The Latest Innovation in Light Based Technology Significantly Increases Human Potential
The Sun Cure

in Dr. A. Rollier’s Clinics
Leysin (Switzerland)

SWISS ALPINE HELIO THERAPIC RESORT  •  ALT.: 4500 FT
Photobiosimulation

Group 1

Group 2
Effect of NASA Light-Emitting Diode Irradiation on Wound Healing

- Epithelial cell growth between 155% and 171%
- Wound size decreased up to 36%
- Improvement of >40% in musculoskeletal injuries

*Navy Seals
Studies Have Shown:

- ATP & Nitric Oxide
- Oxidative Stress
- Inflammation
- Blood Circulation
The Physiological and Therapeutic Role of Nitric Oxide

Nathan S. Bryan, PhD.
Dept. of Molecular and Human Genetics
Baylor College of Medicine
Financial Disclosures

• Founder and Shareholder of HumanN (www.humann.com)

• Shareholder and advisor for SAJE Pharma

• Receive royalties on patents from University of Texas Health Science Center at Houston
“A man is as old as his arteries.”

- Thomas Sydenham, English physician, 1624-1689
What Causes Arteries to Age?

- **Inflammation**
- **Immune Dysfunction**
- **Oxidative Stress**
The Age of Your Arteries

Progressive accumulation of fatty deposits

20s 30s 40s 50s 60+

Vessel structure change

Heightened clot risk

Sources: Carl J. Pegima, University of Florida; WSJ reporting | Illustration: Erik Brynildsen/The Wall Street Journal
As we age, we lose 85% of our ability to make Nitric Oxide.
How do we prevent, slow down or reverse arterial aging?
Nitric Oxide

\[
N \equiv O^\cdot
\]
What is Nitric Oxide

What it is

• Gas with chemical formula NO
• One of the most important human signaling molecules
• Useful free radical

What it’s Not

• Nitrous oxide (N₂O) a general anesthetic
• Nitrogen dioxide (NO₂) poisonous air pollutant
Nitric Oxide Plays a Key Role in the Regulation of Numerous Vital Biological Functions
Nitric Oxide Plays a Key Role in the Regulation of Numerous Vital Biological Functions

Robert F. Furchgott
1/3 of the prize
USA
SUNY Health Science Center
Brooklyn, NY, USA
Born: 1916

Louis J. Ignarro
1/3 of the prize
USA
University of California School of Medicine - Los Angeles, CA
Born: 1941

Ferid Murad
1/3 of the prize
USA
University of Texas Medical School at Houston, TX, USA
Born: 1936

“The Nobel Prize in Physiology 1998

“For their discoveries concerning nitric oxide as a signaling molecule in the cardiovascular system.”

Source: Nobel e-Museum
www.nobel.se
“The discovery of NO and its function is one of the most important in the history of cardiovascular medicine.”

- Dr. Valentin Fuster, President of American Heart Association, 1998
Nitric Oxide is Required for Red Blood Cell Delivery of Oxygen From the Lungs to Tissue

“Blood flow to tissues is actually more important in most circumstances than how much oxygen is carried by hemoglobin. The respiratory cycle is actually a three-gas system.”

- Professor Stamler
Shear Stress

ACH

NOS

L-arginine

L-citrulline

NO

Guanylyl cyclase (inactive)

Guanylyl cyclase (active)

PDEi

cGMP

GTP

Relaxation
Mechanisms of NO on Skin and Anti-aging

- Dilates capillaries & increases blood circulation to the skin
- Circulation brings oxygen & nutrients to the skin
- Improves skin texture, elasticity & thickness
- Stimulates cell regeneration and restores moisture
- Helps reduce wrinkles and create tighter, smoother skin
Photorelaxation

Control

NO 300 μM

GSNO 3 μM

SIN-1 10 μM

2g
20 min

 Relaxation [% of precontraction]

- ENDO
+ ENDO

Control NO GSNO SIN-1
How do we control and regulate NO production?
Two NO Production Pathways

1. Oxidation of L-arginine (NOS)
2. Nitrate-Nitrite-Nitric Oxide

50% 50% 50%

Total Body NO Production
NOS Derived NO Declines With Age

Gerhard et al Hypertension 1996
Celermajer et al JACC 1994
Taddei et al Hypertension 2001
Egashira et al Circulation 1993
Consequences of NO insufficiency

- Hypertension
- Atherosclerosis
- Thrombosis
- Alzheimer’s
- Erectile Dysfunction
- Peripheral Artery Disease
- Immune Dysfunction
- Uncontrolled Cell Proliferation – Cancer
- Chronic Inflammation
Atherogenesis
Atherogenic Diet
Atherogenic Diet + NO
Who Needs NO Based Therapies?

- Anyone who is aging
- Anyone over the age of 40
- People with circulation issues
- Diabetics
- People with low energy
- People with sexual dysfunction or who desire improved performance in bedroom
- Anyone on antacids
- Anyone interested in disease prevention
Take Home Message

1. Nitric oxide production is complex and complicated
2. Specific wavelengths of light can lead to activation of endogenous NO release
3. Subjects must have sufficient photo-active NO stores
4. Your patients and clients will not heal or perform to their full potential unless you optimize NO
Questions:

nathan.bryan@bcm.edu
The Story of the Bed
LightStim MultiWave® Patented Technology

- Infrared (855nm)
- Deep Infrared (940nm)
- Light Red (630nm)
- Deep Red (660nm)
SYS mmHg
130

DIA mmHg
180

Week
1 2 3 4 5 6 7 8
SYS mmHg 130
DIA mmHg 180

Week
Shaping the Business of Wellness
Across the Globe

Canada

United States of America

Mexico

Puerto Rico

United Kingdom

Germany

Australia