

The Mind Body Connection  
for  
Optimal Health  
&  
Performance

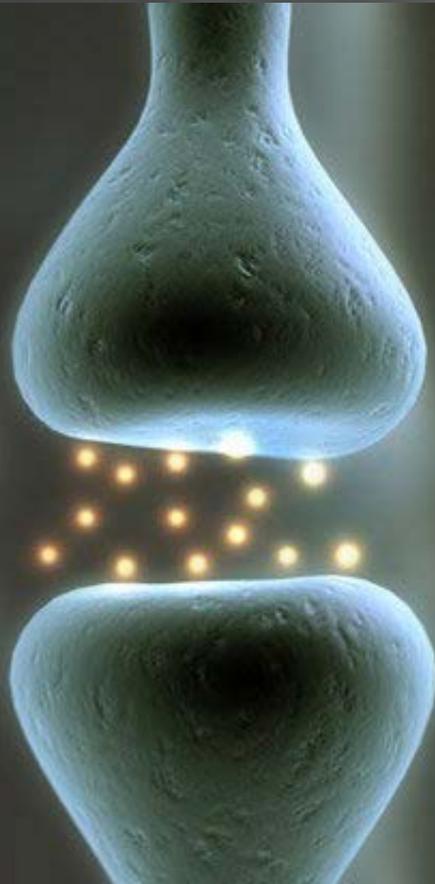
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Every thought has a biochemical response in the body



“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



[www.6seconds.org](http://www.6seconds.org)

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."*

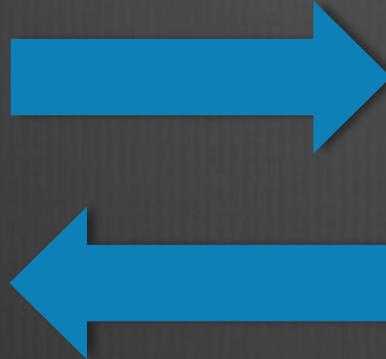


BENSON-HENRY INSTITUTE  
FOR MIND BODY MEDICINE

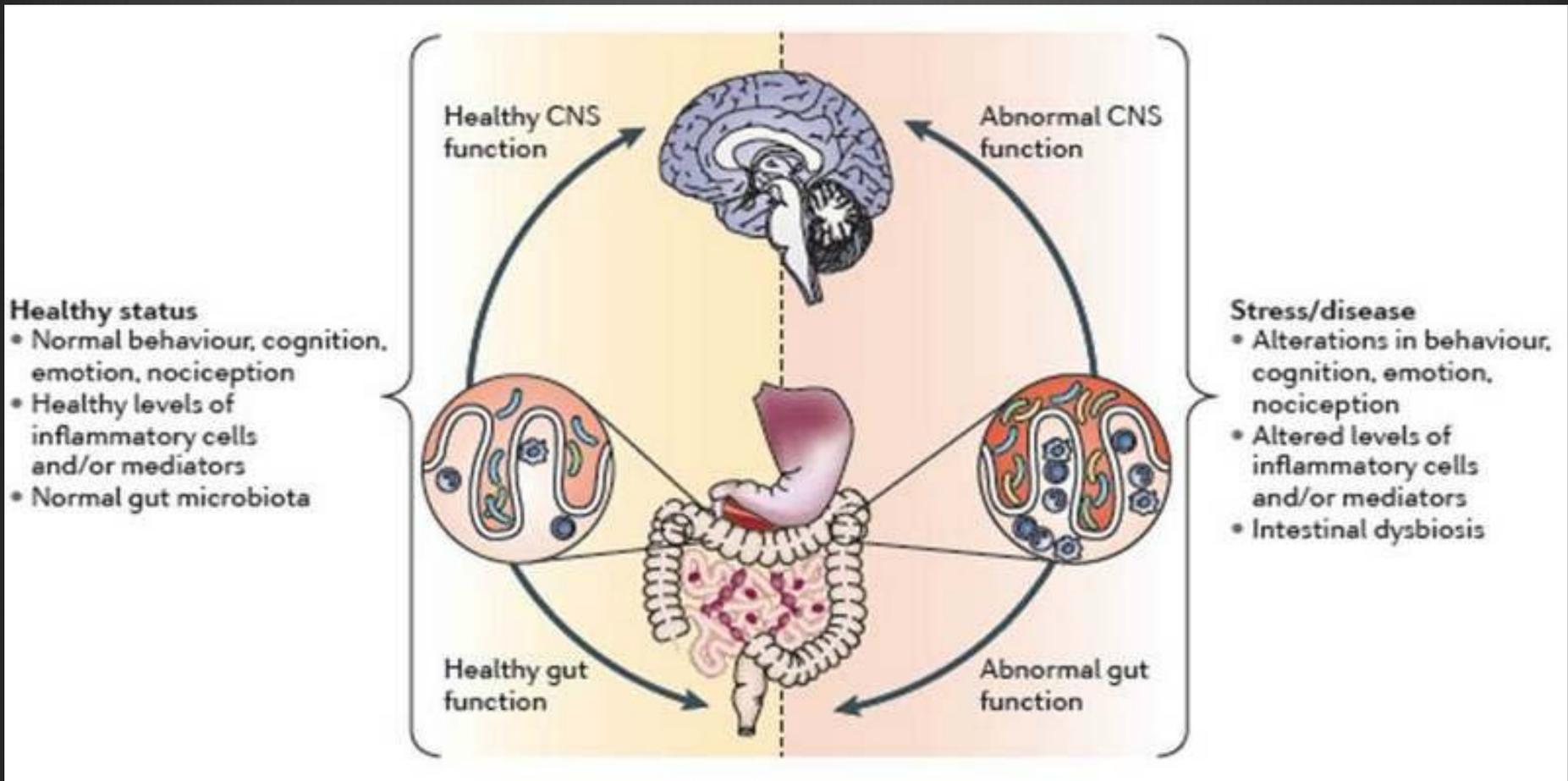


AT MASSACHUSETTS GENERAL HOSPITAL

# Bi-Directional Highway



# Brain<>Immune<> Cells<>Intestines (second brain)



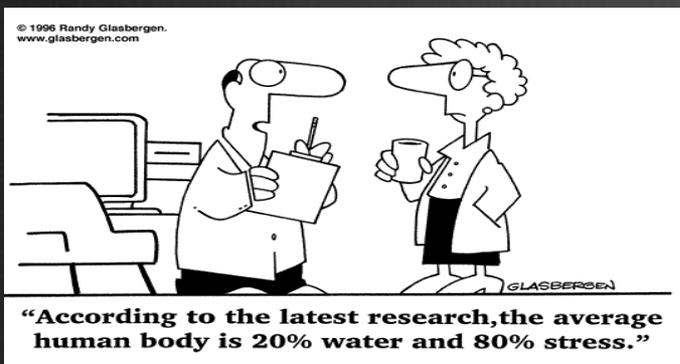
# \$190-300 Billion US Spend Annually-Stress Related disease

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

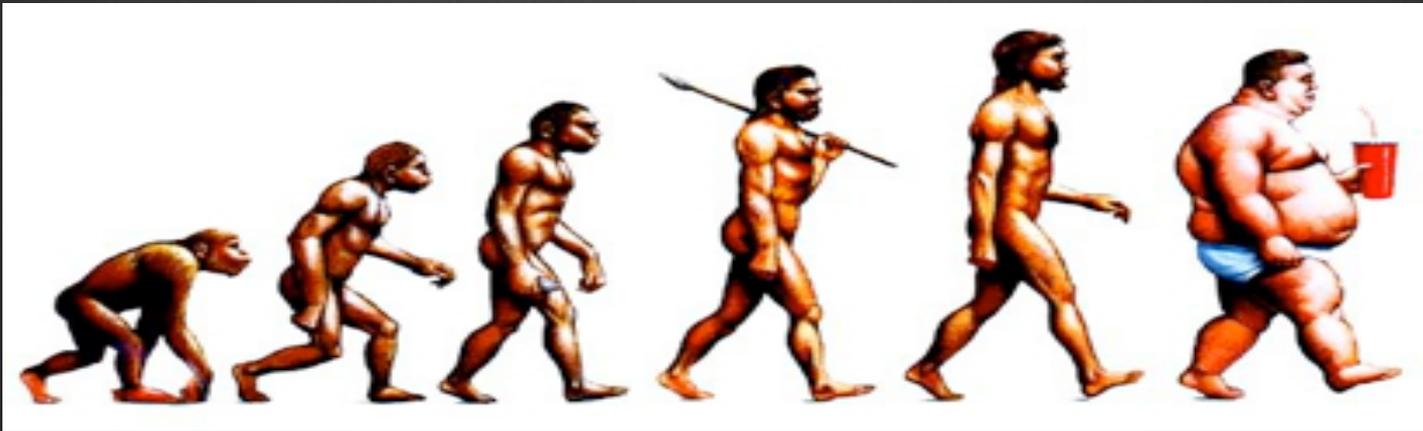
Not so great when chronically “turned on”



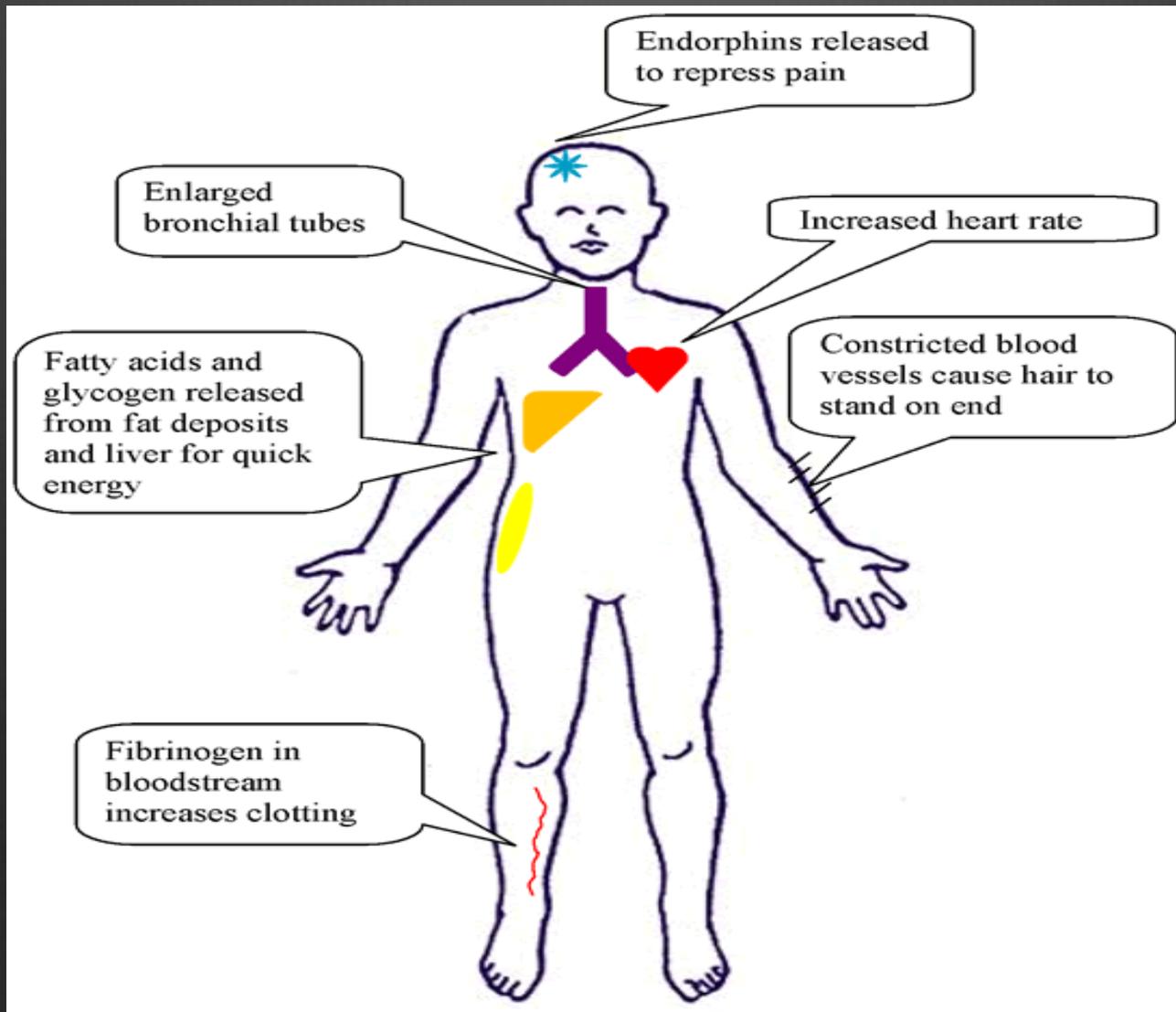


“Experiences that constantly violate evolution,  
undermine human nature”

Dr. Darcia Narvaes  
University of Notre Dame



# Save Lives



# Chronic Stress

## The Impact of a Stuck Fight or Flight Response

### Physical Reaction

Blood pressure rises

Stress hormones rise

Digestive system slows

Growth and sex hormones fall

Immune system weakens

Sticky blood platelets increase



### Long-Term Impact

Heart disease

Anxiety, insomnia,  
addictions, weight gain

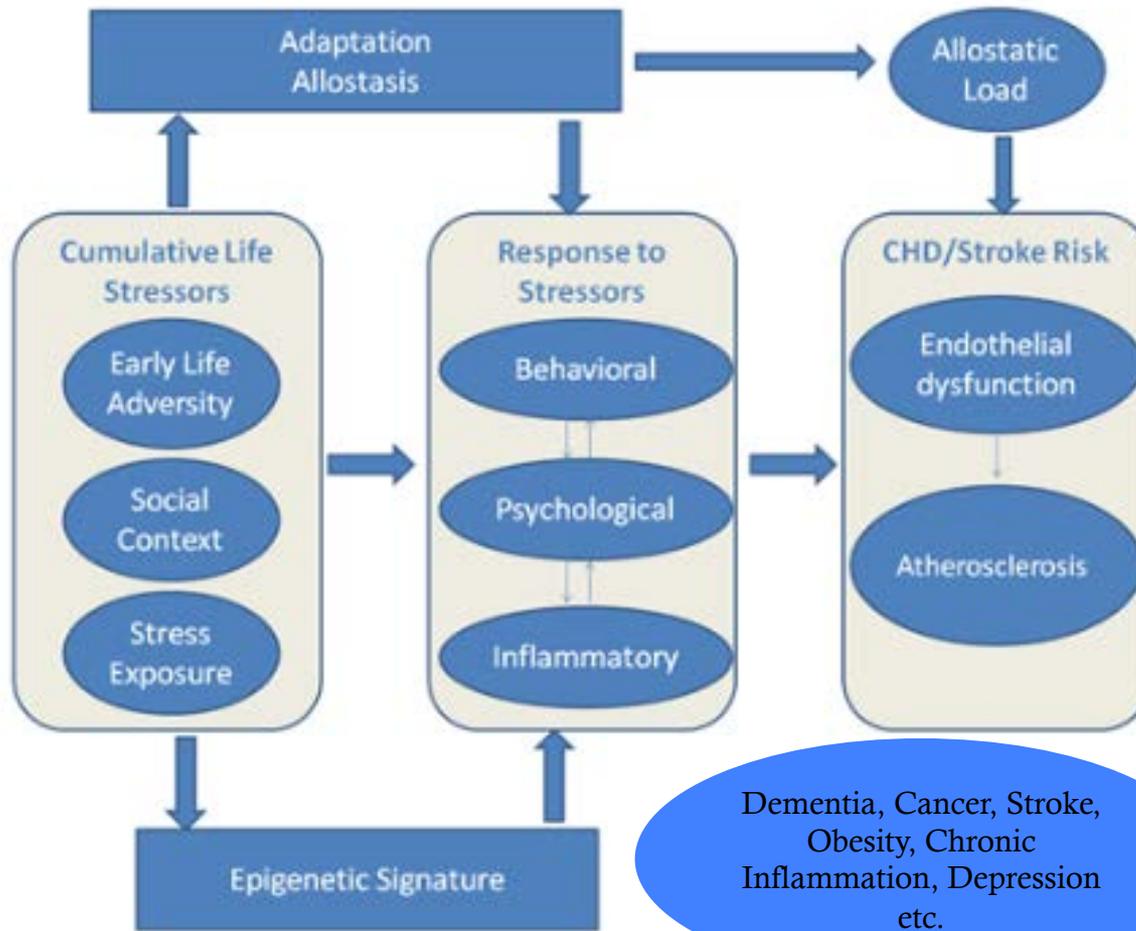
Gastro intestinal problems

Premature aging

Infections, cancer

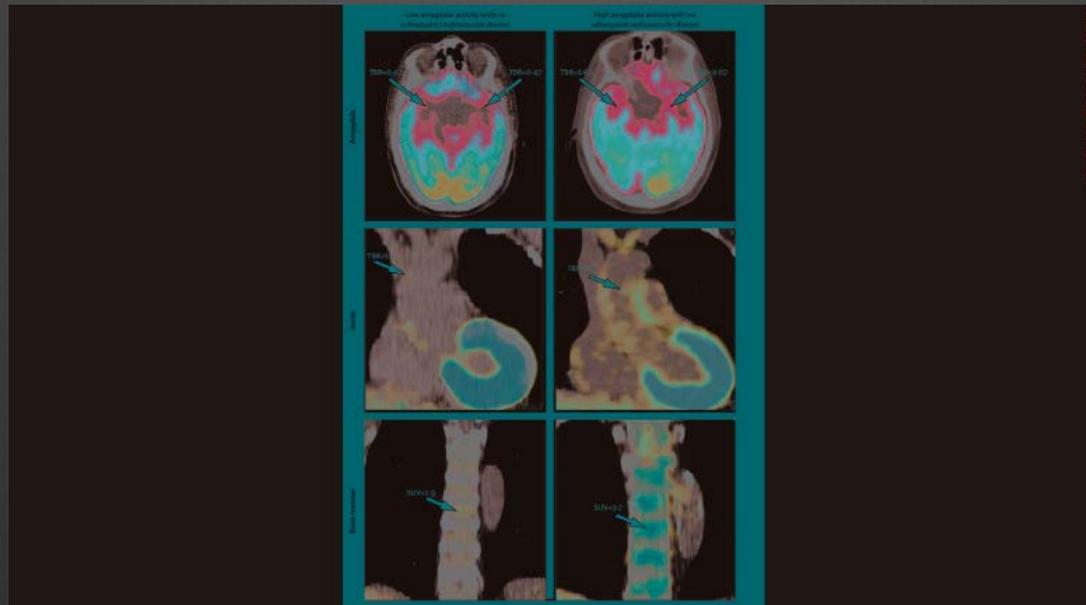
Heart attacks

# Allostatic Load



The Lancet, January 11, 2017  
Massachusetts General Hospital  
Cardiac PET/CT program

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.**



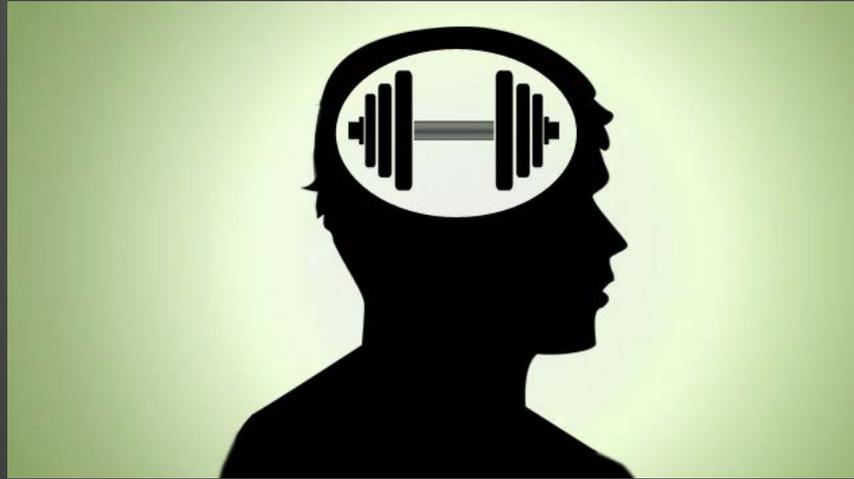
# The Relaxation Response

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**
- 3. A mental device (breath, body awareness, mantra or affirmation)**
- 4. 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

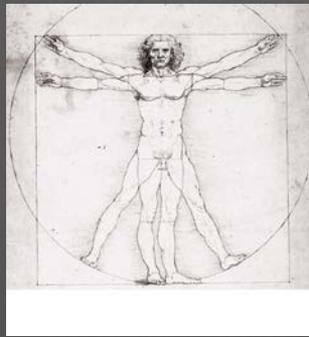
Mental Development and Cultivation of Awareness

## **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
- Improve Resiliency & Interaction with stressful situations
- 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

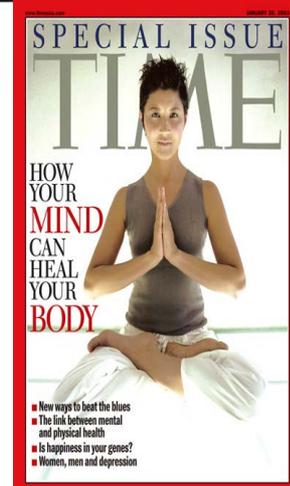
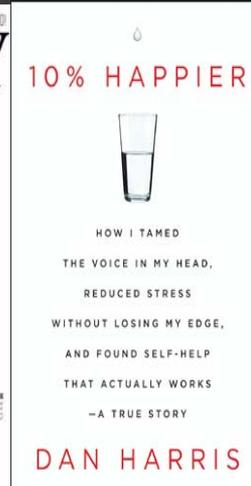
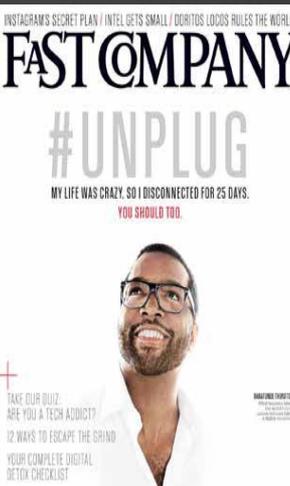
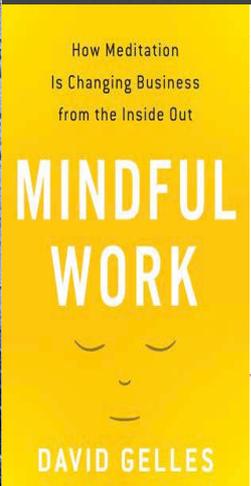
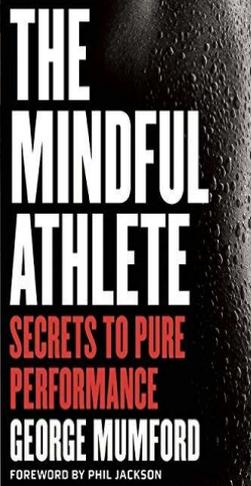
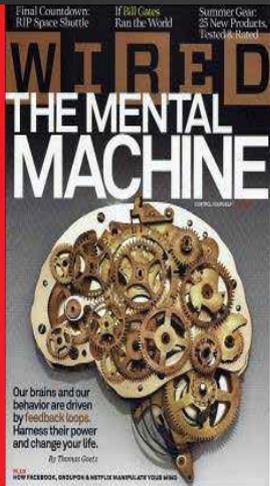
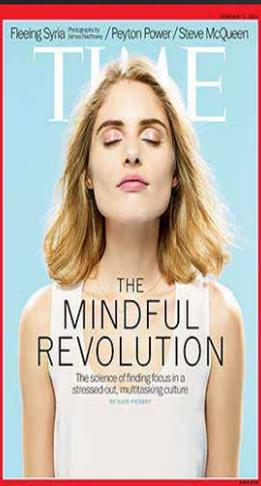


Winooski: A Mindful City



# 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

Lazar, S. W., Kerr, C. E., Wasserman, R. H., Gray, J. R., Greve, D. N., Treadway, M. T., ... & Fischl, B. (2005). Meditation experience is associated with increased cortical thickness. *Neuroreport*, 16(17), 1893-1897. [[pdf](#)]  
[doi: 10.1097/01.wnr.0000186598.66243.19](https://doi.org/10.1097/01.wnr.0000186598.66243.19)

## 2: Long-term meditation is associated with increased gray matter density in the brain stem

Vestergaard-Poulsen, P., van Beek, M., Skewes, J., Bjarkam, C. R., Stubberup, M., Bertelsen, J., & Roepstorff, A. (2009). Long-term meditation is associated with increased gray matter density in the brain stem. *Neuroreport*, 20(2), 170-174. [[pdf](#)]  
[doi: 10.1097/WNR.0b013e328320012a](https://doi.org/10.1097/WNR.0b013e328320012a)

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

Luders, E., Toga, A. W., Lepore, N., & Gaser, C. (2009). The underlying anatomical correlates of long-term meditation: larger hippocampal and frontal volumes of gray matter. *Neuroimage*, 45(3), 672-678. [[pdf](#)]  
[doi: 10.1016/j.neuroimage.2008.12.061](https://doi.org/10.1016/j.neuroimage.2008.12.061)

## 4: Mindfulness practice leads to increases in regional brain gray matter density

Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Research: Neuroimaging*, 191(1), 36-43. [[pdf](#)]  
[doi: 10.1016/j.psychresns.2010.08.006](https://doi.org/10.1016/j.psychresns.2010.08.006)

## 5: Mechanisms of white matter changes induced by meditation

Tang, Y. Y., Lu, Q., Fan, M., Yang, Y., & Posner, M. I. (2012). Mechanisms of white matter changes induced by meditation. *Proceedings of the National Academy of Sciences*, 109(26), 10570-10574. [[pdf](#)]  
[doi: 10.1073/pnas.1207817109](https://doi.org/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

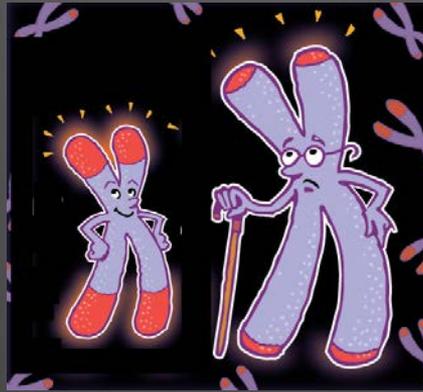


Adult Stem Cell levels 30% higher in meditators

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

# Slow Aging



Meditation increases longevity by slowing the aging process.

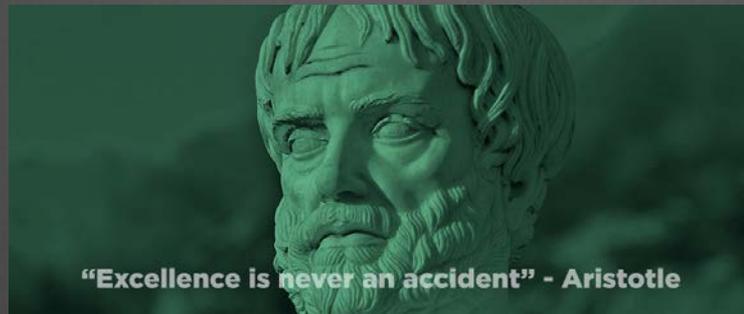
Compared to the control group, meditation practitioners had 30% higher levels of telomerase, an enzyme that repairs damaged telomeres, which protect DNA from deteriorating as we age.

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**

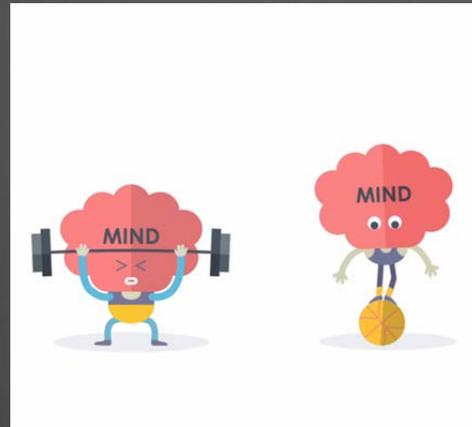


Mindfulness training improves focus, attention, memory and other cognitive skills necessary for high performance.

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.”

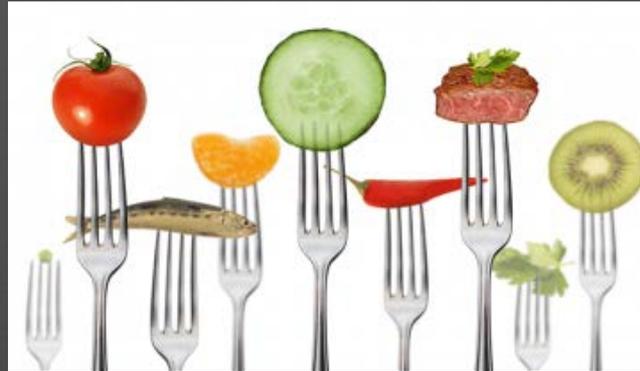
Conclusion:

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>

\*<http://www.ncbi.nlm.nih.gov/pubmed/26111942>

\*<http://www.bodykinetics.com/blog/bid/268201/Mindfulness-and-Exercise-How-can-mindfulness-improve-your-fitness>



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/healthbeat/mindful-eating-may-help-with-weight-loss>

\*<http://www.health.harvard.edu/staying-healthy/mindful-eating>



# Mindful Exercise



◆ Select someone you 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.