

# BAHI Therapy

SUMMER 2024



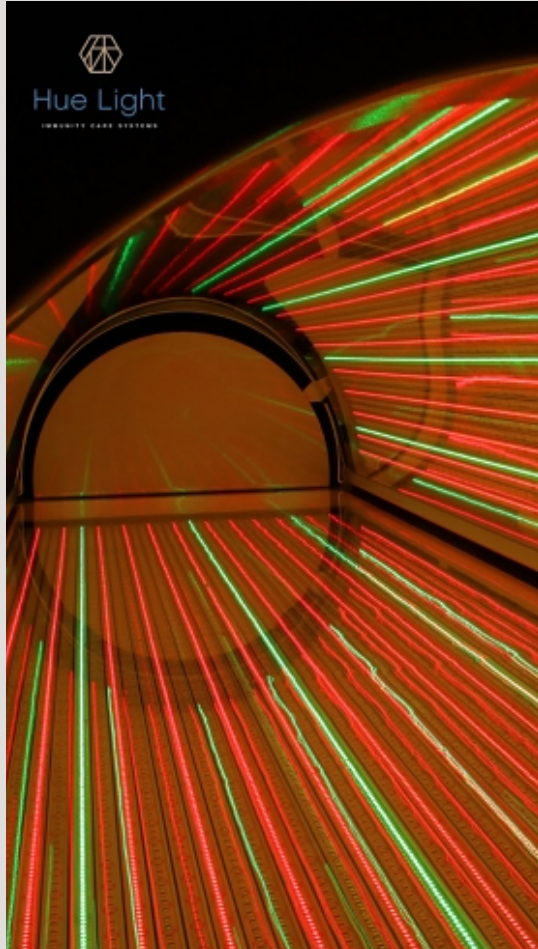
HEALTHY LONGEVITY  
CARE SYSTEMS



Hue Light

IMMUNITY CARE SYSTEMS

# TABLE OF CONTENTS



01

## HUE LIGHT

BUSINESS CONCEPT	04
BACKGROUND	06
BIOENGINEERING TECHNOLOGY	07
COMPANY/FACILITY	08
HISTORY	08
GLOBAL PARTNERS	12

## BAHI THERAPY PRODUCTS

CARE SEQUENCE & TIME	16
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## WHY WHOLE-BODY THERAPY?

ORIENTAL MEDICINE PERSPECTIVE	18
-------------------------------	----

## 1 Photobiomodulation (PBM) Devices

p. 20



Whole-body PBM Chamber  
p. 20



Abdomen PBM Irradiator  
p. 24



Breast PBM Irradiator  
p. 25

## 2 Hydrogen Inhalation Device

p. 38

## 3 Nanobubble Hydrogen Spa Device

p. 54

## 4 Deuterium Depleted Water

p. 66

## 5 Space Energy Device

p. 80

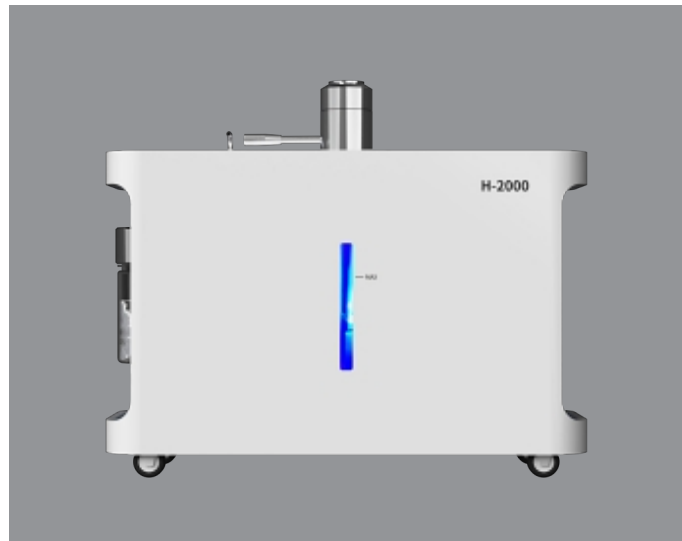
## 6 Hyperbaric Oxygen Device

p. 96

## 7 Sonicwave Exercising Device

p. 107

02



01  
Whole-body  
PBM  
Chamber  
WBPBM-03

02  
Hydrogen  
Inhalation  
Device  
H-2000

# BAHI Therapy



# Vision

Extend 10 years of health lifespan

# Concept

Novel method for health recovery without any risk of side-effects

Treatment method: BAHI Therapy

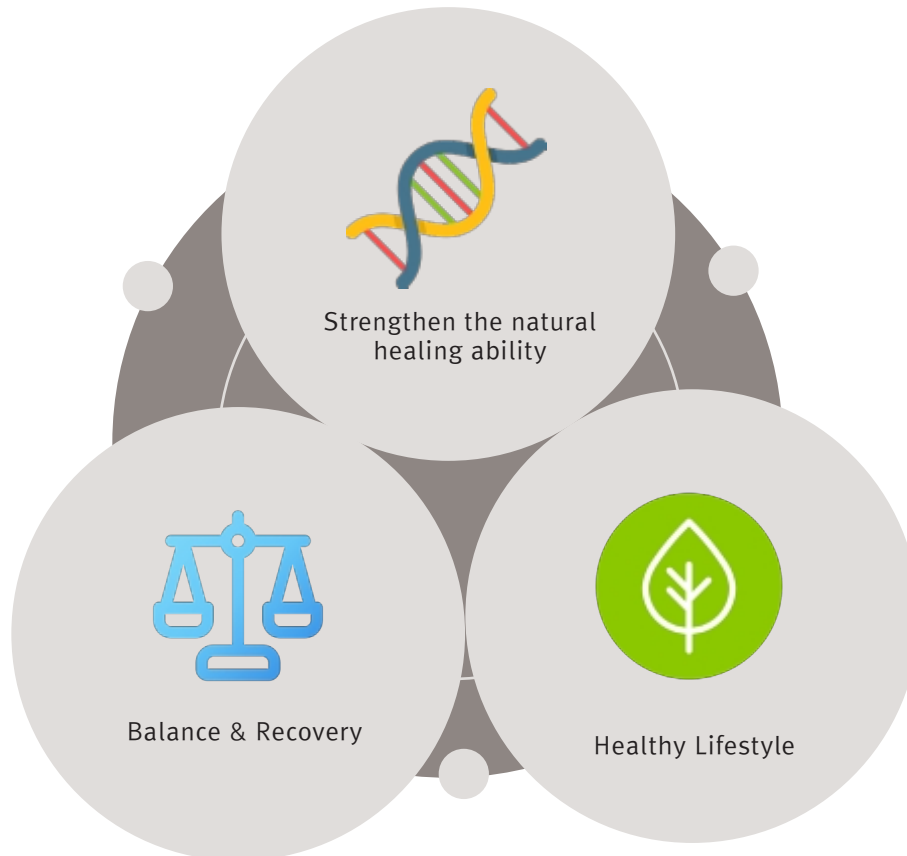
Blood circulation + Antioxidant + Hormone Balance = Immunity



# BAHI Therapy

Blood circulation + Antioxidants + Hormonal balance = Immunity

## Core Values



# Background

Our body is considered as a small universe.

With its complexity, addressing our body's illnesses can also be very complex and difficult. The fundamental healing of our body should start from changing the inner body's environment to allow the body to self-heal.

Currently, even though the lifespan has increased, more people are suffering from chronic diseases including cancer and neurological diseases as well as infections from viruses.

These diseases are typically treated with drugs. However, drugs can temporarily hide and/or suppress the symptoms and/or pain, it can never lead to complete healing, and the patients with chronic diseases consume drugs in their lifetime. Furthermore, the side-effects from the drugs lead to low quality of life, and they face a reality of desolate elderly life.

Sometimes, we disregard the things that we are surrounded with like the air, the light, and the water.

Our technology incorporated these elements to develop our devices. BAHI Therapy care program integrates these devices to optimize the treatment effect. Currently, it has been exported worldwide including America and Europe.

BAHI Therapy care system is an innovative treatment for everyone - Prevention and management of health for healthy people, recovery of illnesses for elders and/or chronic disease patients, extension of healthy lifespan for elderly seeking for quality of life.

# Bioengineering Technology

Medical and physiological approach to research on the treatment effect and the adaptability

*First.* Research healing, treatment method based on the basic foundation of life: light, air, & water

*Second.* Research and develop medical devices optimized for the treatment effect

*Third.* Utilize and integrate the devices to establish BAHI Therapy

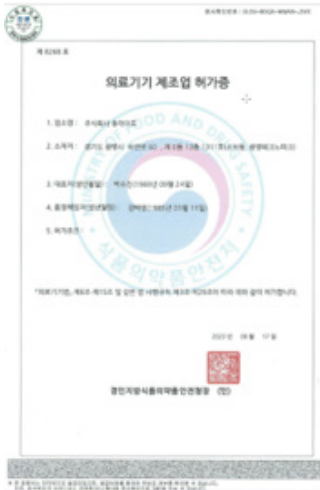
## Research & Development

Technical agreement, joint research on Physiology, Immunology, and Biomedical engineering

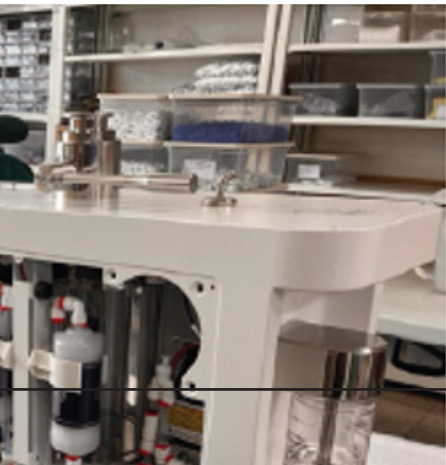
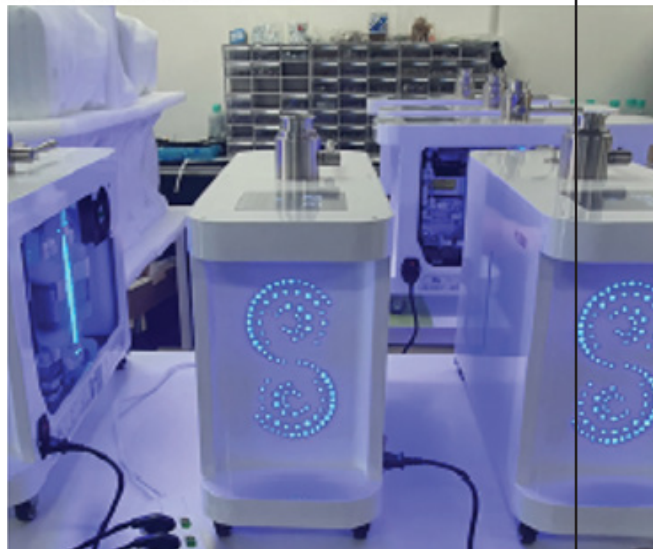


Develop and manufacture medical devices for BAHI Therapy care services

# Company / Facility







### Recupero R&D CENTER

Researched on exercising, heat, Photobiomodulation (PBM), hydrogen inhalation treatments

Tested the indication of the cancer patients using the PBM devices

### Launched Hue Light Co. Ltd

Managed to provide a care service using the PBM chamber to approx. 350 cancer patients from 2016-2018

Exported H-1200 to Europe & Canada  
Supplied H-1200 to the local hospitals

Manufactured hyperbaric oxygen capsule (OEM)



### DEVELOPED



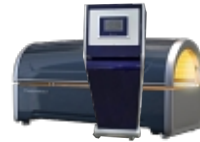
Sonicwave vibration device (OEM)



Space Energy Device (3rd gen)



Whole-body PBM chamber (WBPBM-01)



Whole-body PBM chamber model (WBPBM-02)



Hydrogen inhalation device (H-1200)



Hyperbaric oxygen capsule (OEM)



Researched on deuterium depleted water (DDW)

Developed & released H-2000 GMP & ISO13485 certified

Developed HM-SPA500

Developed & released PBM-Wing  
Made enhancements to WB-PBM03 and HM-SPA500  
Developed new hyperbaric oxygen capsule models  
Developed and launched new sonicwave brand, Wavemotion

2021

2022

2023

2024



Breast & abdomen PBM irradiators



Deuterium Depleted water



Whole-body PBM chamber updated (WBPBM-03)



Hydrogen inhalation device (H-2000)



Nanobubble hydrogen spa (HM-SPA500)



Whole-body PBM Panel (PBM-Wing)

NEW 2024



Wavemotion sonicwave vibration device



Hyperbaric oxygen capsule (HBOT-130)



Hyperbaric oxygen capsule (chair) (HBOT-120)

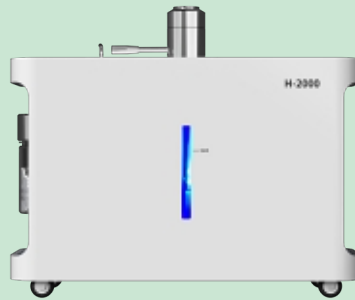


Hyperbaric oxygen capsule (chair) (HBOT-070)

*Hue Light Global*







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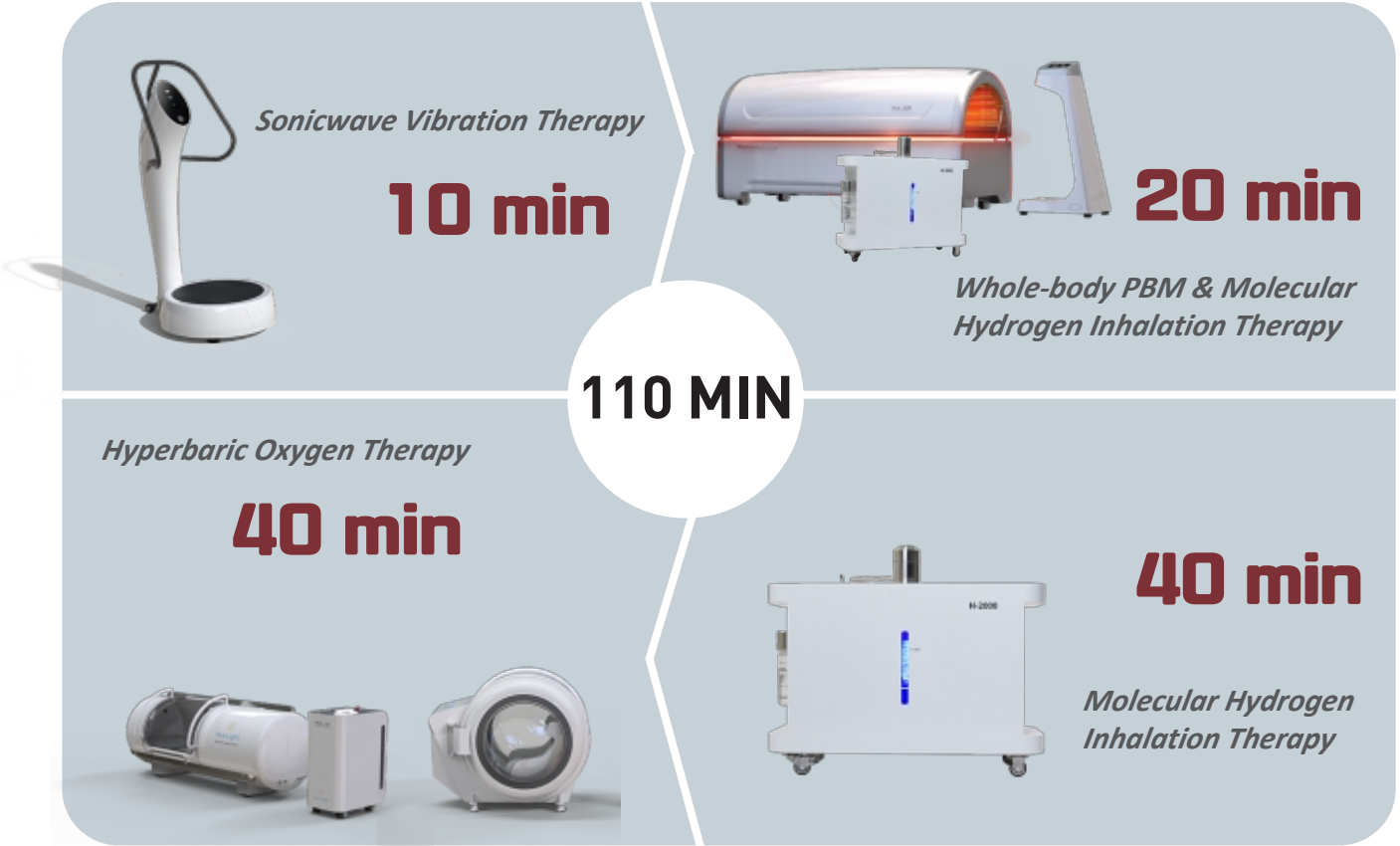
# BAHI Therapy

Blood circulation + Antioxidants + Hormonal balance = Immunity

## GENERAL SESSION LAYOUT

1 session = 110 min

1 Package = 10 sessions





## HOME THERAPY

BAHI Therapy conveniently at home for the whole family



- ✓ Cleanse wastes in the pores
- ✓ Moisturizes the skin
- ✓ Improves the skin texture
- ✓ Generates anions
- ✓ Reduce hair loss and enhance hair growth
- ✓ Various skin disease relief

**Nanobubble  
Hydrogen Spa**



- ✓ Enhance overall work performance
- ✓ Relieve chronic fatigue from the stress
- ✓ Balance the immune system
- ✓ Quality sleep
- ✓ Increase overall brain functions - concentration, memory and field of vision
- ✓ Respiration management

**Hydrogen  
Inhalation Device**



여성들을 위한 PBM케어  
World's only breast care PBM  
device for women

- ✓ Mastitis, breast milk flow
- ✓ PMS: Breast pain, breast engorgement
- ✓ Breast cancer surgery management
- ✓ Lymph node pain and inflammation
- ✓ Breast lymph circulation
- ✓ Breast cancer prevention

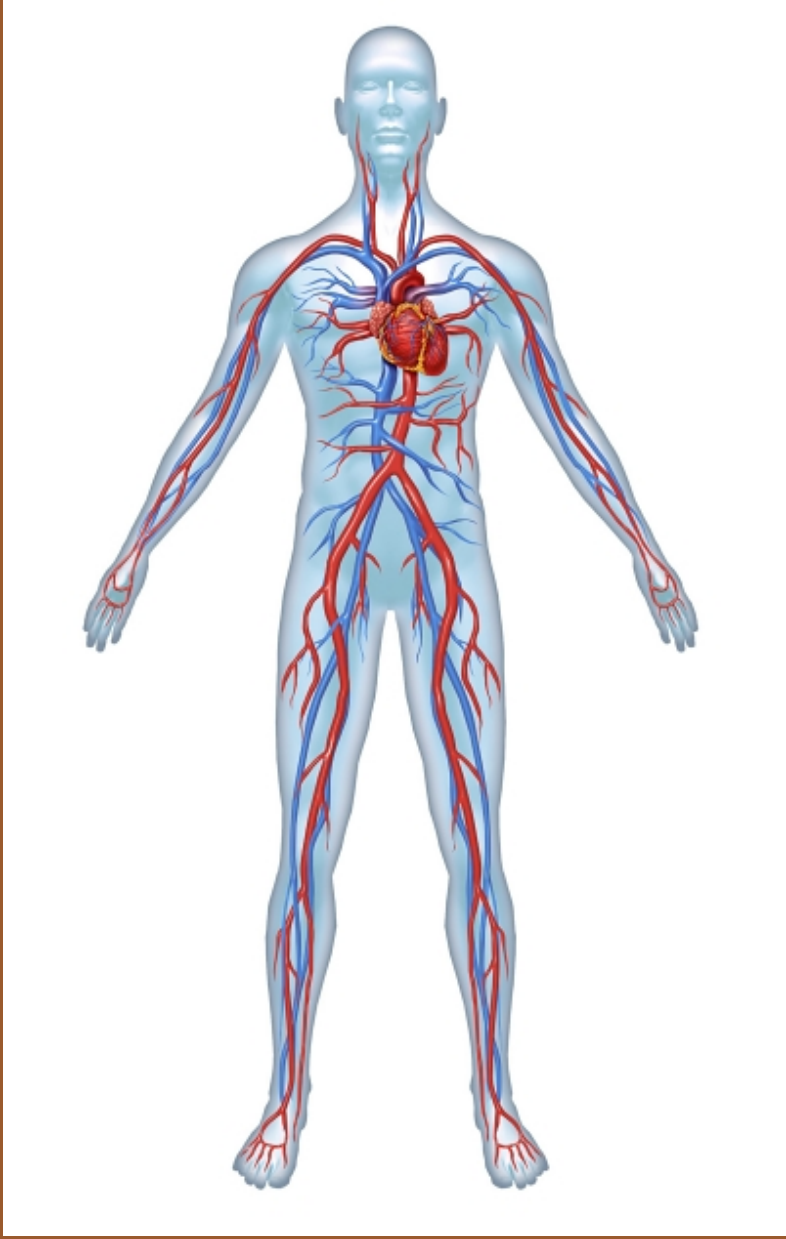
**Breast PBM  
Irradiator**



- ✓ Cold hands & feet care
- ✓ Gut microbiome balance
- ✓ Constipation relief
- ✓ Abdomen pain relief
- ✓ Sports wound healing
- ✓ Swollen area management

**Abdomen PBM  
Irradiator**

*Why treat the whole-body?*



## Looking into the disease as a one system

The root cause of many chronic diseases can be from the problems of blood circulation, excessively accumulated reactive oxygen species (ROS), hormone imbalance, and immune imbalance. Therefore, one should care and manage the whole body instead of zooming into the specified diseased area to treat the disease.

For example, brain diseases including Parkinson's should be addressed on a whole-body level to expect the treatment effect.

# Whole-body PBM Chamber

(Whole-Body Photobiomodulation)

*Chamber*



Medical Device  
IEC 60601-1,  
IEC 62304  
ISO 13485,  
FDA, CE, KC certified

# Controller

## Touchscreen

*Display size*

90mmx150mm

*You can easily select and control your chamber with our external controller.*



*Weight:* 17 kg

*Dimension:* 554mm (L) x 1100mm (H) x 400mm (W)



## Specification

*Device:* Whole-body PBM chamber

*Model:* **WB-PBM03**

*Wavelengths:* 5 wavelengths ranging from 530–940nm

*Irradiance:* **cm<sup>2</sup>/70mW (0.070W)**, Aluminum used for spectral irradiance

*Power:* **4,000W/ 38A** Maximum 4,000W/38A

*Weight:* **220 kg 485 lbs**

*Size:* **220cm (L) x 106cm (H) x 90cm (W)**

*Frequency settings:* 8 Levels of Nogier Frequency settings

*Time:* 8–20 minutes

*Inner structure:* Flat surface, easier to get in and out of it.

*Other functions:* External Controller, UV-C sterilization feature, Countdown timer, Bluetooth, External control app



# Whole-body PBM Panel (PBM-Wing)



## *Specification*

*Device:* Whole-body PBM Panel

*Model:* PBM\_Wing

*Wavelengths:* 940nm, 850nm, 810nm, 660nm, 520nm

*Irradiance:* 40~90mW/cm<sup>2</sup> (0.04~.09W), Aluminum used for spectral irradiance

*Power Input:* 110~240V/ 50Hz~60Hz / 2 kVA

*Weight:* 140 kg 308 lbs

*Size:* 214 cm (L) x 146 cm (H) x 173 cm (W)

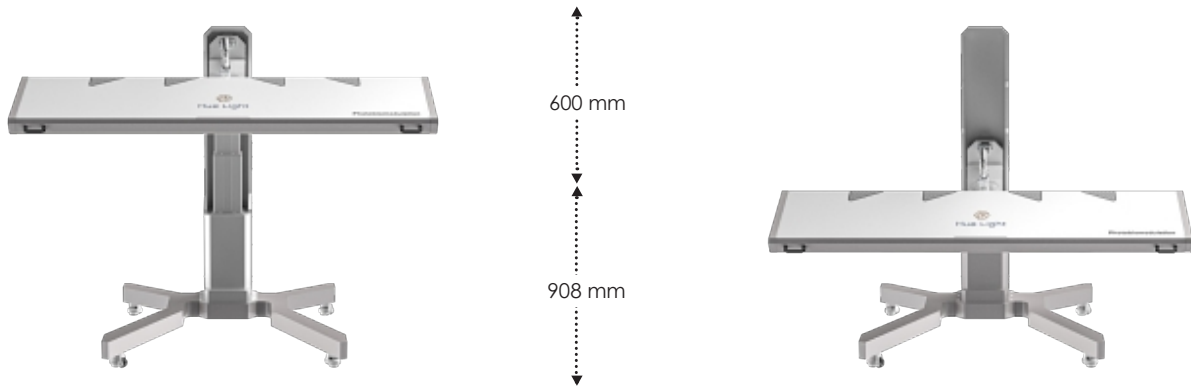
*Frequency settings:* 8 Levels of Nogier Frequency settings

*Operating range of the lift:* 600mm

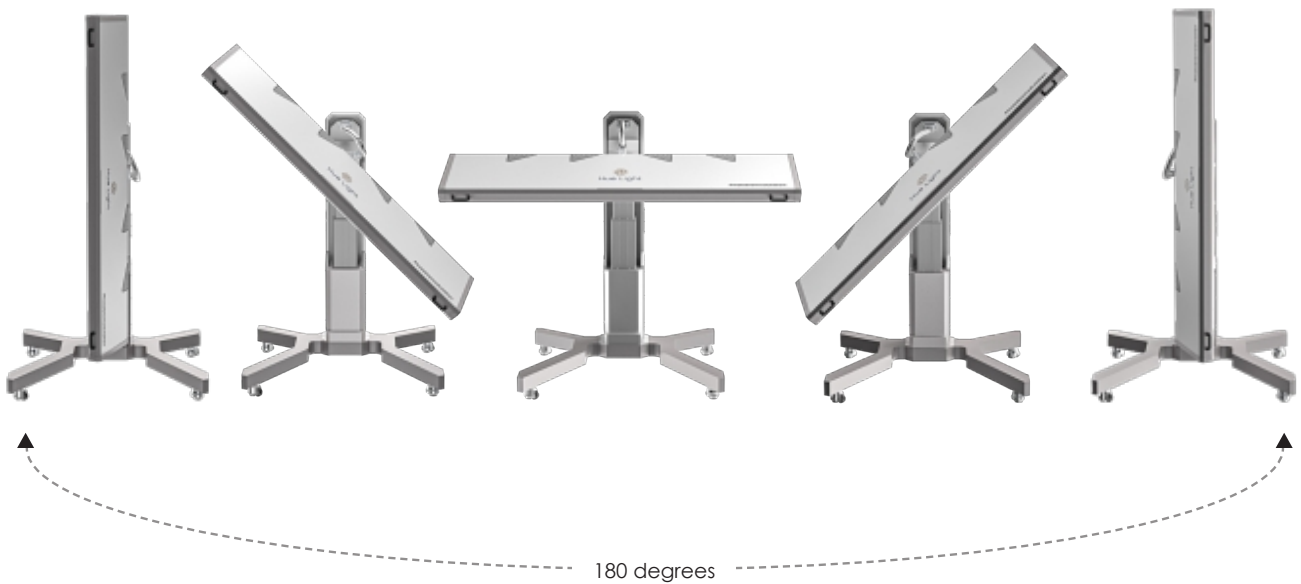
*Panel rotation range:* 180 ° (degrees)

*Total LEDs:* 17,280

## Column Height Adjustment



## Wing Panel Rotation



# How it works

- ✓ Increase oxygen consumption
- ✓ Increase activity of the mitochondria
- ✓ Increase ATP and cAMP
- ✓ Release of Nitric Oxide (NO)
- ✓ Short occurrence of ROS
- ✓ Molecular change to the calcium
- ✓ Generation of the growth factors
- ✓ Extracellular matrix deposition
- ✓ Increase the cellular activity
- ✓ Increase the cell multiplication
- ✓ Suppression of anti-apoptosis
- ✓ Active signaling of the mitochondria

## Abdomen PBM Irradiator

### *Specification*

*Device:* Abdomen PBM Irradiator

*Model:* HA-P01

*Modes:* Nogier Frequency 8 modes

*Power:* Input 110V~230V / 50~60Hz

**Output 12V 5A max 60W**

*Applicable regions:* All parts of the body

*Time setting:* Selectable 30min/60min

*Weight:* **420g** 0.93lbs

*Wavelengths:* **840–860nm; 930–950nm**

*Dimension:* **40x20cm, 0.6cm thicknes**

*Total number of LED chips:* **544 chips total**

*Irradiation power adjustments:* **Customizable 7 levels**



# Breast PBM Irradiator

## *Specification*

*Device:* Breast PBM Irradiator

*Model:* HB-P01

*Modes:* **Nogier Frequency 8 modes**

*Power:* **Input 110V~230V / 50~60Hz**

**Output 12V 5A max 60W**

*Applicable regions:* **All parts of the body**

*Time setting:* **Selectable 30min/60min**

*Weight:* **270g 0.60 lbs**

*Beam angle:* **110–120 degrees**

*Wavelengths:* **840–860nm; 930–950nm**

*Irradiation power adjustments:* **Customizable 7 levels**



# Background

## Photobiology

Photobiology is the study of the effects of deionized light sources on biological systems. The effect varies greatly depending on the parameters of the light source. The light source turns into a chemical biochemical substance in tissue cells.

## Photobiomodulation (PBM)

PBM technology is characterized by the absorption of light absorbers called cytochrome oxidase (CCO enzyme) in cells when tissues are irradiated with specific wavelengths of force, which produce much more ATP.

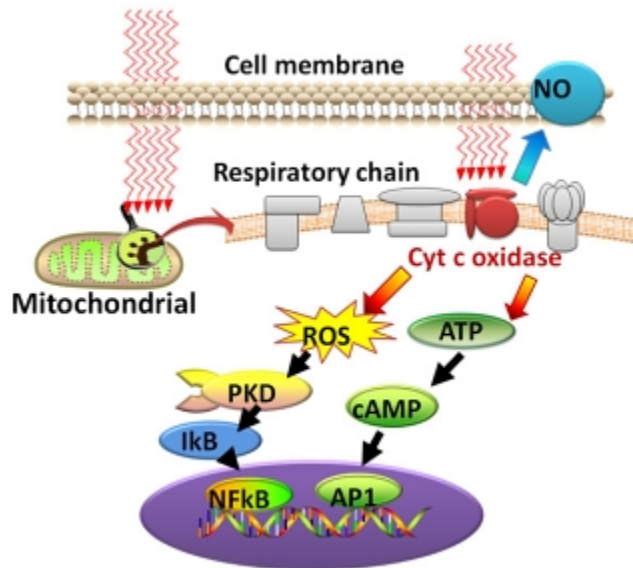
At the same time, nitrogen oxide (NO) is produced from endothelial cells of blood vessels, which improve blood circulation by increasing the elasticity of blood vessels, and as a result, nutrients and oxygen can be transferred smoothly to cells.

It is a term that summons the aiding process of cellular reproduction and blood circulation by the particular wavelength of light source.

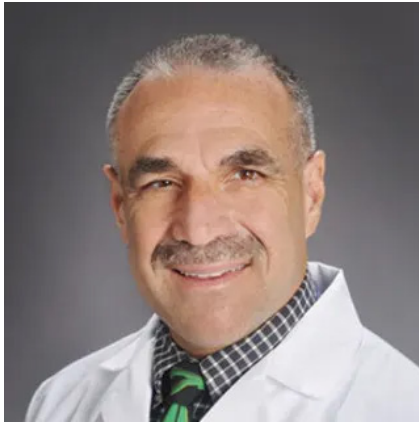


# Technology

- Applied the exact wavelength (1st law of photobiology) and wavelength intensity (2nd law of photobiology) of the target cells and/or chromophores
- Based on the Grotthus-Draper law for optimal light absorption, photon intensity a.k.a. spectral irradiance or power density ( $W/cm^2$ ) as well as the dose or fluence output ( $J/cm^2$ ) have been optimized
- Optimized for treating the chronic diseases



# Mechanism



Harry Whelan, MD  
Professor of Neurology at Wisconsin  
Medical School

Professor Harry Whelan is a professor of Neurology at Wisconsin Medical School and a medical officer at Naval Special Warfare Group-2. He presented in the Second international Conference on Near-Field Optical Analysis that the 600- to 1000-nm wavelengths can penetrate 10-20 cm of tissue.

## Reference

Morrison, D. R., Whelan, H. T., Henry, K., & Sommer, A. P. (2002). Second International Conference on Near-Field Optical Analysis: Photodynamic Therapy & Photobiology Effects. NASA/CP-2002-210786.

## Medical & Physiological Indications of PBM Therapy

There are at least over 6,000 research studies related to PBM therapy, and over 100 related studies are being newly released each year. The subjects are mainly its indications on the chronic diseases including Parkinson's disease, neurological related, cancer, anticancer treatment contraindications, and autoimmune diseases.

### Blood Circulation

#### Photobiomodulation therapy mitigates cardiovascular aging and improves survival

*NIH, Baltimore, Maryland, USA Oral Medicine, Biology, Surgery and Biomedical Sciences Dr. Sunayana Begum Syed and 4 others Feb 2023*

PBM treatment mitigated age-associated cardiovascular remodeling and reduced cardiac function, improved neuromuscular coordination, and increased longevity in an experimental animal model.

### Cancer & Anticancer side-effect Treatment

#### PBM therapy for management of cancer treatment side effects: WALT position paper

*UHasselt, Faculty of Medicine and Life Sciences, Diepenbeek, Belgium, 2 Oral Medicine, Oral Pathology, and Oral Oncology, Griffith University, Gold Coast Blood Oncology August 2022*

This position paper reviews the potential preventive and therapeutic effects of PBM therapy on the side effects of cancer treatments, including Chemotherapy (CT), Radiation Therapy (RT), and Hematopoietic Stem Cell Transplantation (HSCT) and demonstrated numerous evidences on the preventive and treatment effect of PBM on anticancer treatment side-effects.

#### Safety and efficacy of PBM therapy in oncology: a systematic review meta-analysis

*City of Hope Comprehensive Cancer Center, Duarte, California, USA*

After tracking and investigating total of 67 clinical research data on the effectiveness of PBM therapy on a range of cancer cell lines, it has been proven that PBM therapy is safe and effective treatment method for preventing and treating cancer.

# Whole Body PBM Therapy works on the Brain Diseases

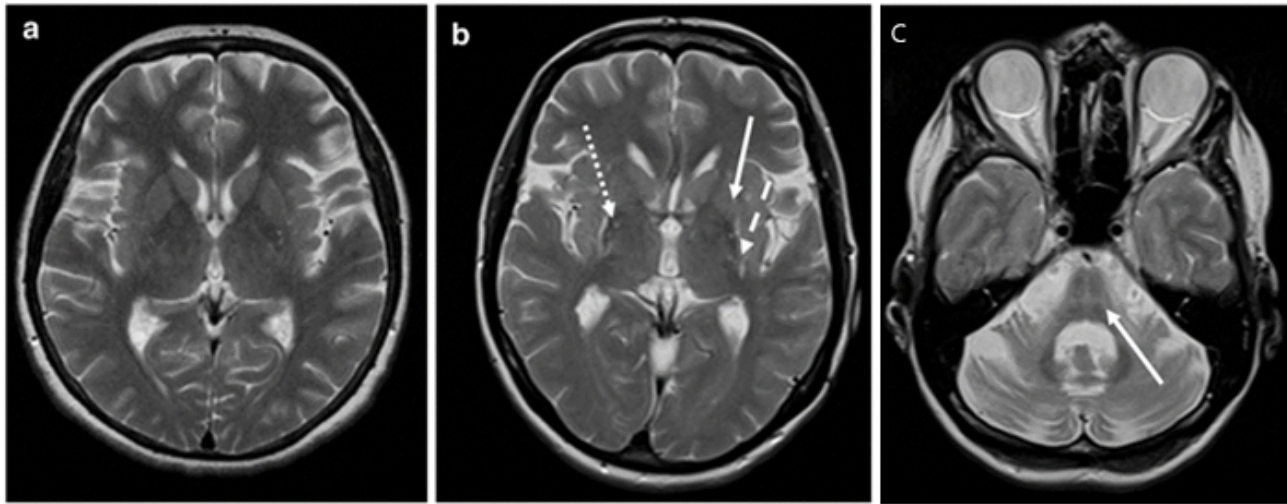


Figure 1. Structural MRI in Idiopathic Parkinson Disease (PD) and Parkinsonism. Midsagittal T1-weighted MR images a) in a patient with PD; midbrain atrophy present, b) a patient with MSA-P (predominant parkinsonism); pontine atrophy (arrow), and c) a patient with PSP; midbrain atrophy forming the silhouette of the 'penguin' sign with the shapes of midbrain tegmentum (bird's head above the white line and pons (bird's body below the white line). Images copyrighted by M. Shocke, K. Seppi. Department of Radiology, Department of Neurology. Innsbruck Medical University

Parkinson's disease (PD) is a continually degrading central nervous system condition that arises when cells in the midbrain's substantia nigra degenerate. These cells are responsible for producing dopamine, a vital brain neurotransmitter that is crucial for transmitting excitatory signals among neurons. As a result, when these cells diminish, leading to reduced

dopamine levels, individuals struggle with movement control.

PBM was shown to be a safe and potentially effective treatment for a range of clinical signs and symptoms of PD. Improvements were maintained for as long as treatment continued, for up to one year in a neurodegenerative disease where decline is typically expected

(Liebert, Bicknell, Laakso, Heller, Jalilabaei, Tilley, Mitrofanis & Kiat, 2021; Bicknell, Liebert, McLachlan & Kiat, 2022).

### Photobiomodulation (PBM) and Microbiome

After a 12-week PBM treatment, there's been a noticeable shift in the gut bacteria of Parkinson's patients. Notably, the F:B ratio, a common marker for gut health, saw improvements for many undergoing PBM treatment.

Research is continually highlighting the connection between the gut microbiome, the enteric nervous system (Giuffre et al., 2020), and several illnesses like kidney (Wang et al., 2019), liver (Giuffre et al., 2019), and cardiovascular diseases (van den Munckhof, 2018). The crucial relationship between the gut and brain has become more evident, spotlighting how certain gut bacteria can influence behavioral issues and certain brain diseases.

Notably, inflammation in the gut might prompt the abnormal behavior of  $\alpha$ -synuclein in the enteric nervous system (Caggiu et al., 2019).

Studies in mice have shown that  $\alpha$ -synuclein can move from the gut to the brain. Vagotomy, a surgical procedure, has been proven to defend against PD in mice (Uemura et al., 2018) and offers

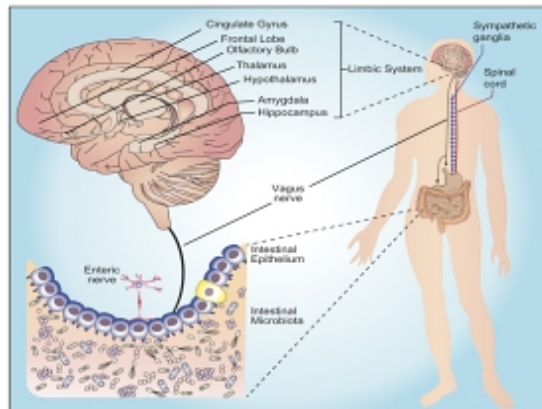


Figure 2. CN X vagus nerve connects the organs to the brain. Image retrieved from Physiological Reviews, 2019. American Physiological Society.

some protection in humans (Liu, et al., 2017). Remarkably, almost 90% of those with PD experience gut issues, such as constipation, often surfacing well before a PD diagnosis. Conditions like IBD (Brudek, 2019) and IBS (Fu, Gao, & Yung, 2019) might increase the risk for PD. Furthermore, in a past study, Lewy bodies, related to PD, were identified in gut nerve fibers as much as 20 years before the onset of Parkinson's symptoms (Stokholm, 2016).

### What is $\alpha$ -synuclein?

Alpha-synuclein is a compact protein consisting of 140 amino acids. It's predominantly found in the brain but also exists in other areas like the intestines. Notably, in individuals with Parkinson's disease or dementia, this protein is densely packed into Lewy bodies as fibers in certain brain regions. This has led researchers to study the link between  $\alpha$ -synuclein and diseases that degenerate the nervous system.

Alpha-synuclein primarily shapes Lewy body fibrils. Many Parkinson's patients have changes in the  $\alpha$ -synuclein gene, believed to impact the early or intensification phases of its aggregation. There have been instances where duplications of more than two  $\alpha$ -synuclein genes lead to Parkinson's disease. As such, it's theorized that when there's a mutation or an overabundance of  $\alpha$ -synuclein in the midbrain, it triggers the fibril formation process in alpha-synuclein. This process

results in Lewy bodies, which then cause dopamine neuron death, a primary factor in Parkinson's disease.

Currently, 'levodopa' (L-Dopa), a precursor of dopamine, is used in Parkinson's disease treatment. Levodopa, a dopamine precursor, can cross this blood-brain barrier (BBB) and is metabolized into dopamine in the brain. However, continuous intake of this drug can result in severe side effects such as wearing-off phenomena and dyskinesia.

In addition, there are dopamine agonists, anticholinergics, COMT (catechol o-methyl-transferase) enzyme inhibitors, MAO-B (monoamine oxidase B) enzyme inhibitors, and amantadine. However, all these drugs merely provide temporary symptom control.

Therefore, there is currently no fundamental treatment or method to halt the progression of Parkinson's disease.

So, Hue Light has turned its attention to ' $\alpha$ -synuclein' in the human gut and brain.

Over 90% of Parkinson's disease patients suffer from constipation due to the influence of gut microbes related to  $\alpha$ -synuclein. Thus, brain disorders including Parkinson's, Alzheimer's, and dementia shall not be seen solely as brain issues but as the ecosystem of the gut and micro-neurons throughout the body.

In conclusion, when treating brain disorders such as Parkinson's disease with PBM therapy, whole-body PBM approach would be more effective than a localized PBM approach that focuses only on the brain.

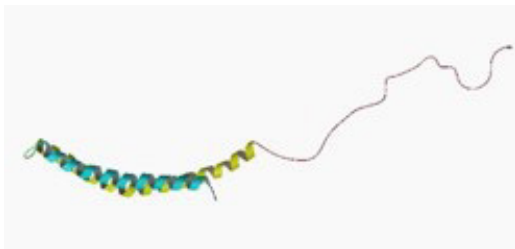


Figure 3. Molecular structure of  $\alpha$ -synuclein  
The helical structure of the N-terminal domain (green) is most characteristic. Retrieved from wikipedia

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Photobiomodulation:						
Diseases	Researchers	Review	Year	N	n	Score
Peridontitis	University of Hong Kong Ren	M	2017	7	180	C
Diabetic foot ulcer	Tchanque, et. al.	S	2016	4	131	C
Hair Loss	Zarei	S	2016	5	394	B/C
Recovering from the extracted teeth	Ribeiro	S	2016	11	555	C
Chronic low back pain	Huang	M	2015	7	211	B/C
Beard disorder	Chen	M	2015	14	454	C
Sports ability	Leal-Junior	M	2015	13	134	C
Osteoarthritis – knees	Huang	M	2015	9	518	B
Braces	Ge	M	2015	9	211	C
Lymphedema – breast cancer	Smoot	M	2014	7	262	C
Neck pain	SBU	S	2014	18	1007	C
Oral inflammation	Oberoi	M	2014	18	1144	B
Sports performance	Borsa	S	2013	10	147	B
Chronic neck pain	Gross	M	2013	2	109	C
Low 3rd molar extraction	Brignard	S	2012	9	599	C
Tendonitis	Tumilty	M	2010	25	963	B
Neck pain	Chow	M	2009	16	820	B
Tennis elbow	Bjordal	M	2008	13	730	B/C
Acute pain	Bjordal	S	2006	9	609	B/C
Neck Pain	Chow	S	2005	5	273	C
Chronic joint disease	Bjordal	S	2003	11	565	C

M = meta analysis; S = systemic reviews; N = total number of participants; n = subject



## Systematic Reveiws

### Results

- + /1 – PBM reduced the depth of the gum pocket within 1-2 months
- + PBM accelerated the healing of the DFU
- + PBM aided on reducing hair loss of patients with androgenic Alopecia
- + PBM reduced the pain.
- + / – PBM was indifferent in terms of its effect on reducing the pain
- + / – PBM had a functional advancement.
- + PBM accelerated the recovery after the exercise and increased the ability.
- PBM couldn't significantly relieve the pain ( Stausholm et al., 2016 ).
- + PBM increased the movement off teeth during the orthodontic brace.
- + PBM reduced the pain and the wounded area.
- + PBM reduced the pain
- + PBM reduced the risk of inflammation and the pain.
- + PBM accelerated the recovery after the exercise and increased the ability.
- + PBM enhanced the markers (pain, handicap, QoL, and GPE).
- PBM did not significantly reduced the pain.
- + / – PBM was shown to be effective on 12 of the studies and 13 studies showed indifference.
- + PBM greatly reduced the pain in long-term treatment.
- + PBM reduced the pain.
- + PBM reduced the pain.
- + PBM reduced the pain.
- + PBM reduced the pain.

# Hydrogen Inhalation Device

H-2000



## Specification

**Device:** Hydrogen Inhalation Device

**Model:** H-2000

**Generated gas:** H<sub>2</sub>(1,447cc/min) O<sub>2</sub>(723cc/min) Total: 2,170cc/min

**Purity:** >99.99%

**Power:** 1 bar; 960W; 110-240V

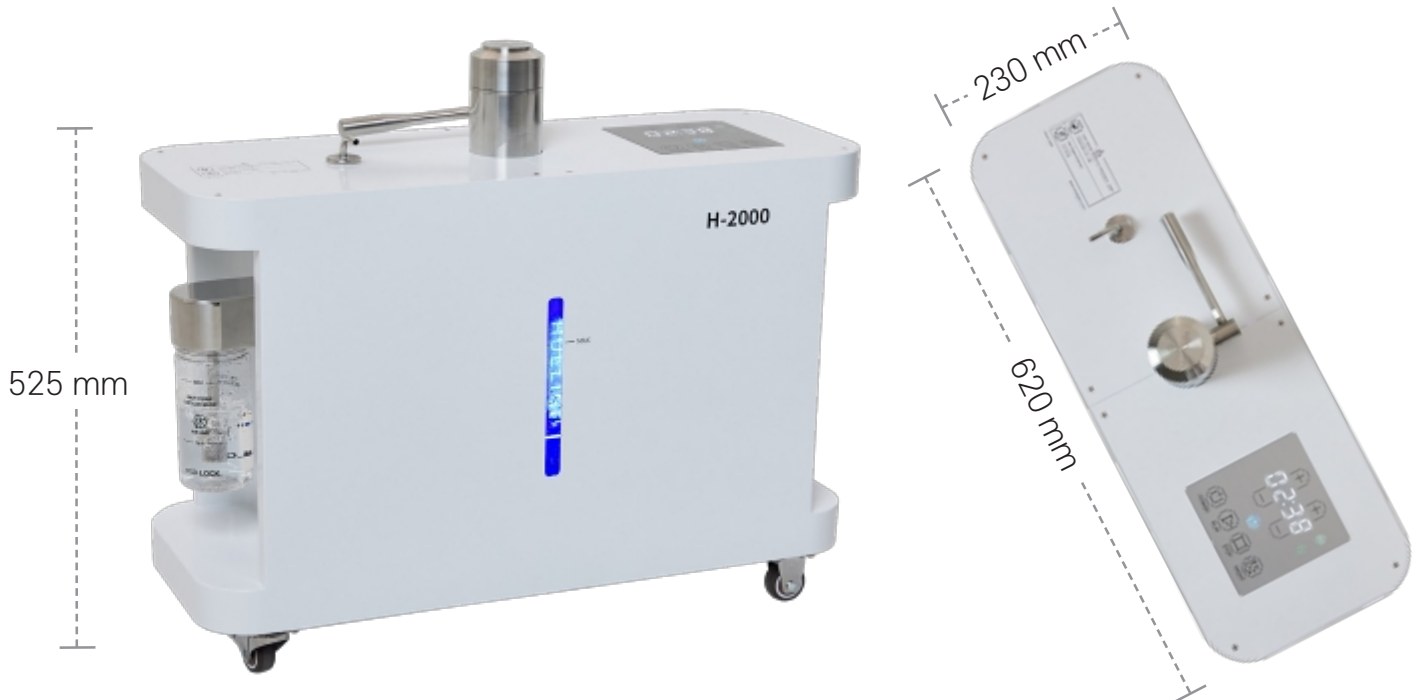
**Weight:** 28 kg 61.73lbs

**Dimension:** 620mm (L) x 525mm (H) x 230mm (W)

**Water tank capacity:** Ultrapurified distilled water (sterile), up to 2L

**Indoor setting:** 5-45 C; <80% Humidity

**Continuous time setting:** 5 hours 50 minutes



## Hydrogen Inhalation Device

Our H-2000 releases the gas as soon as it is generated, not storing any gas in the device. **So, there is no risk of explosion.** But always use the device with **caution** and **never** ignite a cigarette, lighter, candles or any fire igniting devices in front of the gas opening during the operation.

Reliable Solution to your health.

Just need distilled water

No additives required!

### *3 Basic Facts about Molecular Hydrogen*



**Hydrogen is naturally a gas.**

Molecular hydrogen ( $H_2$ ) has two protons and two electrons, making it a neutral atom.



**It has a natural property to spread and expand quickly.**



**It is the smallest molecule that can penetrate even through the bones and muscles.**



# Daily Hydrogen Inhalation Therapy for the whole family

## *While Working*

Enhances the overall work performance by maximizing efficiency and brain functions



## *For your Health*

Relieves chronic fatigues caused from accumulated stress

Stress management

Better condition





# More HYDROGEN intake, better the OUTCOME

*\* Clinically proven effects but may vary by individuals*





**People who would like to experience faster results**

*Experience immediate effects with large generated gas capacity*



**People who would like to moisten their dry eyes**

*For dry eyes and overall vision health*

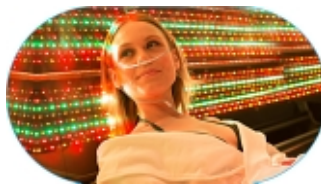


**Patients who need high concentrations of hydrogen and oxygen inhalation**

**Recommended**

**Hydrogen inhalation therapy and whole-body PBM therapy for maximum proven results**

For more information on PBM therapy, visit [www.huelight.kr](http://www.huelight.kr)







# Korean National Accredited Agency Test Report

Gas flow rate & generated components and amount analysis test

Verification No. 2020-0524-0579-0028

**KRISS** Korea Research Institute of Standards and Technology

202 Ganyong-ro, Yuseong-gu, Daejeon 305-380, REPUBLIC OF KOREA  
Phone: +82-42-850-3000 Fax: +82-42-850-4000

Report No.: 2024-0524-051 Page 1 / 3 Pages

### TEST REPORT

**Applicant:** Hue Light Co., Ltd.  
80, Haebe-ro, Cheongju-si, Chungcheong-do

**Test Item:** Molecular Hydrogen Solution Device  
- **Manufacturer & Model:** Hue Light Co., Ltd. / H-2000

**Serial No.:** H2D-02-003

**Date of Request:** 20 January 2024 **Date of Test:** 14 January 2024

**Classification of Test:**  
 - Test Item: Gas analysis  
 - Test Site:  In-site Lab  Mobile Lab  In-site

**Environmental Conditions:**  
 - Temperature: 18.0 ~ 22.0 °C - Relative Humidity: 40 ~ 60 %

**Test Method:**  
 Test: Pyrolytic of Molecular and Pure Gas Measurement (KRISS Class Method-02-200-3000)  
 Test procedure of purity analysis of raw material (02-103-3010)

**Test Results:**  
 Refer to the "TEST RESULTS" on the next page(s).

**Measurement Uncertainty:**  
 Refer to the "TEST RESULTS" on the next page(s).

**General Remarks:**  
 - This certificate shall not be modified, partially reproduced or used in an advertisement or product promotion without the written approval of KRISS. Observe the legal action that is taken against violation.  
 - The above results are valid only for the sample provided by the applicant, and the issue of the sample is provided by the applicant.

**Tested by:** Lee JH/Chn **Approved by:** Jung JH/Chn

**President of KRISS**

Verification No. 2020-0524-0579-0028

**KRISS** Korea Research Institute of Standards and Technology

**3. Results**

Component	Test results
H <sub>2</sub>	67.38 cmol/mol <sup>(1)</sup> , Relative expanded uncertainty (k=2): 0.5 %
O <sub>2</sub>	32.44 cmol/mol, Relative expanded uncertainty (k=2): 1 %
Ar	79.9 cmol/mol <sup>(2)</sup> , Relative expanded uncertainty (k=2): 18 %
CH <sub>4</sub>	3.07 <sup>(2)</sup> cmol/mol, Relative expanded uncertainty (k=2): 36 %
CO	0.03 cmol/mol, Relative expanded uncertainty (k=2): 3 %
THWEL-C <sub>2</sub>	0.02 cmol/mol, Relative expanded uncertainty (k=2): 3 %
Flow rate	2.17 L/min, Relative expanded uncertainty (k=2): 3 %

**4. Test procedure**  
 01 Test sample was installed at KRISS laboratory (Fig. 1).  
 02 A sampling bag and a 10 L sample bag were installed at the outlet to collect the gas generated from the test sample.  
 03 After completion of the Test, sample for about 3 hours or more, the amount of gas was collected in...

**5. Analytical Instrument:** Gas-MEMAP 21E, GC-FID/FID-methanizer, Shimalab SA, sample bag, Integrated Oxidation/Reduction W-100-0.3AG

**7. The measured value of the gas component in the sample includes including water.**  
 8. result<sup>(1)</sup> and result<sup>(2)</sup> can be measured on IR and GC, respectively.

**14. "Warning" about ignition sources (fire, static electricity, etc.) at the inlet of the gas outlet of the test product (hydrogen generator). If an ignition source occurs, it may cause sparks or ignition. Therefore, when using the equipment, avoid a completely enclosed space and attention must be paid to the safety of the ignition sources.**

**15. This test result is based on the given data. KRISS is not responsible for any change of the sample since the issued date. This test result is valid just for the given time.**

**16. This test report is no valid if it is copied.**  
 End of the Result.

**Flow rate** 2.17 L/min, Relative expanded uncertainty (k=2): 3 %

**Fig. 1** Equipment configuration installed in KRISS at Hue Light Co., Ltd.  
 (Continue to page 2)

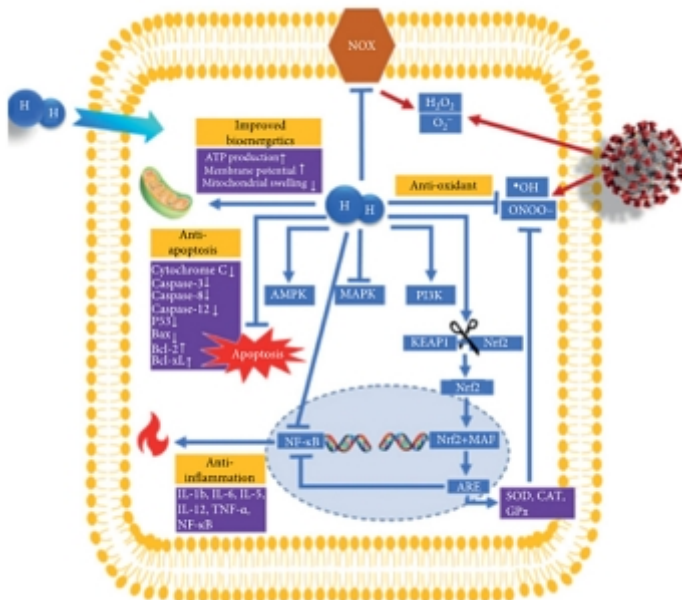
The amount of Hydrogen and Oxygen produced per min (ratio): 2,170 CC (67.38% H2/32.44% O2)



## Hydrogen Inhalation Therapy on COVID-19

From 2019, increasing number of studies have shown the effect of hydrogen inhalation therapy for the prevention and treatment of COVID-19.

### 원리



### Possible mechanisms of alleviation properties of molecular hydrogen on COVID-19 patients.

Reactive Oxygen Species (oxidative stress & inflammation) due to COVID-19 virus - OH: hydroxyl radical; O<sub>2</sub><sup>-</sup>: superoxide anion; ONOO<sup>-</sup>: peroxynitrite anion; H<sub>2</sub>O<sub>2</sub>: hydrogen peroxide; H<sub>2</sub>: molecular hydrogen; NOX: nicotinamide adenine dinucleotide phosphate (NADPH) oxidase; AMPK: 5 adenosine monophosphate- (AMP-) activated protein kinase; MAPK: mitogen-activated protein kinase; PI3K: phosphatidylinositol 3-kinase; Keap1: Kelch-like ECH-associated protein 1; Nrf2: nuclear factor erythroid 2-related factor 2; MAF: small MAF protein; ARE: Nrf2-antioxidant response element; SOD: superoxide dismutase; CAT: catalase; GPx: glutathione peroxidase; P53: tumor protein; Bax: BCL2-associated X protein; Bcl-2: B-cell lymphoma 2 protein; Bcl-XL: B-cell lymphoma-extra-large protein; IL-12: interleukin 12; IL-1β: interleukin 1-beta; IL-6: interleukin 6; IL-8: interleukin 8; TNF-α: tumor necrosis factor α; NF-κB: nuclear factor-kappa-light-chain-enhancer of activated B cells.

### Mechanism

## 01

### **Hydrogen/oxygen mixed gas inhalation improves disease severity and dyspnea in patients with Coronavirus disease 2019 in a recent multicenter, open-label clinical trial**

Wei-Jie Guan, Chun-Hua Wei, Ai-Lan Chen, Xiao-Cong Sun, Guang-Yun Guo, Xu Zou, Jin-Dong Shi, Pei-Zhen Lai, Ze-Guang Zheng, and Nan-Shan Zhong (2020)

Inhalation of hydrogen/oxygen mixed gas (H<sub>2</sub>-O<sub>2</sub>) might have a role in the treatment of COVID-19 given the decreased resistance compared with room air when passing through the airways.

## 02

### **Hydrogen Therapy in Patients With Moderate Covid-19 (H<sub>2</sub>Covid)**

University Hospital, Grenoble (2021)

The aim of this study is to evaluate the safety and the Dose Limiting Toxicity (DLT) of hydrogen therapy delivered by a nasal cannula in addition to conventional oxygen therapy in patients with moderate Covid-19.

## 03

### **Combating Oxidative Stress and Inflammation in COVID-19 by Molecular Hydrogen Therapy: Mechanisms and Perspectives**

Duried Alwazeer, Franky Fuh-Ching Liu, Xiao Yu Wu, and Tyler W. LeBaron (2021)

H<sub>2</sub> has been demonstrated to suppress NF-κB inflammatory signaling and induce the Nrf2/Keap1 antioxidant pathway, as well as to improve mitochondrial function and enhance cellular bioenergetics. Many preclinical and clinical studies have demonstrated the beneficial effects of H<sub>2</sub> in varying diseases, including COVID-19.

## 04

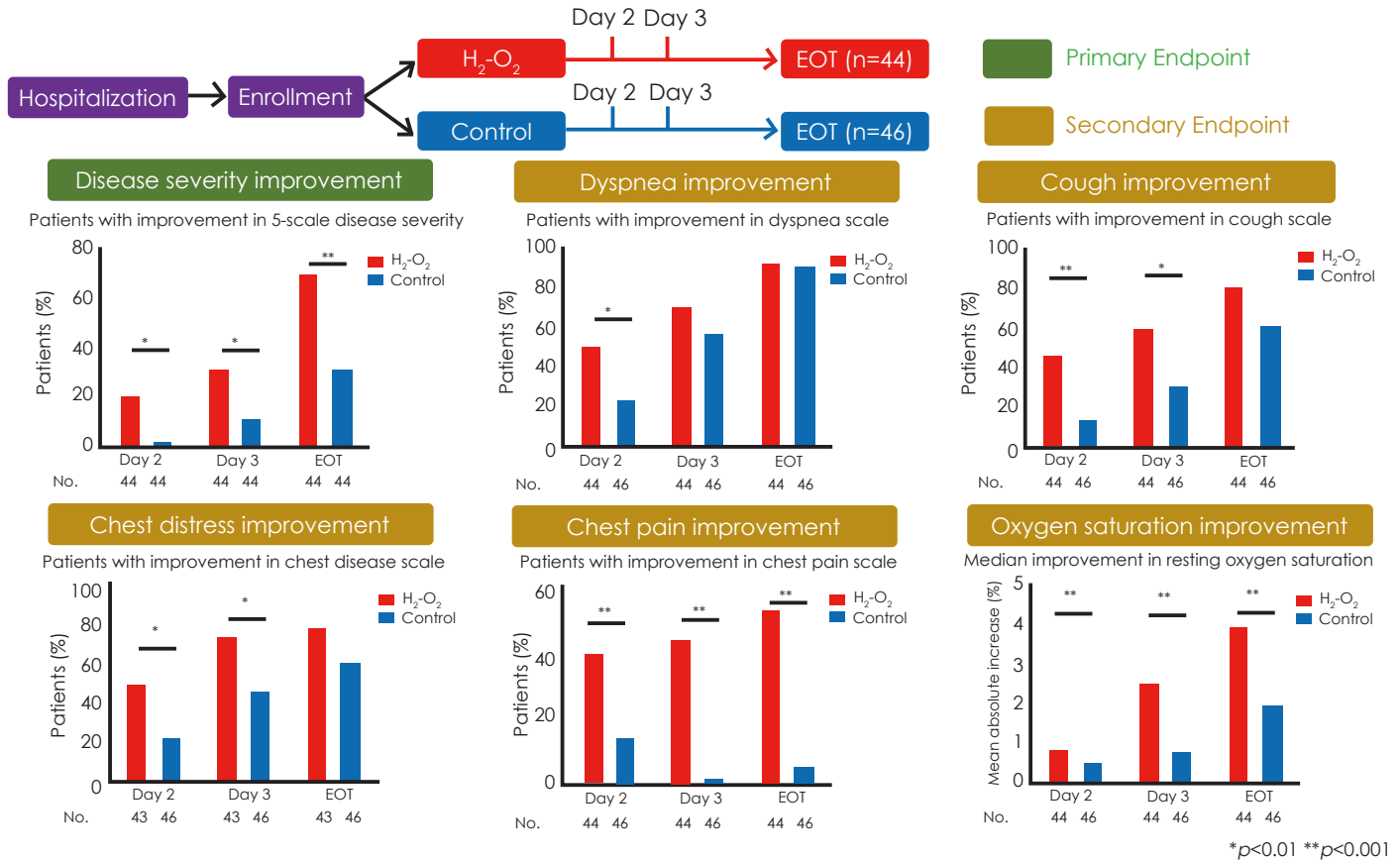
### **Hydrogen: A Potential New Adjuvant Therapy for COVID-19 Patients**

Fuxun Yang, Ruiming Yue, Xiaoxiu Luo, Rongan Liu, and Xiaobo Huang (2020)

Molecular hydrogen treatment has the potential to become a new adjuvant therapy for COVID-19, but its efficacy and safety require large clinical trials and further confirmation.

# CLINICAL TEST RESULTS

## H<sub>2</sub>-O<sub>2</sub> Inhalation for COVID-19: A multicenter open-label clinical trial (total N=90)



All endpoints but oxygen saturation were treated as categorical variable (improved vs not improved) compared with baseline

# Features



## Accessible

***For home, clinics and hospitals***

Convenient and portable with wheels with a standard power outlet



## Low Maintenance

No need for cleaning  
Only requires purified distilled water



## ***Easy Maintenance***

All parts can be easily replaceable without any special tools if necessary



## ***Easy to Operate***

User-friendly control panel for anyone



# Accessories

## **1** H-2000 dedicated nasal cannula

Soft and sterile silicone material



## **2** H-2000 dedicated suitcase

For convenient move/transportation



**3** H-2000 dedicated eye-care goggles

# Nanobubble Hydrogen Spa

## Specification

Device: **Nanobubble Hydrogen SPA Device**

Model: **HM-SPA500**

Generated amount: **4.8L/min**

Nanobubble size: **Average 90~99nm**

Power: **100-240V/ 50~60Hz/Max 3.5A**

Weight: **34 kg** 74.96lbs

Dimension: **500mm (L) x 1,000mm (H) x 410mm (W)**

Amount of bubbles: **Approx. 5 million per 1 ml**

Distilled water tank capacity (for generating hydrogen gas): **1L**

Select modes: **A (shower/direct faucet connection) /  
B (bathing)**



Revolutionary  
Skin Immunity



500 million nano hydrogen bubbles generated per 1ml of water on average  
(500 billion nano hydrogen bubbles generated per 1L of water)  
High-tech device that is capable of generating over 300 trillion nano  
hydrogen bubbles in a bathtub.



# What is nanobubble hydrogen?

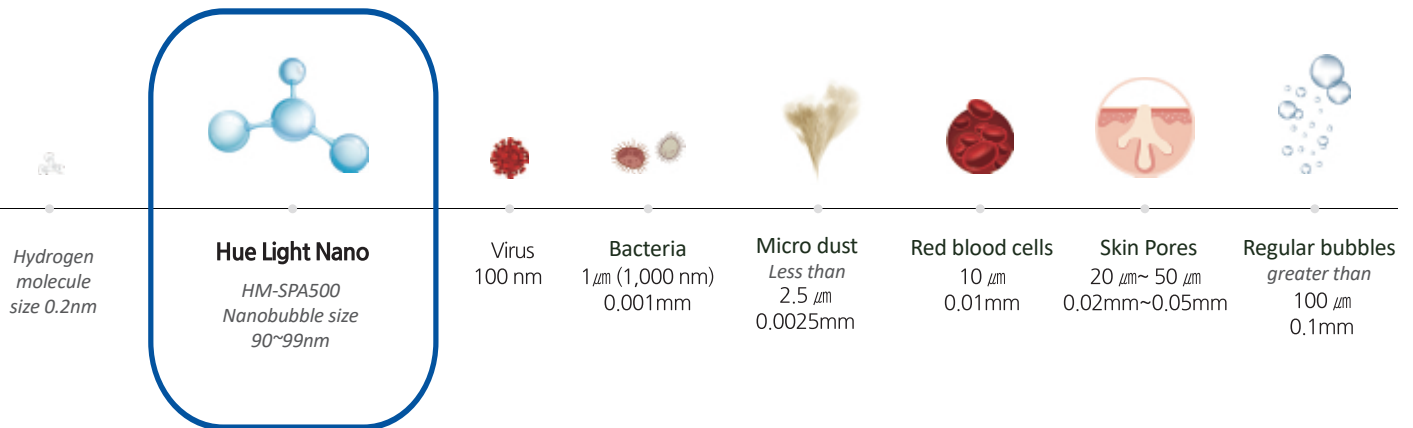
Inside the nanobubbles approximately 0.0001mm diameters wide, there are numerous hydrogen molecules.

**There are three factors to consider when using nanobubble technology in the medical and aesthetic field.**

**First** is the size of the bubbles. If the size of the bubbles go below 200nm, it would be considered very special and notable technology.

**Second** is the amount of the bubbles. There should be over 3,000 million bubbles per 1 L of water.

**Third** is the amount of hydrogen gas (0.2nm small) captivated in 1 nanobubble (92nm). This is the key factor in this technology.



※ **Scientific fact** ▶ **Nanobubble** 1nm~ 500nm (0.000001mm~0.0005mm)      **Microbubble** 30μm ~100 μm (0.015mm~0.1mm)

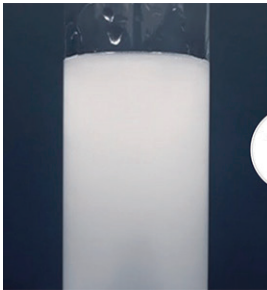


## Beneficial types of skin conditions:

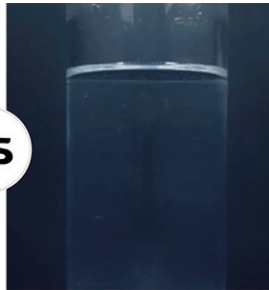
- ✓ Itchy, inflammatory skin due to Eczema-like symptoms
- ✓ Dry and rough skin with a lot of skin flakes
- ✓ Sensitive skin with skin troubles
- ✓ Skin with a lot of wastes in the pores due to environmental pollution and/or micro dust exposure
- ✓ Typically oily skin with sebum secreted
- ✓ Scalp with a lot of dandruff and dead cells
- ✓ Seborrhea, oily scalp, mainly concerned with hair loss

# The differences between the nanobubble and the microbubble

**Nanobubbles** are completely different from the microbubbles.



VS

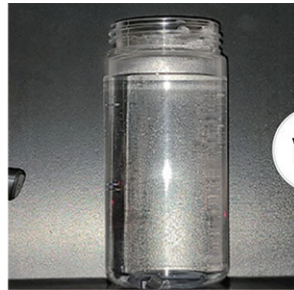


## Microbubble

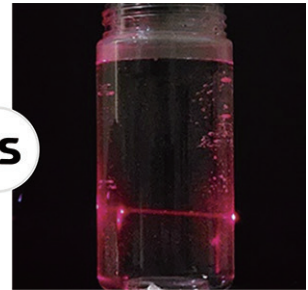
*When the generated microbubbles are poured in the cup, it looks cloudy white.*

## Nanobubble

*When the generated nanobubble water are poured in the cup, it just looks transparent. There's hydrogen molecules inside the nanobubbles.*



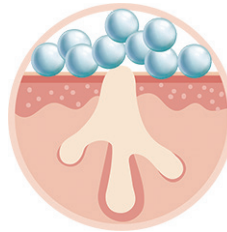
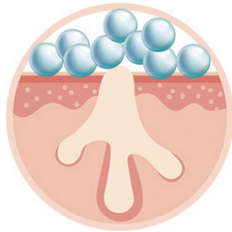
VS



*When you light the laser point to the nanobubbles, scattering phenomena of the nanobubbles can be seen in the dark place. A lot of hydrogen molecules are captivated inside each nanobubble.*



Nanobubbles are **1/100,000** in size compared to the microbubbles.



	Tap water	Microbubbles	Nanobubbles
Size of the water molecules	Cannot be measured	Similar to the size of the pores	Approx. 500x smaller than the pores
Pore cleansing ability	Impossible	Partially possible	Can thoroughly cleanse the pores
Skin moisturizing	Takes a long time	Takes a long time	Takes a short time

Size comparison



Skin Pore  
30~50 $\mu$ m



Microbubble  
20~100 $\mu$ m

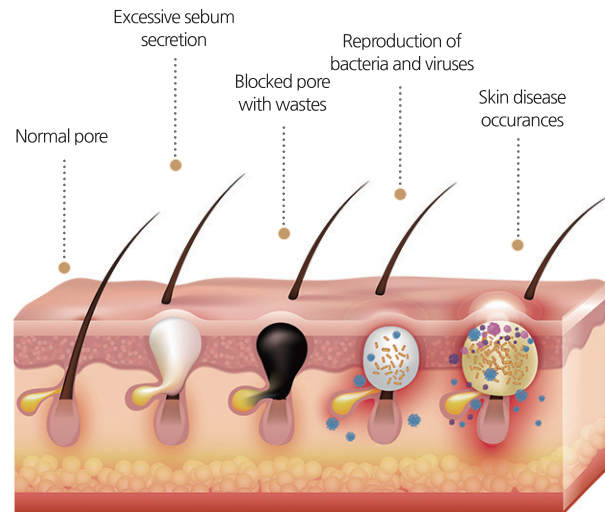


Nanobubble  
1nm < 1 $\mu$ m

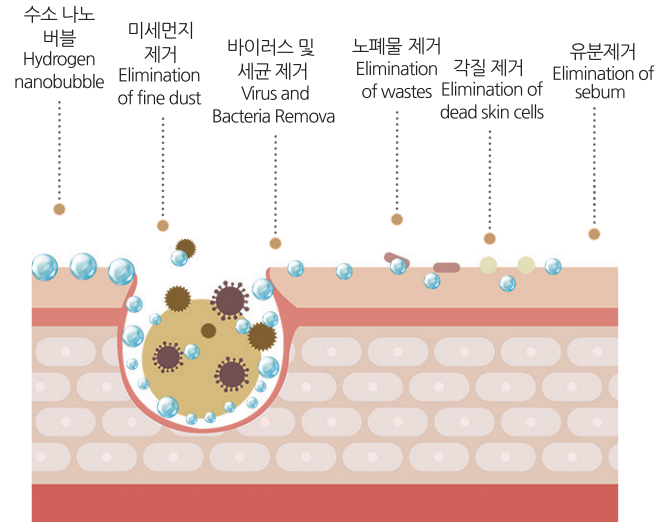
# Mechanism

**Secreted wastes in the pores are the main cause of the skin diseases**

*Powerful antioxidant agents, hydrogen molecules fight against the inflammations, the bacteria, and the viruses.*



**Hydrogen nanobubbles goes inside the pores to cleanse the skin**



**Let hydrogen nanobubbles resolve the skin problems**

Psoriatic Skin



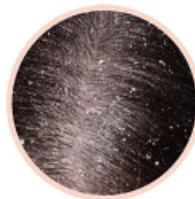
Acne Skin



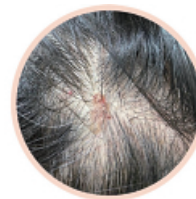
Atopic Skin



Dandruff and Dead Skin Cells



Seborrhoeic Skin



Excessive Sebum

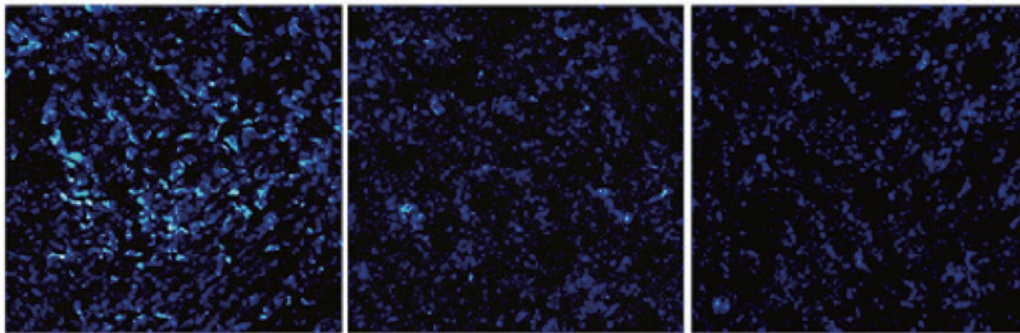


# Effects

*Skin does not change overnight.*

**Real change occurs slowly  
yet effectively over time**

**Improved skin** after using hydrogen nanobubbles



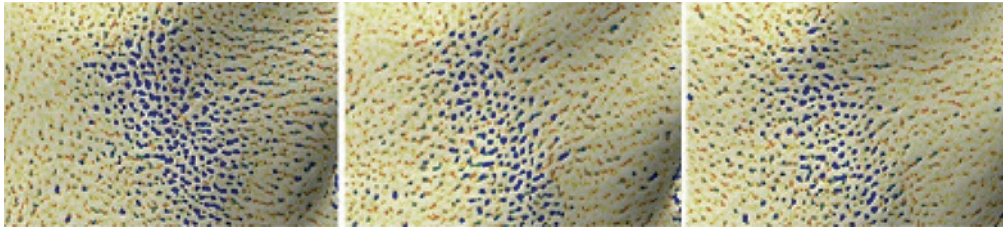
*Before*

*After 1 wk*

*After 2 wk*

## Reduced number and size of the pores after using hydrogen nanobubbles

*Pore deep cleansing allows better elasticity and clean skin*



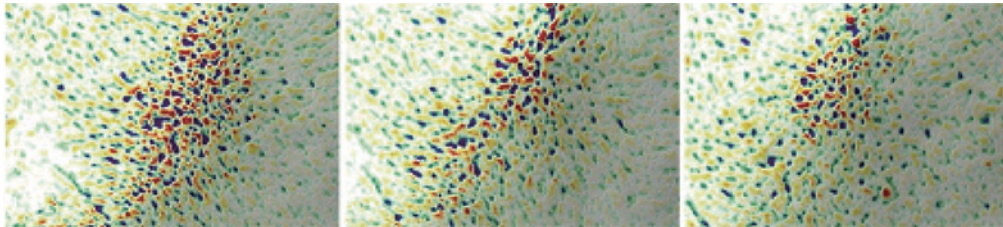
Before

After 1 wk

After 2 wk

## Improved skin texture after using hydrogen nanobubbles

*Moisturizing effect deep into the skin layers to allow soft skin texture and less dryness*



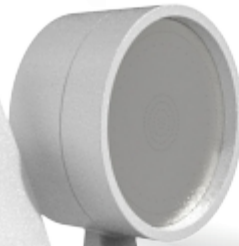
Before

After 1 wk

After 2 wk

### Effect of Nanobubbles

- ✓ Cleanse secreted wastes in the pores
- ✓ Skin moisturizing
- ✓ Improve skin texture
- ✓ Generate anions
- ✓ Improve scalp and reduce hair loss
- ✓ Restore skin from various skin diseases

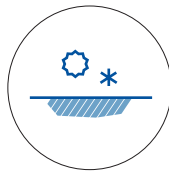


**Point1****Pore and scalp cleansing**

*Nanobubbles, 500x smaller in size than the pore, are excellent in cleansing the pores by removing the sebum, wastes, and fine dusts.*

**Point2****Moisturizing Effect**

*Nanobubbles, which can penetrate deep into the skin through the pores and glands, are superior in moisturizing the skin.*

**Point3****Removing fine/micro particles**

*The surface of the nanobubbles are highly negatively charged, attracting various pollutant particles including dusts, sebum, and wastes. So, nanobubbles can easily remove stains and fine particles that are less than micrometers in size.*



# Miracle Water

# Deuterium Depleted Water

# (DDW)



# Smooth & refreshing and healthy water made specially for you

## Product Info

*Deuterium Depleted Water (DDW)*

*Deuterium Level*

*5, 10 ppm, 80 ppm*

*Bottle size option 500ml, 1L, 2L PET*



# The effect of heavy hydrogen on our body

## What is heavy hydrogen?

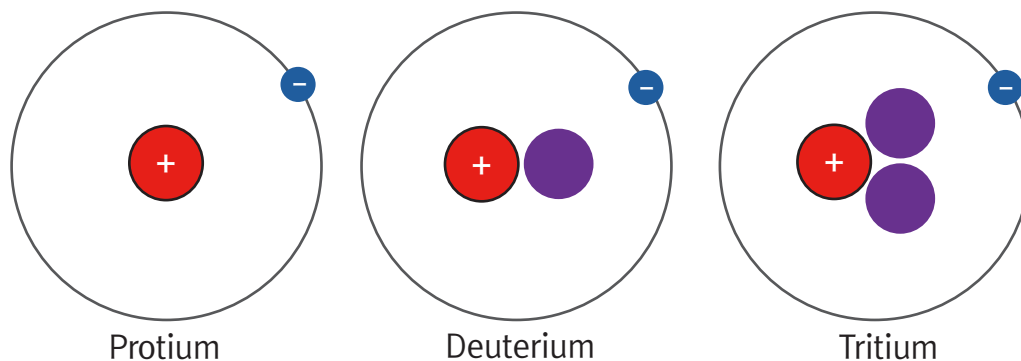
Heavy hydrogen is literally heavier than regular hydrogen. Unlike regular hydrogen, which has a nucleus consisting of a single proton, deuterium has a nucleus made up of one proton and one neutron. This makes its nucleus approximately twice as heavy as that of regular hydrogen. Elements with the same number of protons but different numbers of neutrons are isotopes, and hydrogen and deuterium are prime examples of isotopic elements.

In addition to deuterium, which consists of one proton and one neutron, there is another isotope of hydrogen known as tritium, which has one proton and two neutrons. These are classified as 1H (hydrogen), 2H (deuterium), and 3H (tritium), or can be differentiated by their English names as P (1H, protium), D (2H, deuterium), and T (3H, tritium). The atomic mass of hydrogen is 1.007, that of deuterium is 2.01409, and that of tritium is 3.1602. In nature, the proportions of these isotopes are 99.984% hydrogen, 0.0156% deuterium, and tritium exists in the atmosphere at a ratio of one tritium atom per  $10^{18}$  hydrogen atoms. Therefore, deuterium and tritium are very rare.

## Main usage of heavy hydrogen and its effect on the body

Deuterium is an essential resource in nuclear reactors, where it is highly efficient in moderating neutrons. Unlike radioactive substances, deuterium itself is not radioactive, so there are no issues with radioactivity. Drinking water that contains deuterium or heavy water to some extent is also generally not a serious concern. For example, in a 75 kg person, about 50 kg of their body weight is water, and approximately 10g of this water, or 1/6000th, is heavy water.

However, an increased proportion of deuterium can have various effects on biological organisms, some of which can be severe. Deuterium has been shown to disrupt the biological rhythms of almost all organisms, from single-celled life to mammals. The reasons for this are still not entirely understood. Many clinical trials have shown that when 25% of the water in rats or dogs is replaced with heavy water, they become infertile. At about 50% replacement, these animals can only survive for about a week. Fish and tadpoles



**Fig. 1** Hydrogen and its isotopes: Hydrogen ( $1H$ ,  $P$ , protium) - left, Deuterium ( $2H$ ,  $D$ ) - middle, Tritium ( $3H$ ,  $T$ ) - right

die instantly in water that contains 90% deuterium.

#### Deuterium-depleted water (DDW) and its medical implications

In 1932, Harold C. Urey, along with his colleagues Ferdinand G. Brickwedde and George R. Murphy at Columbia University in the United States, verified the existence of deuterium, a variant of hydrogen. Before their discovery, it was believed that hydrogen consisted of only one proton and one electron. This rare isotope of hydrogen, augmented with a neutron, weighs twice as much compared to hydrogen, hence has double the mass. Deuterium accounts for only 0.0149% of all

hydrogen in the universe, making it elusive to physicists. In 1913, some physicists had suspected the existence of a second isotope of hydrogen, a hypothesis later confirmed by Harold C. Urey.

In 1934, Dr. Urey received the Nobel Prize in Chemistry for this monumental discovery that opened the atomic age. Concentrated deuterium, or heavy water, became an essential component in the construction of nuclear reactors and atomic bombs, reflecting the context of those times. The 1930s saw a paradigm shift in physics, but molecular biology experienced little advancement.

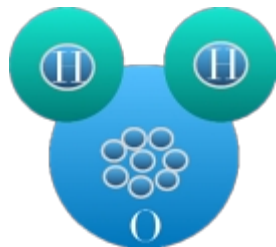
Meanwhile, in 1929, it was discovered

that all living organisms generate ATP in mitochondria, 34 years after Carl Benda verified the existence of mitochondria in cells in 1897. In 1937, the Krebs Cycle, which explains the mechanism by which ATP is produced, was discovered. It's a sequence of processes oxidizing the metabolic byproducts produced through the initial stages of cellular respiration, storing part of its energy in ATP, and transferring the rest to the electron transport chain. However, the impact of deuterium on ATP production wasn't understood until 60 more years had passed.

In 1933, Gilbert N. Lewis, a professor of Chemistry at Berkeley and mentor to Urey, first produced pure deuterium through electrolysis immediately after Urey had proven

its existence. Subsequently, he observed for the first time that when this heavy water was frozen, it sank completely into regular water. He also noticed that it introduced errors in microbial reproductive abilities and delayed the growth of seeds. From then on, a new era of research focused on this newly discovered isotope of hydrogen, deuterium, had arrived. Following Professor Lewis's observation of deuterium, Oscar W. Richards, a researcher from the Osborn Zoological Laboratory at Yale University, confirmed that yeast and sugar operate nine times slower in heavy water.

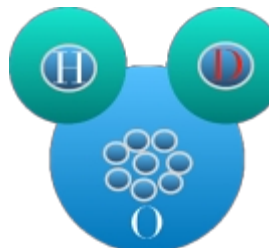
Between 1934 and 1939, H.G Barbour and his colleagues from the Department of Pharmacology at Yale University initiated



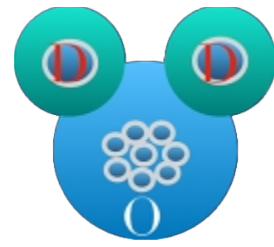
경수 = H<sub>2</sub>O  
Light water  
물 분자 중 99.957%  
99.957% of water molecules

그림 2. 경수, 중수, 삼중수 구조

Fig. 2 The structures of the light water, deuterium water, trilium water



중수 = D<sub>2</sub>O  
Deuterium water  
물 분자 중 1/3,300  
1 in 3,300 water molecules



삼중수 = HDO  
Tritium water  
매우 극소수, 수소 동위원소 중 1/4,100만개  
Very rare, 1 in 41million water molecules

the first systematic study on the effects of deuterium on mice. Between 1933 and 1939, 216 studies regarding the biological impacts of deuterium were published, all converging on similar results. In experiments where 30% of regular water was mixed with heavy water, it was found that bacteria, plants, and animals died within a few days.

More research was needed; however, obtaining deuterium became increasingly difficult due to immense demand in the military sector as World War II unfolded. Biological research on deuterium was halted and gradually vanished until the 1950s. Around 1953, when Francis HC Crick and James D. Watson announced the double helix structure of DNA, Gennady D. Berdyshev, a graduate student researching gerontology and genetics at Tomsk University in Siberia (Soviet Union), along with his colleague Boris N. Rodimov, a biophysicist, investigated a very peculiar query regarding the lifespan of the Soviet population.

While the proportion of the population living over 100 years in the entire Soviet Union was less than 10 per million, in certain

regions of Siberia, it was 324 per 100,000 (32 per 100,000, for reference in South Korea in 2019 it was about 25 per 100,000). Those regions included people living in the high Altai Mountains and the Yakutia region, enjoying health and vitality into old age. Knowing that this area uniquely received clean glacier water melted from high altitudes, he wanted to investigate its relation to the residents' lifespan. They focused on the possibility that some secret properties concealed in ancient glacier ice might be involved.

The first experiment involved melting ice, which had been locked for 300 million years, extracted from 20m deep. In the lab, this water was observed to have a retarding effect on cellular aging due to its impact on cell division. When the laboratory could no longer afford the cost of extracting ice locked for 300 million years, they turned their eyes to the neighboring Siberia and astonishingly confirmed a similar effect. This became the stepping stone for the commencement of research on deuterium-depleted water.

Between 1959 and 1960, experiments conducted by VM Muhachev at Tomsk

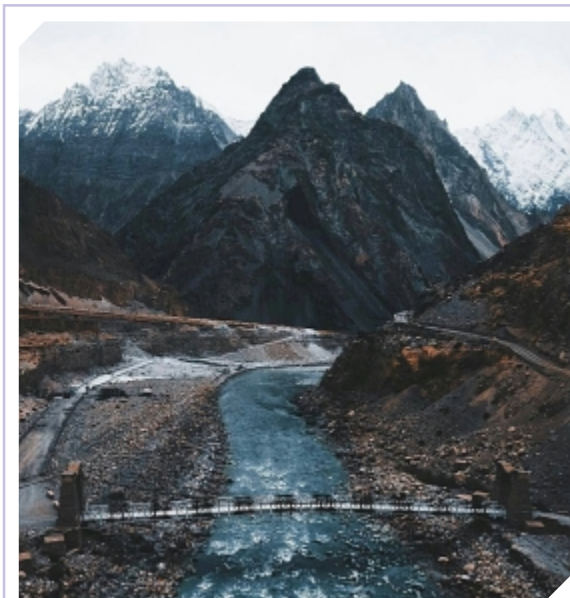


University convinced his colleagues that even a small amount of deuterium distorts the chemistry of hydrogen bonds and inhibits sub-molecular processes. By 1960, Berdyshev had gathered sufficient information relating the consumption of glacier melt-water to human longevity in the Yakutia and Altai regions. Researchers at Tomsk University discovered that the deuterium content in the ancient melted ice and high mountain glacier water was reduced by an average of 15-20% compared to the deuterium ratio known as Vienna Standard Mean Ocean Water (VSMOW), which is 155.76ppm at the equator. This historic finding

was first published in 1961 in the Omsk Agricultural Journal.

Around the time Berdyshev, Rodimov, Muhachev, etc. discovered the life-restoring properties of deuterium-depleted water, they learned of a Level 6 nuclear accident at the Kyshtym nuclear power plant in the southern Ural Mountains. It was the third-largest nuclear accident in history. Berdyshev and his colleagues administered the newly discovered “miracle ice water” to several victims and witnessed miraculous recoveries.

In 1966, Rodimov and his Biology, Physics Department head IV Toroptsev published



### **Karakoram Range, Pakistan**

*Height 7,388m*

*Ultrar*

*“After investigating for the reasons for increased lifespan and lower rates of chronic diseases among the people of Hunza in Northern Pakistan has revealed the deuterium content in the water seeped from the glaciers of high mountains. The water in the Ultrar region of the Karakoram range in Pakistan had a deuterium content of 133ppm, which is a 16% difference from the 155ppm found in regular water.*”



their research in English for researchers and scientists worldwide, making their groundbreaking discoveries on the physiological roles of deuterium in organisms known globally. They were the first scientists to demonstrate how deuterium-depleted water positively impacts biologically.

Experiments on rats showed that a 3% increase in deuterium causes a 20% reduction in offspring birth weight, produces offspring one-third the size of the control group, and inhibits reproduction beyond three generations. Another experiment showed that rats consuming glacier melt-water exhibited higher sexual activity and grew healthier than the control group. Considering deuterium was discovered 30 years prior, this was a significant achievement.

One of the secrets to longevity was finally revealed. Coincidentally, around the same time, one of the biggest news in biology was articulated by UCLA's molecular biologist Paul D. Boyer. He discovered that deuterium burdens the small protein nano-motor in mitochondria, which manufactures ATP at the end of the ETC (Electron Transport Chain),

rotating at 9000 RPM. It was named "ATP Synthase" by Boyer.

It took another 40 years for the effects of deuterium on ATP Synthase to become clearer. By the early 1960s, deuterium was considered merely a heavier isotope of hydrogen and its cellular functions were unknown. While Russians quietly conducted research, Americans were fervently studying traces of deuterium. In 1963, John F. Thomson from Argonne National Laboratory wrote a 152-page paper titled "The Biological Effects of Deuterium."

Research by his colleagues Joseph J. Katz and Henry L. Crespi, published in 1966, emphasized the biological significance of deuterium, showing how it affected protein shapes and DNA replication. The rats used in experiments displayed varied responses to

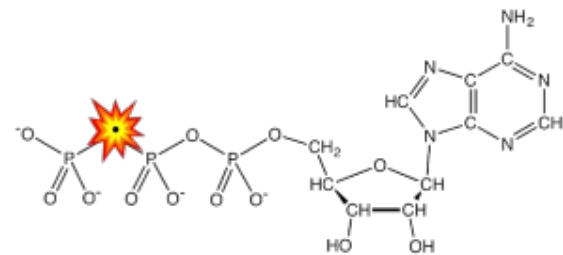


Fig 2. ATP generates energy.

altered deuterium levels. In 1974, TR Griffiths from Argonne National Laboratory postulated at the 2nd International Conference on Stable Isotopes that deuterium might be a primary cause of aging. He observed how deuterium, being more electronegative, heavier, and having different atomic bonding properties than normal hydrogen, could hinder DNA replication.

In 1975, JD Gleason and I. Friedman, based on Russian discoveries on plant growth, conducted and published the first American study on using deuterium-depleted water (DDW) to enhance the growth of cereals.

The 16% decrease of deuterium in the water of the Hunza village in Pakistan may seem insignificant, but according to Griffiths' theory, the biological back-effect of deuterium is proportional to the square of the concentration. This is a very important issue, suggesting that even slightly deuterium-depleted water can have significant biological benefits. Intensive research related to this was conducted in Romania and Hungary up until the 1990s.

W. Bild and colleagues from the University of Medicine and Pharmacy in Romania reported

that mice exposed to radiation below 8.5 grays of lethal dose showed higher survival rates when drinking deuterium-depleted water. Mice drinking water with 30ppm less deuterium showed a 61% survival rate, while the control group drinking regular tap water (150ppm) showed a 25% survival rate. The test group maintained normal white blood cell, red blood cell, and platelet counts compared to the control group. After infecting both groups with pneumonia, the test group showed enhanced immune defense, not observed in the control group.

Scientists concluded that mice drinking low-level deuterium water could have survival benefits by having fewer errors during cell division and more effectively repairing radiation-damaged DNA. Due to the deuterium-depleted water not being well known, it seemed miraculous at first glance, but once again, its biological effects were proven. This animal experiment was conducted solely to assess the impact of deuterium depletion on patients undergoing chemotherapy for cancer treatment.

In the early 90s, significant achievements

were made in research by Gabor Somylai, a physician and molecular biologist who conducted extensive clinical trials on deuterium depletion along with the research of Nobel laureate Albert Szent-Györgyi. By 1998 and 2001, through his double-blind clinical trials discussed in his books, “The Biological Effects of Deuterium Depletion” and “Defeating Cancer. Somylai,” he demonstrated that his test group had significantly better survival rates and that deuterium-depleted water showed no side effects and served as an excellent complementary treatment in conventional cancer therapies.

From October 1992 to the spring of 1999, Dr. Somylai and his team recorded over 12,000 pages of documents, administered about 350 tons of deuterium-depleted water to patients under around 1,200 patents. In 2019, he conducted 2,222 case studies on deuterium-depleted water, making Hungary a recognized center for deuterium-depleted water research.

After the fall of the Soviet Union, Berdyshev, a prominent aging scholar and head of the Genetics Department at Taras Shevchenko

National University in Kyiv, initiated a new field called Juventology. His team developed a process to reduce deuterium levels by using a freezing and thawing cycle, which allowed them to remove around 5% of deuterium from the water.

In the early 21st century, researchers were well aware of the protective effects of drinking deuterium-depleted water against DNA damage, but the precise reason wasn't known. The enigma seems to be unraveling due to endless human efforts to elucidate the mysteries of the human body.

In 2006, Russian chemists Igor A. Pomytkin and OE Kolesova published research on the natural concentration of deuterium in mitochondria and its relation to the generation rate of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). The study showed that deuterium damages cells and, conversely, light water (deuterium-depleted water) preserves health, with the mechanism occurring somewhere in the mitochondria.

2007 marked a pivotal moment in deuterium science when Abdullah Olgun, a doctor, biochemist, and pharmacologist at

Gülhane School of Medicine in Ankara, Turkey, presented on the biological effects of deuterium and aging, exemplified by ATP Synthase. Olgun demonstrated how deuterium causes damage, confirming that ATP Synthase occurs in the nano-motor within the last step of the electron transport chain.

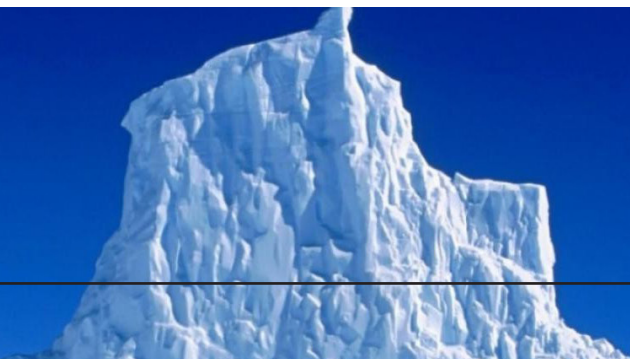
Anton Chernopiatko, a Russian businessman, scientist, and researcher in deuterium depletion, co-authored a study in 2015 showing that increased deuterium content in water increases susceptibility to depression. He constructed a factory to produce light water on a commercial scale, advancing the production of light water beyond laboratory and research purposes.

By the 90s, Berdyshev had developed an industrial process using refrigeration technology to reduce deuterium by 30-40%, but the first vacuum purification system for light water production was developed by Dr. Igor A.

Pomytkin. Alexander Emalianov and Anton Chernopiatko commercialized the technology developed in a Moscow laboratory in 2012, building a factory to produce deuterium-depleted water.

Dr. Laszlo Boros from the University of California, one of the most knowledgeable biochemists in the field, co-founded the Center for Deuterium Depletion in Los Angeles, offering deuterium body tests and treatment protocols to the public.

Many scientists in this field argue that the ideal level of deuterium in the body is below 120ppm. Achieving this could prevent diseases, promote longevity, and possibly cure existing diseases, by consuming 1.5 liters of 80-100ppm deuterium-depleted water daily for 45-60 days, while minimizing the intake of other beverages. After 60 days, maintaining this level would be possible by drinking deuterium-depleted water within the 100-120ppm range only.



Hue Light, collaborating with the Moscow Institute of Fine Chemical Technologies, is supplying deuterium-depleted water to cancer patients in Korea for the first time. Meanwhile, the author feels honored to introduce most of the doctors and scientists mentioned in this article to South Korea by accessing their literature and summarizing and reporting the correct information for the first time.

# Publication



Deterium Depletion on Cancer (Hungary)

Dr. G. Somlyai

## Deuterium Depleted Water Manufacturing process of Deuterium Depleted Water



*Past manufacturing process at first of Lightwater*



*Current Manufacturing process of Lightwater  
(Vacuum Fractional distillation–rectification)*



**Smart investment for anti-aging and health**



# The importance of reducing deuterium level in the body fluid verified by numerous studies

## Effects

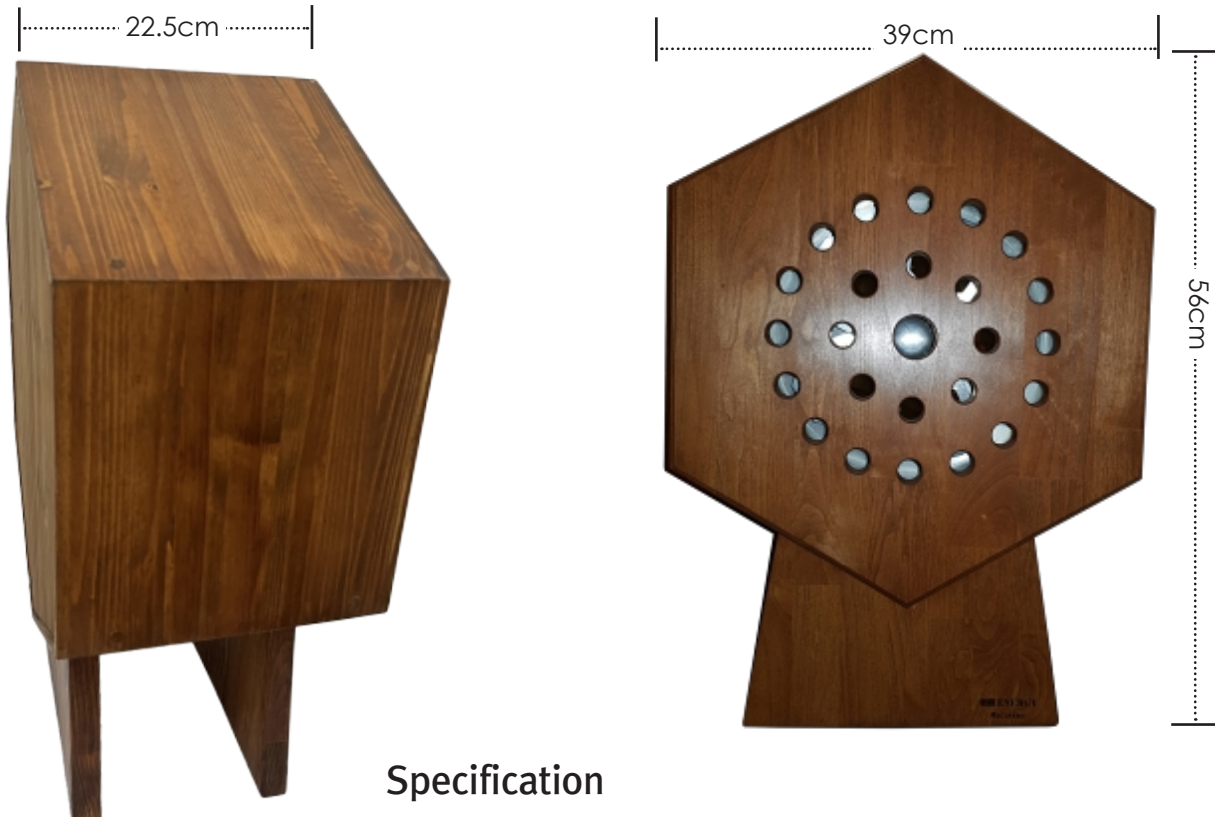
- ✓ Anti-aging effects
- ✓ Increase in body energy (ATP synthesis)
- ✓ Decrease in cancer cells
- ✓ Reduce inflammations
- ✓ Enhance overall health





# Space Energy Device

“SPACE ENERGY” refers to a device that cohere and emit the energy using the constant geometric structured plate. This near to ZERO, nonelectronic magnetic energy aids in vivoactivity through rotary (swirl) motion, which differs from electric energy. This energy balances the microorganisms by transforming the energy flow and the matter in the space.



## Specification

*Dimension:* 39 cm x 56 cm x 22.5 cm

*Weight:* 16 kg

*Max coverage area:* 90m<sup>2</sup>

*Maintenance :* No need for maintenance

## Zero-point energy

# The existence of the invisible

The substances discovered in the space-time is only 4%. In 1913, an astronomer, Fritz Zwicky stated that there are 96% of the dark energy and matter still unknown. This dark matter and energy are penetrating our body and the universe every moment; however, it has been scientifically disregarded because there was no way to prove its existence.

Clark Maxwell (1831-1879) first introduced the Maxwell's equations in order to solve all physical problems in acknowledging higher order 3-dimensional principles of the physical phenomena. There were 20 equations in the original Maxwell's equations illustrating the multidimensional spatial characteristics of vector and scalar displaying the potential of the spatial energy, but they have been edited to 4 equations by Oliver Heaviside (1850-1925).

As a result, scientific exploration of finding the origin of the energy through mathematics in the 19th century physics and the interest in the origin of current wavelengths in the 3rd dimension have diminished.

The higher energy in existent in the space can cohere to be visible in the 3D reality. George F. B. Rieman (1826-1866) and Jules H. Poincaré(1854-1912) also have addressed the multidimensional structure of the space. Rieman introduced the concept of multidimensional space and the basic principle of the nature of 3-D space. He explained about other mystical forces like electromagnetic force and gravitation as combined 4th dimensional force. Furthermore, Poincaré mathematically arranged the multidimensional spatial structure causing Newton's theory of substance and other chaos. Due to this, he became a pioneer in the chaos theory, which introduced the nonlinear theory beyond the theoretical limits of the linear equation.

Later, Einstein and Otto Stern confirmed that there is an energy that does not disappear at 0 degrees and named it as a zero point energy and named the electromagnetic field occurred from this as zero point field.

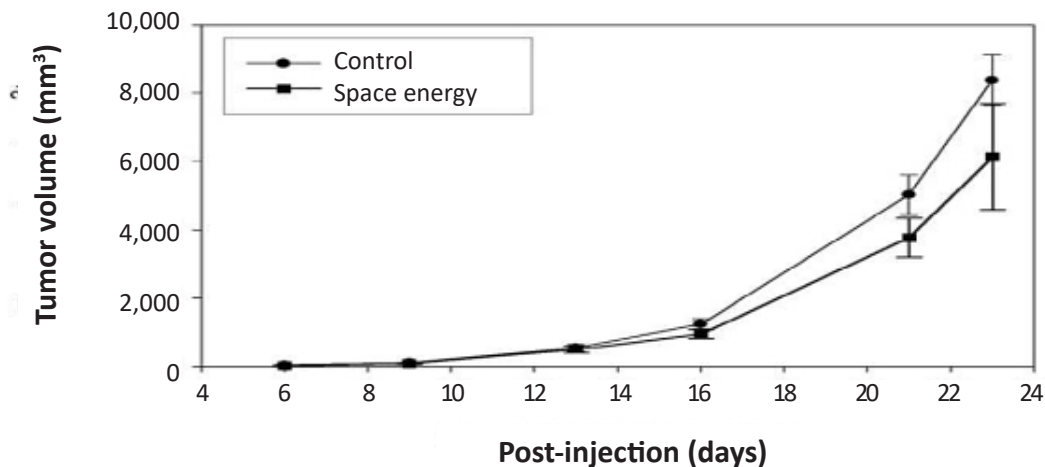
Scientifically proven

# The effects of space energy

Space energy can have a positive influence on the living things as the microorganisms in the air change. Many scientists are developing this energy device in various ways to aid in vivo-activity.

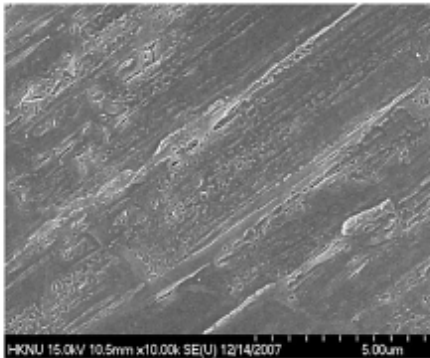
*The following experimental results have been retrieved from Korea Institute for Advancement of Technology, 11-143 Abstract on Space Energy Based Technology (2011)*

**1** Exposure to the space energy can reduce the size of the tumor cells.

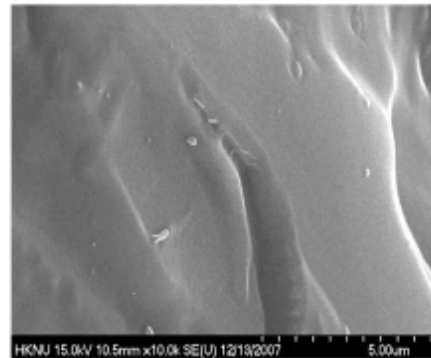


**2**

**Exposure to the space energy can smooth the surface of the ice (water).**



Distilled water ice surface



Space energy exposed distilled water ice surface

### *Experiment Result*

*The ice surface of the distilled water exposed to the space energy is in the structure like a snow, it is perceived to be tiny frozen water particles have been gathered. Meanwhile, not exposed distilled water's water particles are bigger, so the ice surface is very rough.*

3

Exposure to the space energy can smooth the frozen meat to smoothly cut down through it.

Pork Thigh



Pork Neck



Pork Belly



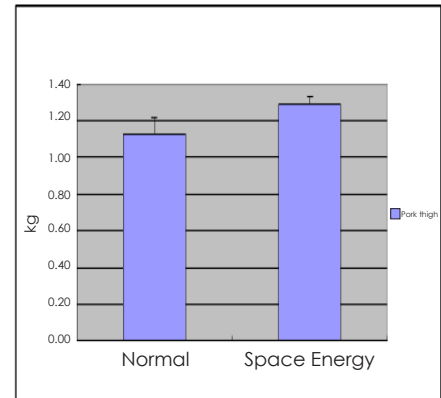
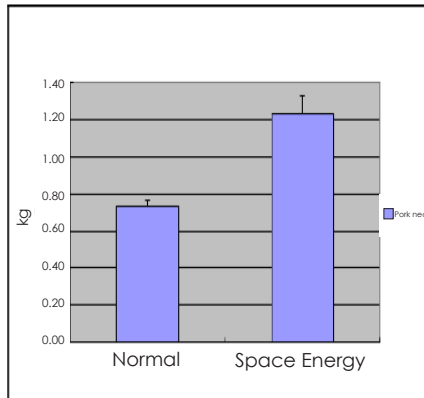
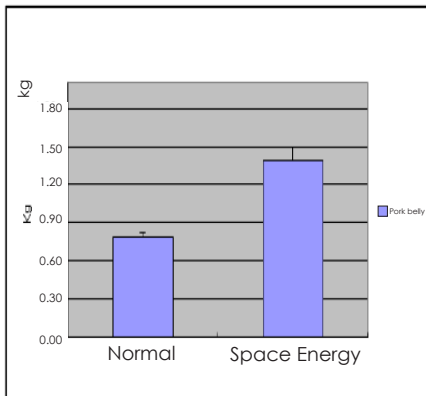
**Cutting Force**

measurement: kg

**Pork Belly**

**Pork Neck**

**Pork Thigh**



Normal:	Space Energy:	Normal:	Space Energy:	Normal:	Space Energy:
0.78±0.04	1.39±0.11	0.74±0.03	1.24±0.09	1.13±0.09	1.29±0.04

*Experiment Result*

The frozen meat exposed to the space energy required less cutting force to cut down through the meat. The intensity of the frozen state is not very strong means that the smaller water cluster have been frozen as if cutting through the broken ice particles.

**4** Exposure to the space energy can longer preserve the fruit and plants.

AFTER 12 DAYS - Indoor



Normal

Space Energy

AFTER 3 DAYS - Indoor



Normal

Space Energy



Normal

Space Energy

Closer look at the surface



Normal



Space Energy

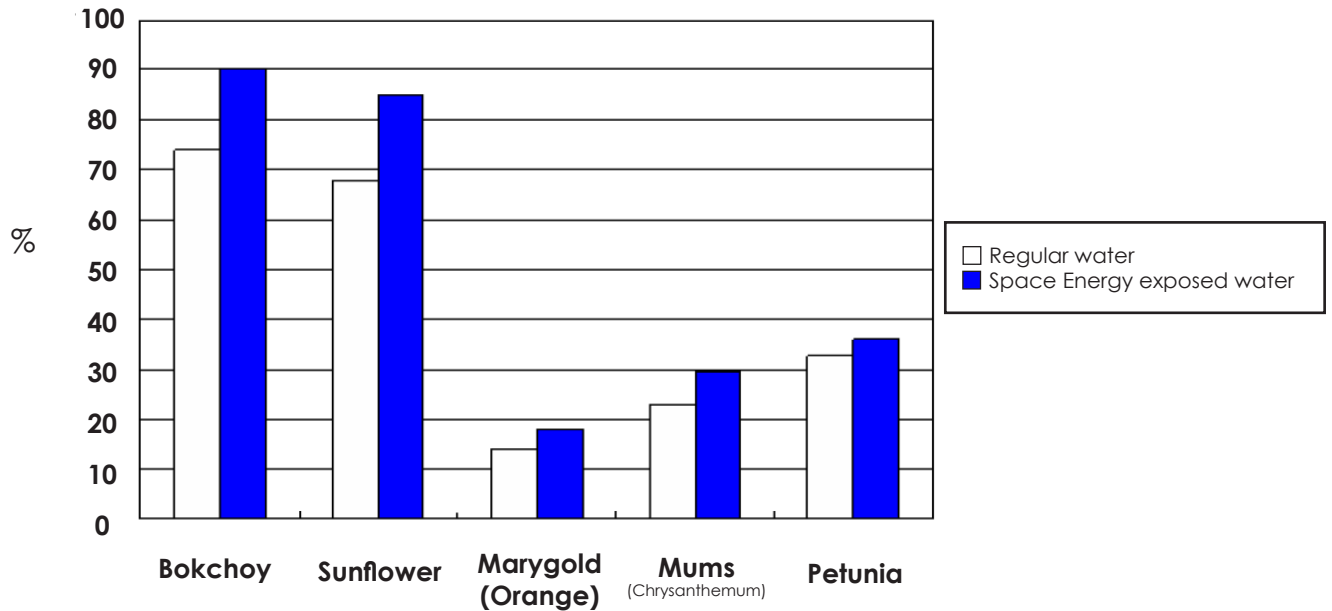


### *Experiment Results*

- Lily exposed to the space energy for three days: The degree of the lily to wilt and decay slowed down.
- Strawberry exposed to the space energy for twelve days: the duration of its freshness has increased.
- Tofu: The dripping effect caused from the collapse of the surface of the protein has reduced after the exposure to the space energy.

**5**

**Exposure to the space energy can accelerate the seed germination.**

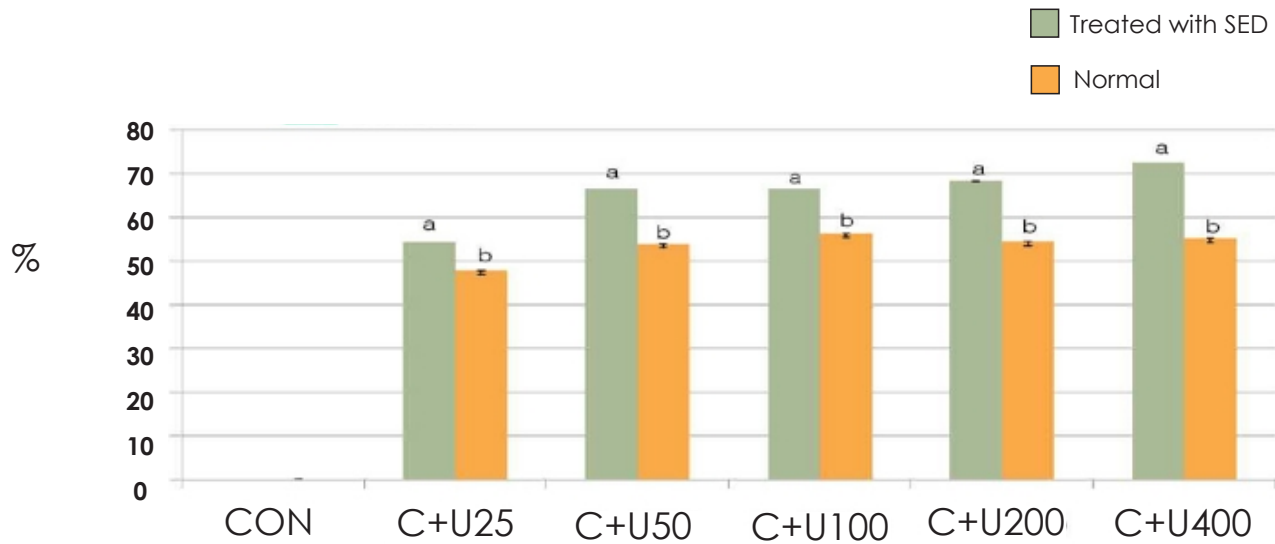


*Experiment Result*

- » Seeds watered with the space energy exposed water: accelerated seed germination observed
- » This is supposed to be due to space energy working to structure the water in which then accelerated the bioactivity of the plants.

## 6

## Exposure to the space energy has a higher level of antioxidant effect



### Experiment Result

Antioxidant measurement results using the energy exposure badge: In the distilled water exposed to space energy device (SED), 5~20% differences were observed. More antioxidant effect means better potential to maintain health and anti-aging.

7

**Exposure to the space energy can revert the old engine oil back to its color and function**



non-SED  
treated water  
+  
non-SED  
treated old  
engine oil

non-SED  
treated water  
+  
SED treated old  
engine oil

SED treated  
water  
+  
non-SED  
treated old  
engine oil

SED treated  
water  
+  
SED treated old  
engine oil

**Change in Used Engine Oil Due to Exposure to Space Energy:**

*(Yonsei Wonju Medical Univ, Prof. Kim, H.W.)*

**Following changes were observed after the 3-day exposure to the SED:**

- *Black-colored old engine oil turned more into its original color- brown.*
- *SED treated old engine oil started to smell like an engine oil.*
- *After dropping several drops of water into the engine oil, SED exposed engine oil started to mix in with the water. The old engine oil did not get mixed into the water.*
- *Old engine oil did not ignite fire, but SED-treated-old engine oil were highly flammable.*



**Engine oil & faucet water mixture -**

Completely separated, the oil is floating above the water



**Engine oil & salt water (from a squid water tank) mixture -**

Mixes better than the faucet water but the particle mixtures are rough

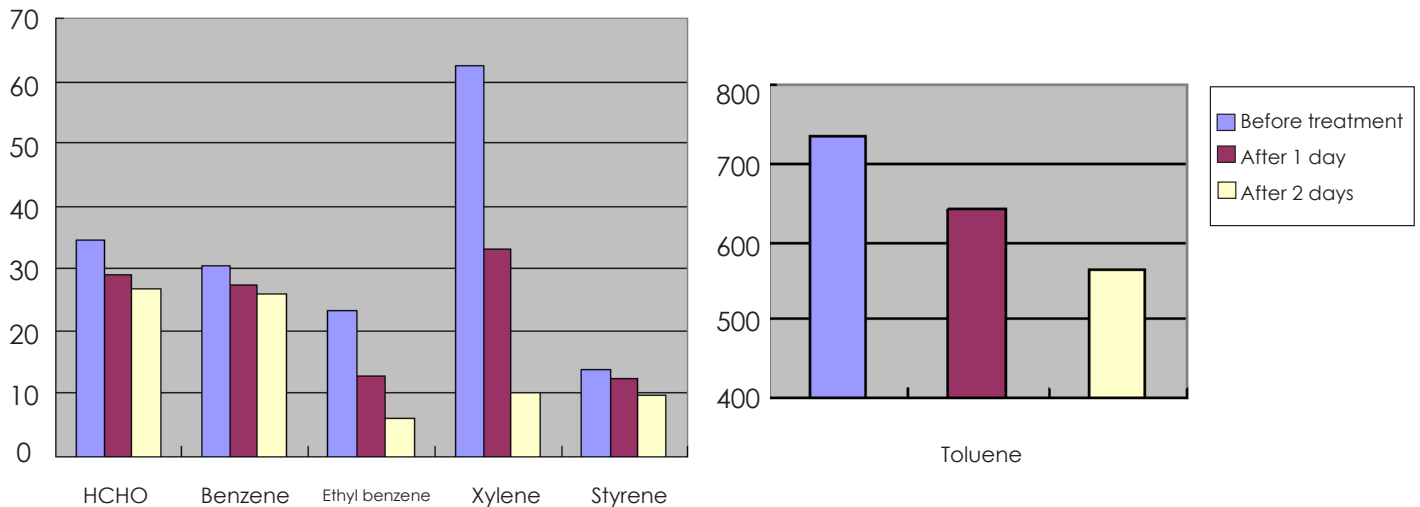


**Engine oil & SED-treated water mixture -**

Gets well mixed in immediately after shaking it. The particles are smooth.

## 8 Exposure to the space energy decompose the flammable VOC

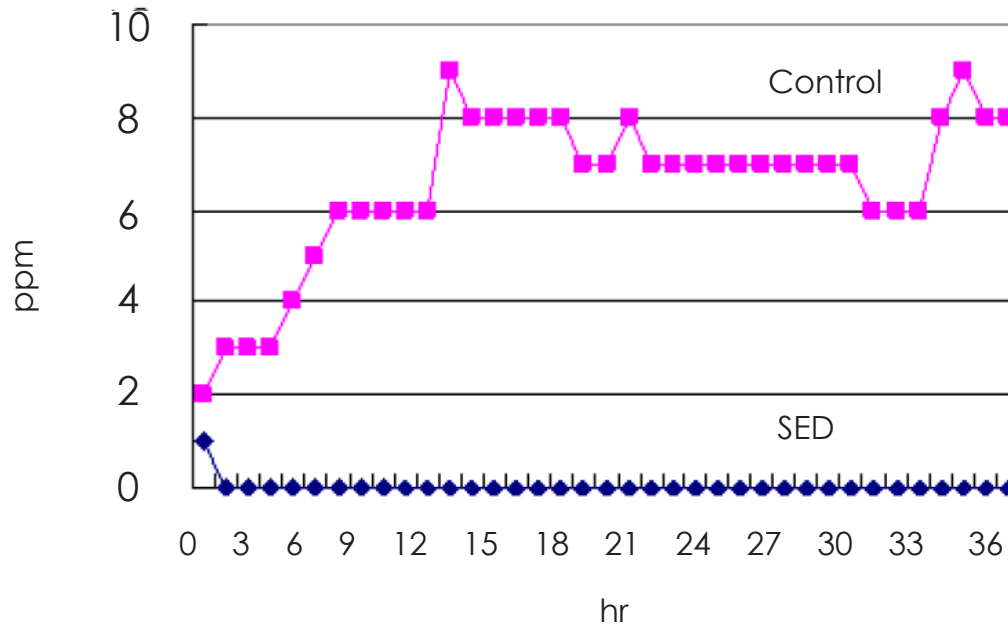
Criteria	Day 0	Day 1	Day 2	Acceptable level (µg/m³)
HCHO	34.7	28.9	23.6	25
Benzene	30.6	27.4	25.8	30
Toluene	732.1	642.0	564.8	1,000
Ethyl benzene	23.4	12.7	6.0	360
Xylene	62.3	33.3	10.3	700
Styrene	14.1	12.3	9.8	300



New House syndrome causing flammable volatile organic compounds (VOC) exposed to the space energy test results: after only two days, the VOC levels dropped below the acceptable level.

## 9

## Exposure to the space energy reduces the ammonia level from the livestock manure



### Experiment Result

- » The ammonia level from the livestock manure had diminished after the exposure to the space energy
- » Its form changed from a decay state to a **fermentation state**



## In the space where there's a space energy device...



Maintain the freshness of food longer



Turn the property of water to be healthier



Accelerate the plant growth



Prevent oxidation and promote fermentation

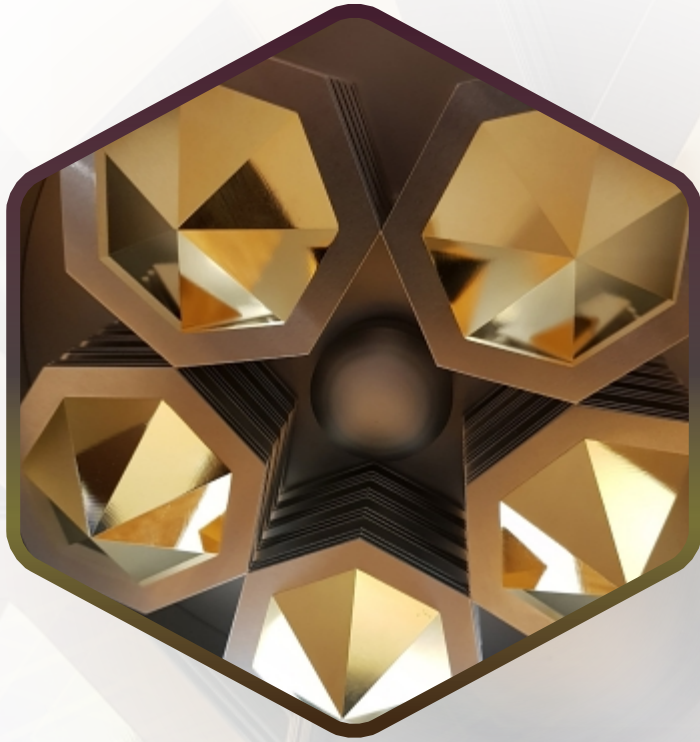


Lessen the occurrence of common cold

**You** **Tube**

“space energy” “zero energy”



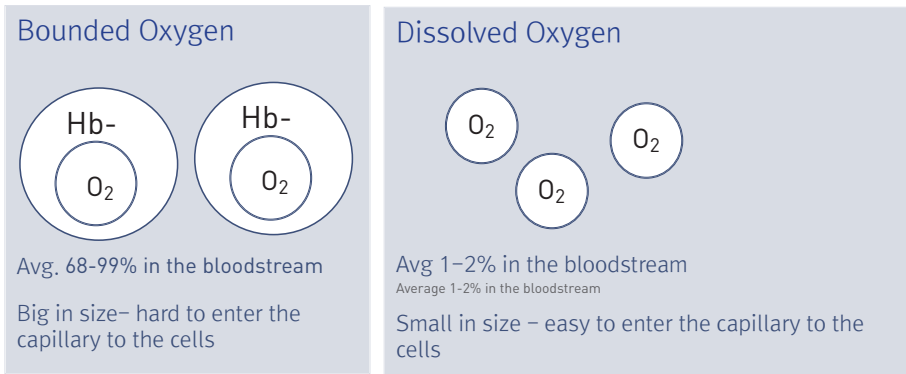


# Hyperbaric Oxygen Capsule

**"Soluble Oxygen" is an effective treatment for peripheral circulatory disorders and infected wound.**

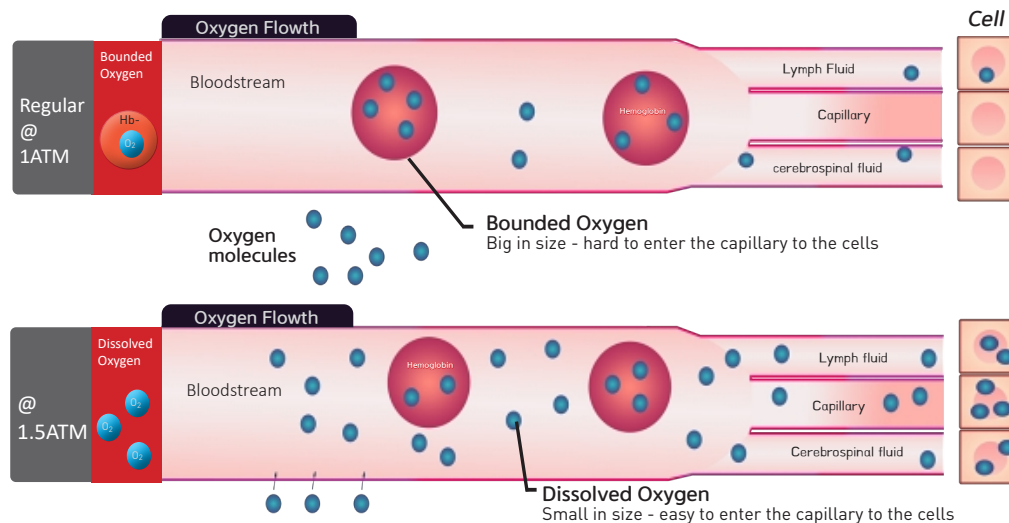
*Over 40% of concentrated O<sub>2</sub> is absorbed inside the high-pressure Oxygen chamber. This treatment method increases the oxygen saturation level inside the cells and the blood vessels. It was originally applied for partial disorders including decompression sickness (DCS), carbon monoxide-poisoning; moreover, recently clinical studies are backing evidences that it can also be helpful for Parkinson's and Alzheimer's.*

# Mechanism



## Oxygen absorption of the cells

*Before and after the hyperbaric oxygen therapy*



# Models

**HBOT-070**  
1.5 ATA



**HBOT-120**  
2.0 ATA



**HBOT-130**  
3.0 ATA





## Specification

**Device:** Hyperbaric Oxygen Capsule (Bed)

**Model:** HBOT-130

**External Frame (Tank material):** Stainless 304, thickness 3.6mm

**Maximum pressure:** Max 2.3 ATA

**Pressure setting:** 1.1, 1.3, 1.5, 1.7, 2.0, 2.3 (Option 2.4-3.0 ATA)

**Oxygen generator:** Oxygen generator inside the controller

**Breathing method:** Breathing mask inside the capsule

**Languages:** 17 Different languages available

**Cooling system:** Cooling system dedicated for hyperbaric oxygen treatment device

**Dimension:** Chamber 2100mm(L) × 950mm(H) x 810mm(W)

Controller 580mm(L) × 899mm(H) x 390mm(W)

**Weight:** 250 kg (capsule); 45kg (controller)





## Specification

Device: **Hyperbaric oxygen capsule (Chair)**

Model: **HBOT-120**

External Frame (Tank material): **Alloy Q34**, thickness **5mm**

Pressure setting: **1.1, 1.3, 1.5, 1.7, 2.0 (최대 Max 2.0 ATA)**

Pressure method: **1-4 gears (At 4th gear, the pressure gradually increases)**

Oxygen generator: **Oxygen generator inside the controller (93%, 10L/min)**

Gas (O<sub>2</sub> and CO<sub>2</sub>) detecting system: **0-1000PPM medical standards**

Circulating air system: **Continuous system**

Breathing method: **Breathing mask inside the capsule**

Languages: **17 Different languages available**

Cooling system: **Cooling system dedicated for hyperbaric oxygen treatment device (Medical)**

Dimension: Chamber **1500mm(L) × 1550mm(H) x 1300mm(W)** (doors can be removed)

Controller **580mm(L) × 899mm(H) 390mm(W)**

Key control system: **ARM master control extension system**



## ***Specification***

**Device: Hyperbaric oxygen capsule (Chair)**

**Model: HBOT-070**

**External Frame (Tank material): Alloy Q34, thickness 5mm**

**Pressure setting: 1.1, 1.3, 1.5 ATA**

**Pressure method: 1-4 gears (At 4th gear, the pressure gradually increases)**

**Oxygen generator: Oxygen generator inside the controller (93%, 10L/min)**

**Gas (O<sub>2</sub> and CO<sub>2</sub>) detecting system: 0-1000PPM medical standards**

**Circulating air system: Continuous system**

**Breathing method: Breathing mask inside the capsule**

**Languages: 17 Different languages available**

**Cooling system: Cooling system dedicated for hyperbaric oxygen treatment device (Medical)**

**Dimension: (Chamber) 1,450mm(L) × 1,750mm(H) x 780mm(W)**

**(Controller) 580mm(L) × 899mm(H) 390mm(W)**

**Power: AC220V 50Hz-60Hz, 110V option**

**Key control system: ARM master control extension system**



# Effects

- » *Improve stagnant hypoxic state of the cells*
- » *Accelerate wound healing*
- » *Sterilizing effect by leukocytes a.k.a. white blood cells: applicable states include bacterial infection, gas gangrene, necrotizing fasciitis, osteomyelitis, and etc.*
- » *Expedite Nitrogen gas excretion within the body*

**01**

## **Clinical applications and contemporary trends of hyperbaric oxygen therapy in Korea**

You, Y. H., Kim, H., Kim, H., Choi, S., & Kim, G. (2014)

*Through theoretical treatment mechanisms and several significant clinical studies, it is evident that hyperbaric oxygen therapy is an effective treatment for various diseases. Therefore, it is necessary to actively use hyperbaric oxygen therapy for diseases that are adaptable to it.*

**02**

## **A case report of a patient with ADHD and learning disorders treated with hyperbaric oxygen therapy and the oriental medical therapy**

Lee, S., Lee, R., Lee, S., & Park, S. (2013)

*The improvement of the patient's concentration, communication, motion, confidence, and sleep conditions were observed. These therapies including the hyperbaric oxygen therapy are efficient for the treatment of ADHD and learning*

## 03

### **Influence of the application to hyperbaric oxygen therapy and physical therapy on chronic low back pain in elderly**

Yoon, J., Jang, M., Hyun, S., & Yoon, B. (2011)

*Application of HBOT in chronic low back pain could be beneficial for reducing pain and could help in functional recovery.*

## 04

### **A case-control study on the effect of hyperbaric oxygen therapy on cerebral infarction patients**

Oh, M., Kim, D., Yim, H., & Shin, H. (2008)

*The results suggest that hyperbaric oxygen therapy (HBOT) could be a useful medical treatment to treat cerebral infarction. Further studies are needed on more cases to make sure that hyperbaric oxygen therapy (HBOT) is surely effective for cerebral infarction.*

# Sonicwave Vibration Device

Stimulate the muscle fibers

Efficient energy deliverance

Optimal sonicwave application

Out-beating the gravity

Speaker Mechanism





# SMOOTH yet POWERFUL

## *Specification*

*Device:* **Sonicwave Exercising Device**

*Model:* **Wave Motion (MWE-01)**

*Applied frequency:* **5~30Hz**

*Vibration range:* **Max 8mm**

*Intensity:* **10~100%**

*Time setting:* **1~20 min**

*Allowed max weight:* **150kg**

*Power:* **450W; 50/60Hz 85~260V**

*Weight:* **119 kg**

*Dimension:* **820mm (W) x 930mm (L) x 1550mm (H)**

*Modes:* **1 Manual, 10 Auto modes (3 levels)**

*Indoor use*

**WAVE**  
**MOTION**



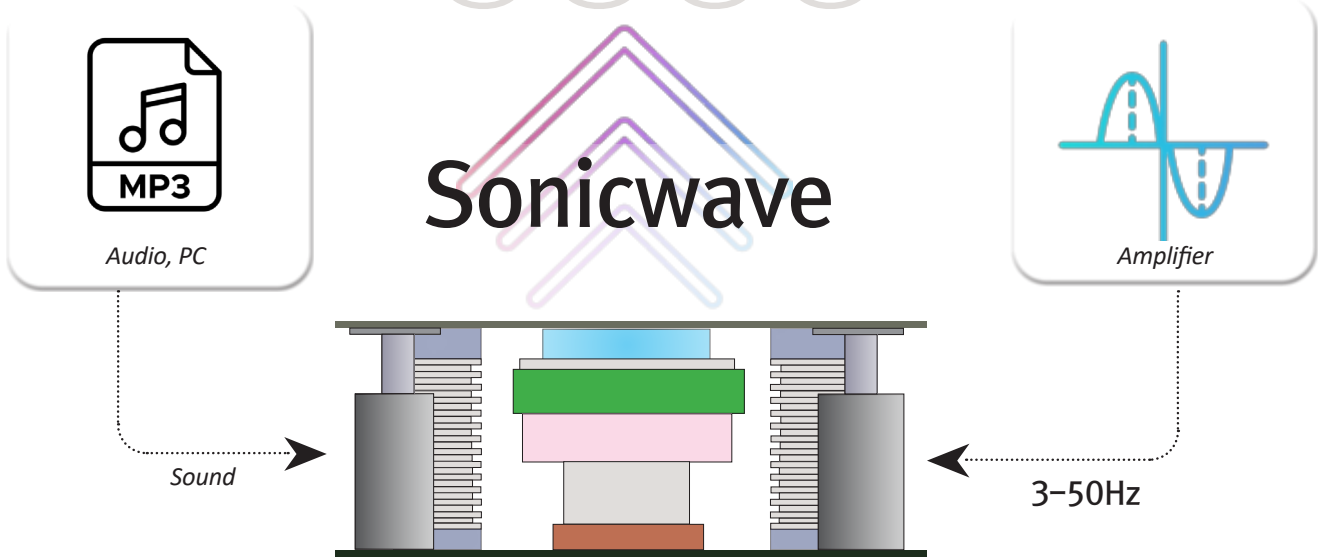
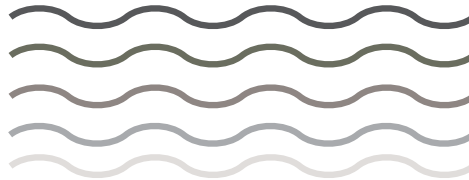
# Effects

- » *Relieves chronic pain by relaxing the tensions of the main joints*
- » *Improves musculoskeletal disorders (osteoporosis & degenerative arthritis)*
- » *Exercise aid for patients after the surgery*
- » *Enhance muscular strength & durability*
- » *Enhance the body balance system*

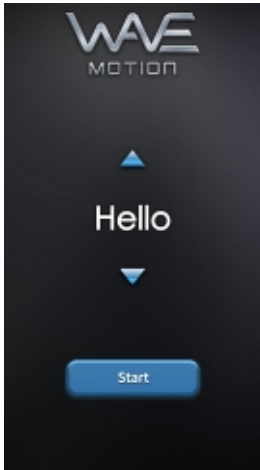
# Mechanism



Effective 10-min workout  
without strain on joints,  
ligaments, and tendons



# Features



Available languages to select from  
(Korean, English, Japanese, French, and Spanish)

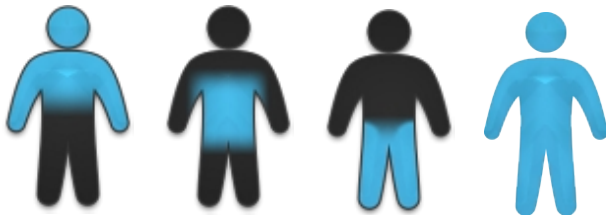
반가워요

こんにちは

Hola

Salut

Various program modes to select from (10 programmed modes)



Mode A - Select the Body Part



Mode B - Select the Functional Programs



# 01

## Efficiency of lumbar rehabilitation training through synergy effect of whole body vibration & flexibility exercise

Spring symposium of Korea rehabilitation welfare engineering society

**RESULT** WBV treatment maintains the flexibility, continuous vitalization and muscular tension and brings the effect of stretching with more efficiency.

**CONCLUSION** WBV can work to maximize the efficiency of the lumbar rehabilitation training along with stretching.

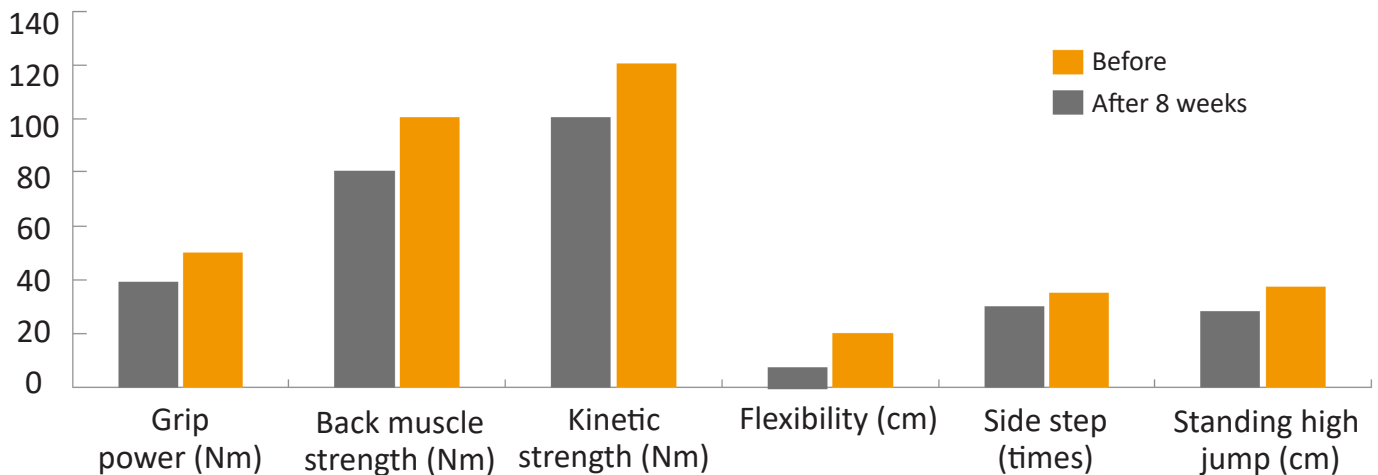


Figure 6. Variation of based physical fitness with WMV (Standard means, \* $p < 0.1$ , \*\* $p < 0.05$ )

## 02

## Effect of whole-body sonicwave vibration (WBV) on the correction of the elder's walking capability (walking step) and the posture balance capability

PhD. & associate professor of sport science Dept. of Warrette University.

**RESULTS** *The results indicated that the WBV is very effective for improving elder's walking capability. It improved the swing speed of the legs, walking step and maximum one-leg standing up time. After the SWV treatment, patient's swing speed of unaffected legs, stride length of feet and percentage of toe-off from the view of normal side have improved. The balance of aerodynamic core sway speed in the dorsal (front) & ventral (back) of the thigh also improved. Moreover, in the second study, WBV exercise improved the posture balancing capability as the vertical vibration strengthened the lower limb muscles.*

**CONCLUSION** *Sonicwave Vibration Exercising Device is recommended for the rehabilitation training for the elderly people who need the improvement of posture balancing capability as well as gaining overall muscle strengths.*

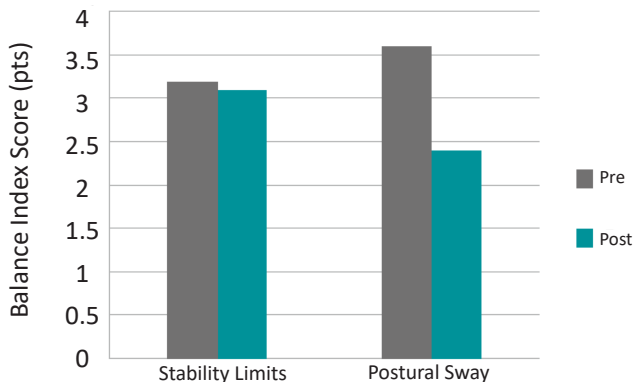


Figure 1. Change of balance points after the whole-body vibration (WBV)

Study conducted by: Department of Sports Science, Warrette University

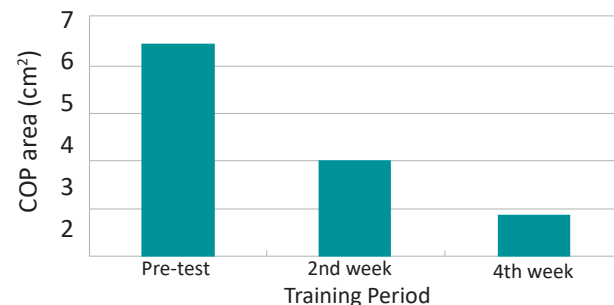


Figure 2. Evaluation result of posture balancing capability before and after the vibration training

Study conducted by: Welfare equipment research center, Biomedical Engineering Department of Cheonbuk National University

## 03

### **Effect of SWV on the brain cells in the brain hemorrhage-induced rat**

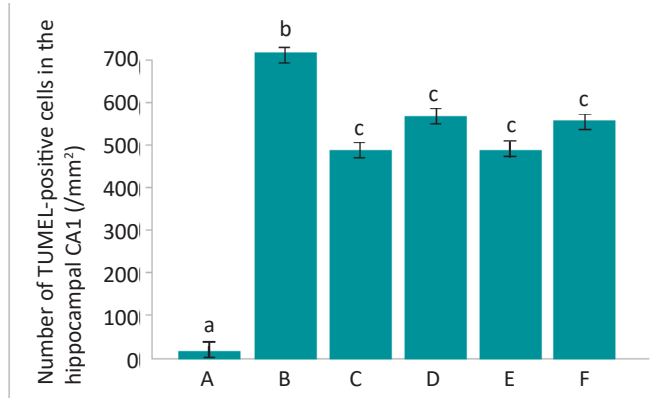
Or.Kim; Chang-Joo of Physiology class, medical college of kyung Hee University

**RESULTS** *SWV reduced the extinction of damaged brain cells and minimized the neurologic disorder caused by the brain hemorrhage.*

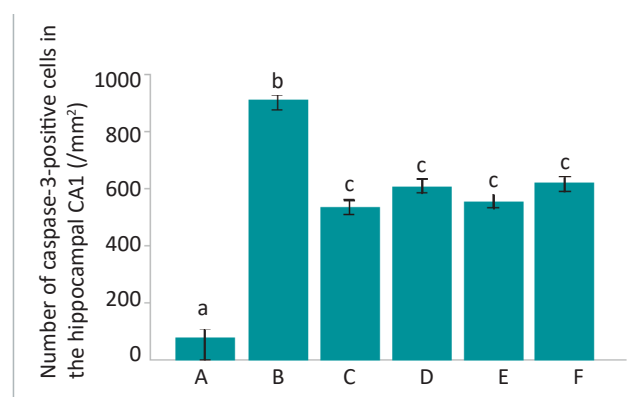
**CONCLUSION** *Highly recommend SWV for rehabilitation work out for patients with brain hemorrhage.*



1) Hippocampus dentate gyrus tunnel-Benign cellular change



2) Hippocampus dentate gyrus caspaso-3-Benign cellular change



3) Hippocampus dentate gyrus Ki-67-Benign cellular change

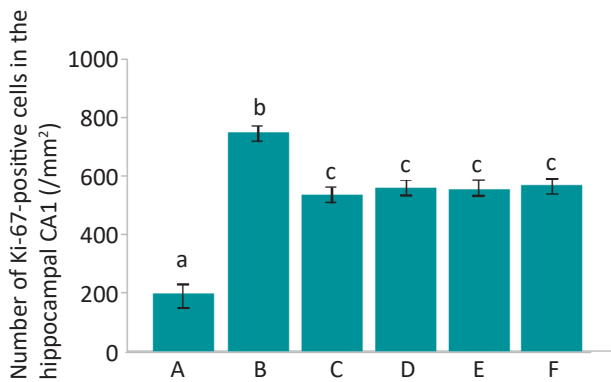


Figure 3-5. Hippocampus dentate gyrus cellular change

## 04

### Effect of WBV on state of blood cell

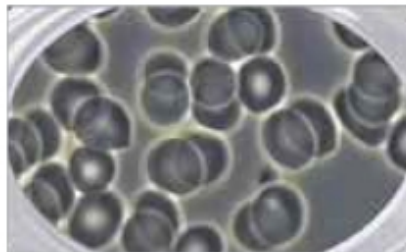
Dr. Jacob Swiling, USA

**RESULTS** *After the WBV treatment, blood cells separated more clearly and moved smoothly. Moreover, after the WBV treatment, the pH index of the blood changed from acidity to alkalinity.*

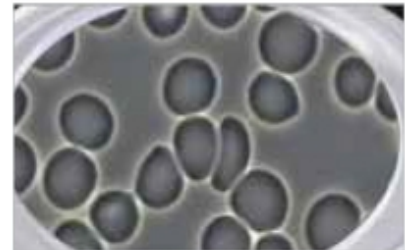
**CONCLUSION** *WBV can aid the cells to charge more dynamic energy, better deliver nutrients and energy to the cells.*



The state of the blood cells before the WBV exercise



The state of the blood cells after 10 minutes of WBV exercise



The state of the blood cells after 10 minutes of WBV exercise and 10 minutes of rest

Figure 7. Changes in the state of blood corpuscle (blood cells) before & after WBV

## 05

## Effect of partial vibration stimulation for preventing osteoporosis (A pilot study)

International Society of Biomechanics Congress 2011,  
Brussels Medical Engineering dept of Yonsei Univ.

**RESULTS** *Partial vibration stimulation for 6 weeks meaningfully increases bone density.*

**CONCLUSION** *Vibration stimulation effects to prevent bone loss and reduce the risk of bone damage.*

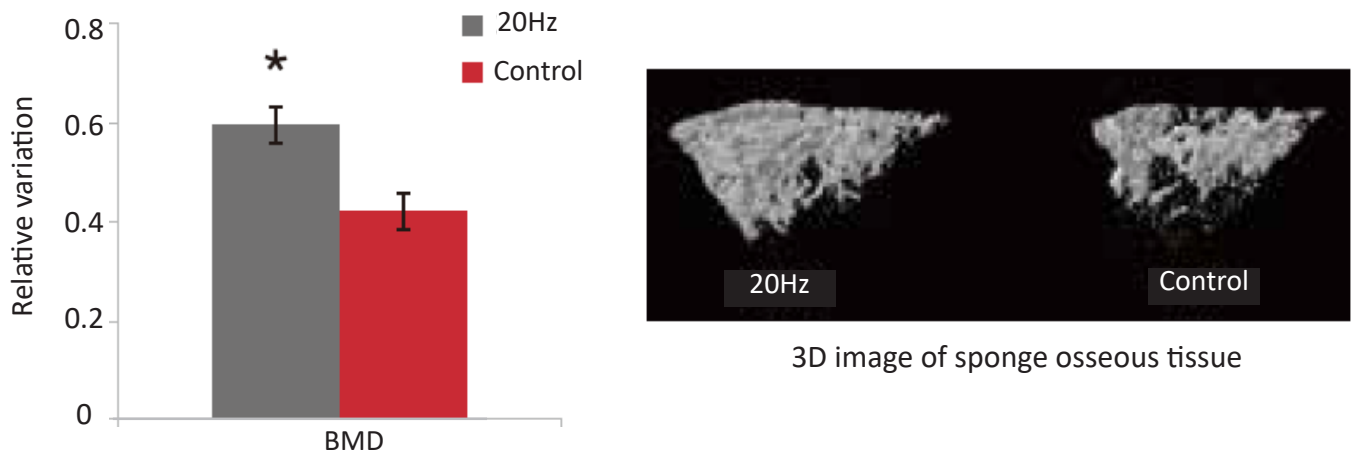


Figure 8. Changes in the osseous tissue at partial vibration (20Hz)



# Hue Light

IMMUNITY CARE SYSTEMS

## **Hue Light Co., Ltd.**

[info@huelight.kr](mailto:info@huelight.kr)

+82-2-898-2116

SK Technopark E-1311, 60, Haan-ro,  
Gwangmyeong-si, Gyeonggi-do, Republic of Korea

[www.hue-light.kr](http://www.hue-light.kr)