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celloxy delivers hypoxic air gas. Hypoxia influences the human body in several ways and causes changes that have an impact on the health. Therefore, the classification of the technology as medical is non-negotiable. Any IHHT therapy should be performed with a device carrying a medical CE. It is our commitment to always comply with all regulatory, quality, and legal requirement in EU.

HYPOXIA | WHAT IS IT?

Severe hypoxia is well known to be associated with deleterious consequences for the human body.

For example, obstructive sleep apnea with brief and frequently recurrent cycles of hypoxia has been found to be linked to hypertension, stroke, and adverse cardiac events.

On the contrary, short and controlled intervals of moderate hypoxia that is no less than 9% cause a type of moderate stress that leads to beneficial adaptations, including but not limited to:

- Increase of vasolidation, angiogenesis, erythropoiesis
- Induction of defence protein synthesis (HSP, Fe-RP, repair enzymes)
- Increase of glycolic enzymes
- Improvement of insulin sensitivity
- Decrease of cholesterol levels
- Anti-inflammatory effect

WHAT IS THE INTERMITTENT HYPOXIC THERAPY?

It involves breathing in hypoxic (low oxygen) air with intervals of hyperoxic (high oxygen) air. Normoxic (normal oxygen concentration) phases can replace the hyperoxic phases, but are generally less efficient, since the restoration of the normal SpO_2 levels takes longer and the effect of the succesive hypoxic phase is decreased.

The patient quietly inhales the air mixture supplied by the precisely controlled unit through a mask, and remains lying down on a comfortable position for the whole duration of the therapy. Not rarely, will the patient fall asleep and describe the whole procedure as deeply relaxing.







"sola dosis facit venenum"





MITOCHONDRIA

Under the conditions of hypoxia, mitochondrial respiratory chain is the main intracellular source of reactive oxygen species (ROS) generation. Excessive formation of ROS can potentially disturb normal metabolic processes, the structure of proteins, and mitochondrial genome.

In most of the cases of severe hypoxia, a mitochondrial dysfunction is the major component of most pathological processes that appear.

On the other hand, it has been proved that adaptation to interval hypoxic stimulation causes positive changes in the mitochondrial apparatus of the cells, explaining the positive effects on the body!

Specifically, there is a restructurization of the tissue energy as the human organism implements a more economical use of oxygen.



The mechanisms of adaptation to intermittent hypoxia enable the body not only survive in conditions of acute shortage of oxygen, but also increase body resistance to emotional stress, intense exercise, and other type of stress

INTERMITTENT HYPOXIC TRAINING (IHT) IMPLEMENTS ITS ANTI-HYPOXIC EFFECT BY STIMULATING ITS OWN ENDOGENOUS DEFENSE MECHANISMS AT ALL LEVELS -FROM GENES TO THE WHOLE ORGAN OR TISSUE. .

IHT significantly improves the control of mitochondrial quality, which is regulated by balance between the biogenesis –birth of new- and autophagic destruction – death of oldof mitochondria. In simpler words, a self imposed quality control is achieved by the establishment of a fine balance between the elimination of damaged and dysfunctional mitochondria and the generation of new and "healthy" mitochondria.



HOW IMPORTANT ARE HEALTHY **MITOCHONDRIA?**

Mitochondrial dysfunction occurs when the mitochondria do not work as well as they should. Many conditions can lead to secondary mitochondrial dysfunction and affect other diseases, including Alzheimer's disease, muscular dystrophy, Lou Gehrig's disease, diabetes and cancer.

One in 5,000 individuals has a genetic mitochondrial disease. Each year, about 1,000 to 4,000 children in the United States are born with a mitochondrial disease.

With the number and type of symptoms and organ systems involved, mitochondrial diseases are often mistaken for other, more common diseases. Symptoms of mitochondrial diseases depend on which cells of the body are affected. Patients' symptoms can range from mild to severe.

APPLICATION FIELDS



SPORTS

It has been shown that cell training with IHT can improve the cardiopulmonary efficiency and lactate removal. Also, it restores performance levels in athletes with overtraining syndrome. The technology is already popular among elite athletes as a legal way to improve performance.

INDUSTRIAL HEALTH



CARDIOVASCULAR DISEASES

Moderate IHT protocols elicit beneficial cardiovascular effects. Specifically, there is evidence that IHT conditioning is a safe and effective therapy both for the prevention and the treatment of systematic hypertension, while it is also a promising therapeutic strategy in myocardial infraction.



STRESS MANAGEMENT | BURNOUT

Mitochondrial disorders have been directly associated with chronic fatigue and also identified as coexisiting conditions in patients diagnosed with burnout. IHT regenerates the mitochondria and therefore, offers a non pharmacological option for treating conditions that influence not only the individual suffering from it, but also the socioeconomic prosperity of the community.





COGNITIVE | GERIATRIC

IHT has been proved to be an easy and safe therapy that improves cognitive performance and functional exercise capacity in geriatric patients. Considering the effect of the therapy on mitochondria, IHT promises to offer a higher quality of life to the silver generation.

WEIGHT MANAGEMENT | METABOLIC DISORDER



In metabolic syndrome the metabolic hormones alter, leading to increased food intake, obesity, hypertension and insulin resistance. IHT protocols have been shown to have a beneficial effect on metabolism including reduction of body weight, cholesterol and blood sugar levels.



BORRELIOSIS

Millions of people are bitten by ticks every year. A lot of clinicians are using IHT as part of the chronic borreliosis treatment. Evidence suggest that Borrelias living in a human body can die after some weeks of IHT sessions, due to their sensitivity in sudden changes of oxygen concentration.



PULMONARY DISEASES

One of the most striking therapeutic perspectives of IHT is its application in respiratory insufficiencies. It can be used as a therapeutic tool to restore lost respiratory motor output in severe clinical disorders such as amyotrophic lateral sclerosis, spinal cord injury, apnea and chronic obstructive pulmonary disease (COPD).



A revolution in the IHHT World





COMPACT | MOBILE | ELEGANT

Housed inside the iconic PHYSIOTUR Tower, the system features an accessories' tray, cable-management side constructions, an acryl plate equipped with LED status indicators, heavy-duty castors and an excellent finishing with high quality powder coating, durable to scratches.

The module is architected for performance, accessibility, and upgradability. It is built around a steel space frame with an aluminum housing that easily lifts off. The frame features an angle at the top that works as a handle, making it easy to pick up and move. The interior components attach to the frame. The construction allows 360° access to the entire system for quick maintenance.





The NEW celloxy

second monitor. The database stores patient, therapy and protocol information and can be configured to deploy data coming from multiple devices. The hardware reviews the status and ageing of components and notifies the user for preventive actions.









SOFTWARE

HIGHLIGHTS

- Hypoxic Index for each therapy– Definition of therapy intensity
- Two types of hypoxic test for defining optimal 0,% and Hypoxia Resistance type
- BOLT & HRV Test
- Change O, and cycle time during the session
- Intelligent reoxygenation
- Analysis of each session & comparison of two therapy sessions
- Built-in GDPR compliance
- Enhanced safety by setting two cut offs SpO, and HR, patient and system
- Biofeedback and Manual Settings
- Plotting of HRV and Hypoxic Index over time for progress monitoring
- Self-Calibration Routine
- Hyperoxic Preconditioning

SPECIAL FEATURES



celloxy delivers continous hyperoxis 35% ± 2%. An easy to access menu allows the quick start of a hyperoxia session. The vitals SpO, and heart rate are continuously monitored.



HYPOXIC TEST 1

Definition of the optimal O, level. After the ideal SpO, value for the hypoxia phase is set, the hypoxic test runs in a complete automated mode. The patient breaths the delivered air mixture and at the end of the test the device stores the value.



HRV

celloxy allows the real time measurements of the RMSSD. After saving the test, the following parameters are are calculated and stored.

RR & HR | Non - Linear Poincare plot | Graphic & numerical SD1, SD2, SD2/SD1VLF, LF & HF (peak, %, n.u.), LF/HF, mean RR, SDNN; mean HR, sdHR, RMSSD, SDSD, RRvrnc, NN50, pNN50(%). In addition, there is the possibility to visualise the test as a Periodogram & Poinicare plot.



HYPOXIC TEST 2

Definition of the resistance type. This is an extremely important test, as it warns about possible complications during the therapy. The time that it takes the patient to reach the SpO₂ value when supplying hypoxic air mixture is counted. In a second stage the time used to recover and return to the baseline SpO, is counted. Based on this test, the chance of the patient developing AMS during a therapy is excluded. The result is also used to set the optimal O₂ decrease rate during therapy.



HYPOXIC INDEX

The software automatically calculates the Hypoxic Index for each therapy session. It stores the values and plots it versus time, allowing to visualize the degree of accommodation to the hypoxic therapy.

INTELLIGENT REOXYGENATION



Optimization of the re-oxygenation phase with the use of the intelligent re-oxygentation setting. The system changes from hyperoxia to normoxia, once the saturation returns to the pre-hypoxia level.



THE praxis-net

SMART ALERT

Any PC in the clinic can be configured and has an access to real time therapy information, as well as to the praxis-net database. The system has a smart alarm scheme that notifies for changes in the vitals of each patient currently in therapy. If the vitals are out of the normal ranges, the user can intervene and optimize the therapy parameters. The remaining therapy time is displayed. The praxis-net helps the clinic to organize the workflow in an effective way, avoiding delays and decreasing patient waiting time.

RF ID

Each patient can have a personal, unique RF card. Scan the RF card on the device or on the praxis-net RF box and get immediate access to all patient data, history and protocols. celloxy is designed for maximal ergonomy, simplicity and time efficiency.



DATABASE MANAGEMENT SYSTEM

Even when a clinic has multiple celloxy devices installed, the patient, the therapy and the library data can be stored in one central, local, in-house server. This allows access to multiple files at a time and from different points. The data integrity is maximized, as it is stored at a single physical location, while the data redundancy is minimal. Each device sends updates to the server. There is an automatic data fusion and back up of local memory.

DOCUMENTATION AND COMMUNICATION

The celloxy software offers options for monitoring a therapy session. It presents the results of the tests that a patient has previously performed. With the praxis-net software add-on, the user can see the data at any computer. The progress can be communicated and explained to the patient at the ease of the user's office. The reports can be exported, printed and sent directly to the patient or other members of the medical/therapy team.



The new face of the celloxy

MARKETING

Our marketing team, in cooperation with our creative director, has designed tools for helping you promoting the Intermittent Hypoxic therapy concept to your customer. Brochures, promotional leaflets, roll ups, and videos are available for all celloxy users.

WE ARE HERE FOR YOU

TRAINING AND EDUCATION

The use of celloxy is simple and straightforward. During the installation our staff or our authorized representative guides the user through all the features and explains the principles of Intermittent Hypoxic Therapy.

Live webinars take place on a regular basis. All celloxy users enjoy special prices.



MAINTENANCE

celloxy is equipped with a high precision oxygen sensor. Every single oxygen sensor has a lifespan. In order to ensure correct function and effective therapy, an annual maintenance is required. Our advanced hardware monitors the ageing of the sensor and allows an estimation of the actual status. The device notifies the user for any action required beyond the preset intervals. Authorized, trained staff, who guarantee impeccable function, carry out all maintenance procedures.

Exclusive online and offline educational videos about mitochondria and hypoxic therapy become available to the members of our user's community.

TECHNICAL SPECIFICATIONS

O_2 concentration, hypoxia	9 - 16%
O_2 concentration, hyperoxia	36%
Gas flow switch	- biofeedback mode
	- manual mode
Treatment duration	max. 120minutes
Monitored parameters	Pulse, SpO_2 , O_2
SpO ₂ measurement range	1 - 100%
HR measurement range	25 - 240
Alarm signals	Acoustic and visual
Saving and exporting data	local in txt praxis-net in pdf
Noise level	45dB max
Humidity of the supplied air	min. Ambient

Design

93/42/EEC

Weight - module screen trolley	29Kg 7Kg 15Kg
Dimensions of the entire unit	500 x 1027 x 460mm
(w x h x l)	
Display	Graphic colour touch screen diag
	12.1" / 30.7cm, resolution 600 x 8

Energy supply	
Net	230VAC 50Hz or
	115VAC 60Hz
Equipment protection	Protection Class I / Protection dec
Externally replaceable fuses	2A
Power switch	Yes, according to IEC 60601-1
Classification	
Applied section	Type BF
Class according to with MDD	lla



800pixels

gree IP30



460mm

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WE RESPECT THE ENVIRONMENT

celloxy complies with the strict European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, also known as the RoHS Directive. Examples of materials restricted by RoHS include lead, mercury, cadmium, hexavalent chromium, and the brominated flame-retardants (BFRs) PBB and PBD. Our packaging contains recyclable material. We offer trade-in programs for getting a new device without worrying about handling your old device in an environmental - friendly way.





MANUFACTURED BY:

IQE GmbH an ISO 13485:2016 certified company IQE GmbH | Gewerbestraße 8 16540 Hohen Neuendorf | Germany

www.cell-oxy.com





Via N. Fumarulo 2 - 70029 Santeramo in Colle BA Tel. 080.3023188 | www.medicalcalo.it | 🖬 @medicalcalo.it