

The American Institute of Stress

CONTENTMENT

Your source for science-based stress management information

Volume 11 Number 2

Summer 2022

Moving Through Stress – Harnessing the Power of Movement



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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.

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The American Institute of Stress

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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.



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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.

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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.



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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.



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Editor's Message

Cynthia Ackrill, MD, PCC, FAIS
Editor



As always, it is with great pleasure that we bring you another issue of *Contentment*, packed full of science, wisdom, and advice from our colleagues. This issue is dedicated to helping you move forward in a world full of challenge with a special focus on the power of movement itself to combat stress. We are wired to move in response to threat. E-motions are designed to put us in motion toward safety. We are also wired to learn through movement. Movement is critical to maximizing our brainpower and overall wellbeing.

And yet...we often find it hard to fit enough movement into our over-busy days...or we just can't seem to get started or stick with an official exercise program. Let this issue help you move beyond the should's and guilt to get creative in thinking about how to include more movement with less struggle. As you read, note ideas that inspire you or make the challenge less daunting and more enjoyable.

We start with another deep dive into the science underlying stress an article from **Lewis Coleman, MD, FAIS** on carbon dioxide. Why CO₂? Because it turns out that we have been operating under some huge misunderstandings about the role of CO₂ in our health. With the perspective and wisdom of an anesthesiologist and researcher, Dr. Coleman cites long-ignored studies that could help us harness the power of CO₂ to reverse the ravages of stress and

disease and even lead to new therapies. This is a great example of how modern medicine, even with good intentions, can get off-track and miss opportunities.

The next articles focus on the role of movement in our brain health and overall well-being. In a sedentary society, glued to our technology, we just don't naturally move as much. **Evian Gordon MD, PhD, FAIS; Pat Dunn PhD, MS, MBA, FAHA;** and **Jennifer Franklin** discuss harnessing the synergistic effects of exercise on stress resilience. They address the inspiring benefits, the underlying mechanisms, and offer pragmatic ideas for making new movement habits stick.

Jeff Jernigan, PhD, BCCPC, FAIS shares a personal story about "movement as salvation" when faced with the limitations of disabilities. He discusses the resistance we all experience to changing our habits and how to shift from being slaves to urgency or rationalizing work over self-care to healthier mindsets and practical ways to build in more movement.

Frank Forencich, DAIS helps us move beyond the often-intimidating concept of chunks of intense exercise to the very palatable idea of "movement snacks," taking advantage of mini-moments of activity throughout our busy days. He offers guiding principles to help with the mind-shift and realistic ideas for the micro-breaks that will fuel brainpower and well-being.

Ashley DePaulis addresses the challenge of how to fit more movement

into our lives by including more playfulness in how we think about the challenge. Adding play, light, fun, and creativity to our thoughts opens the mind to more positivity and creative possibilities. She discusses the power of intrinsic vs. extrinsic motivation, the former being far stronger in helping you start and continue any healthy habit. She challenges you to examine your underlying attitudes that drive your behavior, offering ways to shift your mindset to support your success, and build effective recesses into your busy day.

Next, we welcome an article from a new contributor, **Laura Putnam**, author of Workplace Wellness that Works on the power of infusing movement into the workplace. This is critical since we spend more time at work than most other activities, and we are missing the enormous potential of movement to increase brainpower, creativity, and well-being. She discusses the role of leadership in tapping into this potential and offers practical ideas for everyone.

And finally, a few thoughts from me, the wellness doc who didn't want to exercise. It's my personal perspective on the frustrating disconnect between knowing something is good for you and actually doing it. We have so many stories in our heads that can sabotage our best intentions and efforts. I offer a few ways to move beyond those and get creative with our relationship with movement and make choices that will recharge mind, body, and spirit.

Thank you for being part of the tribe determined to understand and apply tools that will make a difference in the wellbeing of all!

Cindi

STRESSED?

Stress is an emotional habit, an indicator there's a puppy upstairs [your brain], chewing up your house, your shoes and your underwear. Learn how to train the puppy and begin your path to stress elimination.

BEGIN TRAINING



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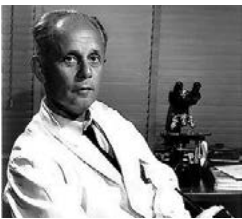
THE COST OF STRESS.

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

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A Powerful Tool *to Reverse the* Ravages of Stress

Madness is rare in individuals - but in groups, parties, nations, and ages it is the rule.

– Friedrich Nietzsche

By Lewis Coleman, MD, FAIS

Introduction

Of all the ignorance and superstition that bedevils human existence, the notion that carbon dioxide is toxic and dangerous is arguably the most outrageous. The widely ballyhooed notion that carbon dioxide is a “greenhouse gas” that threatens to melt the polar ice and drown civilization seems silly considering that CO₂ is a “trace gas” that exists in atmospheric concentrations of 0.03% that fluctuates slowly over geologic time. Episodes of “global warming” occur every few hundred years despite negligible change in atmospheric CO₂ concentrations. For example, an episode of “global warming” in the early 1400’s enabled a fleet of gigantic Chinese junks to explore and map the world and document an ice-free passage around the North Pole that has recently re-appeared, so that commercial shipping now enjoys an alternative to the Panama Canal. The panic that followed the Apollo 13 explosion offers perhaps the most dramatic contemporary example of the ignorant fear of CO₂ that permeates science and society. The supposedly sophisticated astronaut support team assumed that exhaled CO₂ might kill the astronauts within the few days before they returned to earth, and their construction of a makeshift CO₂ absorption contraption was hailed as a triumph of American ingenuity.

But the danger was imaginary, because weeks would have been required weeks for the CO₂ concentration to approach dangerous levels, and the CO₂ could have been flushed from the spacecraft using abundant remaining oxygen reserves.¹ How did this fear of CO₂ arise and become so pervasive?

Every cell in the body produces CO₂ continuously as a by-product of metabolism. The adult male body contains about 1.8 L/kg—up to 126 L of carbon dioxide.² Most of it combines with calcium and collagen to form bone. About 20 Liters exists as free gas in the lung or is dissolved in body fluids and tissues, as compared to 1 L of oxygen and 1 L of nitrogen.³ If it were toxic, we would all be dead. If it were narcotic, we would all be drunk. Instead, CO₂ is benign, beneficial, and essential for life. Oxygen is useless without it, because it enables all elements of oxygen capture from the atmosphere and its transport and delivery to cells deep within the body. Furthermore, it provides the most potent, practical, affordable, and safe medical treatments yet discovered, and it can help us reverse the ravages of stress. But CO₂ treatments, which were commonplace 100 years ago, have been hidden and forgotten in our era of supposedly advanced medicine, and this ignorance has caused countless unnecessary deaths.^{4,5} How can patients trust doctors who are ignorant of such fundamental facts? This essay will review the chemistry, pathophysiology, and therapeutic properties of carbon

Carbon dioxide provides the most potent, practical, affordable, and safe medical treatments yet discovered, and it can help us reverse the ravages of stress.

dioxide, and explain the mechanism of oxygen transport and delivery, in hopes of counteracting ignorance.

CO₂ Chemistry and Pathophysiology

Carbon dioxide differs from the other gases in several ways that explain how it facilitates oxygen transport and delivery, and how it mimics general anesthesia and toxicity:

1. It is odorless at normal atmospheric concentrations of 0.03% but it causes a painful sense of suffocation when it is inhaled in concentrations above 1%. This is sometimes mistaken as toxicity, but CO₂ is benign and inert, and cannot damage tissues.
2. It has refrigerant properties. When compressed it releases heat and converts from gas to liquid. When released from a pressurized container it absorbs heat.
3. It is theoretically preferable to commercial refrigerants because it is cheap, chemically inert, and devoid of toxicity.
4. It is more readily isolated from the atmosphere by compression and cooling than other atmospheric gases. This explains why it was the first gas to be isolated from the atmosphere.
5. Although it mixes uniformly with other gases in the atmosphere, it has a slightly greater molecular weight than the other gases, so that most atmospheric CO₂ hovers near the earth's surface.
6. When released from a pressurized container it forms a cool, invisible, colorless cloud that is temporarily affected by gravity so that it pours like water and collects in dependent spaces until it absorbs enough heat to mix with surrounding gases.
7. It inhibits the binding of oxygen to hemoglobin molecules in red blood cells. Breathing lowers the concentration of carbon dioxide in the lungs to 5% to optimize the saturation of hemoglobin with oxygen. Higher partial pressures of CO₂ in organs and peripheral tissues release oxygen from blood into organs and tissues.
8. It directly stimulates respiratory chemoreceptors to enable breathing.
9. It counteracts the respiratory depression caused by narcotics.
10. It accelerates narcotic metabolism and clearance.
11. It directly releases nitric oxide from capillaries, and thereby reduces microvascular flow resistance via the mechanism of "nitregic neurogenic vasodilation." This increases cardiac output and accelerates oxygen transport to cells.
12. Breathing gas mixtures supplemented with CO₂, or absorbing CO₂ through the skin, can improve both tissue perfusion and tissue oxygenation, and thereby counteract the effects of disease more effectively than conventional medications.
13. When mixed with atmospheric air in concentrations up to 10%, CO₂ enhances the release of oxygen from hemoglobin and improves tissue oxygenation. Higher concentrations of CO₂ in atmospheric air disrupt hemoglobin loading with oxygen in the lung and threaten asphyxiation. This mimics general anesthesia because it disrupts consciousness but is readily reversed by restoration of oxygen to the brain. This was a common trick produced by "shills" in circus side shows at the turn of the previous century.
14. When mixed with oxygen in concentrations of 2% to 30%, CO₂ enhances tissue and organ oxygenation by optimizing the release of oxygen from

hemoglobin. CO₂ concentrations greater than 30% cause asphyxiation regardless of oxygen supplementation.

In the spring issue of *Contentment* magazine, I mentioned the mechanism of oxygen transport and delivery, which captures oxygen from the atmosphere and delivers it to cells deep within the body. This important mechanism was understood by the turn of the previous century, but is inexplicably absent from modern medical publications. Carbon dioxide enables all aspects of this mechanism, and is therefore as essential to vertebrate life as oxygen. It activates respiratory chemoreceptors to stimulate breathing, reduces microvascular flow resistance to speed the transport of oxygenated arterial blood to peripheral tissues, and releases oxygen from red cells into organs and tissues.

Cellular metabolism continuously releases carbon dioxide. It readily dissolves in body fluids and tissues, and slowly leaks through the skin and equilibrates with the ambient atmosphere. Respiratory chemoreceptors adapt to this equilibrium and seek to maintain it. Almost all oxygen in the body is bound tightly to hemoglobin in red cells, and hemoglobin is normally 100% saturated with oxygen as blood transits the lung. The oxygen is quickly consumed by cells when it is released from hemoglobin into tissues. Therefore, there is little “oxygen reserve” in the body, and oxygen transport and delivery must be continuous to maintain cellular oxygenation. If a heart attack, drowning, or airway obstruction disrupts oxygen transport and delivery, the available oxygen in blood will be consumed within minutes, followed by brain cell oxygen starvation and death.

Inhaling atmospheric air supplemented with small amounts of carbon

dioxide beneficially enhances the release of oxygen from hemoglobin into tissues, and counteracts the cellular hypoxia caused by of disease and disability. In contrast, CO₂ depletion disrupts oxygen transport and delivery by reducing cardiac output and tissue perfusion, and by inhibiting the release of oxygen from hemoglobin into tissues.

CO₂ is a “trace gas” that constitutes only 0.03% of atmospheric air at sea level; most CO₂ hovers near the surface of the earth and is nearly absent at high altitudes such as the top of mountains. This explains “mountain sickness” and the “death zone” phenomenon that occurs near the peak of Mt. Everest. Persons breathing CO₂ deficient air at extreme altitudes suffer brain hypoxia that sometimes causes unpredictable and catastrophic loss of consciousness, and repeated exposure to such circumstances causes the brain damage. Breathing CO₂ is the most effective treatment.⁶

Unlike CO₂, oxygen is toxic. Breathing pure oxygen for more than 24 hours causes lethal lung inflammation, and invites oxygen fueled fires. Furthermore, it doesn’t improve tissue oxygenation in most circumstances, because hemoglobin is normally 100% saturated with oxygen as it transits the lung even without oxygen supplementation. Nevertheless, patients are routinely flooded with 100% oxygen, and the need for carbon dioxide is ignored.

Oxygen Transport and Delivery

The mechanism of oxygen transport and delivery occurs in a sequence of steps, as follows:

1. Carbon dioxide stimulates respiratory chemoreceptors, which activates breathing.

Carbon dioxide readily dissolves in body fluids and tissues, and slowly leaks through the skin and equilibrates with the ambient atmosphere.

Exercising muscle cells increase their CO₂ production, causing localized CO₂ elevations that reduce microvascular resistance and speed delivery of oxygenated blood to the active muscle tissues. CO₂ is thus the primary regulator of blood flow and distribution.

2. Breathing replenishes oxygen in the lung, and lowers carbon dioxide concentrations in the lung to 5%, which optimizes the loading of oxygen onto the hemoglobin molecules in red blood cells transiting the lung, causing oxygenated arterial blood to turn bright red.
3. The heart pumps oxygenated arterial blood from the lungs to capillary beds in organs and tissues.
4. Carbon dioxide releases nitric oxide (NO) from capillary walls to open the “capillary gate” via the mechanism of “nitricergic neurogenic vasodilation.” This reduces microvascular flow resistance, which increases cardiac output, and speeds the delivery of oxygenated blood to oxygen-starved tissues. For example, exercising muscle cells increase their CO₂ production, causing localized CO₂ elevations that reduce microvascular resistance and speed delivery of oxygenated blood to the active muscle tissues. CO₂ is thus the primary regulator of blood flow and distribution.
5. Elevated CO₂ partial pressures release oxygen from hemoglobin molecules into organs and tissues to satisfy cellular oxygen demand.
6. Hemoglobin turns blue after releasing its oxygen into tissues.
7. Oxygen depleted venous blood returns to the lungs to be re-oxygenated.

Hyperventilation versus Hypoventilation

Because of the Leake/Waters hoax (explained below), anesthesiologists are traditionally trained to use mechanical hyperventilation to eliminate the supposedly toxic and narcotic effects of carbon dioxide. Hyperventilation is inherently harmful and confers no benefits.⁷

This is counterintuitive, because breathing is obviously essential for life, so that it seems reasonable that more breathing is better, but such is not the case. Hemoglobin is normally 100% saturated with oxygen as blood transits the lung, so that hyperventilation cannot improve “oxygen reserve” or tissue oxygenation. Instead, hyperventilation dangerously depletes CO₂ tissue reserves, which disrupts oxygen transport and delivery, causes oxygen starvation in organs and tissues, and unpredictably undermines postoperative respiratory drive.⁸⁻¹⁰ Even brief voluntary hyperventilation causes cerebral oxygen starvation that manifests as dizziness and disorientation. This is especially problematic in geriatric patients with low metabolic rates who cannot readily replenish depleted CO₂ tissue reserves.

The following examples illustrate the dangers of hyperventilation:

1. Shallow Water Blackout Syndrome: Healthy young swimmers lose consciousness and drown after voluntarily hyperventilating in the mistaken belief that this will increase their oxygen reserves and enable them to swim longer under water. Instead, the hyperventilation depletes CO₂ tissue reserves, which paralyzes respiratory chemoreceptors and dangerously abolishes the urge to breathe. The swimmer thus exhausts the supply of oxygen in blood and suffers painless brain hypoxia that undermines judgment, so that he loses consciousness and drowns.
2. The “death zone” on Mt. Everest: Spontaneous hyperventilation and CO₂ depletion due to low concentrations of oxygen and carbon dioxide at high altitudes causes mountain climbers to unexpectedly faint and fall to their deaths. More than 400 Darwin



Award winners reside permanently at the peak of Mt. Everest.

3. Guides who routinely expose themselves to the extreme conditions of Mt. Everest often suffer hypoxic brain damage.
4. Hyperventilated patients unexpectedly fall asleep, stop breathing, and die while recovering from uneventful surgery because the hyperventilation depletes CO₂ tissue reserves, paralyzes respiratory chemoreceptors, and renders respiratory drive unstable until metabolic activity replenishes CO₂ tissue reserves. In geriatric patients, this can sometimes require several hours, as in the mysterious death of Andy Warhol.⁸
5. Hyperventilation during surgery depletes carbon dioxide body reserves and prevents the release of oxygen from the hemoglobin molecule.⁹ This causes harmful tissue and organ oxygen starvation that manifests as postoperative delirium and dementia, especially in geriatric patients.
6. Newborn respiratory arrest after Cesarean section: Hyperventilation depletes the CO₂ tissue reserves of the fetus as well as the mother, and

newborn babies are more vulnerable to CO₂ depletion than their mothers.

7. Prolonged postoperative respiratory depression after cardiac bypass, because bypass technicians, like anesthesiologists, believe that CO₂ is “toxic waste, like urine” that must be “rid from the body.”
8. Prolonged depression of respiratory drive after mechanical hyperventilation during surgery.
9. “Opioid hypersensitivity” for hours after surgery, because narcotics and CO₂ depletion synergistically depress respiratory chemoreceptor function.
10. Increased ECMO (extra-corporeal membrane oxygenation) morbidity and mortality.
11. Exaggerated morbidity and mortality in the presence of Obstructive Sleep Apnea (OSA).
12. Intra-operative infarction (heart attacks and strokes) due to oxygen starvation in heart muscle.
13. Increased morbidity and mortality due to cancer, heart disease, and chronic illnesses in the distant aftermath of seemingly successful surgery due to inadequate narcotic analgesia during surgery.¹¹
14. Retrolental fibroplasia due to hyperventilation with 100% oxygen in premature babies, because CO₂ depletion prevents the release of oxygen into immature retinal cells.

These examples of CO₂ pathophysiology are discussed in detail in my previously mentioned paper called “Four Forgotten Giants of Anesthesia History” that can be downloaded from its publisher or from my website, www.stressmechanism.com, along with copies of all my published papers. They are also explained in my book “50 Years Lost in Medical Advance: The Discovery of

Hans Selye’s Stress Mechanism” that is published by the AIS via [Amazon.com](https://www.amazon.com).

The Shortcomings of Pulse Oximetry

Few nurses, doctors, and even anesthesiologists appreciate the complicated characteristics and deceptive shortcomings of pulse oximetry, which is the most common means to monitor oxygen in hospitals and clinics. It does not measure the partial pressure of oxygen in tissues, which is the critical measure of cellular oxygenation. Instead, it determines blood oxygen saturation using an algorithm that assesses light frequencies reflected from oxygen in blood. Unfortunately, it cannot distinguish between oxygen bound to hemoglobin and oxygen saturated in plasma, and it can be “fooled” by numerous circumstances. For example, it cannot detect hypoventilation when patients are breathing 100% oxygen, and it cannot detect cellular oxygen starvation caused by mechanical hyperventilation that depletes carbon dioxide and disrupts the release of oxygen from hemoglobin into tissues. This happens routinely when patients are hyperventilated during surgery, based on the false belief that carbon dioxide is a “waste gas” that must be removed from the body.

The Forgotten Therapeutic Benefits of CO₂

The approaching apocalypse of WWI inspired medical research that clarified the mechanism of oxygen transport and delivery. Friedrich Miescher (1844–1895), the Swiss physician who discovered DNA, demonstrated that carbon dioxide regulates breathing.^{12,13} Christian Bohr (1855–1911), a Danish researcher, discovered that carbon

dioxide inhibits the affinity of hemoglobin for oxygen.¹⁴ Physicians of that era were astonished by the therapeutic properties of carbon dioxide.¹⁵ Yandell Henderson, a famous American researcher, demonstrated that CO₂ optimizes cardiorespiratory function and prevents unexpected postoperative respiratory arrest.^{10,16} American nurse-anesthetists embraced carbon dioxide supplementation to deter ether explosions, optimize cardiorespiratory function, and prevent postoperative asthma, atelectasis, pneumonia, nausea, and unpredictable respiratory arrest. Their successes inspired widespread utilization of Carbogen, a mixture of oxygen and carbon dioxide in pressurized tanks, to treat medical emergencies including drowning, smoke inhalation, asthma, pneumonia, heart attacks, strokes, alcohol inebriation, narcotic overdose, sepsis, infections, and newborn babies with breathing problems. Carbogen became standard equipment on fire trucks in major cities and saved numerous lives.⁷

Carbon Dioxide Treatments

Disease is harmful stress mechanism hyperactivity that wastes its substrates and produces excessive and defective versions of its products that damage tissues and disrupt cellular oxygenation. Tissue hypoxia induces abnormal fibroblast collagen production, which causes tissue sclerosis that progressively disrupts tissue and organ function and undermines longevity. CO₂ therapy counteracts cellular hypoxia by opening the capillary gate, inducing angiogenesis (capillary proliferation), and promoting oxygen release from hemoglobin into tissues. Thus, CO₂ can palliate disease, promote cure, and improve outcome in nearly all forms

of disease. For example, “facultative anaerobes” cause most stubborn and dangerous bacterial infections, including osteomyelitis, Lyme disease, gas gangrene, MRSA (methicillin-resistant staphylococcus aureus), and stasis ulcers. These microbes are poisoned by oxygen and thrive in its absence, but can tolerate low oxygen levels, so that they thrive in poorly perfused and oxygenated bones, ligaments, and prostate. Carbon dioxide promotes antibiotic penetration by improving tissue perfusion, and it promotes antibiotic potency by poisoning facultative anaerobes with oxygen.

CO₂ treatments can be made even more effective using modern medical machines, monitors, and medications. For example, hyperbaric oxygen treatment could be improved by the addition of carbon dioxide to the inhaled gas mixture. With modern capnography, patients with chronic illnesses could safely sleep in tents with air enriched with carbon dioxide to counteract the symptoms of their illnesses. Carbon dioxide can also be safely absorbed through the skin to improve the management of numerous medical conditions.¹³

The Hoax that Halted Medical Advance

Dr. George Washington Crile founded the nurse anesthesia profession after WWI, when physicians were in short supply.¹⁶ Crile was famous in his own time and should be remembered as the father of anesthesia, but his achievements have been relegated to obscurity. He invented cardiopulmonary resuscitation, performed the first successful blood transfusion, proved that narcotics can cure lethal infections, and that preoperative sedation and narcotic supplementation of general anesthesia optimizes surgical outcome.

CO₂ treatments can be made even more effective using modern medical machines, monitors, and medications.

What is exciting is that carbon dioxide therapy represents but one of a set of simple, safe, powerful, and predictable treatments guided by stress theory that can optimize cardio-respiratory function, minimize stress mechanism hyperactivity, restore organ function, cure disease, and save lives.

The nurses combined ether anesthesia with Crile's narcotic principles and the equally famous CO₂ research of Dr. Yandell Henderson.⁷

Their success inspired widespread use of Carbogen (a synergistic mixture of 5% CO₂ with 95% oxygen) to treat asthma, atelectasis, pneumonia, alcohol inebriation, smoke inhalation, heart attacks, strokes, morphine overdose, and breathing problems in newborn babies. It saved countless lives. Their growing fame caused consternation among physicians, who coveted their practice.¹⁷ Drs. Chauncey Leake and Ralph Waters (who famously founded the anesthesiology profession) conspired to vilify the nurses' reputation by concocting specious scientific experiments and fictitious medical accounts that characterized carbon dioxide as "toxic waste, like urine, that must be rid from the body" using mechanical hyperventilation during surgery.

Seldom have so few civilians caused so much harm to so many. They perpetrated a devastating hoax that has persisted to the present and killed countless patients, even though it flies in the very face of science.⁷ The hoax was so effective that Carbogen and carbon dioxide, which are perhaps the most potent and practical medical treatments yet discovered, were frightened from medical knowledge and practice. The hoax discourages treatments with beneficial narcotics because they are incompatible with mechanical hyperventilation.¹⁸ It has escaped the bounds of anesthesia. It has even been embraced by animal researchers, who illogically use carbon dioxide for both anesthesia and euthanasia without considering its inhumane consequences.¹⁹⁻²² It persists despite recent research that has re-discovered the therapeutic benefits of narcotics and hypercarbia. Its persistence can only be explained by covert corporate

influence that profits at the price of public health. The evidence is reviewed in my book, "*The Great Medical Hoax of the 20th Century*."¹⁷

My question is: why have these scientific and medical triumphs been abandoned and forgotten, and how has this hoax persisted in the presence of science? Could it be that powerful chemical corporations are threatened by the prospect of cheap, non-toxic CO₂ replacing their profitable refrigerants? Could it be that powerful medical corporations promote hyperventilation that is incompatible with safe narcotic use in order to promote their toxic NSAID analgesics and otherwise undermine public health for the sake of profits?

Conclusion

Too many patients have died on account of the destructive CO₂ hoax. What is exciting is that carbon dioxide therapy represents but one of a set of simple, safe, powerful, and predictable treatments guided by stress theory that can optimize cardiorespiratory function, minimize stress mechanism hyperactivity, restore organ function, cure disease, and save lives. Furthermore, stress theory paves the path to profitable pharmaceutical development that promises to eradicate disease altogether. I will explore these prospects in future issues of *Contentment Magazine*.

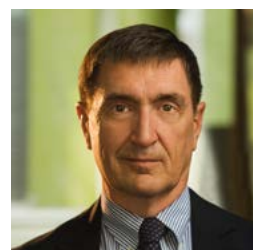
For those interested, the following sources illustrate the extensive therapeutic uses of carbon dioxide that were employed in the forgotten past:

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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.





Exercise to Synergize Stress Reduction

By Evian Gordon MD, PhD, FAIS,
 Founder and Chief Medical Officer
 of Total Brain;
 Pat Dunn PhD, MS, MBA, FAHA,
 Program Director for
 Connected Heart Health;
 Jennifer Franklin,
 Founder of totallyimmune.com

Staying active has a synergistic effect on many factors that contribute to chronic stress resilience.¹ In this article we point to the benefits of this synergy, some of their underlying mechanisms, and how to help ensure that you generate a new Exercise-Stress reduction “habit stacking” momentum.

There are so many virtues to moving your body. Some of the well-established benefits include:

- reducing the risk of chronic illness
- improving cognitive function
- weight control
- an efficient immune system
- decreasing inflammation
- improve social and emotional connections

One of the most powerful impacts of exercise is the reduction of stress. Even 5 minutes of exercise can take you from feeling overwhelmed to calm. Twenty minutes of dedicated movement a day could improve all areas of your physical and mental health.²

Synergy Benefits

Exercise and stress reduction together create a cascade of converging

benefits that can positively impact the way you eat, your mental health, social connection and in-the-moment and long-term stress levels.

Your brain and body consist of many complex and dynamical systems, functions and networks that makes up you. When you engage in deliberate physical activity you reduce chronic stress, which in turn affects all the systems in your body and brain. The whole becomes stronger, more adaptive, less stressed, and more resilient

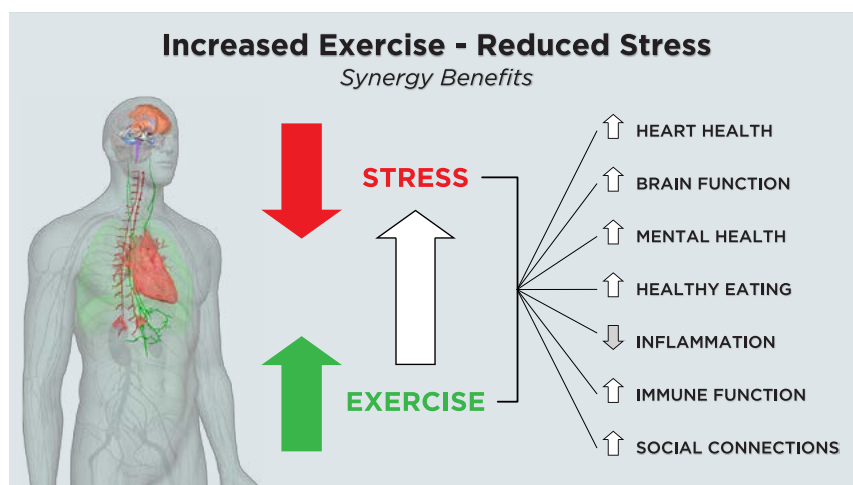


Figure 1. Exercise reduces Stress and together they synergistically enhance the key aspects of wellbeing.

Your stress levels are controlled by thresholds. Every waking moment is a balance of thresholds. Having strategies to keep your stress thresholds in check keeps you healthy and on track to tackle life’s challenges. It’s well-established that eating poorly, not getting restorative sleep, inactivity and negativity are going to trigger a stress response. While it may seem overwhelming to try and manage every trigger of stress, exercise has the synergistic qualities to affect many of them in a positive way.

As soon as you start exercising, a number of other important chemical messengers are released throughout your brain and body. The most well-known are Endorphins.

Synergy Mechanisms

Exercise and stress interact in a deeply physiological manner. Exercise itself is a stressor and initially increases your body's adrenaline and cortisol, that makes your heartbeat faster, increases your breath rate, and can make you sweat. But the training effect of becoming more fit has the opposite effect. Your heart rate and blood pressure are lower, your breathing slows down, the stress chemicals are reduced, and most of all you feel more relaxed.

As soon as you start exercising, a number of other important chemical messengers are released throughout your brain and body. The most well-known are Endorphins. They are natural pain blockers that increase pleasure and improve sleep, which in turn reduces stress.

Lesser-known neurotransmitters, called Endocannabinoids, also play an important role in your brain and body when you're working out. The euphoric feeling you get after a hard workout may result from endorphins and endocannabinoids working in tandem.

Endocannabinoids are thought to be responsible for the "runners high," a euphoria with intense exercise. This chemical cocktail is expanded with an exercise-related release of dopamine, a pleasure and reward neurotransmitter, that also benefits sleep, mood, motivation, and pain.

New brain connections ("Neuroplasticity"), essential to learning, are also increased with exercise, especially in the hippocampus, where short term memory is converted into long term memory.³

The increase in heart rate, especially during vigorous exercise, helps trigger new blood vessel tributaries that increase oxygen supply to the brain. This improves

all key brain capacities and to some extent, protects against cognitive decline.

Create Synergy Habits

Generating any new habit is more likely to happen when you have an evidence-based habit plan. For example: you can build an Exercise and Stress Reduction Habit using the *Gordon 3-Step Habit Plan*.⁴

Step 1. KNOW: What's your Why/What/How readiness.

Step 2. ROUTINE: Build a new routine of using PARs (Prompts – Actions – Rewards) in a "30 Day Challenge". Examples:

- **Prompt:** brushing my teeth (established habit)
Action: 10 squats (new exercise habit)
Reward: fist pump and say, well done
- **Prompt:** drinking coffee (established habit)
Action: 3 min of deep breathing (new stress reduction habit)
Reward: Close my eyes and say, it's great to be in the moment

Step 3. TRANSFER: After approximately 30 days, your new habit is well on its way to becoming a well-established behavioral habit supported by a new neural network.⁵ From day 31, the focus becomes transferring that habit into your daily life.

To make the habit stick even further:

1. Take it One Step at a time. Start small and gradually build your level of activity. Try doing a little more each time. A little more can be a little harder, a little longer, or a little more often.
2. Do the things you love. Exercise should be fun, so build your activity around fun things.
3. You can deepen your new habit by increasing repetitions and improving your form.

The basics of exercise that drive benefits are well known. But the biggest



gap is between Knowing and Doing! So, we end with a repeat of the exercise basics and a few reminder tips about “the doing.”

To achieve overall health and well-being, prevent disease, and improve quality of life, the American Heart Association recommends 150 minutes of moderate or 75 minutes of vigorous physical activity per week.⁶ Additional benefits can be gained by adding strength training at least 2 days per week, and keeping sedentary activities to a minimum.⁶ If you are new to a fitness program, recovering from a cardiac event or any injuries, you should begin slowly and safely, but increase in intensity, frequency, and time.

There are 3 types of exercise:

- **Cardio**-for your heart- running, walking biking, swimming
- **Strength** training for your muscles - lifting weights, bands
- **Flexibility** for pliability - yoga, stretching

It is key to balance these, remembering to do cardio-aerobic, strength training, and flexibility training. Don't

overdo it, and don't do more of one at the expense of the others. There are many ways to engage in each type of exercise. If you find something that you like, you are more likely to stick to it. Find what works for you, make it fun, and you will look forward to the activity as well as reap the health benefits.

An example of the synergy of exercise habits on stress reduction is the effect on the relationship between eating and stress. Emotional eating is a common self-soothing technique that is fueled by too much stress. Engaging in a fitness program decreases that stress. In addition, being more active and fit promotes good health and makes you want to be healthier, and this includes eating healthy. Foods that are high in sodium, fat and sugar aren't as alluring when you are feeling the benefits and confidence of fitness. This puts you on the path to better strategies to manage life's challenges and enhance your overall wellness.

Stress management through exercise has synergistic benefits in social connectivity as well. Besides improving body

The impact of positive hormones and neurotransmitters produced by the brain and body during exercise boosts mood and reduces stress.

composition, physical activity can greatly benefit your social and emotional health. Firstly, there are many ways to be active with others—participating in classes, going to a gym, activities with family and friends are just a few examples. And the oxytocin release from the shared bonding in exercising together, deepens the desire to stay connected. Secondly, people that train together have greater success of generating the habit over the long term.

The impact of positive hormones and neurotransmitters produced by the brain and body during exercise boosts mood and reduces stress. Feeling good inspires confidence, improved cognition, energy, and the human desire for being with others.

Thanks to the convenience of technology and our modern lifestyles, people in the U.S. are more inactive than ever. If you have a “desk” job or spend hours driving, you are not alone. Sedentary jobs have increased 83 percent since 1950 (according to the American Heart Association). All that inactivity can have a negative impact on your stress levels.⁷

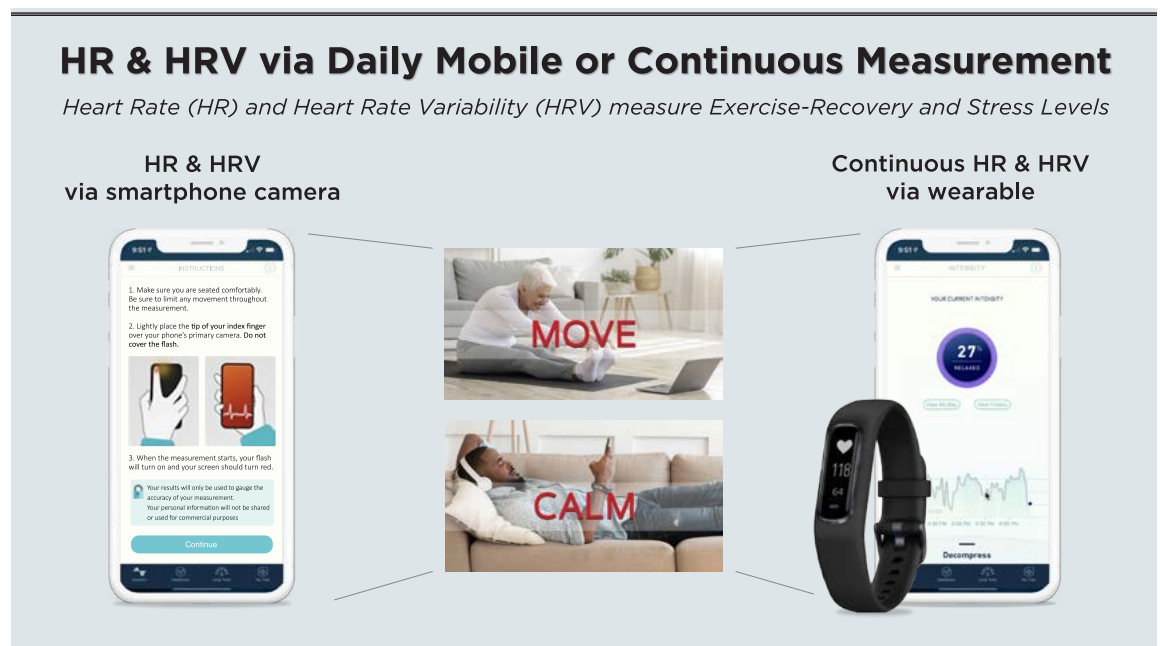
Besides deliberate physical exercise, ANY regular movement during the day can help create calmness and break the

cycle of sitting inertia. Here are some sneaky ways to incorporate movement into traditional sitting jobs:

- Walk during breaks, and use longer breaks to stroll outdoors, whether down the street or laps around the building.
- A midday walk during a lunch break can help the mind to focus on the afternoon’s work.
- Stand during meetings.
- Take the stairs instead of the elevator.
- Walk to talk with a co-worker in person rather than using the phone or electronic messaging.
- Take public transportation to work instead of driving. It likely involves walking to and from the transit stop.
- Use standing or adjustable height desks to avoid sitting while on the phone or at the computer.
- Exercise at your desk, with squats or jumping jacks.
- It does not have to be vigorous. Just stand up and move your muscles.

Technology may have had the unintended downside of too much sitting. But the upside, is that when used judiciously, technology, such as measuring your heart rate (HR) and Heart Rate

Figure 2. Biometric measurement of Heart Rate (HR) and Heart Rate Variability (HRV) in response to Calm, Move, Eat, Connect training in the ThinkHeart program. <https://thinkheart.totalbrain.com/>



Variability (HRV), provides an objective index of what's working best for you to exercise at an optimal level and reduce your stress. More on technology in the next issue!

Bottom line: your body is meant to move. Through movement and physical activity, you can reduce chronic stress, thereby, improving your overall physical and mental health. When something seems too good to be true it usually is, but with the massive benefits of exercise on stress reduction might just break that rule.

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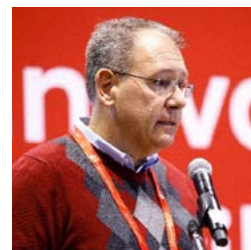
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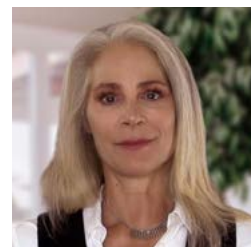
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*All 3 authors contributed to the development of the ThinkHeart online "Lifestyle Medicine" course with The American Heart Association (AHA) to enhance Calm, Move, Eat and Connect. <https://thinkheart.totalbrain.com/>



MOVEMENT
IS SALVATION

By Jeff Jernigan, PhD, BCPPC, FAIS

My appearance can be deceiving. What most people see when I walk into the room is an average looking old guy. What they do not see is one leg is shorter than the other, height is a couple of inches shorter than it was thirty years ago, and the left knee is blown out. Running for any reason, let alone exercise, is out of the question and walking was an iffy thing back in the day as well. Living with disability after half a lifetime of outdoor activities, competitive sports, and no physical restrictions created another set of emotional limitations. The great discovery during those years was realizing movement was my salvation.

Being a disabled veteran does not mean anyone has to live a disabled life. Recovery took a long time during which aspirin and ice became my best friends. The best advice given came from a rehab physiologist who made the simple statement, “Movement will be your salvation.” It was a life lesson moment! They went on to describe how movement; increasing our metabolism, preserving our flexibility, stretching muscles, pumping oxygen, and improving posture is good for our physical and mental health. If we make intentional movement a part of our life, it will preserve our life.

When we move our metabolism carries nutrients created by the food we eat to the brain where it nourishes our neural pathways and replenishes

the neurotransmitters which enable the different structures in our brain to communicate effectively with one another. Exercise which includes raising our metabolism for a sustained period of time as well as including interludes of intense motion creates an enzyme which triggers a process of repair and replacement of damaged neural pathways and brain cells while we sleep. Movement, motion, and exercise are healing in their effect.

Getting up from our chairs at the table or desk to stretch and walk around for a moment allows oxygen to reach muscles cramped by our sitting position. Walking outside to look down the street or take in the sky or standing at a window looking at the long view rests your eyes relieving strain. When this includes taking slow deep breathes, the low-grade stress built up by an eighteen-inch stare at a computer screen evaporates. If your home or office includes stairs, take a moment to take a flight or two up and down. A normal pace will help align your hips and relieve your lower back, which will also relieve the stress produced by the almost unnoticeable pain poor posture and lack of movement while you work creates.

The key to resilience is making these things a habit so we don't fall back into unintentional self-injury due to bad habits. Accompanied by good diet, exercise, and sleep, your resilience will build steadily. Too much alcohol and fast foods that introduce toxins into our bodies can sabotage our efforts to build good habits as well. Here are some of the practices that have sustained me over the years, all of which include motion.

The pain for many when it comes to movement, especially exercise, includes unwillingness to give up something in order to build a new habit.

A pair of sneakers with blue soles and purple straps, one shoe is being pulled over the other. The background is a blurred gym setting with a purple exercise machine.

*You have to face the pain
if you want to get better.*



My wife, Nancy, and I have a goal of 10,000 steps a day. For us, this is a combination of many things: work, errands, and time around the house are the usual source of steps. But for many of us these are the only source of steps in our daily routine. Several times a week Nancy will take me and the dog for a walk. On weekends we always try to include a 5K walk. For us this is a 120 steps per minute pace, or about three miles per hour. You can also pace yourself based on taking approximately twenty minutes to walk one mile. Occasionally we will play tennis with friends, go hiking or rock climbing.

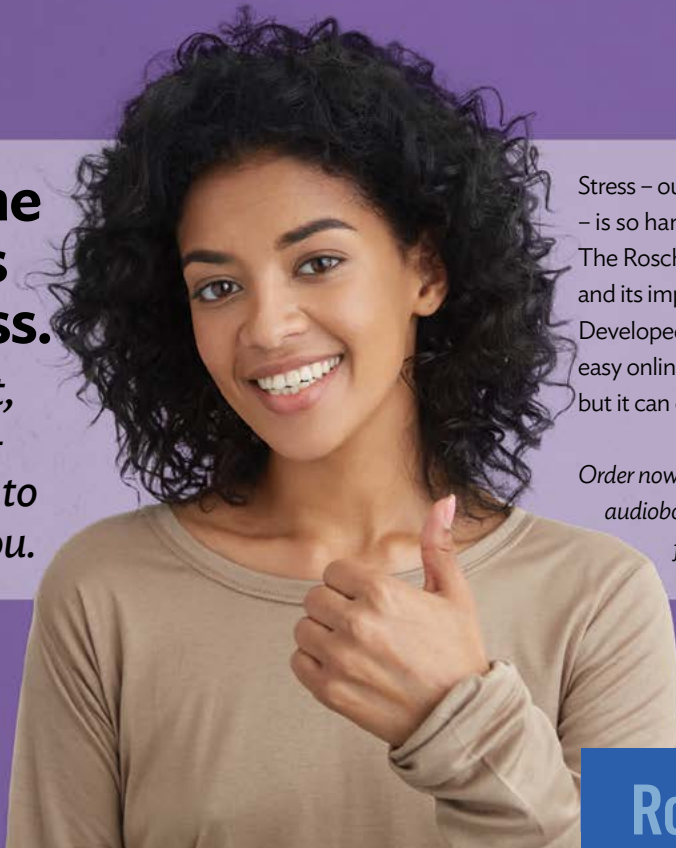
We use an exercise band which has some elasticity to stretch at our desks in sitting and standing positions focused on the upper body. This is also handy when traveling. Some people prefer to use a mat for exercise which allows more freedom of movement alternately exercising the upper and lower body. We tried this with

our daughter once. Standing looking at the mats, Nancy said, “Well, let’s lay down and do our sitting up exercises.” Our daughter responded with, “How about we just lay down?” Not everyone favors this method, but everyone can find a method that works for them. Some people are runners, some people like to use a gym, and others have their own exercise equipment at home. If you don’t use it, you lose it: resilience, that is.

The other related life lesson came from my clinical supervisor many years ago. He was talking about physical recovery as much as he was talking about counseling recovery using a favorite phrase, “You have to face the pain if you want to get better.” The pain for many when it comes to movement, especially exercise, includes unwillingness to give up something in order to build a new habit. Or the need to lose some weight that is impacting health. The lack of someone to do these things with can drag down our motivation. Our

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stubborn and often compulsive drive to work, work, work can get in the way of a healthy work/life balance. Lack of meaningful relationships and even inability to find purpose in our work can be an anchor when it comes to self-care as well. There are many, many reasons for not joining the movement. Movement which all circle back to some dimension of our unwillingness to face the pain.

Two things trap us into an, “Uhhh huh, no thanks” response when it comes to doing hard things. One is the tyranny of the urgent. We get in the habit of allowing the urgent facing us to dictate our priorities without realizing there is always a choice. We don’t plan for interruptions in our day, nor do we set aside time for our own nourishment. As a result, busyness replaces productivity as we get sidetracked by the urgent which is not necessarily the expedient. Stop, take a deep breath, and ask yourself, “Do I really need to do this now?”

The second trap we set for ourselves is the expediency bias which is a follow-on to tyranny of the urgent. The expediency bias shows up when we go with doing the thing that seems right, though it seldom is when “expedient” is just another word for compulsive. Going with our gut is

almost an unconscious thing and can be a subconscious reason for justifying giving in to our first impulse. Stop, take a deep breath, and ask yourself, “Do I really need to do this now?”

Our brain processes existing habits much more easily than new ones, which is why stopping to think about what comes next when faced with something that seems natural and practical (expedient) is necessary to overcoming the urgent. We are wired to favor things that work or make us feel good and away from uncomfortable things. Move toward more motion in your life, let movement be your salvation. That remark first heard years ago, “Movement will be your salvation,” was the key not only to physical recovery but to ongoing resilience and health throughout the following decades.



Jeff Jernigan is a board-certified mental health professional known for influencing change in people and organizations by capitalizing on growth and change through leadership selection and development. Jeff currently serves Stanton Chase Pacific as the regional Life-Science and Healthcare Practice Leader for retained executive search and is the national subject matter expert for psychometric and psychological client support services.



A lifetime focus on humanitarian service is reflected in Jeff’s role as the Chief Executive Officer and co-founder, with his wife Nancy, for the Hidden Value Group, an organization bringing healing, health, and hope to the world in the wake of mass disaster and violence through healthcare, education, and leadership development. They have completed more than 300 projects in 25 countries over the last 27 years. Jeff currently serves as a Subject Matter Expert, Master Teacher, Research Mentor, or Fellow in the following professional organizations: American Association of Suicidology, National Association for Addiction Professionals, The American Institute of Stress, International Association for Continuing Education and Training, American College of Healthcare Executives and the Wellness Council of America.

HARNESS THE POWER of MOVEMENT SNACKS



By Frank Forencich, DAIS

We've all heard the narrative by now: Exercise is good for our health and it's a powerful stress-relieving practice. Most of us understand the importance, but it's easy to get tripped up by our language. That's because the word exercise has all sorts of unpleasant connotations. We think of pain, exertion, sweat and boredom; it just doesn't sound like fun. We might even remember adverse treatment in childhood Phys-ed classes and who wants to relive that?

But what if we turned our language around and thought less about exercise and more about movement? Suddenly, everything changes. Just consider the history: Movement is an experience that's common to all animals, all across the planet, over millions of years of history. It's a fundamental part of being alive. We're wired to explore the world, to move our bodies in habitat, to express ourselves and to move in response to threats. Exercise, in contrast, is a modern, often sterile invention. It's no wonder that many of us avoid it.

This distinction is crucial because it draws us back into our bodies and puts us back into connection with our animal nature. When we emphasize movement, we enter into a world of engagement, participation and even intimacy. Exercise gives us sets, reps and mileage, but movement gives us powerful experiences that connects us to our roots.

We'd do well to think less about workouts and more about movement snacks. A workout is a dedicated session that usually requires a special facility, equipment, special clothes and most crucially, a considerable amount of time. In contrast, you can do a movement snack almost anywhere, almost any time. It's easy, convenient and invigorating.

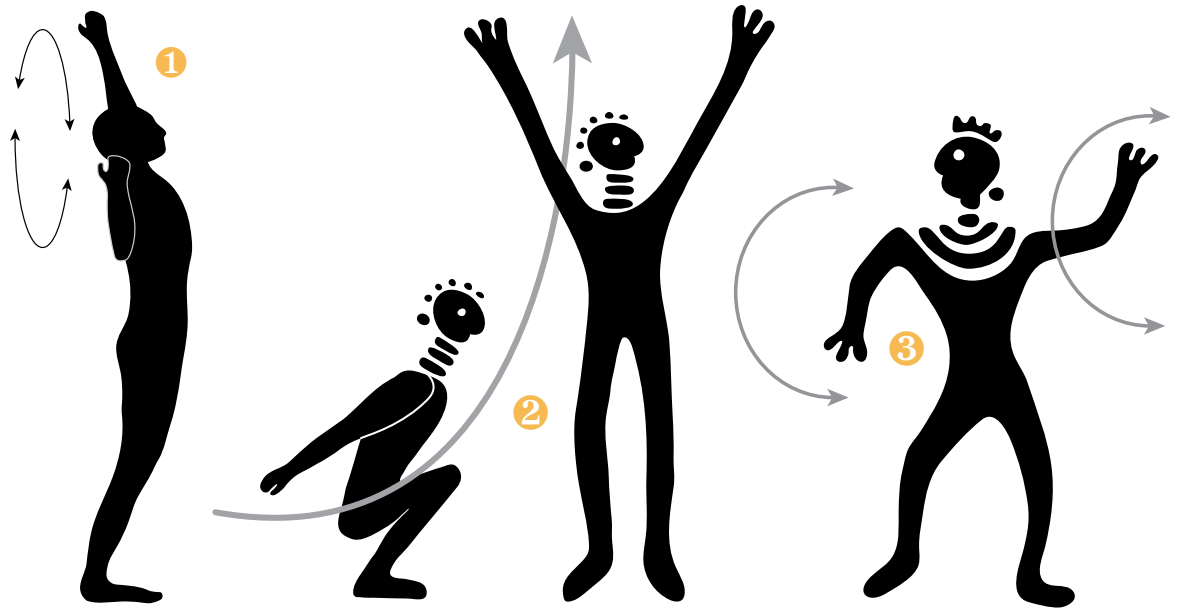
A movement snack session will improve your overall health and resilience, but just as importantly, it will make your brain run better. It will get the BDNF flowing. (This is Brain-Derived Neurotrophic Factor, often described as "Miracle-Grow for the brain.") A movement snack will sharpen your stress response, improving the health of your autonomic nervous system and in turn, revitalizing your cognition and your metabolism.

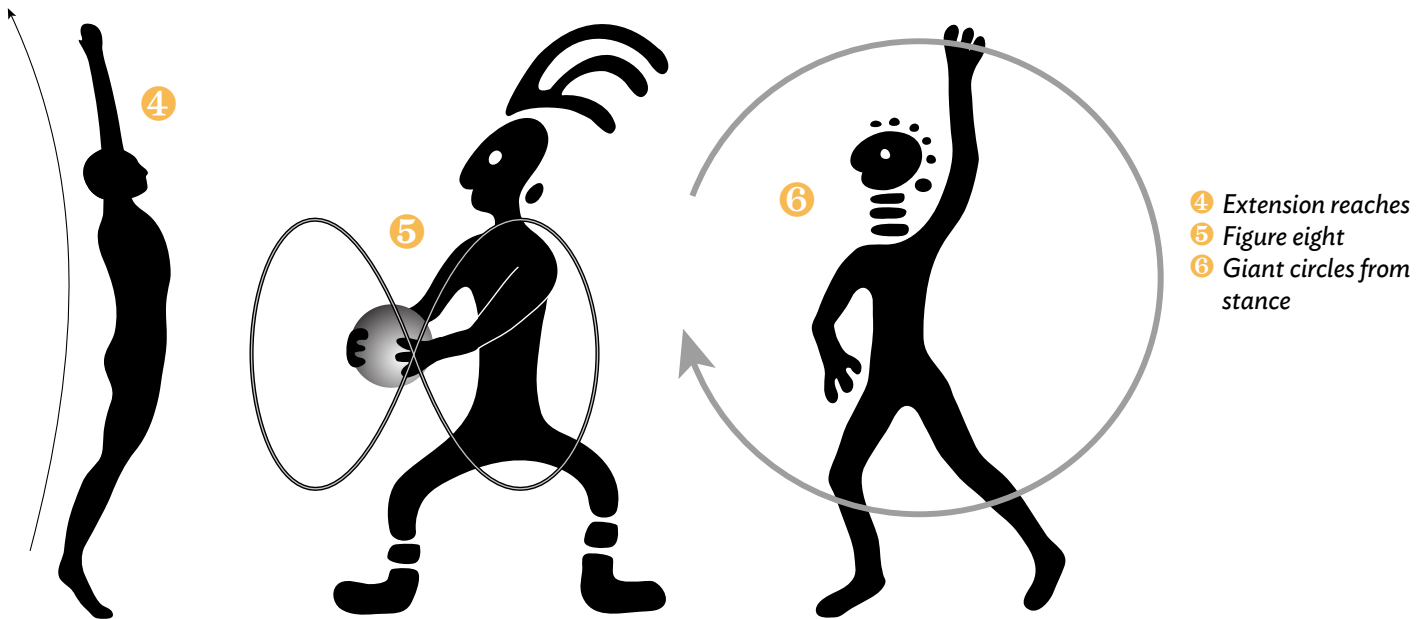
The beauty of the movement snack is that you can do it anywhere. You don't need special clothes or a celebrity trainer. You won't need any special gear or devices. You won't need mirrors or high-intensity music. And you won't need some exotic before-and-after food supplements to supercharge your metabolism. All you really need is the desire to blow off stress and feel better.

At this stage, details aren't important. You can also forget about biomechanical perfection or getting your sets and reps just right. If you have an injury or special needs, get professional help, but otherwise, none of the details matter. The important thing is to get physical and do it often.

When we emphasize movement, we enter into a world of engagement, participation and even intimacy.

- ① Circles in extension
- ② Contract and expand
- ③ Contralateral shoulders





- 4 Extension reaches
- 5 Figure eight
- 6 Giant circles from stance

Start your session with an easy “rice paper run” in place. This is a gentle forefoot run, just as if you were barefoot. From there, branch out to whatever movements you like. It’s all good. If you want to expand your movement repertoire, use the shape guide to generate new ideas. There are thousands of possibilities here. Simply choose a shape and begin, then mix things up with different stances and steps. You can do these “open hand” or you can use a medicine ball. Be sure to move in all three planes: sagittal (forward-back), frontal (left-right), and transverse (rotational).

Do short micro sessions or long sweaty sessions as desired. But no matter your intensity, the emphasis should always be on whole body integration and coordination. Strength, power and injury-resistance come from orchestration

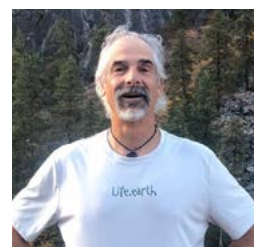
and integration of the whole system, not isolation.

Emphasize these principles:

- Deep solid stances. (“Bend your knees!”)
- Emphasize extension through your spine, reversing the flexion of desk work.
- Look for smooth movement, skill and athleticism.
- Feel the breath, feel the animal.
- Make it fun- you’ll be less resistant.
- Make it social- team/family activity.
- Consider adding music.
- Exercise sensation and common sense. (“If something hurts, stop doing it.”)

And if at all possible, do your movement snack outdoors in natural light. Get your butt out of the chair, your eyes off the screen, and pump your tissue. Then, once you’ve got your breath and body re-engaged, get back to work. You’re going to feel a whole lot better.

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*.

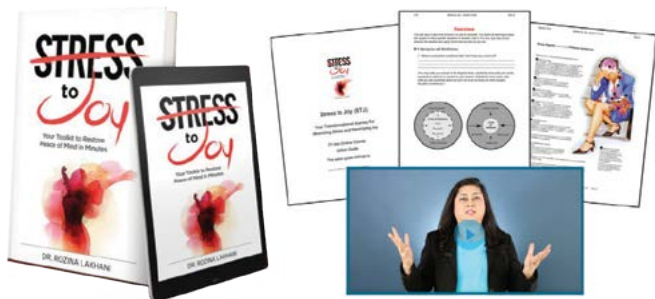


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TOO BUSY TO EXERCISE? BECOME PLAYFUL IN THE PURSUIT OF MOVEMENT



By Ashley DePaulis, MPH, Founder of Embodied Success

The more stress you have, the more your body needs to move to keep your brain running smoothly.” –John J. Ratey, MD, author of SPARK The Revolutionary New Science of Exercise and the Brain.¹

When life is full, busy, and noisy, it can seem challenging to prioritize movement. Yet prioritizing our health and wellbeing is what moves us through challenging times with greater ease.

You’ve already heard the strategic advice for getting movement in, like waking up earlier, shortening your workouts to 30-minutes, or hiring a personal trainer for accountability and prioritizing activity. These are valuable strategies...if you choose to employ them.

A less conventional approach aims to weave movement practices into your busy day. It also aims to expand your thinking about movement beyond just traditional exercise, so that you no longer view taking care of yourself as another item to check off on your already overflowing to-do list.

One impression I would like to leave you with is that, once you break free from a “rule mindset” when it comes to movement, you will expend much less effort trying to fit exercise into a hectic schedule. Believing there’s a certain way, or only one way to get movement in can be very limiting. Limitations can come in the form of thinking that you “have to”

do yoga, that you must run to be in good shape, or do high intensity interval training for your time spent moving to be “worth it.” There are so many ways to move and what’s most important is finding something that fits your preferences and needs.

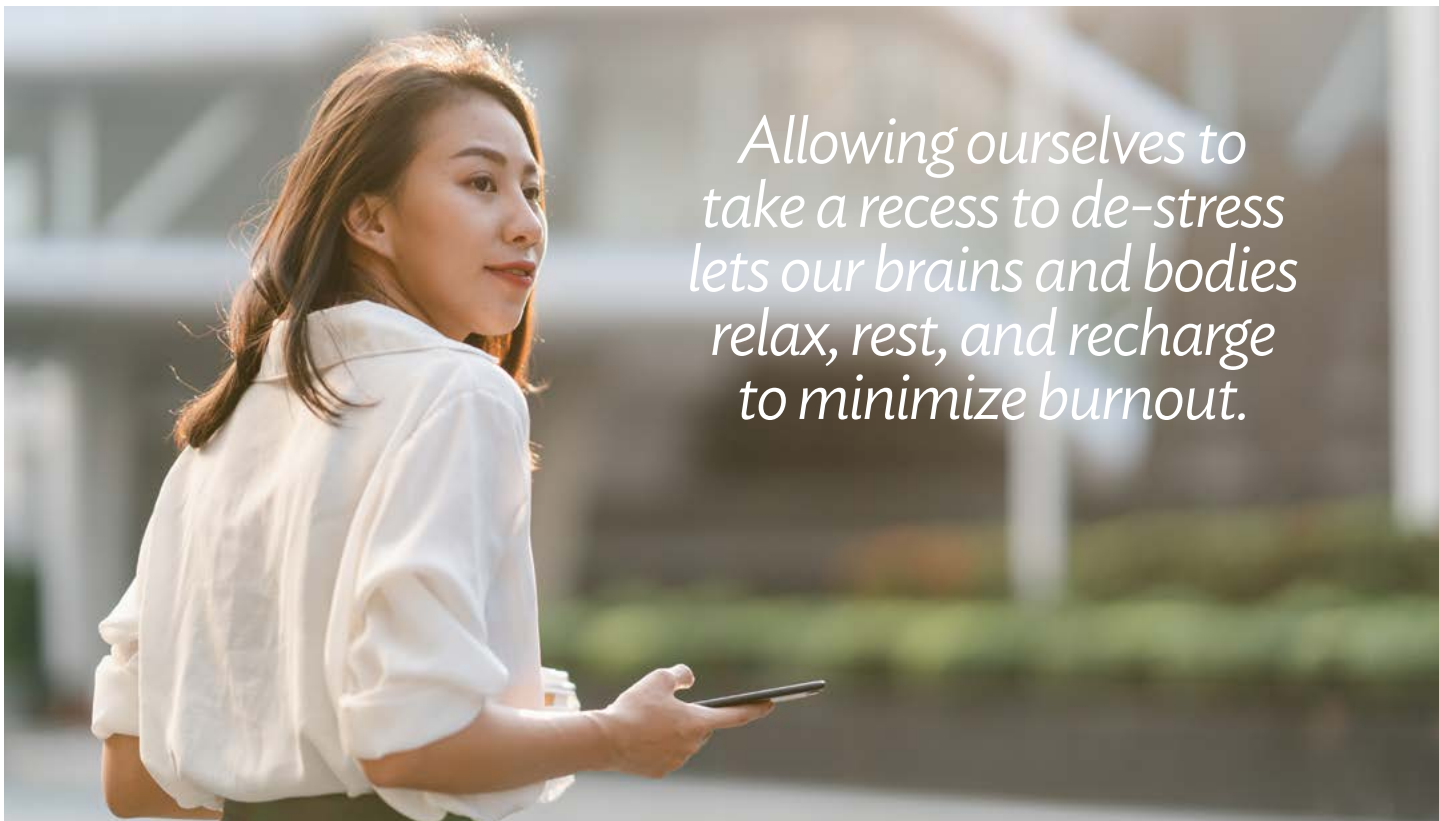
The second idea I’d like to share is how to tap into the power of your intrinsic motivation. Explore what motivates and excites you, and keeps you engaged! Also, allow what motivates and excites you to change over time. This does not mean you’re not devoted to a practice, or that you don’t have discipline within a practice, it simply means that your accountability is to movement itself, not its form.

I have found intrinsic motivation to be key when it comes to being consistent with movement and choosing the type of movement that will be most beneficial on any given day. Intrinsic motivation, or leading with your inner compass, will expand your experience with movement and the benefit of moving in many different ways, more often, and in more environments.

Intrinsic motivation has been defined by *Psychology Today* as a drive that comes from within that is not driven by external rewards or an anticipated outcome.² It assists in sustaining habit formation and builds resilience. You can think of it as choosing to move from a place of joy with freedom to explore and play.

When it comes to movement and exercise, society has conditioned us to focus on external motivation, or the outcome we want to achieve from

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Allowing ourselves to take a recess to de-stress lets our brains and bodies relax, rest, and recharge to minimize burnout.

following a particular path, like achieving a better body. This approach alone, without considering intrinsic motivation is what often leads to the on again, off again relationship we can develop with our health and fitness. I've seen it lead to managing the body as a project, something that needs to be fixed or controlled, and I've seen it lead to treating an injury or health challenge like a life sentence.

Both circumstances create a lot of frustration and keep you from experiencing the self-love and compassion needed for growth and healing. Modern life is both stressful and sedentary. Movement and socializing are both great antidotes for life's stress, even better when they are combined, which leads to the third impression.

Recess to De-Stress on Demand

The foundation for better nutrition and fitness originates from sleep, recovery, and stress management practices. When

we're busy, overly stressed, and not getting enough sleep, we're less likely to make time for physical activity, and we find making healthy food and self-care choices more challenging.

By building recess breaks into our day and by giving ourselves permission to rest and be deliberately unproductive, we can interrupt patterns that lead to emotional overwhelm and mental fatigue. Patterns that have us distracted by the social media scroll, bingeing tv, and numbing with overworking, comfort foods and alcohol.

Our brain and body need multiple breaks to de-stress and de-focus. In fact, neuroscience shows that taking small breaks, as short as 60-seconds, allows us to release stress and increase productivity because it prevents us from losing focus and concentration throughout the day.³ Recess can help break the habit of reaching for more work, and it will infuse your brain and body with energy.

Activities that get our bodies moving, like dancing, shaking, getting outside

for a walk and sun gazing, or restoring with active breathing are all beneficial. Get creative! Allowing ourselves to take a recess to de-stress lets our brains and bodies relax, rest, and recharge to minimize burnout. Take 5-10 minutes for every hour of work, set an alarm to prompt a recess break.

Busy or Productive?

There's a difference between being busy and being productive. Being busy is often influenced by perfectionism, whereas being productive is influenced by purpose. A busy person will often power through and not allow themselves to take breaks. Being unproductive and taking the time to slow down enough to relax can cause feelings of guilt, anxiety, and worry.

If this is familiar territory for you, use these self-reminders to anchor safety within your mind and body:

"It is safe for me to relax."

"I'm learning to slow down."

A productive person will often focus on the most important tasks and not overcommit themselves. To become productive, prioritize yourself on your to-do list, and get real about the support you need, and what does, and doesn't need your attention for the day. Life becomes as full as we allow it to be. Set realistic expectations and intentionally choose what gets subtracted or delegated.

Body-Mind Connection

When you find yourself distracted, and numbing out, try engaging the body with centering. Centering is a body-mind technique that allows you to self-regulate so that you can access choices that move you towards finding balance within.⁴ Centering isn't just about relaxing, or down-regulating from

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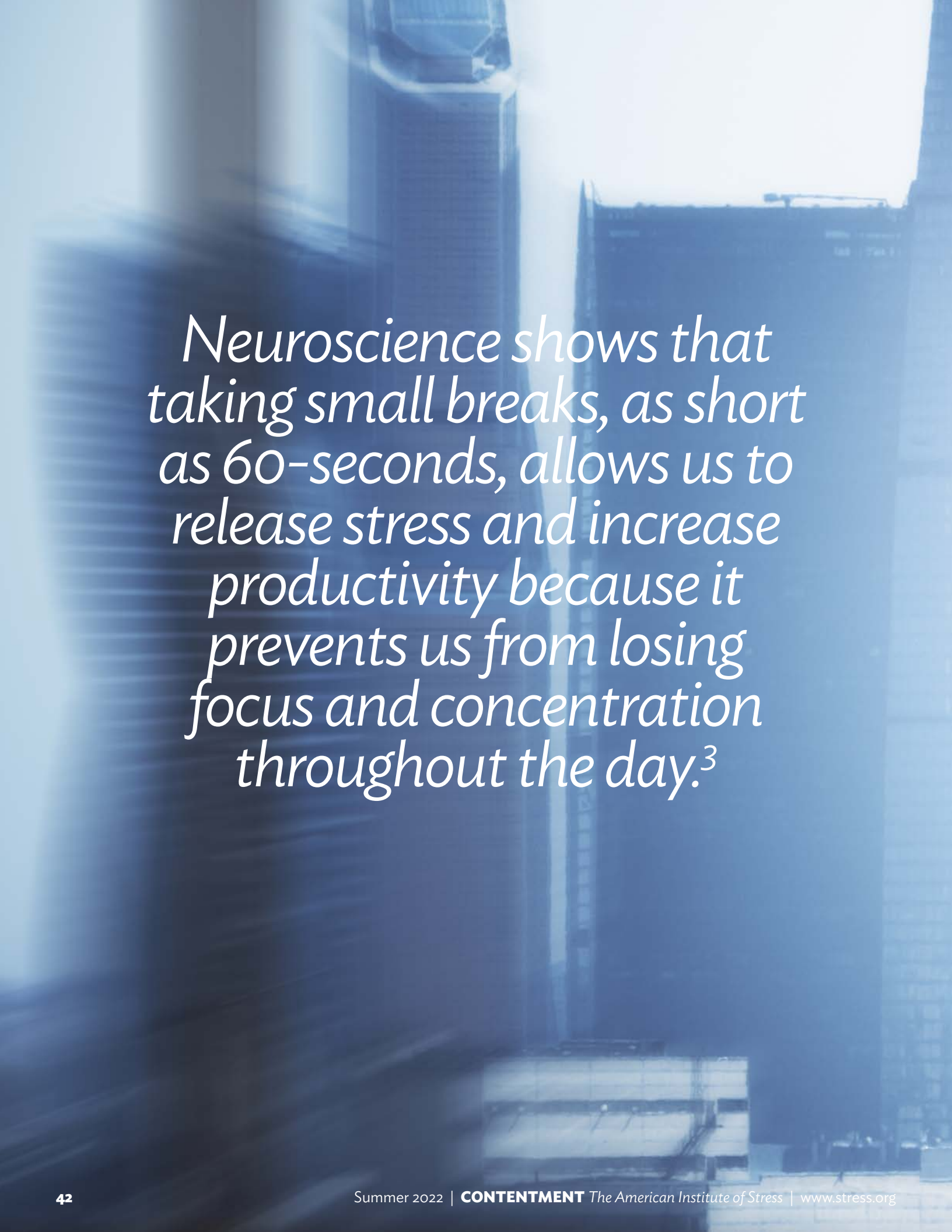
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Neuroscience shows that taking small breaks, as short as 60-seconds, allows us to release stress and increase productivity because it prevents us from losing focus and concentration throughout the day.³



being stressed-out, it can also be about energizing, or up-regulating from being spaced out or burned out. It helps you find a relaxing tone of energy within the body and among these states.

For example, when sitting for long periods, purposely get up and move around. You can also notice your posture and bring balance to it. If you find yourself in a sunken posture, you can shift to grow taller and sit upright. If in a forward posture, come back on the sit bones; or if you are leaning back, bring yourself more forward.

Balance can also refer to the movement of breath throughout the body—too often we’re holding it or it’s shallow—a normal response to tension. Notice and breathe slowly and deeply to a soft belly. Centering when nervous can include shaking your hands at your side, sighing, or placing the tip of your tongue against the roof of your mouth behind your two front teeth.

Bringing awareness to the body-mind connection allows you to open to movements and sensations that guide improvements in your physical health.

Movement as an Attitude

A study from the University of Michigan’s Sport, Health & Activity Research and Policy Center examined the demoralizing and unhealthy cycle that keeps women from sticking with a health and fitness program.⁵ When a woman—though this can be universal—feels pressure to follow certain rules, she gets frustrated, feels badly about becoming frustrated, and wants to quit. This leads her to lose interest in the program altogether.

She may also feel badly about losing interest in a program she didn’t enjoy—bringing us back to the need to include intrinsic motivation as a factor in any movement practice.

When looking at low active participants and high active participants the difference between the two groups was seen in their ability to break free from a “rule mindset.” Low actives feel stuck “sticking to the rules” whereas high actives have the ability and find freedom to transcend the “rules.” High active attitudes choose what they want to do and count all movement as exercise.

High Active Attitudes

The kids ride their bikes and I run along with them.

When I’m active, even if for a short amount of time, I have more energy to do all the things that are important to me.

I understand there are optimal doses of activity, but I toss out the “rules” about what it should look like.

I’m flexible with life events and daily priorities—counting what can be done.

I do what I enjoy because it makes me feel good.

Low Active Attitudes

View physical activity as taking time away from more important things like family, children, or work.

Feel a lot of pressure about why they need to be active, and for how long.

See health and fitness goals as being too big, too hard, or too far away.

Try hard to stick to the rules because that’s what they have heard they need to do.

These thoughts undermine their experience and seeing new ways of doing things.



The commonalities between the low and high active participants are that they want to connect with others, they don't want to experience pressure, and both groups are interested in achieving goals big and small. The low actives just haven't been able to translate these desires to being active and seeing physical activity as having an incredible link to positivity in their lives.

From Full to Fulfilled

When life is busy or packed too full to make way for greater fulfillment, it's the time to remain flexible about maintaining or fitting movement in. The rigidity of a "rule mindset" is outdated. Basing your movement, training or exercise plans upon external motivation only will only lead to frustration and self-sabotage.

Finding what lights you up and brings joy to movement through intrinsic motivation and recess will help you de-stress, improve your mood, and access

sustainable health. Know too, that when change is needed, or when life feels stagnant, move yourself, or move objects within your environment to support a shift in energy. Just as the mind affects the body, the body affects the mind, the environment informs both.

Movement is a key to altering your mental state, so break the rules and become more playful in your pursuit of it!

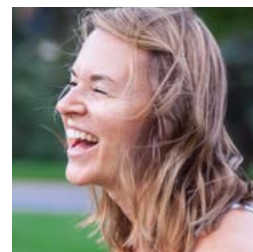
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Finding what lights you up and brings joy to movement through intrinsic motivation and recess will help you de-stress, improve your mood, and access sustainable health.

Ashley DePaulis is an embodiment coach and consultant whose unique brilliance is in understanding the mind-body-spirit relationship and bringing that into the workplace for the improvement of the business. She helps large organizations better care for their people to avoid burnout, turnover, and health crises. And she can zero in on what individual leaders need. Ashley is navigating the new frontier that needs to be addressed - caring for people first - so they and their employers thrive.

Join Ashley's free playground, *Recess In The Club*, to explore brain and body recess breaks to help you work smarter and de-stress on demand, or follow her on YouTube for optimal health and longevity tips.





DEAR BOSS: BOOST YOUR MEETINGS BY ADDING MOTION



Laura Putnam, author of Workplace Wellness that Works and CEO of Motion Infusion.

During a layover on a business trip, I stopped for lunch at the airport Chili's, sidling up to the bar. The woman next to me was another solo business traveler, and after the usual "What do you do?" conversation starter, I mentioned that I was a workplace wellness entrepreneur. She cocked her head and visibly exhaled. "Yeah, I started doing those walking meetings with my team." Judging by her tone and her body language, it was clear that doing so was definitely outside of her comfort zone. Perhaps, I surmised, walking meetings had become "de jour" within her company, and maybe she felt she needed to follow along with company trends. "I thought I would try it out during my one-on-ones," and a key component to initiating this new way of meeting, she explained, was allowing each of her team members to take the lead on how the walking meeting played out. Some opted for a brisk walk while others picked out the nearest bench. "Any of these options were fine by me," she explained.

Then, she leaned in. "But you know the most amazing thing happened out of these," and she paused. "You see, I had been trying to get each of my team members to be more open to coaching. However, I wanted them to ask for it. I didn't want to force it on them, and for years, they resisted it. None of them ever asked for it." That is – until she switched

Every organization, team, and individual must reckon with the effects of the pandemic, which will likely be impacting us for years to come.



up the one-on-ones into walking meetings. “Suddenly, each member approached me separately and said, ‘You know that coaching? I think I’m ready for it now.’ It was like a magic serum. Those walking meetings just opened people up in a way they hadn’t beforehand.”

Fast forward to where we are today. Every organization, team, and individual must reckon with the effects of the pandemic, which will likely be impacting us for years to come. The spike in diabetes, the toll on our mental health including a notable rise in rates of burnout, the awakening to the depth of structural inequities that continue to plague our society and institutions, and the vast numbers of employees leaving their jobs are just a few examples of how the pandemic continues to play out in our

lives. Each of these, in some respects, are “pandemics within the pandemic.”

A more mundane manifestation of a “pandemic within the pandemic,” but one that has broad reaching effects (and is tied to these wider trends), is more time spent at work. A recent Harvard study found that since the onset of the pandemic, work-from-home employees are averaging 48.5 minutes more minutes a day at work, which represents an 8.2 percent increase in the length of the workday. Employees are sending more emails, now up by 5.2 percent. More recipients are included on these emails, up by 2.9 percent. And, perhaps most notably, 8.3 percent more emails are going out after business hours.¹

This study validates what many employees are sensing. Namely, that they are spending more time in meetings and

are having to contend with a more crowded inbox than ever before. Both factors contribute to a rising sense of work overload and overwhelm, which is a major source of stress and burnout for many. A Gallup study showed that work overload and unreasonable time pressure are amongst the top drivers of rising rates of employee burnout.²

Given these trends, finding meaningful ways to connect with team members, as modeled by this manager I met at the airport, has become a critical function of today's team leader. If you are the leader for your team, what can you do to address this rise in workload? A first step, certainly, is to take the lead in cleaning up meeting and email hygiene. This includes measures such as limiting meetings to only those who need to be there or encouraging team members to avoid "reply all" without thinking first about who would actually benefit from it.

Beyond these 101 meeting and email protocols, however, lies another tool that every manager has at their disposal: Adding motion. Just as my travel lunchmate discovered, motion led by the manager can deliver a host of unexpected benefits, and in a time of a world turned upside down, motion can serve as both a balm and a boost for every team.

As longstanding research has shown, movement is one of the best things we can do for our bodies, our brains, and our states of mind. It is essential for maintaining basic health, warding off disease and chronic conditions. It has also been shown to reduce stress, stem anxiety, mitigate burnout, replenish our batteries, and foster more person-to-person connections. A fascinating study out of Sapienza University in Rome found that movement literally "primes" our brain to seek association with others.³

Alongside these benefits to our physical and emotional well-being are the positive effects movement can have on our cognitive functioning and our imagination capacity. One Stanford study, for example, revealed that walking improves creative thinking.⁴

Beyond these individual benefits, however, are benefits to the team. Infused motion can serve as a powerful tool for building camaraderie and trust, enhancing psychological safety, boosting productivity, and bolstering innovation. Team-based movement, which can also serve as a much-needed break, can run the gamut from standing and walking meetings to stretch breaks to mid-day workouts. An upside to this incorporated movement is that it can help to move physical activity out of standalone wellness programs and into business as usual.

But, let's be honest, if you're a manager and you're not a fitness buff, adding motion into your team's daily work routines can feel daunting. Here are some rules of the road to help you get started.

1 Anticipate concerns.

Mention the word "movement" or "physical activity," and there are plenty of people who will freak out. So, you can counter these concerns by giving your team members choices on how they move, just as my lunchmate described. You can also add qualifiers like "if you are able" to any invitation to move.

2 Start small.

Every time I lead any kind of stretching activities, I always provide a range of options, from easier to more challenging. I also make sure that I begin by helping people feel safe participating, by starting off with seated exercises before moving into standing ones.

As long-standing research has shown, movement is one of the best things we can do for our bodies, our brains, and our states of mind.

3 Give team members permission to move.

This may sound obvious, but it's important to explicitly give team members permission to move. For example, you might share something along the lines of, "Hey, I know that you all have been in back-to-back Zoom meetings today. So, I won't be offended if you stand up during our meeting, and in fact, I wholeheartedly support it. Standing is a great way to energize and get more engaged."

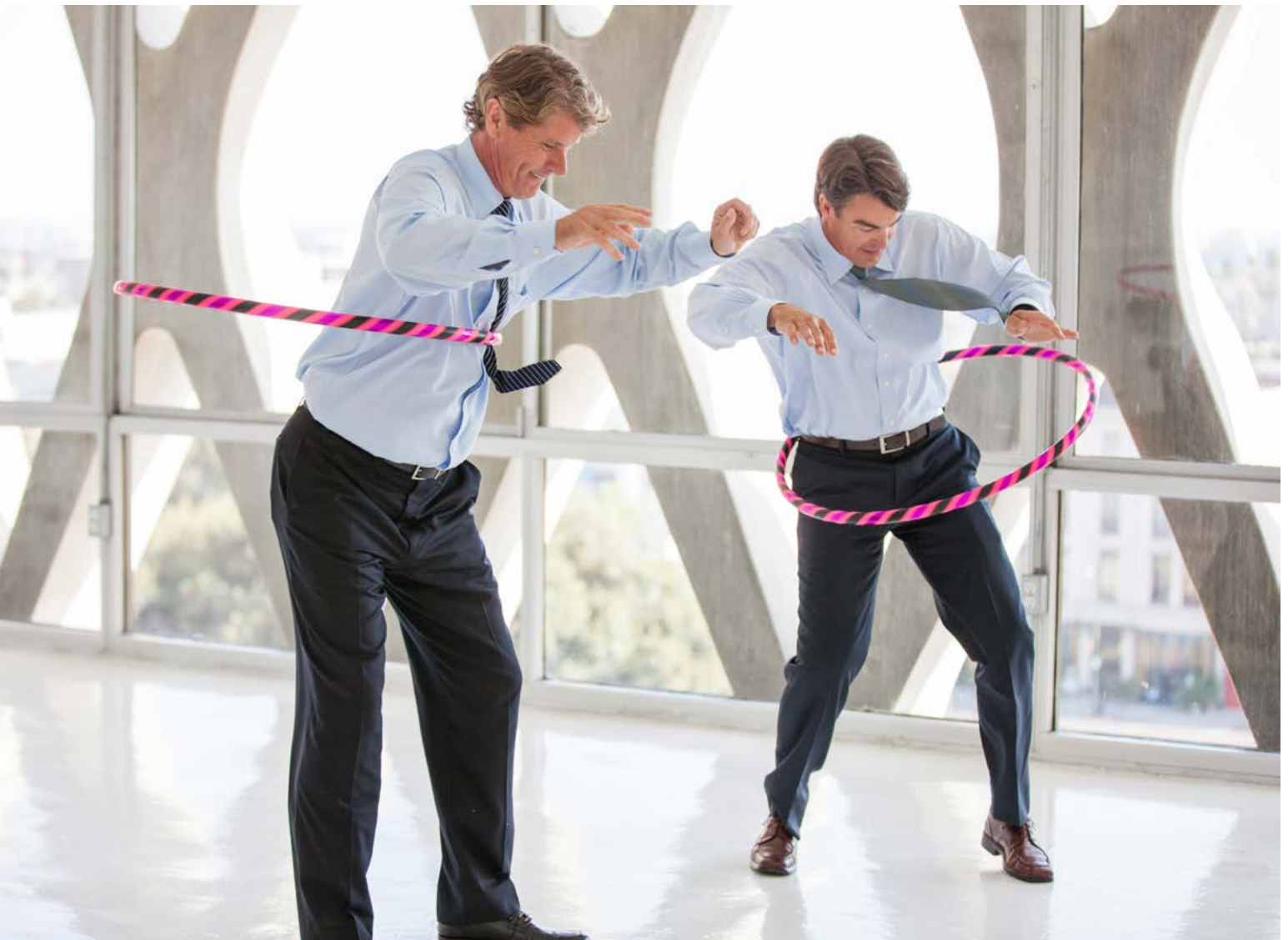
4 Start with yourself.

There is no better way to "make it OK" to move than to model it yourself. This is what I advise the leaders and managers I serve with my keynotes and my Managers

on the Move workshop series, which has now reached over 10,000 managers around the world. I recently met a manager after a keynote who shared that she hula hoops with her team during breaks. Perhaps you and your team aren't ready to bring it up to that level, however, engaging in any kind of movement (perhaps a couple of neck stretches or getting up when the phone rings) paves the way for your team members to do the same.

5 Adapt the movement to the meeting.

Invoking movement can be great for relationship building or team brainstorming, especially if you are together in person. If the meeting involves diving into spreadsheets,



however, it might not be the best time for a team-based stretch or a walking meeting. Perhaps, though, converting part of the meeting into a standing one would work. Getting up can help to focus a group on a specific problem to solve. For example, during the rollout of the Affordable Care Act, the team responsible for oversight used standing meetings as a tool to get the team more focused.

6 Use movement to kick off meetings.

Movement can work well at the outset of a meeting. When serving as CEO of Healthstat, a leading onsite clinic provider, Crockett Dale started off every meeting with five squats. Mike Yurchuk, Senior Vice President HR at Schindler Elevator Corporation (U.S.), kicks off his all his one-on-ones with a walking meeting. During this portion of the meeting, he focuses on the human-to-human interaction, saving the business part of the discussion for the indoor, seated half of the meeting.

7 Use props.

Sticky notes are a favorite device I use in meetings to get people moving. The nice thing about using props like these is that they shift the focus from the movement to the prop itself. Office design is an even more powerful way to foster more movement. At Schindler, for example, Yurchuk brought hi boy tables into the office. MD Anderson Cancer Center has

taken it a step further with its “Stress Buster Stations,” which are mini-workout centers spread out across the campus.

8 Create a new norm.

The more you model it and the more consistently you integrate motion into your meetings, the more your team (and you!) will get used to it. Sure, it might feel awkward at the beginning, but over time, infused motion will start to become the new normal.

With the combination of events from the pandemic to the war in Ukraine, we are in perhaps the most existential moment in our lifetimes. If you’re the boss, this can feel like a lot. While it may feel uncomfortable at first, adding motion is one of the best things you can add to your toolbox, especially now. Just as my chance lunchmate discovered, shaking up the workday with a little infused motion just might be the ticket to helping your team members make it through.

Infused motion can serve as a powerful tool for building camaraderie and trust, enhancing psychological safety, boosting productivity, and bolstering innovation.

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MOVEMENT
MINDSETS:
**TRANSFORMING
SHOULD'S
to RECHARGE
MIND, BODY,
AND SPIRIT**



By Cynthia Ackrill, MD, PCC, FAIS

But I don't want to...

Several of the articles in this publication address our attitudes about movement and the frustrating disconnect between knowing its value and actually doing it. As an early adopter of the well-being approach in a disease-focused profession, I've known for years that exercise and movement are key to health and longevity...and yet, I still fantasize about the invention of a special M&M designed to replace any need for exercise. (Of course, it has no effect on insulin levels—what good is a fantasy if it has negative side effects?)

My ADHD brain has no brakes on my constant fidgeting—my right foot and tongue are probably burning a significant number of calories as I write this. But my disdain for formal sports or intense exercise started early, thanks to fast growth/poor coordination, early failure/teasing, and a gym teacher who proclaimed me a “waste of height!” (Waste = I wasn't helping my school win anything.) Just as we have a relationship with stress that influences how it affects us and how much power we have to handle it, we have stories in our heads about so many aspects of life that can limit our potential. I am so tired of living with, “I am not an athlete.”

When I started working in neuro-feedback, I saw first-hand how exercise helps to regulate brain patterns, which, in turn, helps the mind handle stressors. But probably more importantly, after

observing this shift in patients, I started to make the connection between how I moved and how I felt. This let me let go of the shame/guilt/should world of “push motivation” to focus on the “pull motivation” of my desire for vitality and feeling strong. (This is the intrinsic motivation Ashley DePaulis discusses.)

As other articles in this issue mention, when we go beyond the notion of strict exercise regimes (without maligning their benefits for many), we can get creative about increasing movement in general. And keeping our ‘why’ in mind improves our chances of success. As does keeping track with some sort of system—from check charts to apps to just having our technology track activity. (I poo-pooed monitors for years, thinking they diminished the organic joy of movement, and now I love closing the rings on my watch!)

Our brains love success, so acknowledging small victories will spur on more. True, also for having fun. No one said we must suffer to be well; fun keeps you coming back for more. But beware getting lost in the goals or black and white evaluations of success/failure that leave you defeated. All movement is good, save obsessive exercise addiction. (Yes, that's real, but I'm sure not at risk!)

Double and Triple Plays

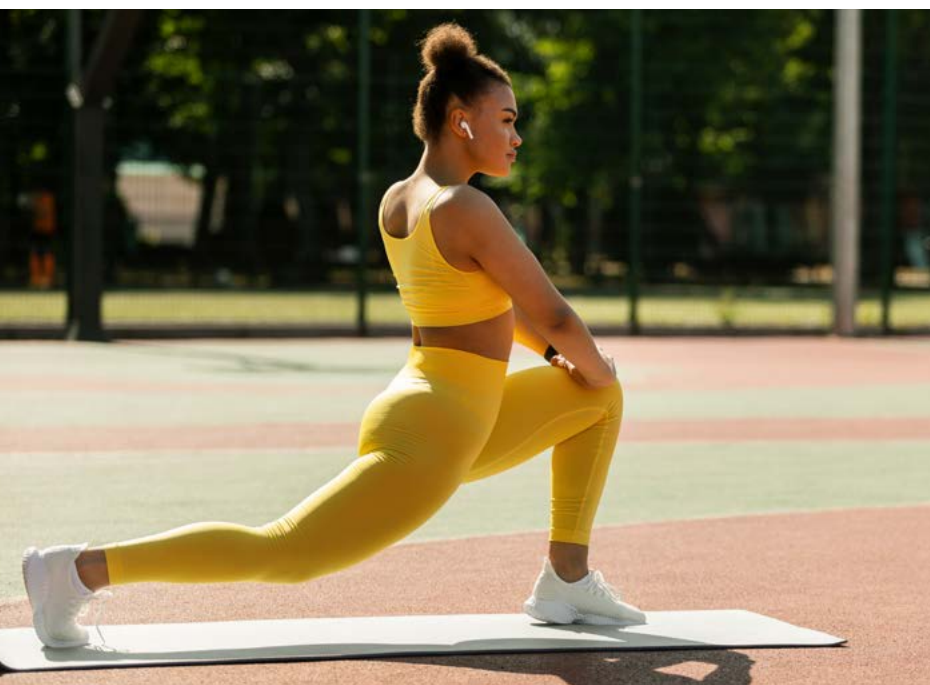
We are all busy, so when we choose to dedicate precious time and attention to movement, consider ways to amplify the benefits. Holistic self-care, so critical to well-being, includes recharging

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mind, body, and spirit. I love to think of this as nourishing the different aspects of our beings and replenishing our physical, mental, emotional, and spiritual energy. So, how can we make the most of our time?

My clients have enthusiastically embraced the notion of double and triple plays. Ex: Take a short walk at lunch, outside, with someone with whom you'd like to connect. Triple win! You've enlisted the grounding and perspective widening power of nature and fed the human brain's critical need for social connection while moving your body. Other ideas to get your creative juices flowing:

- Do a few yoga stretches while connecting to your breath or repeating a mantra that helps you feel more grounded.



- Play tag or leap-frog or some fun game with your kids and make sure it includes healing laughter.
- Make a family walk an evening or weekend routine—keep it short enough to be fun and share funniest/ happiest stories of the day or week. This pulls in connection, joy, and the incredible power of gratitude... all while moving!
- Try a walking meditation or labyrinth.

- Take a brainstorming walk with your team. One person records ideas and nothing is too dumb to entertain. This unleashes creativity that will lead to more mental power and maybe some great ideas.
- Take a 5 minute “close the door and move” break that includes your happy music. Music is a powerful tool for entraining the brain.
- Volunteer in something physical — Habitat or Community Garden, for example. This feeds the soul, your community, and you are moving.

You get the idea. Brainstorm as a family or a work team. Keep a board of ideas. And mostly have fun!

Other Ways to Move Through Stress

When we are stressed, we often feel stuck—sometimes physically, but more often mentally, emotionally, or spiritually. Stuck implies a lack of control, one of the attributes of stressful situations. Just as we have been discussing physical movement, there are ways to shift out of stuck in other dimensions. It's human nature to want to regain control and move.

I live in the mountains of North Carolina and because of the topography, there are not many options for getting between towns, a perfect set up for traffic issues. (Less options, reduced choice, less control!) Commuting stress has long been recognized as an insidious stressor of modern times. When Google maps illustrates my route with dark red lines and 25 min delay warnings, I immediately start scheming how to beat “the system.” In reality, my attempts to circumvent the slow down on windy minor roads often take longer than if I had just sat there in the traffic and used the time to enjoy good music, a podcast, or quiet time. But I want to feel like I'm moving, like I have some control!

That same desire to regain control over stress applies to mental challenges. We waste countless inefficient hours trying to push through mental fatigue or frustrating work when movement would help hit the refresh button on our brain power. Physical movement will help. As will “moving” to look at the problem from a different angle or from a distance, figuratively and sometimes, literally. Or move onto another mental challenge where you feel more control or confidence, then come back with more clarity. Shower “Aha’s!” are real. You must disengage from the stuck spot to get new traction.

What would emotional movement look like? Emotions are much easier to unstick with physical movement. Since they are formed by interoceptive (internal state) information from the body, changes in the body can help change emotional states. There is a whole new world of “emotional movement” therapies based on these ideas: dance therapy, postural therapies, breathing techniques, brain exercises identifying positive states, and even progressive relaxation. With clients doing EEG neurofeedback, I witnessed the effects of posture on brain patterns. Here’s a fun experiment to try with your kids or just yourself. Next time you feel down, look up the ceiling with a big smile on your face for 2 minutes. Doing this as a family or group often leads to invoking the healing power of laughter.

And finally, how can you move spiritually? By spirituality, I mean that sense of connectedness to your purpose, values, and the people and community that matter to you. Chronic stress can easily leave you feeling flat or disconnected. Under duress you may be inclined to withdraw at the very time your social brain needs connection to thrive. After some coaching many clients come to realize what they want most is to feel connected again. What can you move toward that will increase your feeling of mattering, contributing, or just being reminded of the bigger picture of life? Volunteering? Getting outside in nature? Attending a group or class? It is remarkable how taking that first “step” can start the feeling of having some power over your stress.

Conclusion

It’s not always easy to be human, and we can certainly make it harder for ourselves at times. But the good news is there are so many tiny changes we can play with to feel better, get healthier, support our best brain power, and feel connected to our why. And many of these choices involve volitionally moving toward the change we want. Brainstorm what might work for you. Circle the ones that feel easy, appealing. Approach this all with a light heart, compassion, and curiosity. And never hesitate to reach out for support—you are not wired to do this alone!

We waste countless inefficient hours trying to push through mental fatigue or frustrating work when movement would help hit the refresh button on our brain power.

Cynthia Ackrill is a leader in the field of leveraging stress for optimal productivity, health, and happiness. With a background in primary care and advanced training in applied neuroscience (a look under the hood!), certification in wellness and leadership coaching, she combines the science of human performance with wisdom, humor, and heart to address the critical relationships between thinking styles, behavior choices, performance capacities, leadership effectiveness, health, joy, and deep career/life satisfaction. She edits *The American Institute of Stress Contentment* magazine, is on the faculty of multiple leadership/coaching programs, and contributes widely to the media, including *Katie Couric*, *CNN*, *Today Show* and *Huffington Post*.



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