The Mind Body Connection for Optimal Health & Performance
Every thought has a biochemical response in the body

“As our feelings change, this mixture of peptides travels throughout your body and your brain. And they’re literally changing the chemistry of every cell in your body.”

- Dr. Candace Pert
Physical Exercise is Not Merely Necessary to The Health and Development of the Body, But to Balance and Correct Intellectual Pursuits As Well.

The Right Education Must Tune the Strings of the Body and Mind to Perfect Spiritual Harmony.

Plato

Romans
Mens Sana in Corpore Sano

A Sound Mind in a Sound Body
1884 George Beard, MD
Practical Treatise on Nervous Exhaustion

“The chief and primary cause of the very rapid increase of nervousness is modern civilization…”

"It has long seemed the especial province of Americans to abuse their nerves from the cradle to the grave."
Bi-Directional Highway
Brain<>Immune<>Cells<>Intestines (second brain)

Healthy status
- Normal behaviour, cognition, emotion, nociception
- Healthy levels of inflammatory cells and/or mediators
- Normal gut microbiota

Stress/disease
- Alterations in behaviour, cognition, emotion, nociception
- Altered levels of inflammatory cells and/or mediators
- Intestinal dysbiosis
Over 83% of workers feel stress on the job, nearly half say they need help in learning how to manage stress and 42% say their coworkers need such help.

Health problems associated with job-related anxiety account for more deaths each year than Alzheimer's disease or diabetes.

*The American Institute of Stress
*Stanford & Harvard Business Schools 2015
The Journal of Clinical Psychiatry Study shows anxiety disorders cost the U.S. more than $42 billion a year, almost one third of the $148 billion total mental health bill for the U.S.

More than $22.84 billion of those costs are associated with the repeated use of healthcare services, as those with anxiety disorders seek relief for symptoms that mimic physical illnesses.

People with an anxiety disorder are three-to-five times more likely to go to the doctor and six times more likely to be hospitalized for psychiatric disorders than non-sufferers.

30% of the adult US populations suffers from anxiety disorder annually.
Mind and Body
Are Wired for Exceptional Level of Performance
Fight or Flight

Great for survival
Not so great when chronically “turned on”
“Experiences that constantly violate evolution, undermine human nature”

Dr. Darcia Narvaez
University of Notre Dame
Save Lives

Endorphins released to repress pain

Enlarged bronchial tubes

Increased heart rate

Fatty acids and glycogen released from fat deposits and liver for quick energy

Constricted blood vessels cause hair to stand on end

Fibrinogen in bloodstream increases clotting
Chronic Stress

The Impact of a Stuck Fight or Flight Response

<table>
<thead>
<tr>
<th>Physical Reaction</th>
<th>Long-Term Impact</th>
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<tbody>
<tr>
<td>Blood pressure rises</td>
<td>Heart disease</td>
</tr>
<tr>
<td>Stress hormones rise</td>
<td>Anxiety, insomnia, addictions, weight gain</td>
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<tr>
<td>Digestive system slows</td>
<td>Gastro intestinal problems</td>
</tr>
<tr>
<td>Growth and sex hormones fall</td>
<td>Premature aging</td>
</tr>
<tr>
<td>Immune system weakens</td>
<td>Infections, cancer</td>
</tr>
<tr>
<td>Sticky blood platelets increase</td>
<td>Heart attacks</td>
</tr>
</tbody>
</table>
Allostatic Load

Dementia, Cancer, Stroke, Obesity, Chronic Inflammation, Depression etc.
Amygdalar activity was associated with increased bone marrow activity and inflammation in the arteries.

Amygdalar activity is involved partly via a path that includes increased bone-marrow activity and arterial inflammation. These findings provide novel insights into the mechanism through which emotional stressors can lead to cardiovascular disease in human beings.
The human brain isn’t designed to make us happy and fulfilled. It’s designed to make us survive.

This two-million-year-old organ is always looking for what’s wrong, for whatever can hurt us, so that we can either fight it or take flight from it. If you and I leave this ancient survival software to run the show, what chance do we have of enjoying life?

An undirected mind operates naturally in survival mode, constantly identifying and magnifying these potential threats to our well-being. The result: a life filled with stress and anxiety.

Most people live this way since it’s the path of least resistance. They make unconscious decisions, based on habit and conditioning, and are at the mercy of their own minds. They assume that it’s just an inevitable part of life to get frustrated, stressed, sad, and angry—in other words, to live in a suffering state.

But I’m happy to tell you there’s another path: one that involves directing your thoughts so that your mind does your bidding, not the other way around.
The Relaxation Response

The Literal Physiological Opposite of The Stress Response

Herbert Benson MD
Harvard University/Benson Henry Institute for Mind Medicine
Mind Body Exercise

1. A quiet environment

2. A comfortable position

1. A mental device (breath, body awareness, mantra or affirmation)

1. A passive attitude or non-judgmental attitude
What Meditation Is Not

• An Escape From Daily Activity
• Assuming A Particular Pose
• A Trance Like State
• Emptying The Mind
• Deep Relaxation
• Religious
• Visualization
• Unproven Theory
Meditation Is
Mental Development and Cultivation of Awareness

Mental Development:
Developing the Skill or Ability To Stabilize The Mind and Not Let It Wander Off Into Thought

Cultivation Of Awareness:
Training The Mind To Come To And Be In The Present Moment
By creating stability of MIND

• Reduce inflammation
• Help regenerate your organs and cells by activating stem cells
• Increase your heart rate variability
• Thicken your brain (which normally shrinks with aging)
• Boost immune function
• Modulate your nervous system
• Reduce depression and stress
• Enhance performance
• Improve your quality of life
Mindful Revolution
Science, Business & Culture Leading the Way
“Mindfulness should no longer be a 'nice-to-have' for executives. It's a 'must-have': a way to keep our brains healthy, to support self-regulation and effective decision-making capabilities, and to protect ourselves from toxic stress.”

-Harvard Business Review
Mindfulness in the language of science

30 Years & Over 15,000 Peer reviewed published research papers

3,500 in the last 5 years
Meditation and Neuroplasticity

1: Meditation experience is associated with increased cortical thickness
doi: 10.1097/01.wnr.0000186598.66243.19

2: Long-term meditation is associated with increased gray matter density in the brain stem
doi: 10.1097/WNR.0b013e328320012a

3: The underlying anatomical correlates of long-term meditation: larger hippocampal and frontal volumes of gray matter

4: Mindfulness practice leads to increases in regional brain gray matter density
doi: 10.1016/j.pscychresns.2010.08.006

5: Mechanisms of white matter changes induced by meditation
doi: 10.1073/pnas.1207817109
Improved Immune Function – Reduced Systemic Inflammation

Unchecked Stress = Inflammatory Reflex

Inflammatory Reflex Regulated by Vagus Nerve

Meditation Clearly Improved “vagal tone” = Reduced systemic inflammation, Improved immune function

Tanya Jacobs Et Al-US Davis Center for Mind & Brain
Kevin Tracey, Director of the Feinstein Institute for Medical Research
Repair & Heal

Adult Stem Cell levels 30% higher in meditators

15 Minutes of meditation resulted in highest increase in positive stem cell levels ever observed

Dr. Doris Taylor
Director - Center for Cardiovascular Repair
University of Minnesota
Meditation increases longevity by slowing the aging process.

Compared to the control group, meditation practitioners had 30% higher levels of telomerase, an enzyme that repairs damaged telomeres, which protect DNA from deteriorating as we age.

Elizabeth Blackburn MD, Yale, Nobel Prize Winner (Epel et al., 2009).

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3057175/
• Improved cognitive ability
• Less negative thoughts
• Better purpose of life
• Improved focus
• Improved adherence to healthy lifestyle
• Improved overall health
• Lived longer
Mindfulness training improves focus, attention, memory and other cognitive skills necessary for high performance.

Increase focus: Professionals trained in mindfulness were able to concentrate better, stay on task longer, multitask more effectively, and remember what they’d done better than those who didn’t take the training. (Levy et al., 2012)

https://www.researchgate.net/publication/262393075_The_effects_of_mindfulness_meditation_training_on_multitasking_in_a_high-stress_information_environment
“Promoting mindfulness-based training for physical activity has positive effects both psychologically and physiologically.”

Conclusion:
Individuals practicing Mindfulness realize better adherence and benefits from consistent exercise. Mindfulness also amplifies the stress-reducing capabilities of physical activity.

*http://ajl.sagepub.com/content/early/2015/01/05/1559827614564546
Mindfulness training is used to help treat eating disorders such as binge-eating disorder, type 2 diabetes, weight loss, and promote positive dietary changes in cancer survivors. Lifestyle programs based on the MBSR model, show participants experienced significant weight loss and improvement in mood and inflammatory markers, such as C-reactive protein, after six weeks.

*http://www.todaysdietitian.com/newarchives/030413p42.shtml
*http://www.health.harvard.edu/staying-healthy/mindful-eating
Mindful Exercise

◆ Select someone your work with
◆ Select someone close to you

Consciously give them your undivided attention

Extra Credit: Don’t take your smart phone to your next meeting.