.gov/pubmed/29307593

PBM for Alzheimer
https://www.ncbi.nlm.nih.gov/pubmed/27815990
https://www.ncbi.nlm.nih.gov/pubmed/28186867
https://www.ncbi.nlm.nih.gov/pubmed/31050950
PBM for Parkinson
https://www.ncbi.nlm.nih.gov/pubmed/25462595
https://www.ncbi.nlm.nih.gov/pubmed/19534794
https://www.ncbi.nlm.nih.gov/pubmed/26484876

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