

The American Institute of Stress

CONTENTMENT

Your source for science-based stress management information

Volume 11 Number 3

Fall 2022



Can Technology
Help You Find
Contentment?

Inside: **Put a Brake on Stress with Tech**, By Evian Gordon, Donna Palmer, Jennifer Franklin • **How You Can Use Healthcare Technology to Reduce Stress**, By Charlie Grantham • **Alpha-Stim: Automatic, Effortless Stress Management**, By Josh Briley • **A Reduction of Stress and a Restoration of the Spirit Measured by Heart Rate Variability**, By Marcia Uddoh • **Listen to the Animal**, By Frank Forencich • **The Longevity Crisis**, By Lewis Coleman • **What We Are Reading**, By Heidi Hanna



The mission of AIS is to improve the health of the community and the world by setting the standard of excellence of stress management in education, research, clinical care and the workplace. Diverse and inclusive, The American Institute of Stress educates medical practitioners, scientists, health care professionals and the public; conducts research; and provides information, training and techniques to prevent human illness related to stress.

AIS provides a diverse and inclusive environment that fosters intellectual discovery, creates and transmits innovative knowledge, improves human health, and provides leadership to the world on stress related topics.

Your source for science-based stress management information

CONTENTMENT

We value opinions of our readers.

Contentment is a quarterly magazine published in Spring, Summer, Fall and Winter with news and advertising designed with the general public in mind. It appeals to all those interested in the myriad and complex interrelationships between stress and health because technical jargon is avoided and it is easy to understand. *Contentment* magazine is indexed by EBSCO and archived online at stress.org. Information in this publication is carefully compiled to ensure accuracy.

Editor In Chief:

Daniel L. Kirsch, PhD, FAIS

Managing Editor:

Kathy Schoop

Editor:

Cynthia Ackrill, MD, PCC, FAIS

Creative Director:

Michael McMahon

AIS Daily Life and Workplace Stress Board

The role of this board is to develop initiatives and communications to serve the stress management needs of all people.

Chair: Cynthia Ackrill, MD, PCC, FAIS

Josh Briley, PhD, FAIS

Heidi Hanna, PhD, FAIS

William C. Heckman, MS, NBCT, DAIS

Sharon Montes, MD, FAIS

Andrew Pleener, MD, FAIS

Please feel free to contact us with any comments, suggestions or inquiries. Email: editor@stress.org

Copyright 2022 The American Institute of Stress (AIS). All rights reserved. All materials on AIS' website and in AIS' newsletters are the property of AIS and may not be copied, reproduced, sold, or distributed without permission. For permission, contact editor@stress.org. Liberal use of AIS fact sheets and news releases is allowable with attribution. Please use the following: "Reproduced from The American Institute of Stress website [or magazine], © 2022 AIS"

Contributing Editors Board

Richard Citrin, PhD, MBA

Alex Bekker, MD, ABHIM, FAIS

Teena Evert, MA

Rozina Lakhani, MD, MPH

Ron Rubenzer, EdD, MA, MPH, MSE, FAIS

James C. Petersen, PhD, FAIS

Jacinta M. Jiménez, PsyD, BCC, FAIS



The American Institute of Stress

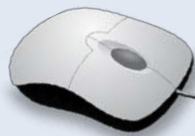
Stress Management Experts Wanted!

Obtaining credentials from The American Institute of Stress is a designation that sets members apart as stress experts and reflects their commitment to the advancement of innovative and scientifically based stress management protocols. The AIS Seal and credentials inform the public that the certificate holder commands advanced knowledge of the latest stress research and stress management techniques. For physicians and other healthcare practitioners, it designates your practice as an advanced treatment center for stress-related illnesses.

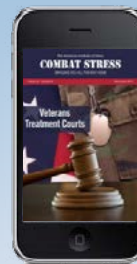


	Member	Diplomate	Fellow
Features Save 20% on years 2 and 3 with our 3 year plan	\$95 per year or \$247 for 3 years	\$395 per year or \$1,027 for 3 years	\$495 per year or \$1,287 for 3 years
Requirements	Open to everyone	Hold a degree or healthcare license and have been in practice or profession for 3 years	Hold a doctorate degree or special license and have been in practice or profession for 5 years
Collaboration with International Professional Community	✓	✓	✓
Continuing education training programs		✓	✓
Subscription to quarterly magazine Contentment and Combat Stress	✓	✓	✓
Membership certificate	✓	✓ + use of DAIS designation	✓ + use of FAIS designation
Quarterly Research Roundup publication		✓	✓
Opportunity to join Speakers Bureau		✓	✓
Discount on annual online conference		✓	✓
Access to AIS research archives		✓	✓
Media spokesperson opportunities		✓	✓
Opportunity to contribute to magazines, blogs, and social media		✓	✓
FREE: Hans Selye and the Origin of AIS ebook	✓	✓	✓
FREE: Mismatched: Your Brain Under Stress, a documentary series produced by AIS	✓	✓	✓

**Sign up for
membership today
at stress.org**



**Enjoy exclusive AIS features and articles online,
or on your smartphone or tablet.**



Subscribe today and begin receiving your copy of Contentment and Combat Stress in your inbox each quarter.

The American Institute of Stress is a 501c3 non-profit organization, headquartered in Weatherford, Texas. We serve the global community through both online and in-person programs and classes. The Institute is dedicated to advancing understanding of the role of stress in health and illness, the nature and importance of mind/body relationships and how to use our vast innate potential for self-healing. Our paramount goal at the AIS is to provide a clearinghouse of stress related information to the general public, physicians, health professionals and lay individuals interested in exploring the multitudinous and varied effects of stress on our health and quality of life.

The American Institute of Stress
220 Adams Drive, Suite 280 - #224, Weatherford, TX 76086 USA
Main: (682) 239-6823 info@stress.org

BODY ELECTRIC

Electroceuticals and the Future of Medicine

A documentary film to revolutionize the way we think about health and the human body.

The American Institute of Stress is an executive producer of *Body Electric: Electroceuticals and the Future of Medicine*, a documentary film aimed to revolutionize the way we think about health and the human body. This 68 minute movie, by British producer/director/writer Justin Smith, is available online and on DVD for purchase through AIS.



Click here to buy the DVD for \$19.95
or the digital streaming for \$9.95

Members stream for free at [stress.org](https://www.stress.org)



www.stress.org

IF YOU'RE LOOKING FOR ANSWERS, YOU HAVE TO ASK THE RIGHT QUESTIONS.

Click
to get
started

For so many Americans, “mysterious” problems ranging from mild to severe are caused by that scourge of modern life – stress. That realization is the first step toward healing, but it often raises many more questions that must be addressed. How is stress affecting my life? My relationships? My work? My happiness? What can I do to reduce or better cope with it? Our Stress Mastery Questionnaire – an easy and confidential online self-assessment that comes with our Stress Mastery Guide and Workbook – can help you find answers. And life-changing solutions.



CONTENTS

Volume 11 | Number 3

Fall 2022

- 6** **Editor's Message**
By Cynthia Ackrill, MD, PCC, FAIS
- 10** **Put a Brake on Stress with Tech**
By Evian Gordon, MD, PhD, FAIS, Founder and Chief Medical Officer Total Brain
Donna Palmer, PhD, Chief Science Officer, Total [Brain.com](https://www.brain.com)
Jennifer Franklin, Founder of Totally [Immune.com](https://www.immune.com)
- 16** **How You Can Use Healthcare Technology to Reduce Stress**
By Charlie Grantham, PhD, MSH, FAIS, APF
- 24** **Alpha-Stim: Automatic, Effortless Stress Management**
By Josh Briley, PhD, BCMAS, FAIS
- 34** **A Reduction of Stress and a Restoration of the Spirit Measured by Heart Rate Variability**
By Marcia Uddoh, MD (candidate), PhD, MPH, MS, MSW
- 40** **Listen to the Animal**
By Frank Forencich, DAIS
- 44** **The Longevity Crisis**
By Lewis Coleman, MD, FAIS
- 54** **What We Are Reading**
By Heidi Hanna, PhD, FAIS



Editor's Message

Cynthia Ackrill, MD, PCC, FAIS
Editor



The world of healthcare technology marketed for stress management is exploding, making it challenging to know what really works and how.

Many of us have a love/hate relationship with technology. “Invalid password” is enough to send blood pressures soaring, but technology has always played an important role in healthcare, giving us ways to “look under the hood” of human functioning for diagnosis and treatment. Technology helps us measure aspects of our physiology (blood pressure, blood sugar, heart rate patterns, brainwaves, etc.) that we can’t guess accurately. And as it advances it offers ways to move beyond measuring, to help build awareness, track progress, and even train and treat aspects of our physiology to reduce symptoms, raise resilience, and enhance well-being.

The world of healthcare technology marketed for stress management is exploding, making it challenging to know what really works and how. This issue of *Contentment* explores the theories behind some commonly used versions of tech to help you understand and pick more wisely. We couldn’t begin to provide enough tomes of articles to address all the choices out there, but it is best to start with some basics. Future issues will dive into other forms of biofeedback and neurofeedback and even some virtual reality options. I am so proud of The American Institute of Stress (AIS) for helping us navigate the overwhelming options to find the evidence-based choices we can trust.

Evian Gordon MD, PhD, FAIS, Donna Palmer, PhD, and Jennifer

Franklin provide an overview of the dynamics of stress, common technologies used in stress management, as well as a proven 3-step structure to optimizing the benefits of using technology: Assess-Train-Track. Based on decades of data, they help you move beyond understanding the science (knowing) to doing, so you not only feel better but are inspired to continue healthy practices.

Charlie Grantham, PhD, MSH, FAIS, APF delivers another thought-provoking article tracing the history of biometrics back to the early lie-detector, through several of the more common products in use today, and then looks forward to what is coming soon as Artificial Intelligence (AI) and bots expand our options for the future. He also proposes ‘scripts’ or choices for what to do with your biometric information to develop greater awareness, resilience, and well-being.

Marcia Uddoh, MD (candidate), PhD, MPH, MS, MSW, FAIS, a new contributor, takes a deep dive into the science of Heart Rate Variability (HRV) and its relationship to the autonomic nervous system. She includes studies showing the positive impact of nature on HRV. We instinctively know that being in nature contributes to improved well-being, and it is fun to consider scientific proof of nature’s role in helping to mitigate stress.

While many forms of technology require active mental participation for results, **Josh Briley, PhD, BCMAS, FAIS** gives us an overview of one that provides

results without feeling pressured to add one more practice into your already overwhelmed life. The use of microcurrents is not new but is growing and with good reason — tons of evidence-based research. This article reviews the theories underlying this non-chemical approach to stress (and pain) regulation.

With any complex issue there are built-in tensions of views with upsides and downsides — the key is to leverage the benefits and wisdom of each point of view. Our self-identified contrarian, **Frank Forencich, DAIS**, offers a look at the downsides of technology. Is it undermining our human capacity for internal awareness and the enormous benefits of deep listening? How can we stay aware of when technology is truly helping vs. causing more stress? For all of us who've lost brain cells and precious time in "password hell" this is a great thought piece.

Lewis Coleman, MD, FAIS has true genius for diving into history and research to tease apart the relationship between different parts of a puzzle, as illustrated in his landmark discovery of the mammalian mechanism of stress, summarized in this past winter's *Contentment*. In this issue he analyzes the scary trend in decreasing longevity, looking at the relationship between environmental stress and disease and the powerful role of corporations in increasing the toxins to which we are exposed. Truly alarming and impetus for us all to speak up!

And finally, we are adding a new column to *Contentment: What We Are*

Reading. The market is bursting with new books to help us understand the innerworkings of our physiology and psychology and how they are entwined, books that explain, offer solutions, and inspire us to stay curious and practice healthier habits. Being human is not always easy and finding contentment along the way can be challenging. We all need steady doses of motivation on the journey. **Heidi Hanna, PhD, FAIS** gives us a look inside the new release from one of our contributors, Evian Gordon, MD, PhD, FAIS, *THE BRAIN From Knowing to Doing!* Check it out!

Our next issue will explore the critical interplay of stress and sleep. Until then, please enjoy this look at the world of stress management technology from our impressive experts!

Cindi





THE COST OF STRESS.

The more we learn, the more vital our mission becomes.

The American Institute of Stress is the only organization in the world solely created and dedicated to study the science of stress and the advancement of innovative and scientifically based stress management techniques. AIS provides the latest evidence-based knowledge, research and management techniques for stress and stress-related disorders.

Groundbreaking insights and approaches. World-changing mission.

Hans Selye, MD, PhD (1907-1982), is known as the father of stress research. In the 1920s, Selye coined the term “stress” in the context of explaining his pioneering research into



the signs and symptoms of disease curiously common in the majority of people who were ill, regardless of the diagnoses. Selye’s concept of stress was revolutionary then, and it has only grown in significance in the century since he

began his work. Founded in 1978 at Dr. Selye’s request, the American Institute of Stress (AIS) continues his legacy of advancing the understanding of stress and its enormous

impacts on health and well-being worldwide, both on an individual and societal level.

A forthcoming AIS initiative – called

Engage. Empower. Educate. – will leverage the latest research, tools and best practices for managing stress to make a difference in a world increasingly impacted by the effects of stress out of control. We hope you will consider supporting this critical outreach campaign.



[Click to view *The American Institute of Stress Case Statement*](#)

A campaign to Engage. Empower. Educate.

The AIS campaign will support three key initiatives:

Engage communities through public outreach



Improve the health and well-being of our communities and the world by serving as a nonprofit clearinghouse for information on all stress-related subjects.

The American Institute of Stress produces and disseminates a significant amount of evidence-based information, but there is a need to share this material with a wider audience in the U.S. and around the world.

Support for this initiative will provide funding to expand the organization's public outreach for its website and social media, documentary films, magazines, podcasts, blogs and courses.

Empower professionals through best practices



Establish credentials, best practices, and standards of excellence for stress management and fostering intellectual discovery among scientists, healthcare professionals, medical practitioners and others in related fields.

AIS provides DAIS (Diplomate, AIS) and FAIS (Fellow, AIS) credentials for qualified healthcare professionals.

The AIS seal means a practitioner has training and experience in stress management and access to the latest stress research and techniques. It designates their practices as advanced treatment centers for stress-related illnesses.

Support for this initiative will provide funding to continually update best practices in the field.

Educate all through the development and dissemination of evidence-based information



Develop and provide information, training and techniques for use in education, research, clinical care and the workplace. Some of the research-based information AIS develops and disseminates includes:

- Productions – Mismatched: Your Brain Under Stress, a six-part documentary featuring some of the world's leading experts on stress. Released in March 2021.
- Publications – Contentment magazine and Combat Stress magazine for service members, veterans and first responders.
- Podcasts, webinars and website resources – The free podcast series Finding Contentment



The American Institute of Stress

The American Institute of Stress is a 501(c)3 nonprofit corporation. Your tax deductible gift allows us to continue helping you along with Service Members, Veterans, First Responders and civilians navigate stressful situations to have a healthier, more rewarding life. © 2021 by The American Institute of Stress. ALL RIGHTS RESERVED.

[Click to make a donation now!](#)

Put a Brake on Stress with Tech



By Evian Gordon, MD, PhD, FAIS
Founder and Chief Medical Officer Total Brain

Donna Palmer, PhD
Chief Science Officer, Total Brain.com

Jennifer Franklin
Founder of Totally Immune.com

Technology is often criticized as a source of stress. Most people would agree that hours of scrolling social media is not beneficial to our mental health and having work email literally at-hand 24/7 can make it hard to ever switch off. But while tech can be a curse, it is also a blessing when used as an instrument to reduce stress and boost positivity.

Having control over stress in any situation means knowing your stress triggers and finding the specific training techniques that best induce a relaxation response. There are also specific situations where inducing calm in-the-moment is particularly critical to your wellbeing and effectiveness. Technologies allow assessment, training and tracking of the solutions and benefits in these situations, daily for engagement and even in real-time to boost the immersive nature of self-care.

There is an abundance of apps for mindfulness meditation, brain training, neurostimulation, tracking stress, health measures and wellness. It can seem overwhelming, but with an awareness of these technologies, you can empower yourself to reduce stress and objectively track your results with quantifiable measures. With

cutting-edge biometrics such as Heart Rate Variability (HRV) technology now available on fitness bands, you can see in real-time what works best to engage your relaxation response and decrease your stress level.

The Dynamics of Stress

Emotions give you a short cut to rapidly evaluate every interaction and situation in your life and determine if they are threatening or rewarding. Your brain's emotion networks continually and rapidly scan for cues from your environment or people's body language, that then quickly informs you of an impending threat or reward.¹

Emotions also drive your Stress Feelings. Emotions and feelings are different but directly complementary. Feelings are physical responses to emotions. Emotions are the cause. Feelings are the effect.

Emotions trigger feelings and create a conscious awareness in your body, in the form of changes in heart rate, sweating, breathing and 'gut' activation. Stress is generated when 'emotion cue triggers' constantly pick up threat-cues in the environment and hijack the brain into a stress response. This detection of threat could be a realistic evaluation of the surrounding environment, or it could also be that you are overly 'tuned-in' to detecting potential threat, and not paying attention to all the reward cues that are also around you. Stress is also generated when life's demands exceed our capacity to cope.

The stress response is a general alarm to deal with any perceived threat. It is helpful when in physical danger and to provide

Feelings are physical responses to emotions. Emotions are the cause. Feelings are the effect.

energy to enhance performance. But when stress is continually triggered, it becomes chronic and toxic to wellbeing, chronic illnesses, mental illness, and all performance.

On the opposite end of the spectrum to the stress response, is the Relaxation Response, which induces a calm and flexible brain and body state. Life is an ongoing fluctuation of Stress-Distress (Amygdala Fight-Flight reflex) and Calm-Flexible (Vagus nerve activated) states.

The good news is that technology has increased the options of solutions that help us feel confident that there is a lot we can do to trigger the Relaxation Response ourselves, to shift into a state that is calmer, healthier, and more cognitively flexible and productive.

How to use tech to decrease Stress and enhance Relaxation.

Planning is essential to generating any new habit and this is where tech is brilliant. There are many apps to assess,

train and track goals and habits (as indicated in figure 1), so it is only a matter of discovering in a step-by-step manner, which ones work best for you. The plan for generating a sustainable new habit, in this case reducing stress, is to personalize what you ‘will do’ and not ‘should do’ to systematically Assess, Train and Track.

Assess

Step 1 is to measure your baseline. Where you are right now. The key to changing anything is to first measure it and know exactly where you are starting. Multiple online assessments to assess stress, such as the Stress Mastery Questionnaire (AIS),² the Stress 360 (Dr Heidi Hanna),³ and the relationship between stress and key brain capacities (Total Brain.com)⁴ are available.

Assessment also includes continuous and mobile phone camera measures of Heart Rate Variability (HRV). HRV is the measure of time between your heart beats. Having a more variable heart rate


Figure 1. A selected spectrum of online and biometric assessment, stress reduction and success tracking solutions.

Assess, Train & Track Stress Reduction

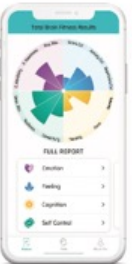
Assess & Track

Online

Stress 360
Dr Heidi Hanna



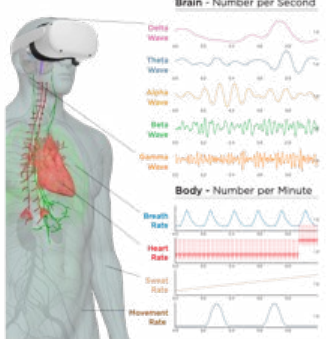
Total Brain
Stress, Emotion, & Capacities



Biometrics

Heart Rate
HRV (Heart Rate Variability)
Breath Rate
Sweat Rate
Movement
Brain EEG

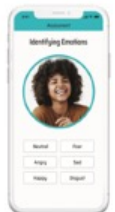
BRAIN-BODY Scores




Brain - Number per Second
Body - Number per Minute

Brain Training


Emotion Booster




Resonant Breathing



Mindful Meditation




Entrainment Music




*Total Brain Training Tools

EEG Meditation




*Muse

Alpha-Stim




*Alpha-Stim

EEG Neurofeedback



*Thought Technology

HRV Biofeedback



*Felix

is optimal and reflects a calmer and more flexible state. It is a measure of how effectively you activate your relaxation response and de-activate your stress response. HRV measures our stress levels to predict wellbeing, physical and mental health. It provides personalized insights about your in-the-moment stress, and what increases and decreases that stress.

Continuous biometric (body and brain measures) monitoring will help assess and track the best timing to provide the most impactful personalized interventions.

Behavior Change is an ‘Inside Job.’ Technology empowers you to be at the center of your own solution, so that you are more likely to become an ongoing active driver of your own health solutions.

Train

A spectrum of technology solutions is available to reduce stress (see figure 1).

For example: it is well-established that breathing at 6 breaths per minute (Resonant Breathing)⁵ and resonant breathing biofeedback is a fast and effective way to activate your relaxation response. In as little as 2-3 minutes of deep resonant breathing your stress response will notably decrease and can put you in a calm and positive brain state after training. There are many breathing apps to enhance the experience with beautiful nature scenes and music. Apps also have the added benefit giving you visual guide to breathe at the right pace, and a timer to set the exercise length and be told when it’s finished. This is not only immersive and personalized, but the moving bar distracts from and can break the track of negative thoughts. (Try it... it’s hard to watch a moving bar and think of a negative thought at the same time.)

In addition to feeling less stressed with breathing exercises, you can also see your stress response decrease with the HRV technology in many fitness bands, giving you an objective measure of stress decrease in real time. You can also use HRV technology as an objective measure to track when your stress is starting to rise again and use this as a signal to reduce it with a quick breathing exercise.

Other calm training tools include online meditation, brain training of calm, training emotion awareness and positivity, entrainment music, HRV biofeedback, EEG Neurofeedback and Neurostimulation (see figure 1).

It requires systematic repetition but not a huge time commitment to see and feel results.

The Total Brain team has shown that training for about 2 hours in total

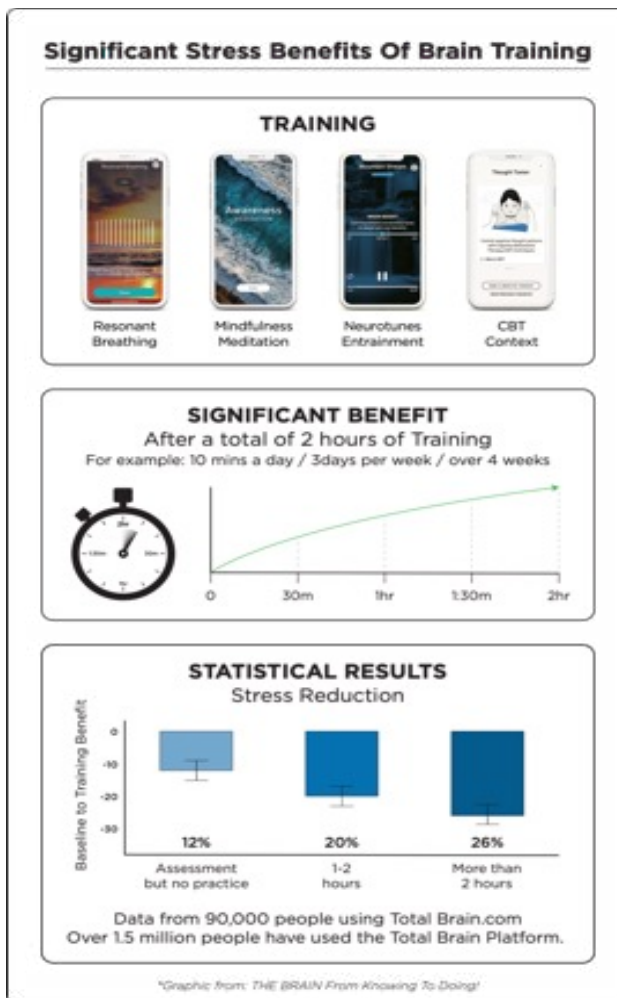


Figure 2: Significant stress reduction with brain training of a total of 2 hours.

(for example 10 minutes a day, 3 times a week for 4 weeks) will objectively show a statistically significant effect. This was an analysis from 90,000 people training with [TotalBrain.com](https://www.TotalBrain.com) stress reduction tools such as Resonant Breathing, Neurotunes and guided Mindfulness Meditation.⁶

To re-iterate the obvious that in all technology training there is a dose-effect: the more you train the bigger the benefit. The KEY to any training is to find what you *will* do, create small steps to maximize success, and track your progress. Feeling better is just one benefit of training. Seeing measurable improvements increases your likelihood to keep at it. Winning activates dopamine, your feel good and motivation brain reward.

Track

"If you don't measure it, you can't manage it." With technology it is super easy

to track your training and progress. Technology platforms increasingly provide a one-stop shop for Assessing, Training and Tracking, and there are a variety of choices to suit your style and needs.

Having control over stress in any situation comes from knowing your stress triggers and finding the specific training techniques that best induce a relaxation response. There are also specific situations where inducing calm *in-the-moment* is critical to your wellbeing and effectiveness. HRV monitoring can help you achieve this.

Technology empowers you to be at the center of your own solution, so that you become an active participant in your own health solutions. Feeling better is just one benefit of training. Seeing measurable improvements increases your likelihood to keep at it. Winning activates dopamine, your feel good and motivation brain reward. Practicing Assess, Track and


nuuaria

less stress
more peace

"Meditation is the best form of stress management and this is the best meditation course." - Dr. Daniel L. Kirsch, President of The American Institute of Stress

**The Nuuaría Method® Course,
plus free membership**

[LEARN MORE](#)



90-DAY RESULTS

65% reduction in anxiety
72% reduction in frustration and overwhelm
67% reduction in stress
70% reduction in despair and hopelessness



Train for as little as 10 minutes a day will create an environment of victory. Tech empowers you to not only put a brake on stress, but to also unleash a self-guided evidence-based plan to choose yourself.

Take Aways

1. Online and biometric technology empowers you to assess-train-track how to switch stress into calm.
2. Embrace the judicious use of technology to discover what objectively works best

for you to master stress, in the moment and in the long run.

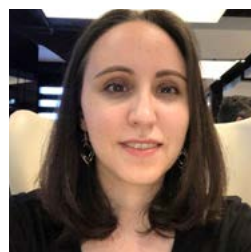
References

1. Dr Evian Gordon (2022). THE BRAIN: From Knowing to Doing! Franklin Publishers.
2. <https://www.stress.org/self-assessment>
3. Stress 360 Assessment: www.heidihanna.com/free-stress-survey
4. Stress and Cognition Assessment: www.totalbrain.com/KnowingToDoing
5. Resonant Breathing and HRV: <https://thequantifiedbody.net/heart-rate-variability-biofeedback-richard-gevirtz/>
6. Gordon E., Palmer D et al. (2013). Online Cognitive Brain Training Associated with Measurable Improvements in Cognition and Emotional Well-being. Technology and Innovation. 15 (1): 53-62.

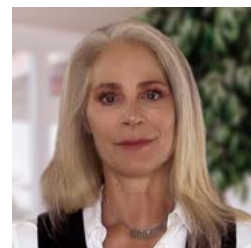
Dr. Evian Gordon is the Founder, Chairman and Chief Medical Officer (CMO) of Total Brain. He founded the largest standardized International Brain Database (over 1 million datasets) to discover what insights and behavioral habits are most effective in stress, mental health, wellness and peak performance. He also founded <https://www.totalbrain.com>, an online mental health and performance platform to empower users to self-monitor and support self-care of their mental health, wellness and peak performance. Having published over 250 peer-reviewed scientific publications, Dr. Gordon is a Fellow of The American Institute of Stress (AIS) and featured in the Institute's 2021 documentary, *Mismatched: Your Brain Under Stress*. Dr. Gordon is a recipient of the inaugural Royal Societies Eureka Prize for Interdisciplinary Scientific Research. He hosts the Total Brain Podcast with key opinion leaders around the world on Behavior Change. Publication details at: <https://www.dreviangordon.com/>



Dr. Donna Palmer is a cognitive neuroscientist specializing in emotional brain functioning and integrative neuroscience. Dr. Palmer is the Chief Scientific Officer at Total Brain and a Research Affiliate of the Brain Dynamics Center, Westmead Millennium Institute and Sydney Medical School, The University of Sydney.



Jennifer Franklin Fitness and wellness coach for national gym chains. Founder of [totallyimmune.com](https://www.totallyimmune.com/), a website to train people through psychoneuroimmunology to boost their immune system. <https://www.totallyimmune.com/> She has a background in communications, multi-media and wellness education. Presented and produced major league sport content for Univision Communications.



Note: All 3 authors contributed to the development of the ThinkHeart online “Lifestyle Medicine” course with The American Heart Association (AHA) to enhance Calm, Move, Eat and Connect. <https://thinkheart.totalbrain.com/>

Having control over stress in any situation comes from knowing your stress triggers and finding the specific training techniques that best induce a relaxation response.

How You Can Use Healthcare Technology to Manage Stress





By Charlie Grantham, PhD, MSH, FAIS, APF

Context

This is not a new idea. The polygraph, invented in the 1930s, measured breathing rate, galvanic skin response, blood pressure, and pulse. Its use in criminal and security investigations rests upon the theory that attempts at verbal deception were correlated with physiological responses. Technological advances during the 1980s, including measuring variation in speech patterns, were based on the same assumption. Unfortunately, these approaches have failed to stand up to scientifically reliable validity tests.¹

Theory

The basic idea of using contemporary healthcare technology (i.e., biometrics) is that it can create a valid and reliable evidence-based feedback loop. Biometrics can make the typically invisible visible. People can monitor their physiological stress levels and use that information to intervene in the environment/person system.

Put another way, biometric technology enables a systemic connection between a person's physiological state and their intentional, conscious actions to mitigate the effects of stress.

*Intentional
conscious acts*



*Physiological
Metrics*

*Mindfulness
scripts of
body/mind
relationships*

A simple example of this would be a heart rate monitor indicating a rapid increase in heart rate. This, in turn, alerts the person to take action based on prior knowledge of action/reaction (i.e., the script) to decrease heart rate, such as a brief mediation exercise.

Today's Measurable Metrics

A whole range of biometrics can be reliably measured with the technology available in a non-clinical setting. I will focus here on standard metrics found in a category of products called 'wearables.' Most are marketed as 'fitness trackers' and

Figure 1. Exercise reduces Stress and together they synergistically enhance the key aspects of wellbeing.

health monitors. They are designed to be physically connected to the user in routine daily activities. The most common form is a watch-like device. I'll discuss some future possibilities in a later section.

Factor	Metrics
Sleep	<ul style="list-style-type: none"> • Total time • Deep sleep time • Disruptions • Sleep rhythm
Exercise	<ul style="list-style-type: none"> • Movement time • Elevated heart rate time • Calories burned • Stairs climbed
Cardiac Function	<ul style="list-style-type: none"> • Heart rate (resting and active) • Heart Rate Variability

Current Technology

There has been an explosion of non-clinical biometric devices in the past three years. With the advent of the smartphone, we have been introduced to 'face scans' for user authentication, fingerprint readers instead of typed passwords, and voice recognition for operating Alexa, Siri, and "Hey Google."

In the interest of brevity, I will focus on just three popular commercial devices. These are merely exemplary, and citation here does not explicitly or implicitly serve as a product review or recommendation. A simple internet search for the curious reader, will yield a host of comparable items. (Descriptions are courtesy of Wikipedia as an agnostic source of product information.)

• I-Watch

Apple Watch is a line of smartwatches produced by Apple Inc. The Apple Watch



operates primarily in conjunction with the user's iPhone for functions such as configuring the watch and syncing data with iPhone apps but can separately connect to a Wi-Fi network for some data-reliant purposes, including essential communications and audio streaming. It incorporates fitness tracking, health-oriented capabilities, and wireless telecommunication and integrates with iOS and other Apple products and services.

• Whoop

WHOOP is an American wearable technology company. Its main product is a fitness tracker that measures strain, recovery, and sleep. The device is best known for its use by athletes. The wearable device collects data on sleep, heart rate variability, resting heart rate, and respiratory rate to create a daily recovery score for users. The recovery score ranges from 0% to 100% to let users know if their body is recovered or if it needs rest.



• Oura Ring

Oura Ring is a smart ring used to track sleep and physical activity and collects health data from the wearer's finger like a regular activity bracelet or heart rate monitor. The movement, heart rate, body temperature, respiratory rate, and sleep data collected by the ring are transmitted wirelessly via Bluetooth to a smartphone app.



Stress Mitigation Techniques²

As I briefly mentioned above, simply having some data about your body's functioning state is only the first step in

stress mitigation. The magic is having a suite of 'scripts' or action plans correlated with any specific indicator.

For full disclosure, I am a practicing energy healer in the Reiki tradition. I have a whole 'library' of scripts to be deployed, dependent upon my assessment of the client's particular energy imbalance. The same method needs to be applied to using biometrics.

Here are four modalities of intentional action with which I am familiar. There are certainly others that you can explore with many certified healing practitioners.

- **Meditation**

Meditation is a practice in which an individual uses a technique – such as mindfulness, or focusing the mind on a particular object, thought, or activity – to train attention and awareness and



achieve a mentally clear, emotionally calm, and stable state. Meditation may significantly reduce stress, anxiety, depression, pain and enhance peace, perception, self-concept, and wellbeing.

- **Mindfulness Training**

Mindfulness-based stress reduction (MBSR) is an

eight-week evidence-based program that offers secular, intensive mindfulness training to assist people with stress, anxiety, depression, and pain.³ MBSR combines mindfulness meditation, body awareness, yoga, and exploring behavior patterns, thinking, feeling, and action. Mindfulness can be understood as the non-judgmental acceptance and investigation of present experience, including body sensations and internal mental states.



- **Energy Healing (e.g., yoga, acupuncture, Reiki)**



Energy medicine is a branch of holistic medicine based on a principle that healers can channel 'healing energy' into a patient and effect positive results. Practitioners use many names, including various synonyms for medicine (e.g., energy healing), and sometimes use the word vibrational instead of or in concert with subtle energy.

- **Touch Therapy (Apollo Wearable)**



Therapeutic touch, known by some as 'non-contact therapeutic touch' (NCTT) is another holistic therapy that promotes healing and reduces pain and anxiety. Practitioners of therapeutic touch hold that by placing their hands on, or near, a patient, they

can detect and manipulate what they say is the patient's energy field. The Apollo device does this with vibrational pads.

Future Technologies

This is where things get exciting. Available products are increasing at an exponential rate. I constantly scan technology developments, and when I was asked to write this article, I asked myself, "Are people ready for this?" I am presenting what is (in my estimation) commercially feasible within three years. These are technologies ready to exit the laboratory – or garage workshops in some cases.

Next-generation biometrics will include non-invasive blood glucose levels, ECG patterns, and blood pressure measurements. Blood glucose can be measured with a bio-sensor attached to your arm. Apple iWatch's plus a new software application uses a single lead electrocardiogram sensor built into the

Turn the tables on stress.

Identify it, lower it – even put it to work for you.

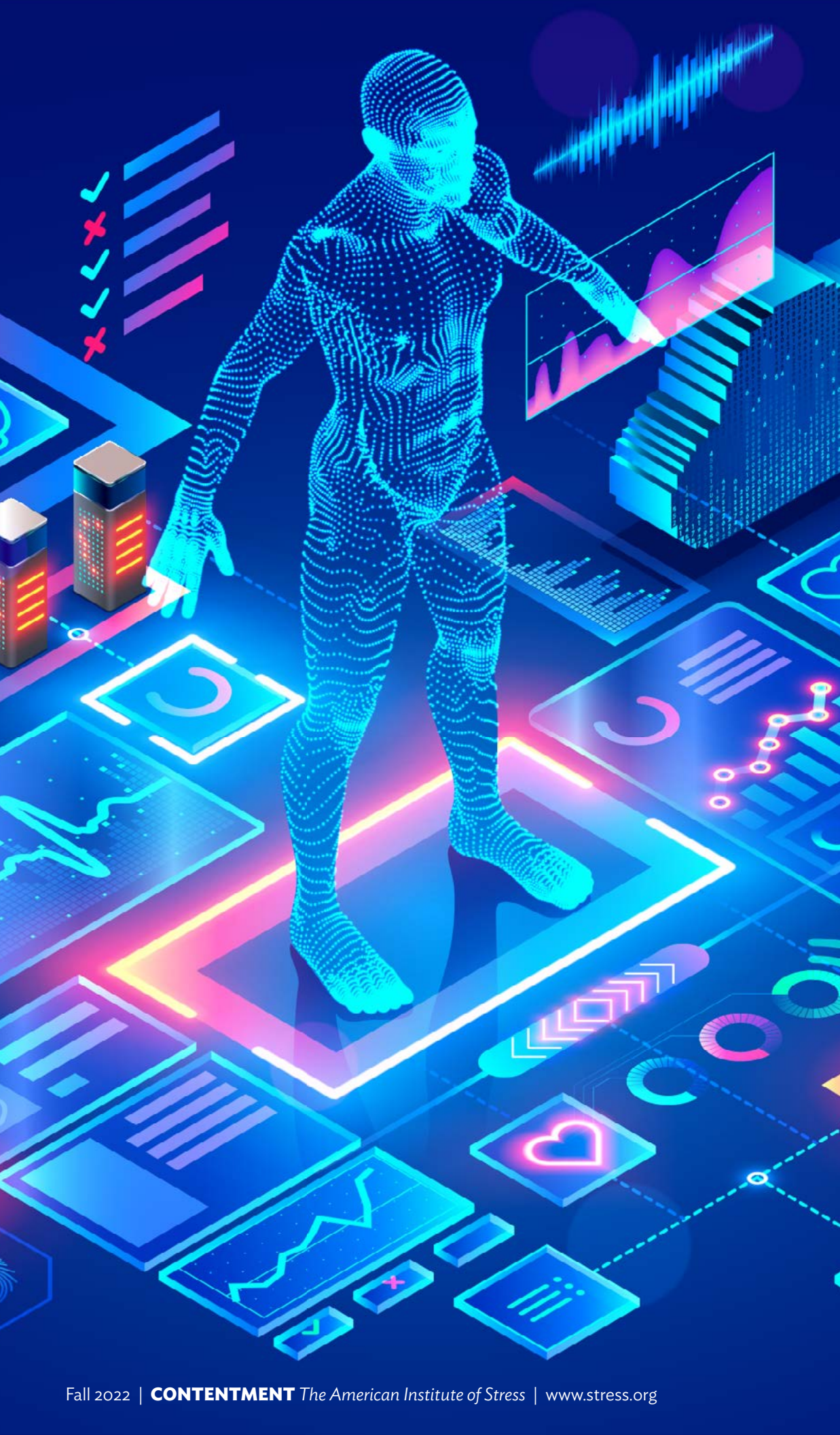


Stress – our age's great destroyer of health and happiness – is so hard to fight because it's invisible and insidious. The Rosch Stress Profiler exposes the stress in your life and its impacts while giving you the tools to fight back. Developed under the supervision of legendary stress researcher Paul Rosch, MD, protégé of Hans Selye, MD, PhD, this fast and easy online self-assessment takes only fifteen minutes, but it can change your life. **Click here** to get started!

Order now and get two free gifts – A Day Away from Stress audiobook and the Stress Management Journal – both filled with stress-fighting tips and tricks



Rosch STRESS Profiler



Next-generation biometrics will include non-invasive blood glucose levels, ECG patterns, and blood pressure measurements. Blood glucose can be measured with a bio-sensor attached to your arm. Apple iWatch's plus a new software application uses a single lead electrocardiogram sensor built into the watch skin contact.

watch skin contact. One of the most exciting nano-technologies technologies we discovered is a temporary, removable skin tattoo that gives a continuous blood pressure data stream.

Artificial Intelligence and Deep Learning

But perhaps the most impactful are just coming into the public eye. Here's a quote from a noted authority on public health, Dr. Deepak Chopra.⁴

“Yet the psychological side of AI holds unexpected promise. One can imagine a wearable that can warn you in advance that you are about to lose your temper (the physical signs aren't difficult to measure). In our emotional life, emotions come to the surface after brimming beneath the surface. An AI device that could step in early enough could perform wonders because there is a subtle tipping point before you consciously register that you are angry, anxious, depressed, and so on. Catch the biological, pre-conscious indicators early enough, and you can consciously stop yourself from going over the edge.”

This is not science fiction. Wearable sensors, a historical database, and bespoke fine-tuned algorithms are all required. This all results in awareness

– the first step to the conscious choice of behaviors.

Cognitive Automation

In the late 1960s, Joseph Weizenbaum created a natural language program named ELIZA.⁵ The program simulated a Rogerian psychotherapist interaction with a human. The program didn't fall into everyday use because of pushback from the health care industry's distrust of new, unproven technologies.

Fast forward 50 years—cognitive automation is a technology in which RPA (Robotic Process Automation) together with cognitive technologies, such as speech recognition and natural language processing, automate perceptual and judgment-based tasks once reserved for humans. Today these programs are commonly referred to as 'chatbots.' You've probably interacted with one on a customer service line as a screening program before you get to a 'real' human. This niche market is estimated to reach \$10.5B by 2026.⁶

For example, let's peer into the future with the current state of the art. Woebot, developed at Stanford University, is “... is an automated conversational agent (chatbot) who helps you monitor mood and learn about yourself. Automated Cognitive

Would you fly in an airplane without a complete set of instruments? Then why live your life without a complete set of “wellness” instruments.



*Based Therapy at your fingertips. Drawing from a therapeutic framework known as Cognitive Behavior Therapy. CBT is the most evidence-based and widely used therapeutic approach today."*⁷

Now, combine this with some of the weak biometric signals we've discussed. It is easy to see a future where wearables are the physiological inputs, artificial intelligence, and deep learning are the mindfulness scripts. Cognitive automation is the real-time cue to conscious, intentional acts designed to mitigate stress without person-to-person therapeutic intervention.

Conclusion

Would you fly in an airplane without a complete set of instruments? Then why live your life without a complete set of "wellness" instruments. Do you know how sustainable your life is currently operating?

I believe biometrics are the next level of active stress management, or a guided pathway to contentment. Admittedly these advances are not without peril. There are many unanswered questions about privacy and ownership of personal data. Those policy and legal issues are beyond the scope of this article. But you should ask who owns the data about your

physiological state. What are the limits to privacy? Watch this space; I'm sure these questions will be coming to judicial courts near you shortly.

So, how far are we away from the mythical "Tricorder" of Star Trek fame? Not far, not far at all...



References

1. "The Psychological Stress Evaluator as a Clinical Assessment Instrument: Evaluation and Implications," in Journal of Nervous and Mental Diseases, Grantham, et.al. 1982, Vol. 189(5), p.283-288
2. https://www.researchgate.net/publication/338254036_Effect_of_Person-Specific_Biometrics_in_Improving_Generic_Stress_Predictive_Models
3. Retrieved from <https://www.en.wikipedia.org/wiki/Mindfulness>
4. Retrieved from <https://www.sfgate.com/news/article/Can-Artificial-Intelligence-Make-Us-More-Human-17017211.php>
5. Retrieved from <https://www.en.wikipedia.org/wiki/ELIZA>
6. Retrieved from <https://www.marketsandmarkets.com/Market-Reports/smart-advisor-market-72302363.html>
7. Retrieved from <https://woebothealth.com/>

Dr. Charlie Grantham is the Founder of Awakeningtowholeness.net, where he pursues his priorities of teaching, writing, speaking, and mentoring — focused now on wellness, wellbeing, and wholeness. He received his PhD in Sociology from the University of Maryland in 1980. He has published eleven books and several dozen technical papers. He is a "go-to" resource for the media on a wide range of workplace issues — ranging from psychology to public policy.



He also is a certified Master of Healing Arts is a credentialed Reiki Master/Teacher. He is a Vietnam combat Veteran, having served eight years in the US Army as a Chief Warrant Officer in the Intelligence Corps. Careers followed that time in academia as a professor and in multi-national technology companies as an Executive Director of Research and Development.

Dr. Grantham offers a comprehensive curated resource for those experiencing severe stress, "Self-Care First Aid Kit." Contact him at cegrantham@gmail.com for your free copy.

Alpha-Stim: Automatic, Effortless Stress Management



By Josh Briley, PhD, BCMAS, FAIS

A recent Gallup poll found people worldwide are experiencing more stress and unhappiness than ever. This poll found that more than 40% of people worldwide reported experiencing worry or stress in the previous 24 hours.¹ Tempting as it may be to blame these findings on the COVID pandemic, inflation, supply chain issues, and the myriad of other crises that flood the news on a daily basis, the Gallup poll “Negative Experience Index” has been climbing steadily since 2014. More people are feeling higher levels of stress and worry each year.

In response to this increase in stress and worry, the stress management industry is booming. Streaming services such as Amazon Prime Video, YouTube, Roku, and Netflix have yoga or mindfulness programs that subscribers can use to guide their efforts to reduce distress. Self-help books continue to be published, with catchy titles such as “UnF*ck Yourself”² (a great book that I strongly recommend, by the way), or authored by celebrities such as Kevin Hart.³

The devices we wear daily can also be utilized to manage stress. Apple Watches and FitBits monitor heart rate. Apple Watch has a Mindfulness feature to remind users to take a minute to focus on their breathing and shift their attention to the present moment. The number one app in the App Store for several years has been Calm, which teaches meditation and

mindfulness techniques in a simple and easy-to-follow manner. New devices seem to be introduced constantly.

These books, apps, and devices are all good resources for teaching someone to improve the way they cope with stress. However, these resources all involve entrainment of the brain to develop novel, more adaptive methods of responding to stress. In other words, they require actively learning stress management techniques to teach yourself better ways of coping with stress. Teaching users how to better cope with and manage stress is a proven and effective approach. However, if you are already feeling overwhelmed, feeling as if there is not enough time in the day, and as if your to-do list is too long, then adding “one more thing,” even a positive task, can feel like just too much effort.

However, there is a device that has been on the market for over four decades, that has a different approach. A device with well over 100 clinical studies, and loads of real-world evidence and testimonials, and has been proven safe, easy, and effective. This device is the Alpha-Stim.[®] Unlike the apps, books, and devices discussed above, Alpha-Stim automatically balances your nervous system to restore homeostasis and help the user feel calm and relaxed, while at the same time feeling alert and focused. Unlike other devices, Alpha-Stim does not require learning new stress management techniques or involve training your brain to better cope with stress. The effects are effortless and automatic. Before

The number one app in the App Store for several years has been Calm, which teaches meditation and mindfulness techniques in a simple and easy-to-follow manner.

Our nervous system has a built-in mechanism for channeling stress in ways that improve our chances of survival.

we explore how Alpha-Stim helps to balance the nervous system and restore homeostasis, let's explore the effects of stress on the nervous system and body.

Physiological Effects of Stress

Stress occurs when the demands of the environment exceed our physical and emotional resources. In other words, anytime we feel threatened, under pressure, or surprised, we experience stress. Stress in and of itself is not a bad thing. Up to a point, stress can have a positive impact on performance, attitude, and development. Without stress, an organism can become stagnant and weak.

Our nervous system has a built-in mechanism for channeling stress in ways that improve our chances of survival. This mechanism is the sympathetic nervous system, also known as the “fight/flight/freeze response.” When the sympathetic nervous system is activated, heart rate, blood pressure, and muscle tension all increase. We develop a perceptual “tunnel vision” to focus on the stressor. Our digestive system slows, allowing more physical resources to be channeled to the heart and limbs, making it easier to escape the stressor or defend ourselves, if necessary.

The sympathetic nervous system is designed to be a temporary response, and once the stressor has passed, the parasympathetic nervous system is designed to activate, reversing the physiological effects of the sympathetic nervous system. For this reason, the parasympathetic nervous system has been termed the “rest and digest response.” When the parasympathetic nervous system is activated, our blood pressure, heart rate, breathing, and muscle tension all return to normal. Vital functions, such

as digestion, return to normal and are given physiological priority again. Heart rate variability (a measure of how quickly we recover from stress and a good overall measure of fitness) improves as well.

The sympathetic nervous system is an “all-or-nothing” response. It does not give a weaker response if the stressor is less than life threatening. The response is the same whether the stressor is nearly being hit head on when driving, or the stressor is less life-threatening, such as being late for an appointment and getting stuck at a traffic light. The result of modern society is the sympathetic nervous system is “stuck” on activation, and the parasympathetic nervous system is chronically underactive. Due to this chronic imbalance between the sympathetic and parasympathetic nervous systems, we experience fatigue, difficulty with concentration and memory, and feeling overwhelmed or “on-edge” most of the time. Physiologically, we experience high blood pressure, low heart rate variability, rapid and shallow breathing, digestive problems, muscle tension and pain. We have difficulty sleeping due to racing thoughts, ruminating on all the problems of the past. Of course, these very effects of our chronically overactive sympathetic nervous system themselves become a trigger for increased feelings of stress, which contributes to a vicious cycle upon which our stress levels continue to escalate due to the physiological and emotional responses to feeling stressed.

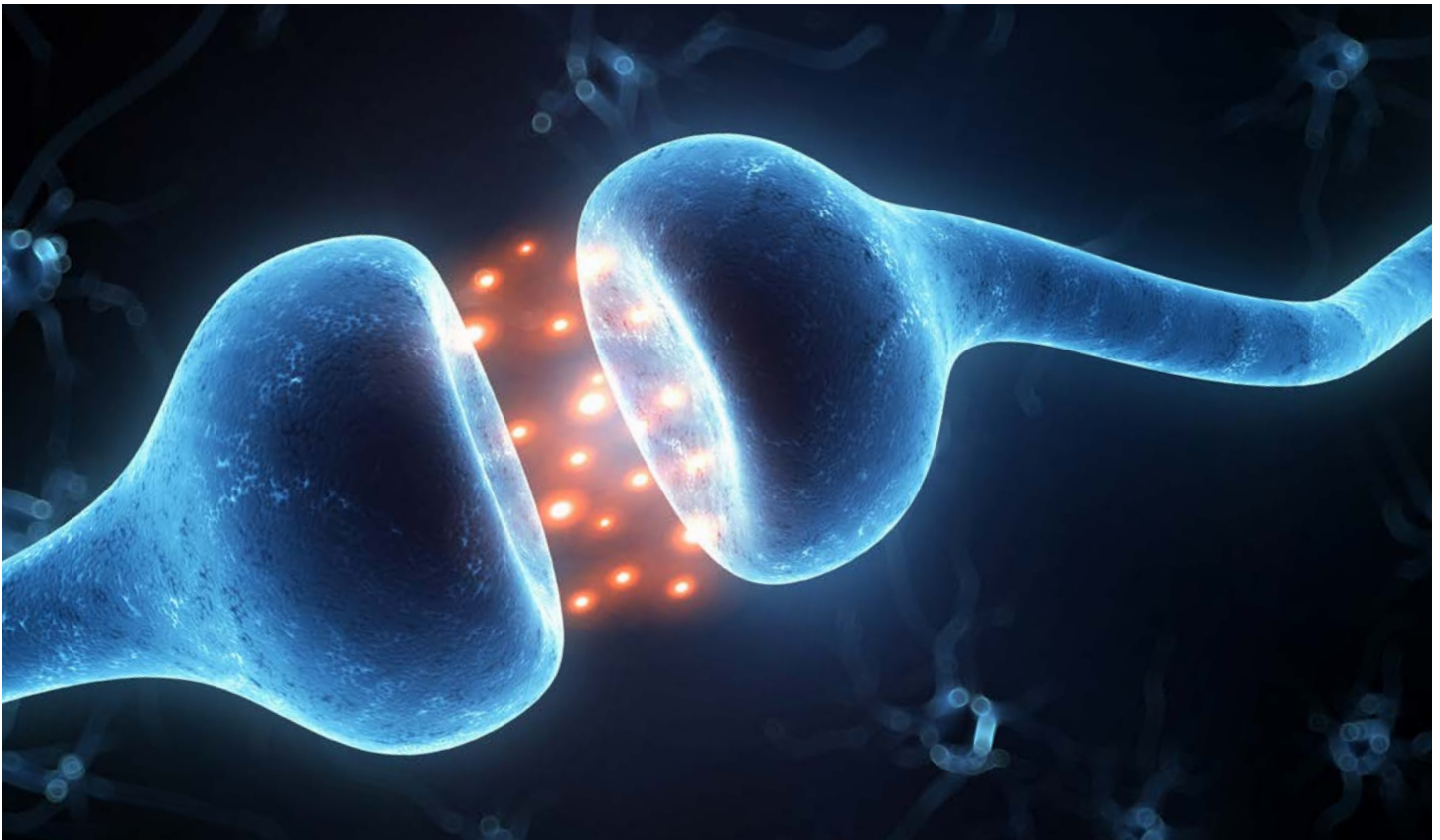
A Brief Word on the Electrochemical Nature of the Nervous System

The nervous system is electrochemical. Electrical charges travel from the dendrites, along the axon (the “body” of the nerve cell) to the axon terminals. When this charge reaches the axon

terminals, neurotransmitters and other chemicals are released into a small gap between nerve cells, called the “synapse.” These chemicals cross the synapse to activate receptors in the dendrites of the nerve cell on the other side of the synapse. As these receptors are activated, an electrical charge begins to build. Once this charge reaches the necessary threshold, the nerve cell fires, and the electrical charge is carried along the body of that cell to the next synapse.

Medications also attempt to chemically influence nerve cell activity by binding with nerve cell receptors to either block neurotransmitters from activating the receptor, or by activating the receptors themselves.

The receptors in the nervous system can also be activated with an electrical frequency. Nerve cell receptors are tuned to specific frequencies, and when the frequency a receptor is tuned to approaches, then the receptor is



We use substances and chemicals to influence the actions of the receptors on our nerve cells. For example, caffeine, the most used and misused central nervous system stimulant, acts to increase the activity of the central nervous system by, among other effects, activating the neurotransmitters noradrenaline and serotonin, producing temporary feelings of alertness and energy. The increase in these chemicals speed up the activity of nerve cells in the central nervous system.

activated and acts upon the cell as it would if that receptor was activated by a chemical, such as a medication molecule or a neurotransmitter. When a variety of frequencies are transmitted to the nervous system, receptors are activated only by the frequencies they are tuned to, and all others are ignored. The transmission of multiple frequencies to the nervous system allows the nerve cell receptors to “pick and choose” the frequencies needed to restore balance to the nervous system.

Another electrical aspect of the central nervous system is brain waves, electrical waves at different frequencies that influence, and are influenced by, the functioning of the nervous system.

Another electrical aspect of the central nervous system is brain waves, electrical waves at different frequencies that influence, and are influenced by, the functioning of the nervous system. Delta waves, at a slow frequency of 0.1 to 3 Hz, are associated with sleep, drowsiness, and detached awareness. Theta waves (4 – 7 Hz) are prominent during meditation and are also associated with intuition and memory. Alpha waves (8 – 15 Hz) are associated with feeling relaxed and calm (commonly referred to as an “alpha state”) as well as creativity. Beta waves (16 – 30 Hz) are prominent during periods of alertness, concentration, and problem-solving. Finally, Gamma waves (31 – 100 Hz) are associated with peak focus, expanded consciousness, and insight.

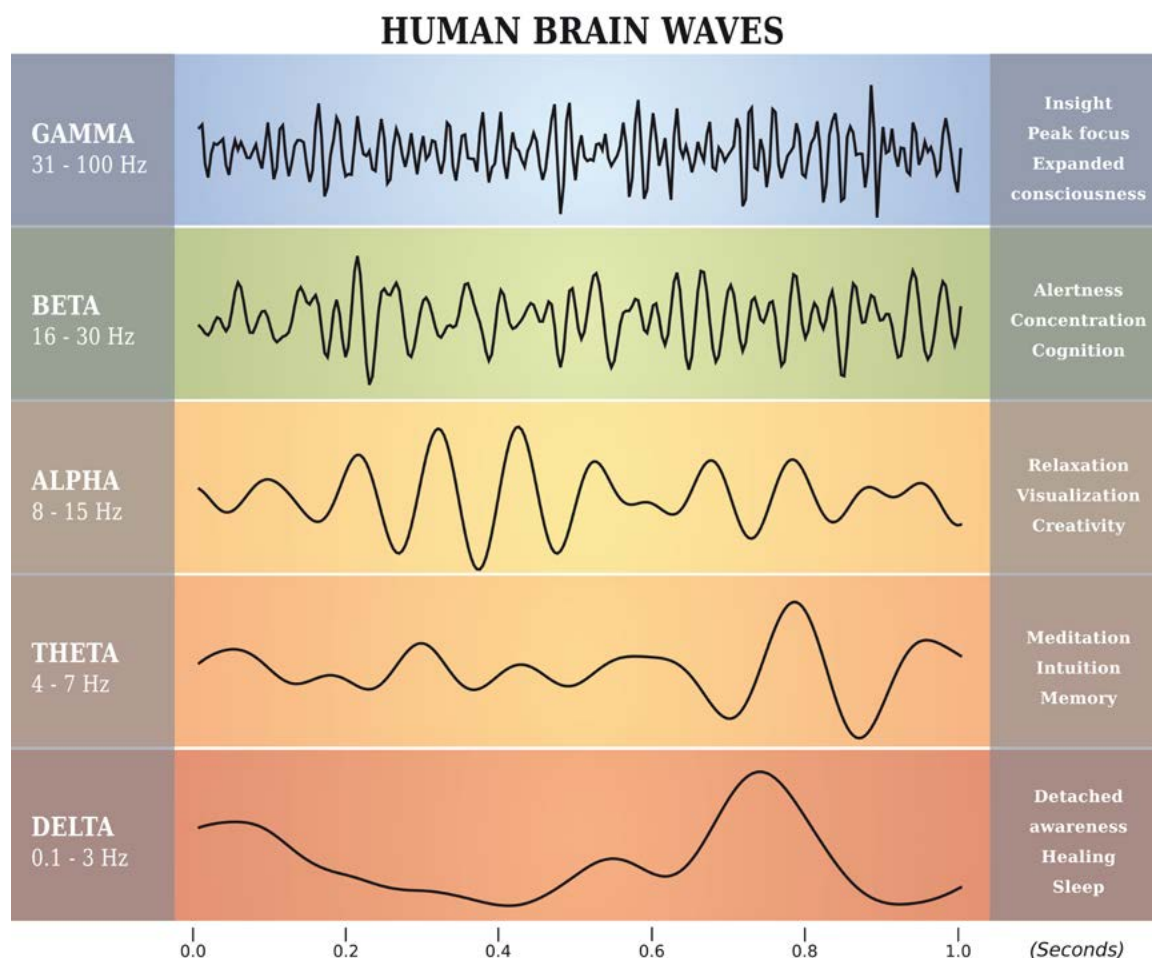
Activity in the different brain wave frequencies influences how we feel. For example, when we are sleepy and drowsy,

or in deep sleep, there is more activity in the delta wave frequencies. When we are alert, concentrating, and focused, the gamma wave frequencies are more active. However, we can also influence our brain wave activity by our activities and efforts. By learning to relax, for example through meditation, yoga, mindfulness exercises, we increase the activity in the alpha wave frequencies, which facilitates the “alpha state” feeling of being calm, relaxed.

During this state, our heart rate variability (HRV) improves, muscle tension decreases, breathing becomes slower and steadier, and we feel at ease and at peace.

Traditional Stress Management Techniques

As mentioned at the beginning of this article, people are more stressed and worried than any time in recorded history. This increase has been occurring for almost



a decade and is occurring despite the rise in self-help resources such as apps, devices, and services available at our fingertips. These resources are all very effective in teaching methods of reducing and more effectively coping with stress. Essentially, these resources, using their own specific approaches, whether they overtly state it or not, are teaching their clients to switch out of the “fight/flight/freeze” response of sympathetic nervous system activation and into the “rest and digest” mode of parasympathetic nervous system activation. Additionally, they are helping users to increase alpha wave activity to bolster that sense of relaxation and tranquility.

So, if these resources are so readily available and effective, then why are we, as a whole, not taking advantage of the very resources that will help reduce our ever-increasing stress levels? It is not because we do not know such resources are available, nor is it because we do not think we have a problem. Talk to almost anyone about how they are feeling, and if it is a genuine, honest conversation; they will admit to feeling stressed and overwhelmed and knowing they need to engage in relaxation exercises, meditation, or mindfulness more often. However, the very feeling of being overwhelmed and not having enough time in the day to accomplish everything they must do decreases the chances of engaging in these activities that will help reduce the stress levels we know are too high.

Additionally, while very effective, as with any other skill, learning the techniques taught by traditional stress management techniques requires practice to ensure efficacy. For the overwhelmed and busy, adding a new daily task they must find time to practice makes it less likely that skill will be learned efficiently enough to be effective when needed.

Alpha-Stim: A Different Approach

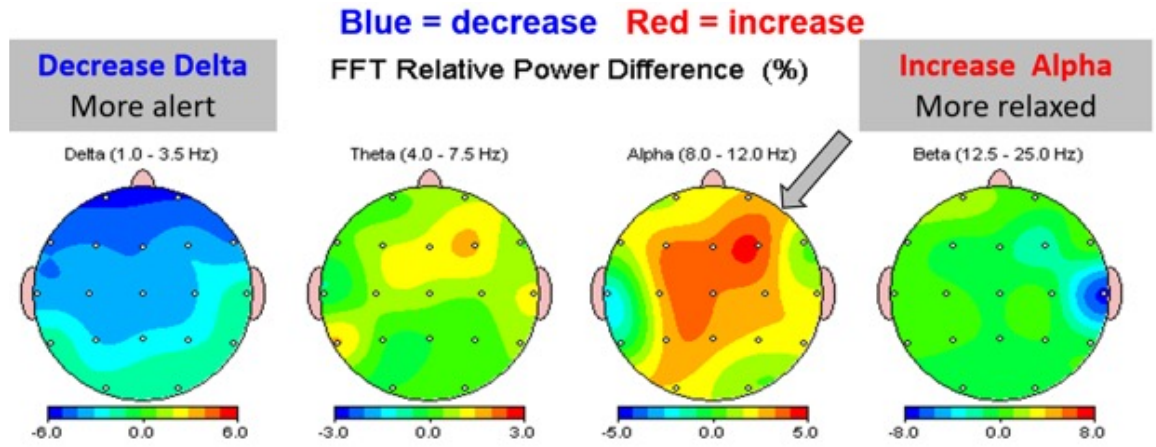


Figure 1
©EPI – Used with permission

In contrast, Alpha-Stim Cranial Electrotherapy Stimulation (CES) utilizes a patented waveform to transmit a variety of electrical frequencies into the central nervous system. These frequencies help to calm down cells that are hyperactive, while simultaneously stimulating activity in cells that are underactive. The electrical current is transmitted across the brain via the use of electrodes that clip onto the earlobes.

Once these frequencies enter the nervous system, many changes occur within the brain. There are effects to the adrenaline, serotonin, and cortisol pathways. There are immediate brainwave changes that can be measured by an EEG. The most notable change in brain wave activity is the induction of an alpha state, which is a range of alpha brain wave activity associated with feeling relaxed and calm. It is the same brain wave activity that can be observed by people who practice meditation regularly. In addition, there are changes to delta wave activity, especially in the frontal lobe right behind the eyes and forehead. Delta waves are associated with feelings of drowsiness and sleep. In general, an Alpha-Stim treatment results in an increase in alpha wave activity and a decrease in delta wave activity,⁴ leaving the user feeling calm and

Figure 2
 ©EPI – Used with permission



relaxed, while at the same time alert and focused (See Figure 2).

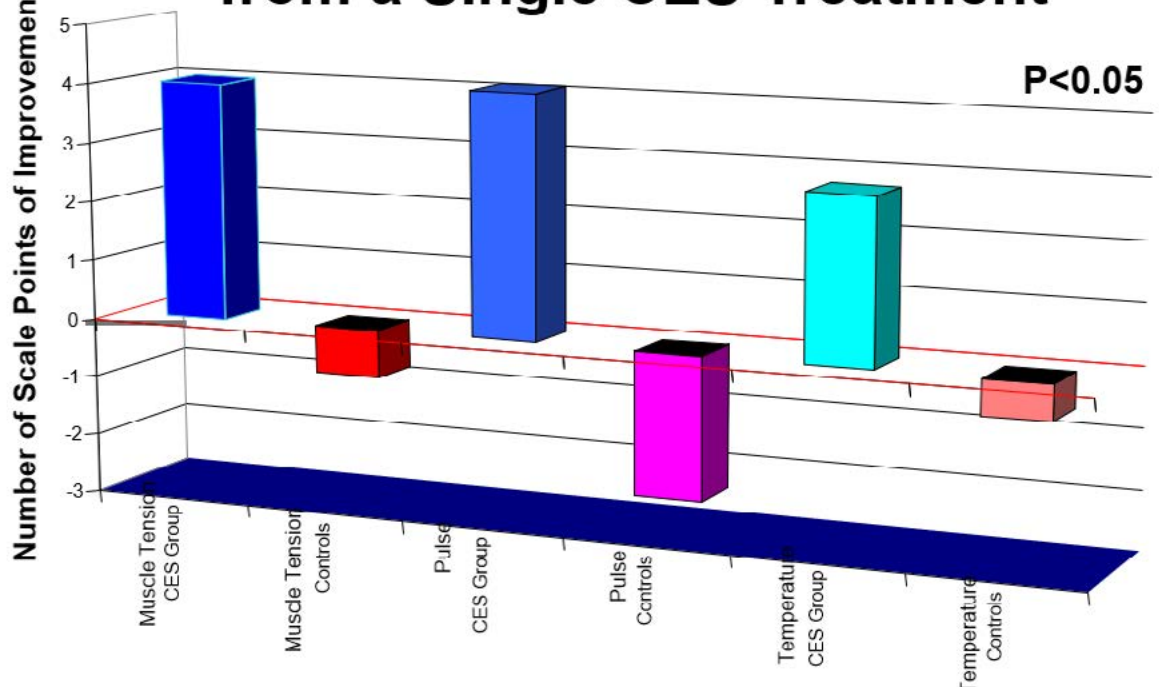
An Alpha-Stim treatment also activates the parasympathetic nervous system, which as described above results in improved heart rate variability, improved digestive functioning, and improved ability to relax. Khyatee et al., found that Alpha-Stim treatment significantly improved heart rate variability in patients with hypertension and with insomnia.^{5,6} In studies of situational anxiety, a form of stress that occurs in response to a specific anticipated stressor (such as a

dental appointment or public speaking), Alpha-Stim has shown to decrease not only subjective feelings of stress, but also the physical symptoms of muscle tension, pulse rate, and skin temperature (See Figure 3).⁷ Therefore, Alpha-Stim is a very effective tool for stress management.

Unlike the traditional stress management tools mentioned in this article, Alpha-Stim works automatically, no practice or entrainment needed. The device is portable, approximately the size of a cell phone, and designed to be used at home at a time that is convenient for the user. The

Figure 3
 ©EPI – Used with permission

Change in Multiple Stress Measures from a Single CES Treatment



patented waveform automatically induces an alpha state, leaving the user feeling calm and relaxed after just a single treatment. However, the results are also cumulative, meaning the more days you use an Alpha-Stim, the better the results will be and the longer they will last.

While Alpha-Stim works well if one is relaxing during use, such as reading a book, watching TV, or meditating, it also works extremely well if used while the person is actively engaged in their normal activities. As many of my coworkers do, I use my Alpha-Stim in my office while working on my computer, answering phones, or attending meetings. I know people who use their Alpha-Stim during light to moderate exercise, such as going for a walk outside or on a treadmill. Driving or operating heavy machinery is the only activity that is discouraged during an Alpha-Stim treatment.

In the U.S., Alpha-Stim requires the order of a licensed provider before a patient can purchase one, but in some countries, it can be purchased over the counter. The instructions for using an Alpha-Stim are quite simple and easily accessible. At the end of the treatment, the user should feel light and relaxed. Most people will use an Alpha-Stim at least once daily for three to six weeks, and then begin to decrease use to every other day, twice a week, or as needed, though many people continue to use their Alpha-Stim daily.

Alpha-Stim is Safe

The safety of Alpha-Stim has been established in over 41 years on the market and well over 100 clinical trials. Alpha-Stim has been shown to be safe and effective with users of all ages. Unlike with medications and other medical stimulation devices, there is no risk of addiction. Side effects, which are extremely rare, mild,

and self-limiting, occur 0.11% of the time over the past 10 years. The commonly reported side effects are a mild headache or dizziness, which are generally an indication the current being used is slightly too high for that treatment session and can be resolved by putting the earclips back on, turning the current down from what was used in the treatment session, and treating until two minutes after the headache or dizziness subsides (usually just a few minutes). Skin irritation, especially in people with fair skin, is the next most commonly reported side effect, occurring 0.07% of the time. It generally clears on its own, but some over the counter skin ointment can be used if desired. As with most other medical devices or medications, the safety of using an Alpha-Stim while pregnant has not been established in clinical research. The only contraindication to using an Alpha-Stim is the presence of an implanted electrical device that cannot be turned off, such as a pacemaker, a defibrillator, or a cochlear implant.

Summary

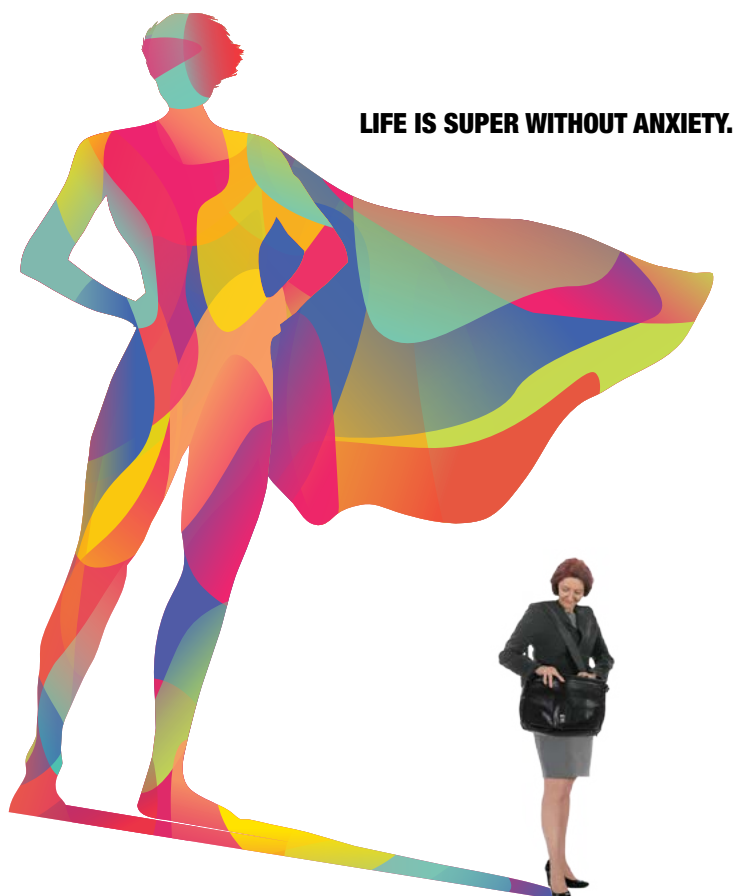
On the whole, we are more stressed and worried than any point in history, and getting worse each year. The most commonly used stress management techniques require additional effort and time set aside to practice in order for them to become effective. Scheduling this time and putting forth this effort can seem overwhelming to a person who is already experiencing high levels of stress and worry. In contrast, Alpha-Stim can be used during the normal course of our daily schedules, without disrupting our routines or requiring us to practice and learn new skills and techniques. This safe and easy to use device automatically induces an alpha state and activates the parasympathetic nervous system, which results in feeling relaxed and calm. You can learn more at www.alpha-stim.com.

While Alpha-Stim works well if one is relaxing during use, such as reading a book, watching TV, or meditating, it also works extremely well if used while the person is actively engaged in their normal activities.

References

1. Ray, J. (June 28, 2022). World Unhappier, More Stressed Out than Ever. <https://news.gallup.com/poll/394025/world-unhappier-stressed-ever.aspx>, Accessed July 23, 2022
2. https://www.amazon.com/Unfu-k-Yourself-Gary-John-Bishop-audiobook/dp/B0731QJ482/ref=sr_1_1?crid=2CH1A5E7E2KSM&key-words=unf+ck+yourself+by+gary+john+bishop&qid=1660225081&prefix=unf%2Caps%2C88&sr=8-1
3. https://www.amazon.com/Decision-Overcoming-To-days-Tomorrows-Success/dp/B084GYN3LY/ref=sr_1_5?keywords=kevin+hart+book&qid=1660225149&s=-books&prefix=kevin+hart%2Cstripbooks%2C91&sr=1-5
4. Kennerly, R. QEEG analysis of Cranial Electrotherapy: A Pilot Study. *Journal of Neurotherapy*, (8)2, 2004. Presented at the International Society for Neuronal Regulation conference, September 18-21, 2003, Houston, Texas
5. Khyatee, S., Sarker, A., & Aggarwal, R. (2019). Impact of Cranial Electrotherapy Stimulation Based Analysis of Heart Rate Variability in Insomnia. In: Prateek M., Sharma D., Tiwari R., Sharma R., Kumar K., Kumar N. (eds) Next Generation Computing Technologies on Computational Intelligence. NGCT 2018. Communications in Computer and Information Science, Vol 922. Springer, Singapore.
6. Khyatee, S., Sarker, A., Aggarwal, R., & Singh, R. (2020). Impact of Cranial Electrotherapy Stimulation on Statistical Indices of Time Domain Parameters of Heart Rate Variability in Hypertensive Individuals. *Indian Journal of Public Health Research & Development*, 11(3), 157-163.
7. Heffernan, M. The Effect of a Single Cranial Electrotherapy Stimulation on Multiple Stress Measures. *The Townsend Letter for Doctors*. 147:60-64, 1995. Presented at the Eighth International Montreux Congress on Stress, Montreux, Switzerland, February 1996.

Josh Briley, PhD, BCMAS, FAIS is the Clinical Education Director for Electromedical Products International, Inc., the manufacturer and distributor of Alpha-Stim devices. Dr. Briley is a licensed clinical psychologist. He has worked for the Federal Bureau of Prisons, the Veterans Health Administration, owned a private practice, and taught online courses for undergraduate and graduate students. He currently serves on the Daily Life and Workplace Stress board for the American Institute of Stress.



Alpha-Stim is the drug-free, clinically proven treatment to alleviate anxiety, depression, insomnia, and pain.

Get dramatic relief fast. Alpha-Stim® is an FDA-cleared, easy-to-use, handheld prescription medical device that treats anxiety without lasting side effects or risk of addiction. Get started at alpha-stim.com.



ALPHA-STIM®

Alpha-Stim and the Alpha-Stim logo are registered trademarks of Electromedical Products International, Inc. © 2020 Electromedical Products International, Inc. All rights reserved. Read a full disclosure of the minor and self-limiting risks here: alpha-stim.com/risk.

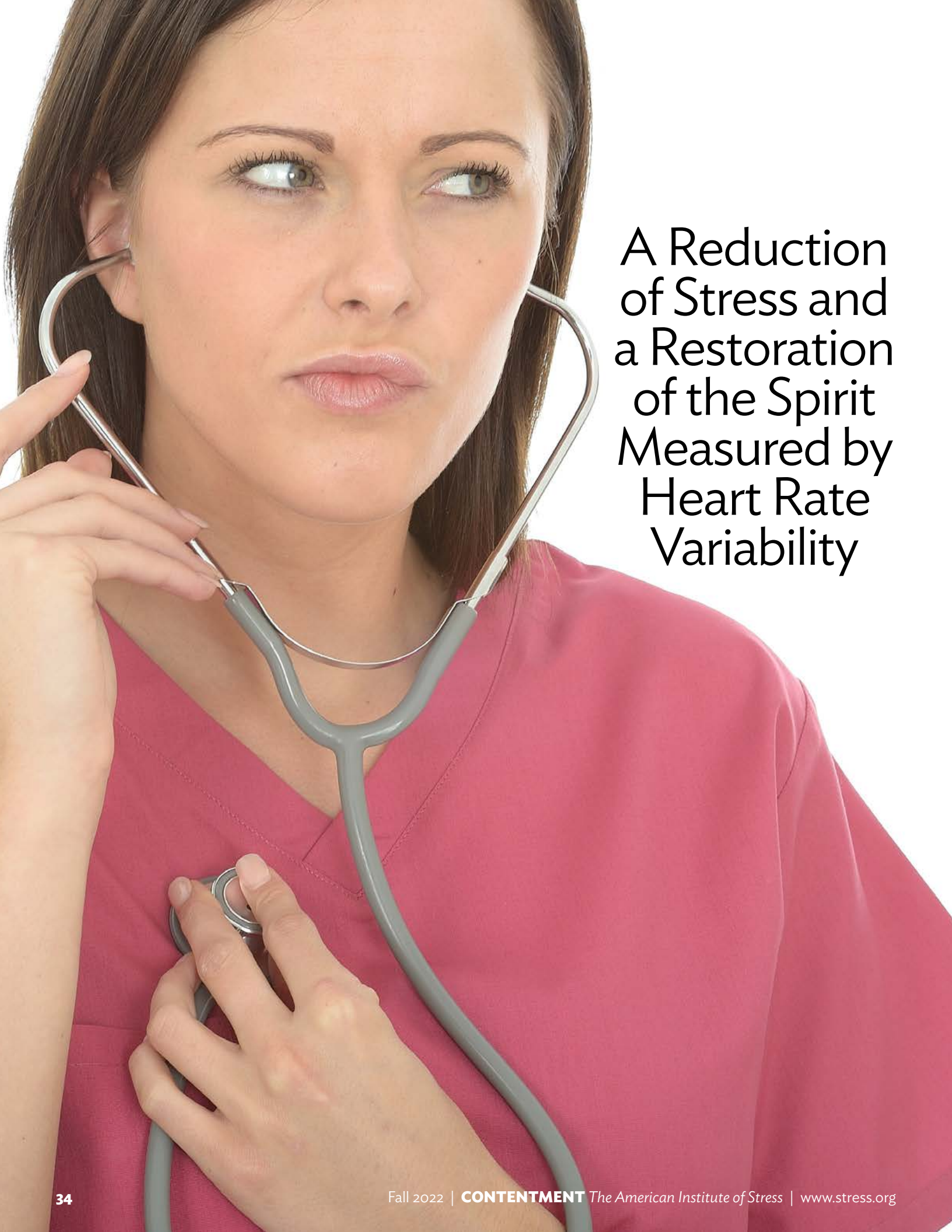
REDUCE YOUR STRESS.

Grow your happiness.

Is stress dragging you down physically and emotionally? The comprehensive, online “Stress to Joy” program, taught by bestselling author and board-certified psychiatrist Rozina Lakhani, MD, MPH, FAIS, gives you the tools you need for a return to joyful living. Dr. Rozina shares her proven stress management techniques in a way that’s both practical and inspirational. The program includes a workbook with step-by-step guidance, and it takes just 15 minutes per day for about three weeks. Make this powerful investment in your health and happiness – and turn the corner from stress to joy.

**CLICK
TO GET
STARTED**





A Reduction
of Stress and
a Restoration
of the Spirit
Measured by
Heart Rate
Variability

By Marcia Uddoh, MD (candidate), PhD, MPH, MS, MSW

Hans Selye defined stress as “a response to change in order to maintain the state of stability or homology that the body has maintained against the stimulus to break the mental and physical balance and stability of the body.”² This feeling of stress was the impetus that caused Helen Keller to move outdoors. Whenever she felt overwhelmed, spending time outdoors refreshed her spirit and provided her with a renewed sense of calm.

This article will focus on the physiologically restorative process by which a person moves from a state of stress to a state of relaxation. Heart rate variability (HRV) will be examined as an appropriate noninvasive electrocardiographic measure to assess the state of a person as they shift from stress to calm.³

To understand the phenomenon of HRV, it is helpful to consider the emotional and physiological effects that the natural environment has on human beings. While studies have assumed that changes in a subject’s heart rate should be understood to signal changes in their stress level, there is currently no accepted standard for measuring the latter.⁴ Despite this problem,

studies have also shown that HRV can be used as a neurobiological index of emotional stress and emotional health,⁵ as HRV does accommodate a range of normative values.

Theories and Definitions

Environmental psychology studies humans’ interactions with their physical environment.⁶ Restoration is the field defined in both psychological and physiological approaches that centers on the person’s interaction within their

environment, most often in nature. Two major theories comprise this field. The first is the attention restoration theory (ART), where attentional thought is the focus, and

nature, as the theory postulates, soothes and requires inattention.⁷ This reprieve, the theory posits, allows our attentional thoughts cognitive rest.⁸ Ulrich proposes the stress reduction theory (SRT), which suggests that nature has an inherent ability to reduce stress through psycho-physiological pathways.⁹ The physiological pathway provides an appropriate juncture to consider the biologically-mediated stress pathways from a psychological perspective.¹⁰ Within this realm, the sympathetic-adrenal-medullary (SAM) system and the hypothalamic-pituitary-adrenocortical (HPA) axis are the primary

*I have always the feeling
that nature has the power to
renew and refresh our minds,
our bodies, and our spirits.*

- Helen Keller¹

T*o understand the phenomenon of HRV, it is helpful to consider the emotional and physiological effects that the natural environment has on human beings.*

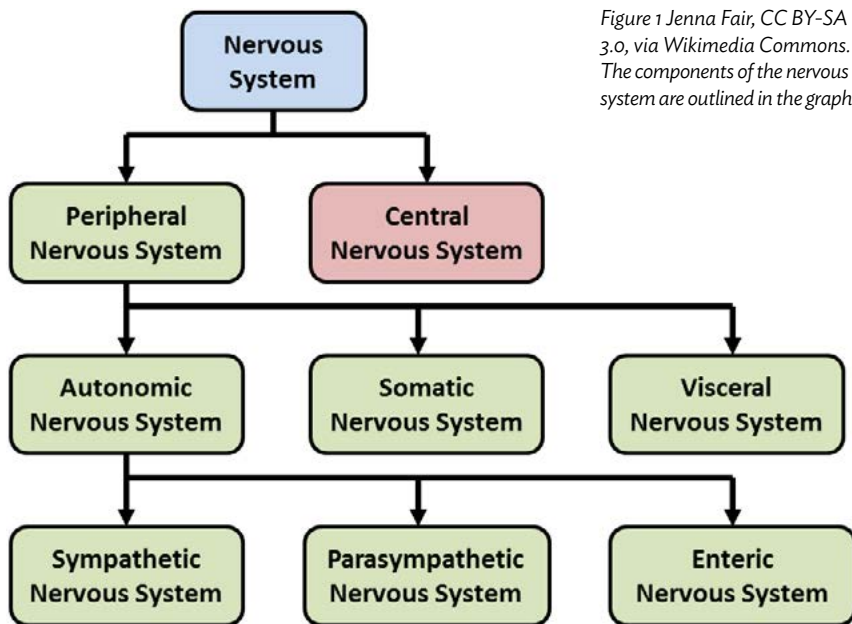
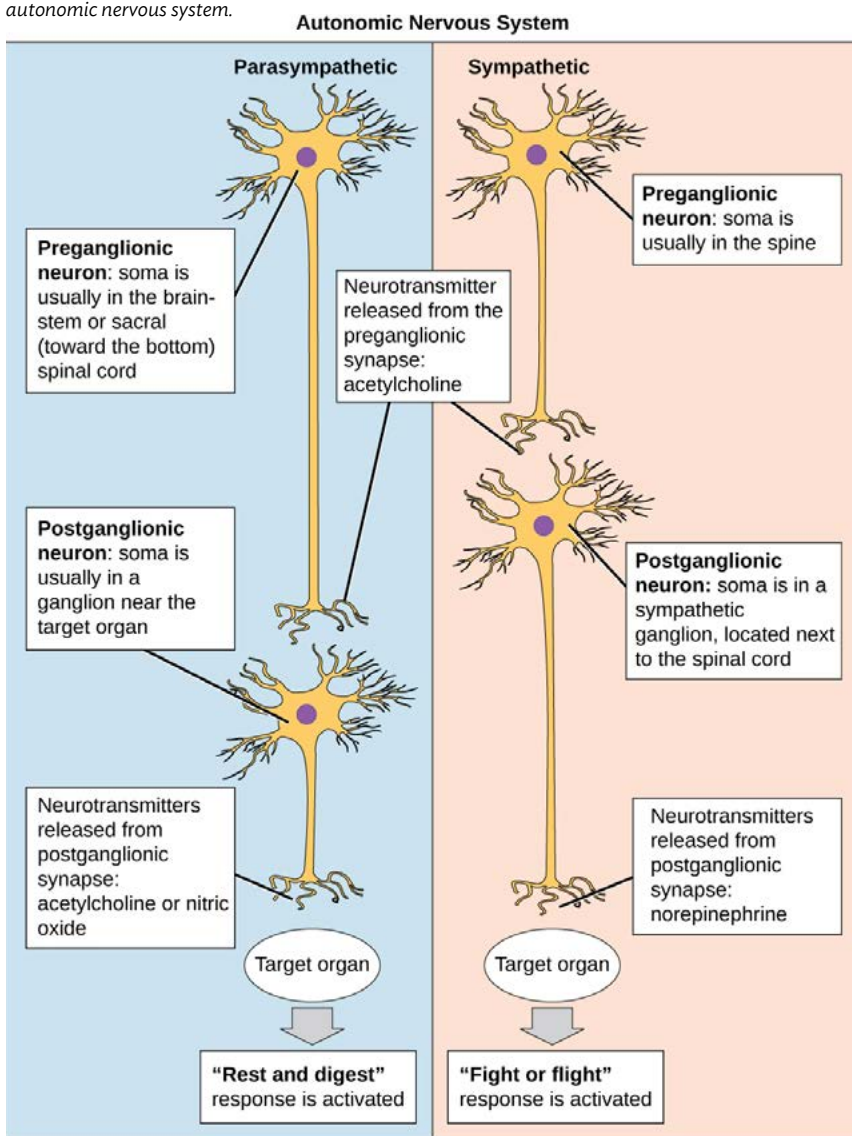


Figure 1 Jenna Fair, CC BY-SA 3.0, via Wikimedia Commons. The components of the nervous system are outlined in the graph.

Figure 2 CNX OpenStax, CC BY 4.0, via Wikimedia Commons. Neurons, autonomic nervous system.



paths to consider.¹¹ Their influence on the cardiovascular system is evidenced by blood pressure and heart rate.¹²

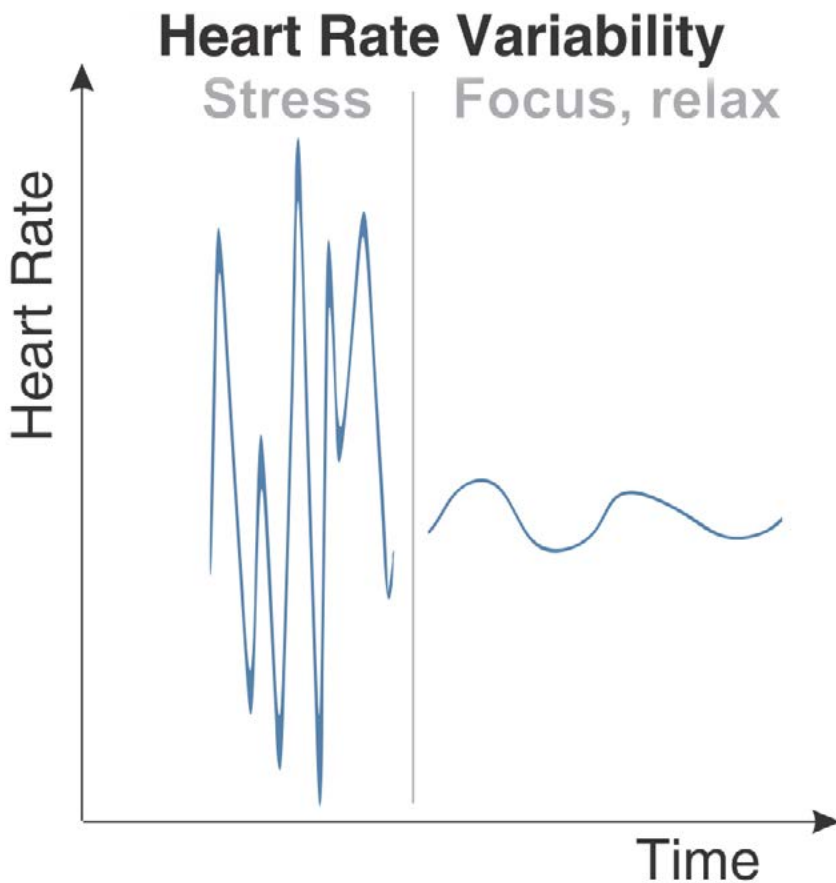
The Autonomic Nervous System

When the autonomic nervous system (ANS) is not in homeostasis, it is reflected in the heart rate.¹³ This state can occur at times of mental stress when the ANS attempts to regulate external stressors.¹⁴ The parasympathetic nervous system (PNS) and the sympathetic nervous system (SNS) work to maintain balance in the ANS (Figure 1). We know that the PNS is more active in times of relaxation as it exerts its effect on the sinoatrial (SA) node and the atrioventricular (AV) node to slow the heart rate, leading to cardio-deceleration (Figure 2).¹⁵

The SNS is more active in times of stress; it influences the heart rate (HR) by releasing epinephrine and norepinephrine. This influence leads to cardio-acceleration or quickening of the heart rate.¹⁶ The balance of the PNS and the SNS on the ANS can be measured with HRV.¹⁷ A healthy heart has more variability to allow the person to adjust to internal and external environmental stressors. In contrast, a person with less variability can adapt less to these stressors and demonstrates a monotonous variability (Figure 3).¹⁸

HRV Physiology

While the PNS and SNS exert their effect on the ANS, the dynamic is nonlinear, as their sum does not equal zero from their collective influences.¹⁹ Instead, because of the timing, where the PNS is fast (< 1 s) and the SNS is slower (> 5 s), their relationship is complex. HRV is the measure of the PNS and SNS activity in the heart.²⁰ The normal heart does not actually have a consistent beat that could be timed with a



that it is intended to examine since the definition can provide the most appropriate measure.²⁴ De Brito conducted a study to measure psychosocial stress about nature and contended that those who traversed urban or suburban areas would have increased stress measured with the HRV.^{25,26} The study included 23 young adult males with green and suburban paths. The

Figure 3 Marek Jacenko [thebio-feedback.com](https://www.creativecommons.org/licenses/by-sa/4.0), CC BY-SA 4.0 <https://www.creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons. First half in stress, second in focus, relax situation. Recorded by Stone Biofeedback device.

metronome. Instead, the timing fluctuates with the influences of the PNS and SNS and HRV dynamics measure this subtle oscillation. Instead, these interbeat intervals (IBIs) that fluctuate between successive heartbeats are what define the HRV.²¹

HRV Application

Shafer examined the physiological aspects of the HRV and contended that it is well positioned to measure the biological system's processes as it attempts to attain homeostasis.²² The PNS and SNS reflect these complex adjustments in our heartbeat variability. The European Society of Cardiology, the North American Society of Cardiology, and the North American Society of Pacing and Electrophysiology task force have created standard measures for the HRV.²³

HRV Measurement

For the measure of stress, it is imperative to determine the category of stress

research found that the HRV of the group that traversed the green paths showed beneficial improvement, while the blood pressure (BP) of both groups showed systolic BP reductions.²⁷

Studies on stress must adhere to strict guidelines that describe the experiment's definitions of stress as one of several precautionary guidelines for studying stress. Attention to these guidelines can avoid problems aggregating the findings, resulting in potentially inappropriate or unvalidated measures.²⁸

Conclusion

HRV has been relegated as an appropriate measure of stress as it can measure biological system processes, including the ANS and its adjustments of the heart rate.²⁹ The investigation of human physiology in nature provides a context to examine the HRV with accompanying definitions and clarification of terminologies of stress.³⁰ Excluded from the discussion

The normal heart does not actually have a consistent beat that could be timed with a metronome. Instead, the timing fluctuates with the influences of the PNS and SNS and HRV dynamics measure this subtle oscillation.

were the more in-depth topics, including HRV time-domains and frequency-domains. Instead, the focus aimed to address some of the rudimentary physiological aspects of stress relevant to HRV, including the measures of the PNS-SNS interchange in dealing with external stressors from the ANS. Studies have shown that nature can improve HRV,³¹ which could ostensibly restore the spirit as reflected in the biopsychosocial-spiritual model.

References

1. "Nature has the power to renew and refresh." Helen Keller. (2015, April 3). The American Foundation for the Blind. <https://www.afb.org/blog/entry/get-out-nature-says-helen-keller>
2. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
3. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
4. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
5. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
6. Egner LE. Exploring the restorative effects of environments through conditioning: the conditioned restoration theory (Master's thesis, Høgskolen i Lillehammer).
7. Egner LE. Exploring the restorative effects of environments through conditioning: the conditioned restoration theory (Master's thesis, Høgskolen i Lillehammer).
8. Law M., et al. Viewing landscapes is more stimulating than scrambled images after a stressor: a cross-disciplinary approach. *Frontiers in Psychology*. 2020 Jan 24;10:3092.
9. Gidlow CJ, Jones MV, Hurst G, Masterson D, Clark-Carter D, Tarvainen MP, Smith G, Nieuwenhuijsen M. Where to put your best foot forward: Psycho-physiological responses to walking in natural and urban environments. *Journal of environmental psychology*. 2016 45:22-9.
10. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of stress. In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
11. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of [stress](#). In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
12. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of stress. In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
13. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.
14. Castaldo, R., Melillo, P., Bracale, U., Caserta, M., Triassi, M., & Pecchia, L. (2015). Acute mental stress assessment via short term HRV analysis in healthy adults: A systematic review with meta-analysis. *Biomedical Signal Processing and Control*, 18, 370-377.
15. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
16. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
17. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.
18. Kim HG., et al. Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry investigation*. 2018, 15(3):235.
19. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
20. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
21. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
22. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
23. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
24. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of stress. In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
25. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.
26. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.
27. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.
28. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of stress. In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
29. Shaffer F, Ginsberg JP. An overview of heart rate variability metrics and norms. *Frontiers in public health*. 2017:258.
30. Roos, L. G., Alessi, M. G., Price, B. C., & Bennett, J. M. (in press). The measurement of stress. In: R. Gurung (Ed-in-Chief) *Routledge Encyclopedia of Psychology in the Real World*. London: Taylor & Francis Group.
31. de Brito JN., et al. The effect of green walking on heart rate variability: A pilot crossover study. *Environmental research*. 2020, 185:109408.

Marcia Uddoh, MD (candidate), PhD, MPH, MS, MSW, FAIS, is a pioneer in Christian-based stress research and management specializing in neurology and cognition. In 2018 the prestigious integrative medicine research program with Dr. Andrew Weil at the University of Arizona School of Medicine accepted her as a research intern; she researched holistic approaches to stress management. Dr. Uddoh is the founder of Stress Vitals Institute LLC, an evidence-based research institute that develops stress assessments, reports, and stress management interventions. To learn more about Stress Vitals Institute LLC, visit www.stressvitals.com; all faiths are welcome.



We assembled a collection of 10 packs of qualified and fun stress management gear. In addition to your own use, these make the perfect gifts for your stressed family members and friends. They will definitely thank you for these useful and thoughtful gifts.

- My Stress Tools
- The Gift of Relaxation
- Relaxation-In-A-Box
- Overcoming Stress Pack
- Sleep-In-A-Box
- The Anxiety & Emotional Eating Attack Pack
- Stress Attack Pack
- The Chillax Pack
- Mindfulness Meditation Pack
- The Unhealthy Behaviors Attack Pack



SHOP NOW

The American Institute of Stress Products Store

Maryland University of Integrative Health | **PCE**
Professional and Continuing Education

The four courses below are available through a partnership with MUIH Professional and Continuing Education (PCE) and are certified by The American Institute of Stress. PCE provides advanced, superior quality, skills-based offerings leading to relevant credentials and real-world application. As a PCE learner, you can quickly expand your knowledge and distinguish yourself as a leader in your field. Additionally, various professional organizations and boards may accept these courses for continuing education requirements. **CLICK TO LEARN MORE.**

The Physiology of Building Stress Resilience

The Physiology of Building Stress Resilience
A Continuing Education Masterclass



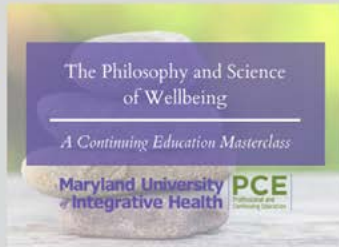
Psychoneuroimmunology - How Thoughts Impact Disease

PTSD in Client Relationships
A Continuing Education Master Class



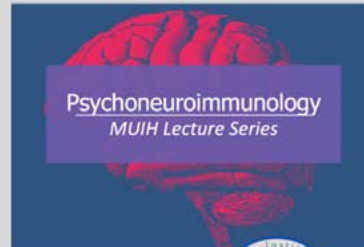
The Philosophy and Science of Wellbeing Masterclass

The Philosophy and Science of Wellbeing
A Continuing Education Masterclass



PTSD in Client Relationships Masterclass

Psychoneuroimmunology
MUIH Lecture Series



AIS members receive 10% OFF all MUIH courses. If you are a member, contact us for a promo code to enter at checkout.





LISTEN *to the* ANIMAL

By Frank Forencich, DAIS

I work with computers almost every day and in a typical session, I'm forced to grapple with viruses, phishing attacks, bad passwords, software that doesn't work, hardware that needs updating, and all manner of digital demons that demand my attention and send my cortisol levels through the roof. So, you won't be surprised at my reaction when someone suggests that technology is, or should be, a remedy for stress. From my point of view, technology is one of the primary drivers of my angst.

According to the prevailing narrative, technology can help us identify people who are stressed and in turn, help them find some relief. But to my way of thinking, we're getting ahead of ourselves and leapfrogging over some powerful human fundamentals. For example, if we want to know how stressed people are, why not simply ask them? Or more to the point, why not just listen while they talk about their lives? Human stories are rich with clues about how people are feeling in their bodies, something that psychologist Martin Seligman recognized clearly. In his work with patients, Seligman observed distinctive explanatory styles in people with depression.¹ No big surprises here: the depressive explanatory style is personal ("I suck.") pervasive ("I suck at everything.") and permanent ("I'll always suck.") When we hear people talk this way, we can be pretty sure that they're either depressed or will be soon.

This suggests a similar approach for recognizing stressed individuals. As most of us now know, stress is a frenemy, which is to say it has benefits and dangers, depending on dose and exposure. All of which is represented by the familiar inverse U curve of rising benefit, followed by a tipping point, diminishing returns and eventually, full-blown disease. It's easy to imagine how people talk on various parts of the curve. When people say "I'm so bored..." you can be pretty certain that they're below the ideal stress level. But give them something interesting and now they'll sound energized, excited, eager, willing, challenged, creative and curious. This is where we want our people to hang out.

But when stress begins to overwhelm, people reach a tipping point and begin to 'tell stories' of neophobia (reluctance to try new things), anhedonia (lack of pleasure in things that were formerly enjoyable), pessimism, hesitation and reluctance, caution and conservatism, and early signs of dark humor. And when things get really bad, people lapse into learned helplessness, neurotoxicity, and incipient disease. In this zone, we're likely to hear talk of cynicism, misanthropy, doom-ism, nihilism, resignation, defeatism and some really nasty dark humor. It's a grim picture.

To be sure, none of this story-based evaluation is certain and it's clearly not hard science. But it does allow us to make some useful judgment calls about how people are doing. And even better, it's a stress solution in its own right. The

When stress begins to overwhelm, people reach a tipping point and begin to 'tell stories' of neophobia (reluctance to try new things), anhedonia (lack of pleasure in things that were formerly enjoyable), pessimism, hesitation and reluctance, caution and conservatism, and early signs of dark humor.

For every hour we spend agonizing over digital details, that's an hour that we aren't spending actually listening to people, an hour that could be spent actually communicating via the rich and powerful sensory capabilities of our bodies.



very act of listening creates a humane relational atmosphere that most people find comforting. In fact, many of us are craving this very thing; we want to feel felt, we want to feel seen, and we want to feel heard. By listening humanely coaches, teachers, and therapists create the very conditions that lead to a more relaxed state of mind and body.

But when we scan, test, probe, monitor, and track people with electronic devices, we create an objectified, sanitized, and artificial relationship that many people find distressing, inhumane and yes, stressful. Many of us are tired of being measured and evaluated as it is. Is this just one more step on the road to the digital management of the whole human experience?

All of which brings up some obvious questions: Why aren't we better listeners? Or to be more precise, why are so many of our professional interactions so rushed? Why do we have such a chronic sense of urgency in our dealings with one another? And why do we have such little confidence

in our primal human skills that we feel the need to supplement with gadgets? Couldn't our energy be better spent on active listening and simple communicating? Shouldn't we be taking more time with people?

Technical interventions are often presented as inexpensive solutions that will save time and money, but there are serious displacement costs that come along for the ride. For every hour we spend agonizing over digital details, that's an hour that we aren't spending actually listening to people, an hour that could be spent actually communicating via the rich and powerful sensory capabilities of our bodies. This is a huge cost, one that never makes it on to the spreadsheet. Our digital obsession threatens to displace our humanity; all of which ultimately increases our stress.

Another claim for technological intervention is that it will help people learn what their bodies are doing and help them find better ways to control



Men have
become the
tools of
their tools.

- Henry David Thoreau

their autonomic state. This supposes that people (animals) are incapable of doing this on their own. To be sure, some people are so deep in the red zone and so unaware of their own bodies that technological assistance or biofeedback might be helpful in a clinical setting. But as so often happens, we don't give the human animal the credit that it deserves. Animals have been sensing their internal states with some precision for millions of years. If given adequate time and the right surroundings, most human animals can eventually come to "feel what you're feeling." The trick is to create the right conditions and above all, slow down.

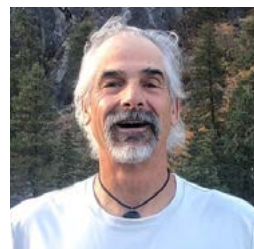
All of which suggests that we need to get back to the human/animal

fundamentals. Call me a Luddite if you will, but when working with the typical human animal, the best way is the old way. It's not so much that I'm against technology, but rather that I'm for the deep, ancient, and extremely sensitive capabilities of the human animal. In some clinical settings, in some special cases, the gadgets might be a good choice, but as a general practice, the best approach is to treat people like animals and pay more attention to their lived experience. Listen to their stories and give them time. Take a breath and slow down. It's all going to be OK.

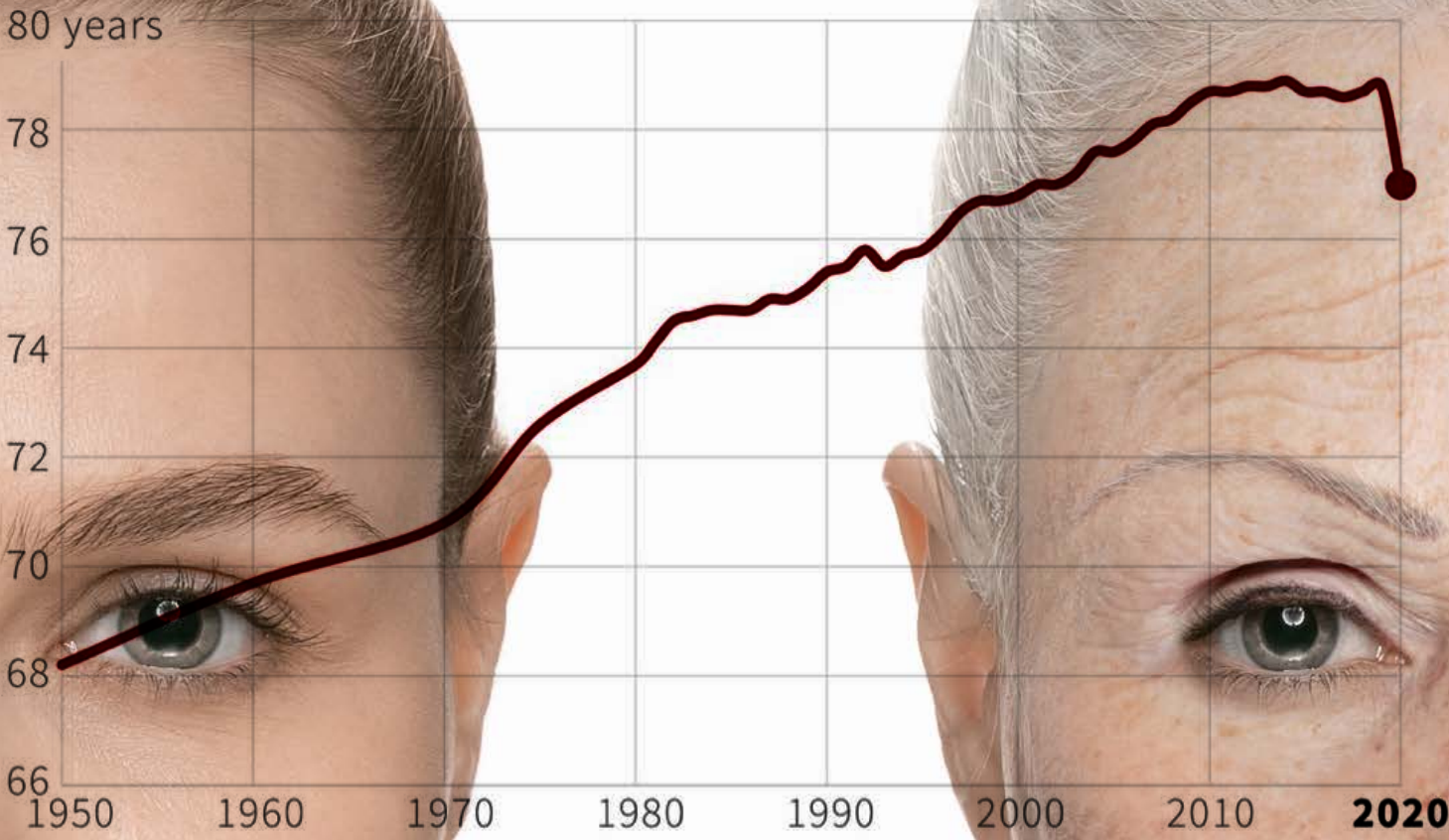
References

1. Seligman, M. E. P. (2006). *Learned optimism: How to change your mind and your life*. New York: Vintage Books.

Frank Forencich earned his BA at Stanford University in human biology and neuroscience and has over thirty years of teaching experience in martial art and health education. He's the author of several books about health and the human predicament including [*The Sapience Curriculum*](#) and [*Beware False Tigers*](#).



Life expectancy at birth in the United States, 1950 -- 2020



Source: CDC

THE LONGEVITY CRISIS

By Lewis Coleman, MD, FAIS

What a difference a day makes! Wasn't it only yesterday that Paul Ehrlich predicted

a population explosion?¹ Now, only a few years later, fertility is declining, and populations are shrinking throughout the world with few exceptions. The United States has maintained its population only by attracting immigration, mostly from Mexico, but now it suddenly faces an unexpected and even more ominous menace: declining longevity.

For decades American experts have noted exponential increases in cancer, heart disease, diabetes, hypertension, asthma, and rheumatoid diseases, but the implications are ignored.² Now, insurance companies are suddenly reporting increased death benefits that reflect declining average life span in the American population for three years running.³ The CDC attributes these changes to suicides, drug abuse, and COVID, but these tragic factors alone cannot account for the decreasing longevity of the entire population, nor can conventional medicine explain the cause.⁴ The implications are not rocket science, and they are not new. Hippocrates would have understood:

“Disease is not an entity, but a fluctuating condition of the patient’s body, a battle between the substance of disease and the natural self-healing tendency of the body.”
— Hippocrates

“Illnesses do not come upon us out of the blue. They are developed from small daily sins against Nature. When enough sins have accumulated, illnesses will suddenly appear.”
— Hippocrates

Stress theory, now empowered by the recent discovery of its long-sought stress mechanism,⁵ explains the cause-and-effect relationships of environmental adversity, disease, and longevity. It warns that the decline in American health and longevity will continue, because the combined onslaught of multiple environmental stresses has exceeded the limits of human tolerance. These include pesticides, herbicides, automobile exhaust, smoking, toxic drugs, drug abuse, drug toxicity, food preservatives, food additives, nutritional deficiencies, chlorinated water, toxic industrial wastes, and air particulates, all of which are largely free of restriction in the United States. Furthermore, stress theory explains how emotional adversity harms health, which has long been obvious but until now has been discounted for lack of an effective explanation.⁶ Examples include generational poverty, alarming propaganda, joblessness, homelessness, abusive taxation, warfare, lawsuits, divorce law, crime, violence, child abuse, incest, and the increasing injustice of government justice. Such stresses afflict rich and poor alike.

Normally the stress mechanism functions efficiently and unobtrusively to repair tissues and regulate organ function, but like any mechanism, it has operational

Stress theory explains how emotional adversity harms health, which has long been obvious but until now has been discounted for lack of an effective explanation.⁶



“It is the function of science to discover the existence of a general reign of order in nature and to find the causes governing this order. And this refers in equal measure to the relations of man-social and political-and to the entire universe as a whole.”

– Dmitri Mendeleev

limits. When those limits are exceeded by unremitting combinations of environmental stresses, it becomes hyperactive and begins to waste body resources, and produce excessive and defective products that damage tissues and disrupt organ function. Such harmful stress mechanism hyperactivity manifests as disease. Thus, stress mechanism hyperactivity is the universal cause of disease, and what appears to be distinctly different and unrelated diseases is determined by fluctuating stress mechanism hyperactivity. For example, chickenpox and smallpox viruses cause pustules; mumps virus produces parotid swelling; measles manifests Koplik spots, and diphtheria forms fibrous membranes in the pharynx. However, most disease instigates generalized symptoms including fever, fatigue, rashes, edema, malaise, and exudates that defy definitive diagnosis.

All forms of disease threaten health and longevity by damaging tissues, disrupting organ function, and squandering bodily resources. Borderline stress mechanism hyperactivity may undermine longevity without causing obvious symptoms, but the greater the duration and degree of disease, the greater its threat to health. *Stress theory thus predicts that environmental stresses will continue to erode longevity until they are alleviated.*

Three independent, synergistic pathways activate the mammalian stress mechanism and focus its powerful effects to repair tissues and regulate physiology. Their activities cause the stress mechanism to generate a bewildering blizzard of fluctuating symptoms that obscure the relative simplicity of stress mechanism function. Painful nervous stimulation activates the Nociception pathway; tissue

damage activates the Tissue Disruption Pathway (trauma); and the Cognitive Pathway pre-emptively activates the stress mechanism in accord with dangerous environmental circumstances.

Stress theory suggests new ways to detect harmful subclinical stress mechanism hyperactivity, and simple, safe, effective, and affordable treatments. These will be elaborated in future essays. Improved means of detection and treatment, however, are no substitute for controlling the environmental stresses that cause disease to begin with.

Pervasive Pollution

It is hardly surprising that pesticides, herbicides, chlorinated water, automobile exhaust, food preservatives, and industrial wastes that pollute the food we eat, the water we drink, and the air we breathe are the main cause of increasing illness. All are known to be toxic to humans and animals, and their enduring environmental presence coincides with increasing disease. Herbicides and pesticides are often combined with additional toxic chemicals to adhere them to plants, and otherwise increase their utility. The chemicals are absorbed into animal feed crops, so that they contaminate nearly all foods, including meat and milk.

I am no stranger to pollution. I grew up in the Ohio Valley, downstream from Pittsburgh. This location attracted several horrific corporate polluters, though I remained blissfully unaware of this in my youth. My best friend in high school was the son of the DuPont chemical plant manager in Parkersburg, West Virginia. He told me that the DuPont plant manufactured “Delrin,” a space-age plastic. None of us knew that it produced Teflon, which generates notoriously toxic waste. I dated the daughter of the Union Carbide Metals

plant manager, where my father worked, and a girl whose father worked at Union Carbide Plastics. I played basketball and football with a classmate who lived around the corner and whose father became the Union Carbide Metals plant manager. Despite their prominent positions, these men earned pittances compared to the multi-millions paid to corporate CEOs. They were modest minions who had families to feed. My own father was a star athlete in high school who financed his mechanical engineering education with a football scholarship at Auburn University. He began his career at Union Carbide after serving as a lieutenant in a tank division in Germany in WWII. I was in awe of his accomplishments and understood his frustration at being sidelined as a “maintenance engineer,” which he attributed to corporate politics.

Beware of what you dream. My father’s frustration convinced me to avoid the politics of a corporate career. Even as a small boy I listened to the radio and concluded that the world is so rife with violence and injustice as to question the worth of human existence. Thus, I dreamed of a livelihood in research or medicine where I might somehow contribute something to science. I worked during summers at Union Carbide Metals, Union Carbide Plastics, and Shell Chemical to help pay my Ohio State tuition. Major explosions and fires at these plants killed workers and dumped toxic wastes into the river even before I graduated.⁷ Meanwhile, the Vietnam war raged while Tom Lehrer sang his “Pollution” song and campus protestors chanted “Don’t drink the water, and don’t breathe the air,” but I was a busy student with no time to dwell on distractions.

Long after I left Ohio, a West Virginia farmer realized that dozens of his cows

S *stress theory predicts that environmental stresses will continue to erode longevity until they are alleviated.*

were dropping dead after drinking poisoned water from the small stream where the DuPont plant dumped its toxic Teflon chemicals. He appealed to a corporate attorney, who filed a class action lawsuit, which revealed DuPont had known for thirty years that its toxic waste was poisoning drinking water for miles around its facilities, and the toxic Teflon chemicals persist indefinitely in the environment as well as human bodies. DuPont's secret epidemiological studies had long since proved that these toxins were causing cancer and reducing life span in the surrounding population.⁸ This inspired sanctions of the other companies, but their plants are still operating and polluting.⁹

Meanwhile, Union Carbide unconscionably built a pesticide plant in the middle of the densely populated city of Bhopal, India that suffered a massive leak of phosgene gas — the deadliest war gas of WWI — that killed and maimed thousands of unsuspecting Indian citizens as they slept. This became the worst peacetime industrial accident on record.¹⁰ Instead of accepting responsibility, Union Carbide sold its assets and disappeared, leaving the Indian government to care for its mutilated citizens.

After medical school I moved to Los Angeles, where politically powerful farmers were spraying toxic malathion pesticide at night all over Southern California to control an agricultural pest called the “medfly.” My guess is that this was done at the behest of Georgia cotton barons who moved to California after the Civil war and now own some 70% of California's farmland. Their thirsty cotton crops consume most of California's water, and they control California politics.¹¹ I secured about three minutes of public airtime on NBC to protest this outrage, and I'd like to think this had some influence, because the spraying ceased soon thereafter. More recently the release of sterilized medflies has eradicated the medfly where pesticides failed. Perhaps this points to a more hopeful future. However, I now live in California's Central Valley, where pervasive pesticides plague the population with asthma and Parkinson's disease.¹²

“The medical profession in the United States ceased, very largely, to be a profession of the fatherly confessors and unprofessing humanitarians and became one of the largest groups of hardheaded petty-bourgeois hustlers in the United States, and their professional association became the most ruthlessly materialistic lobbying association



of any professional group.”

— Carrol Quigley¹³

I specialized in anesthesiology, where my experience led me to conclude that politics enables mediocrity to even the score with ability. My father would have laughed aloud. During my career corporations have perverted professional practices to promote profits at the price of public health. The more sickness, the greater their profits.¹⁴ Carbon dioxide is as essential to life as oxygen, because it enables all aspects of the mechanism of oxygen transport and delivery, and it has invaluable therapeutic properties, but the mechanism of oxygen transport and delivery, which has been understood since the turn of the previous century, together with knowledge of CO₂ therapeutic properties, has been mysteriously eradicated from medical textbooks and teaching for more than 50 years. I call this “The Great Medical Hoax of the 20th Century.”¹⁵ This begs the obvious question: How on earth did this happen?

To make a long story short, the impending apocalypse of WWI inspired intense medical research that discovered the mechanism of oxygen transport and delivery, and revealed the therapeutic benefits of carbon dioxide and morphine. After the war, physicians being in short supply, Dr. George Washington Crile founded a school of nurse anesthesia. The nurses supplemented ether anesthesia with carbon dioxide and morphine, and became famous for their superior surgical outcomes. However, they lacked the means to measure and monitor CO₂ concentrations in their gas mixtures, and their over-enthusiastic CO₂ supplementation sometimes caused CO₂ asphyxiation that manifested as hypoxic brain convulsions. This caused considerable consternation.

The success of the nurses inspired resentment among doctors. Dr. Ralph Waters, the first chairman of a university anesthesia department, devised specious animal experiments that confused CO₂ asphyxiation with anesthesia, and fabricated fictitious clinical reports to characterize CO₂ as “toxic waste, like urine” that must be “rid from the body” using mechanical hyperventilation to prevent its supposedly dangerous effects during surgery. He taught his MD anesthesiology residents to use his innovative new technique that employed intravenous sodium pentothal hypnosis and curare paralysis to enable elective endotracheal intubation that facilitated mechanical hyperventilation and enabled surgeries in the mouth and in prone position that were impossible with the mask technique used by the nurses. The hyperventilation caused no consequences with the original “closed-circuit” anesthesia machines that were universally used at that time, because these machines were designed to conserve onerously expensive medical gases. Waters was a shrewd politician, and he carefully placed his residents in prestigious academic positions throughout the country, so that anesthesiologists soon supplanted the nurses.

As the cost of medical gases declined, the closed-circuit anesthesia machines were replaced by a new generation of machines that employed continuous fresh gas inflows to prevent supposedly dangerous CO₂ elevations. With these new “open-circuit” machines, mechanical hyperventilation rapidly depletes CO₂ tissue reserves, which undermines respiratory drive and is incompatible with beneficial narcotic treatment. As these new machines were introduced, Dr. Waters suddenly retired and strangely

The impending apocalypse of WWI inspired intense medical research that discovered the mechanism of oxygen transport and delivery, and revealed the therapeutic benefits of carbon dioxide and morphine.

Corporations have unquestionably brought technological blessings, but America's "founding fathers" feared them as a social and political menace that threatens government.¹⁹

refused further involvement with the profession he had created. The evidence suggests that he feared that his fraud would be discovered.

However, Waters had created a powerful hoax that had firmly entrenched the harmful habit of hyperventilation in anesthesia training, belief, and practice, that persists to the present. Anesthesiologists and nurse anesthetists alike are still brainwashed during their training to think carbon dioxide is toxic and must be removed using mechanical hyperventilation during anesthesia, even though CO₂ depletion is inherently dangerous and incompatible with beneficial narcotics. The hoax has escaped the bounds of anesthesia, perverted other specialties, derailed medical research, and reversed medical progress for more than fifty years. Few practitioners realize that they are victims of a hoax, those few dare not deviate from prevailing dogma due to the danger of anesthesia politics. The hoax persists despite the recent re-discovery of therapeutic CO₂ and narcotic benefits by fresh modern research. This prevailing deficit of fundamental knowledge is no accident. Those who seek additional details and references may find them in my publications and the previous issue of Contentment.¹⁴⁻¹⁶

"Madness is rare in individuals — but in groups, parties, nations, and ages it is the rule."
— Friedrich Nietzsche

The harmful habit of hyperventilation is scientific insanity that should be condemned as malpractice but instead remains ubiquitous throughout the world. It confers no benefits whatsoever. It disrupts oxygen delivery to organs and tissues. It undermines postoperative respiratory drive.^{14,16,17} It is incompatible with

beneficial narcotics that inhibit harmful surgical nociception (nervous activity) that occurs despite anesthesia. It has killed countless patients, and promoted postoperative cancer, heart disease, and chronic illnesses.¹⁷

In contrast, hypercarbia offers the most potent and practical medical treatment ever discovered. This was well understood and widely utilized 100 years ago, but is now totally forgotten.^{16,18} I am forced to conclude that covert corporate conspiracy upholds the hoax to exaggerate sickness that enhances profits. Thus, corporate medicine has become the enemy of the public it purports to serve.

Corporate Corruption

Corporations have unquestionably brought technological blessings, but America's "founding fathers" feared them as a social and political menace that threatens government.¹⁹ They were invented in Britain long before the American revolution. Their sole purpose is to maximize profits and shield their owners and agents from lawsuits. They endure indefinitely and enjoy more rights than a living human being.

British sources financed both sides of the American Civil War, leaving the American government crippled with debt.^{20,21} John D. Rockefeller and his associates introduced corporate law to America after the Civil war, and British corporations flooded into America. The source that financed their notorious Standard Oil Cartel was undoubtedly British, but it remains hidden behind a complex web of confusing corporations.^{22,23} As the founding fathers feared, these British corporations soon had more income than the American government. Union Carbide is an example. It was a British corporation that purchased the

Federal gunpowder plant in Nitro, West Virginia after the Civil War. Thus ended the American experiment.

In his book *“Poison Spring”* E.G. Valliantos describes how pesticides and pollutants are absorbed into food crops and livestock, and how politically potent corporations emasculated President Nixon’s Environmental Protection Agency (EPA) immediately after its inception. They stripped away its laboratories and scientists, and relegated its job of policing pollution to the very corporations that do the polluting.²⁴ Could it be that Mr. Nixon was forced to resign because his EPA bill threatened the profits of powerful corporations? His shortcomings otherwise seem trivial. On a more hopeful note, the Clinton administration discouraged smoking despite tobacco lobby opposition only a few years later. This was an unprecedented boon to public health, but it only postponed the decline in longevity. Meanwhile, the lurking tobacco corporations continue covert efforts to promote nicotine addiction via the dangerous practice of “vaping” that causes a lethal stress reaction in lung tissues.

In contrast to the United States, the European Union has restricted environmental pollution. It bans toxic phthalates in plastics to prevent children from absorbing these dangerous chemicals while teething, and prohibit feeding animals with toxic substances that contaminate their meat and milk. Toxic refrigerants are being scrutinized. Freon, which DuPont touted until recently as a miracle of non-toxic safety, deteriorates into phosgene, a deadly “war gas,” when exposed to flame. Does anybody remember the “Ozone Hole”? Did anyone notice that the “Ozone Hole” problem disappeared after Freon production



halted? Did anybody know that the World Trade Center skyscrapers were loaded with Freon when they collapsed on 9/11? Could phosgene gas released from flame-exposed Freon explain the mysterious pulmonary problems suffered by emergency crews during that demolition? Meanwhile, the hydrocarbon refrigerants that replaced Freon are also toxic. This may explain why Mercedes Benz is developing air conditioning systems for their cars that utilize environmentally friendly carbon dioxide a safe alternative.²⁵ These and other reforms have sustained longevity in Europe even as it declines in America.

Conclusion

“Medicine is a social science, and politics is nothing else but medicine on a large scale. Medicine, as a social science, as the science of human beings, has the obligation to point out problems and to attempt their theoretical solution: the politician, the practical anthropologist, must find the means for their actual solution. The physicians are the natural attorneys of the poor, and social problems fall to a large extent within their jurisdiction..”

— Rudolf Virchow

“Medical education does not exist to provide students with a way of making a living, but to ensure the health of the community.”

— Rudolf Virchow

Physicians and scientists are mere handmaidens of the power, politics, privilege, and persuasion that prevails over all forms of human endeavor. They can do no more than identify problems and recommend reforms. Rudolf Virchow is remembered as the “father of modern pathology” but few remember that he was elected to the Reichstag, where he was a trifling hindrance for Hindenburg, who was preparing for WWI.

Few would wish to live without the blessings of civilization, and fewer pause to

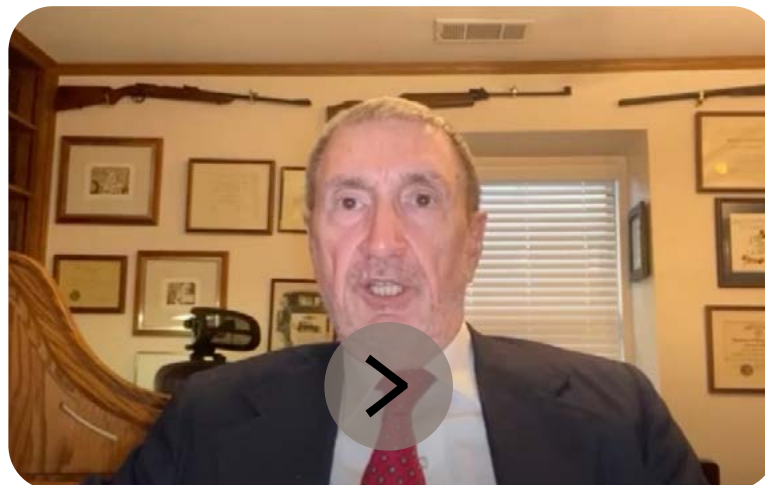
consider that all civilizations face multiple threats. None has yet stood the test of time. According to Will Durant, declining health, intelligence, and fertility collapsed the Greek and Roman civilizations.²⁶ Warfare slaughters the best and brightest. Privilege and power concentrates wealth and strangulates commerce, incentive, and progress. The innate injustice of government justice does its part. For us, increasing disease and declining longevity might be the last straw.

The purpose of this essay is to explain the significance of declining longevity in the United States and draw attention to the necessity of reform. Stress theory predicts that worse is yet to come unless politics can somehow alleviate environmental stresses. I am no fan of government,²⁷ and I have no idea how such reform can be accomplished, but corporations are a government creation, and only government can control them. The danger is upon us, and the hour is late. God help us all.

Note: the views expressed in this essay represent those of the author and should not be attributed to the American Institute of Stress

Those who wish to learn more about stress theory and its implications are encouraged to explore www.stressmechanism.com, which offers free downloads of the author’s published papers, and read

his recently published book called “50 Years Lost in Medical Advance: The Discovery of Hans Selye’s Stress Mechanism” that is published by the American Institute of Stress and sold on Amazon.com. The next issue of Contentment will also include a review of the mechanism.



References

1. Ehrlich, P. R. The population bomb. (Ballantine Books, 1968).
2. Scubba, J. D. 8 billion and counting : how sex, death, and migration shape our world. First edition. edn, (W.W. Norton & Company, 2022).
3. Hailey Ross, J. W. US death-benefit payouts hit record high in 2021 <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-death-benefit-payouts-hit-record-high-in-2021-69102708>, <<https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-death-benefit-payouts-hit-record-high-in-2021-69102708>> (March 15, 2022).
4. Devitt, M. CDC Data Show U.S. Life Expectancy Continues to Decline, <<https://www.aafp.org/news/health-of-the-public/20181210lifeexpectdrop.html>> (2018).
5. Coleman, L. S. A Stress Repair Mechanism that Maintains Vertebrate Structure during Stress. Cardiovasc Hematol Disord Drug Targets, doi:BSP/CHDDT/E-Pub/00015 [pii] (2010).
6. Mason JW, W. M., Mougey EH, Wherry FE et al. . Psychological versus nutritional factors in the effects of fasting on hormonal balance. Psychosom Med 30, 554-560 (1968).
7. jdoyle@pophistorydig.com, J. D. Belpre, Ohio Shell Plant Explodes, <<https://pophistorydig.com/topics/shell-oil-belpre-explosion/>> (2018).
8. Sisk, T. A lasting legacy: DuPont, C8 contamination and the community of Parkersburg left to grapple with the consequences, <<https://www.ehn.org/dupont-c8-parkersburg-2644262065/particle-6>> (January 7, 2020).
9. Wilcke, G. Cleaning Up Union Carbide <<https://www.nytimes.com/1972/05/28/archives/cleaning-up-union-carbide-a-company-cope-with-pollution-problem.html>> (1972).
10. Mandavilli, A. Bhopal, India: The World's Worst Industrial Disaster Is Still Unfolding <https://www.theatlantic.com/science/archive/2018/07/the-worlds-worst-industrial-disaster-is-still-unfolding/560726/>, <<https://www.theatlantic.com/science/archive/2018/07/the-worlds-worst-industrial-disaster-is-still-unfolding/560726/>> (2018).
11. Arax, M. & Wartzman, R. The king of California : J.G. Boswell and the making of a secret American empire. (PublicAffairs, 2003).
12. Service, G. p. b. <https://www.youtube.com/watch?v=6i2sJwx-w5Uc&t=1219s> (Germany, 2021).
13. Quigley, C. Tragedy and hope; a history of the world in our time. (Macmillan, 1966).
14. Coleman, L. S. Four Forgotten Giants of Anesthesia History. Journal of Anesthesia and Surgery 3, 1-17 (2015). <<http://www.omegaonline.org/article-details/Four-Forgotten-Giants-of-Anesthesia-History/468>>.
15. Coleman, L. S. (ed Jeffrey Walden) (American Institute of Stress, California, 2022).
16. Coleman, L. S. 50 Years Lost in Medical Advance: The Discovery of Hans Selye's Stress Mechanism. (The American Institute of Stress Press, 2021).
17. Monk, T. G., Saini, V., Weldon, B. C. & Sigl, J. C. Anesthetic management and one-year mortality after noncardiac surgery. Anesth Analg 100, 4-10 (2005).
18. Rose, A. Carbon Dioxide in Medicine. (Conscious Breathing Publishing).
19. Jefferson, T. Thomas Jefferson to George Logan <<https://founders.archives.gov/documents/Jefferson/03-10-02-0390>> (November 12, 1816).
20. Liverpool's Abercromby Square and the Confederacy During the U.S. Civil War, <https://ldhi.library.cofc.edu/exhibits/show/liverpools-abercromby-square/introduction>.
21. Ascher, R. Lincoln Financed the War by Taking On the British-Backed New York Banks, https://larouchepub.com/other/2014/4125lincoln_greenbks.html. (1992).
22. Standard Oil American Corporation, <https://www.britannica.com/biography/William-Rockefeller>.
23. Blair, J. M. The control of oil. 1st edn, (Pantheon Books, 1976).
24. Vallianatos, E. G. & Jenkins, M. Poison spring : the secret history of pollution and the EPA. First U.S. edition. edn, (Bloomsbury Press, 2014).
25. <https://automotivetechinfo.com/wp-content/uploads/2021/06/CO2-as-a-Refrigerant-is-Happening.pdf>. (2021).
26. Durant, W., Durant, A. & Rouben Mamoulian Collection (Library of Congress). The story of civilization. (Simon and Schuster, 1935).
27. Coleman, L. S. Take a Walk on the Wild Side, <http://voluntaryist.com/letters/007.html#.X6bD4C9h1Bw>. (1995).

Lewis Coleman, MD, FAIS is a board-certified anesthesiologist who completed his BS degree in biology at Ohio State University, earned his MD degree from New York Medical College, and completed his surgical internship and anesthesiology residency at UCLA, followed by 40 years in private practice. Coleman's basic sciences instruction at NYMC miraculously coincided with the two-year sojourn of Dr. Johannes Rhodin, a famous Swedish pioneer of electron microscopy who was retained by the school to upgrade its curriculum. Dr. Rhodin was an expert on the stress theory of Hans Selye. His stress theory lectures devastated the dogma of classical physiology and convinced Coleman that stress theory represented the future of medicine. Many years later, these lectures miraculously enabled Coleman to identify Selye's long-sought stress mechanism. Thus identified, the stress mechanism enables Selye's "Unified Theory of Medicine" that promises a new era of health, longevity, and freedom from the eternal curse of disease. Its implications exceed the bounds of medicine and confer a "unified theory of biology" that explains embryology, extinction, evolution, ethology, intelligence, anatomy, taxonomy, the Cambrian explosion, and dinosaurs, and resolves the disparities of Darwin, Lamarck, Baldwin, and saltation. Its distant implications reside in the realm of science fiction. His website <http://www.stressmechanism.com> is dedicated to stress theory and offers relevant materials free of charge. His book, *50 Years Lost in Medical Advance: The Discovery of Hans Selye's Stress Mechanism*, is available on Amazon.



WHAT WE ARE READING

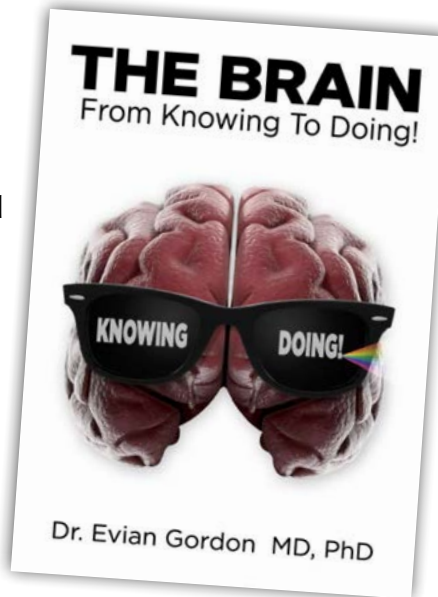
- *The Brain: From Knowing to Doing!* By Dr. Evian Gordon, PhD, MD -

This book will empower the reader to take on their ambitions and create deeper relationships, personally and in their community.

By Heidi Hanna, PhD, FAIS

Dr. Gordon is a pioneer in the field of Applied Integrative Neuroscience. In 2001, he founded the Total Brain brain-training platform and largest standardized international brain database. Dr. Gordon is a Fellow of the American Institute of Stress, a featured expert in the AIS Docuseries “Mismatched,” and a regular contributor to *Contentment* magazine.

In his book, *The Brain: From Knowing to Doing*, Dr. Gordon draws insights from the Total Brain database and key learnings from over a million users of products he has helped create and deploy. He highlights the centrality of Emotion-driven Stress and provides a simple framework for generating new habits to reduce stress, in the moment and in the long run.



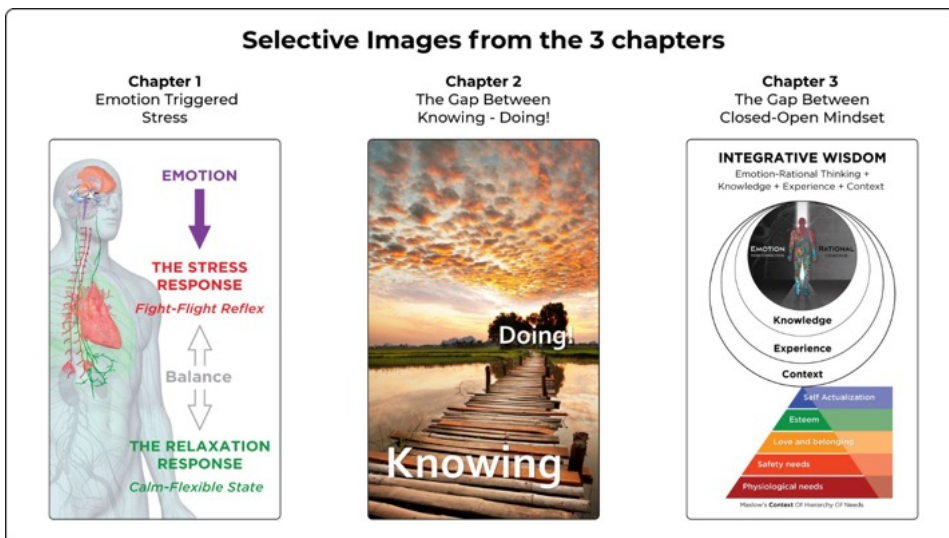
This simple but powerful book takes you through three primary sections: understanding how the brain works, learning how to create sustainable new habits, and the convergence of experience, understanding and awareness into Integrative Wisdom, ultimately bridging the gap between what we know and

what we do to make it easier to live the life we want.

The Brain: From Knowing to Doing makes brain science and stress reduction accessible and applicable to daily life, work, and relationships. This book will empower the reader to take on their ambitions and create deeper relationships, personally and in their community.

The key book takeaways focus on how to bridge the 3 biggest gaps in life:

- 1. KNOWING:** Until you measure and align your non-conscious ‘emotion intuition’ and conscious rational thinking, you are walking around in the dark. Emotions trigger stress and that impacts every stress dynamic in life. Chronic stress is a health and joy killer.
- 2. DOING:** The biggest gap in generating any new habit is between Knowing and Doing! You can wire any new habit, but not without a brain-based plan.



The Gordon 3-Step Plan brings together evidence-based details about How to Know-Train-Transfer any new habit into your daily life. Chapter 2 is a deep dive into using your brain for change. Your brain can be your biggest ally or your biggest enemy. Creating new habits is stressful because of the threat of failure and the most common mistake, overreaching. Implementing brain hacks is the least stressful and most successful way to create new sustainable habits.

3. INTEGRATIVE WISDOM: Dr. Gordon finalizes his book in by introducing a new concept, integrative wisdom. To integrate

means to bring together or unite. Wisdom is not just what you know, but how you apply that knowledge to your life and relationships. Integrative wisdom takes time, experience, resilience, and fortitude. It is earned. Integrative wisdom happens through an open rather than a closed mindset. When you are open, you can embrace all nuggets of wisdom wherever you can find them.

The Brain: From Knowing to Doing gives you the tools to further your personal journey, build stress mastery into your daily routine, and fast-track your Integrative wisdom for a more fulfilling life.

Heidi Hanna, PhD is a *New York Times* best-selling author who has written seven books and has spent the past 20 years researching the impact of stress on the brain and presenting mental fitness strategies across the globe. Heidi has been an instructor at Harvard Extension, a fellow with the American Institute of Stress, and she's a certified humor professional, although she won't admit she's funny. Learn more about Heidi at www.heidihanna.com.



Produced by The American Institute of Stress

MISMATCHED: YOUR BRAIN UNDER STRESS

6-part documentary series exploring stress and what we can do about it

FEATURING SOME OF THE WORLD'S LEADING EXPERTS ON STRESS

Stress is literally the spice of life. It has been said if you don't experience stress you're not alive. Stressors are everywhere. They come at you from the environment you live, work and play in, from other people and mostly, from inside your own mind. Stress is defined as our reactions to change. Like everything else, you can learn how to master your stress to live a more peaceful, productive and happy life. Mismatched: Your Brain Under Stress will tell you how.

CLICK HERE TO ORDER



MEMBERS WATCH FOR FREE:

Become a member of AIS for \$95 and get Mismatched viewing access for FREE, along with The Body Electric: a documentary film to revolutionize the way we think about the human body, recorded webinars with the industry's leading stress researchers and practitioners, A Personal Appraisal of Hans Selye and the Origin and Evolution of the American Institute of Stress ebook, and many more member benefits!

CONTENTMENT

Click
Here To
Subscribe
Today.

It's free, although if you agree with our mission, we are most grateful for any [tax deductible donation](#) you would like to make.

And we are not here to cause you stress so rest assured that we will never sell your email and you won't get any junk mail from us.



The American Institute of Stress
220 Adams Drive, Ste 280 - #224
Weatherford, TX 76068

info@stress.org
(682) 239-6823

The American Institute of Stress is a qualified 501(c)(3) tax-exempt organization.