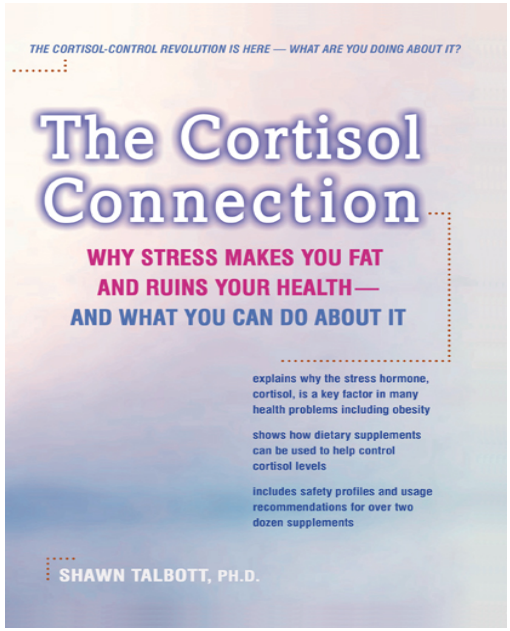

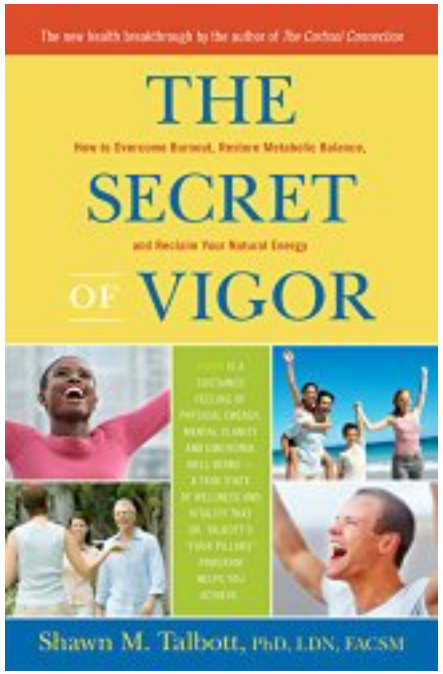

BECK

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Vigor

3-tiered sustained mood state characterized by
physical energy, mental acuity, and emotional well-being

Qi
Life Force
Vigor

Air / Breath

+

Rice / Food

=

Attitude / Morale


Vigor
stress
cortisol
inflammation
balance
vigor
levels
biochemical
body
health
exercise
studies
effects
oil
may
tissue
percent
testosterone
disease
day
brain
time
blood
pain
normal
researchers
minutes
depression
drugs
position
actually
reduce
vitamin
feel
blood-sugar
natural
daily
athletes
even
acids
healthy
obesity
effective
metabolic
heart
level
dietary
patients
improve
fat
enoogh
antioxidant
much
increase
just
risk
fatty
heat
exposure
benefits
side
sleep
damage
energy
response
oxidation
people
high
cells
state
activity
take
inflammatory
important
see
study
like
work
supplements
Health
chronic
glucose
associated
biochemistry
control
eat
process
mental
immune
cytokines
foods
Fat
function
pan
diet
example
free
changes
insulin
physical
shown
problems
back
water
help
many
sugar
research
Pillars
get
low
overall
salt
add
arthritis
Journal
want
burnout
hormones
better effect
fatigue
VIP
well
life
need
mood
weight
good

THE
SECRET
OF VIGOR
Shawn M. Talbott, PhD, LDN, FACSM

Prevalence of Chronic Stress

- Studies show that 50-60% of all lost working days are related to stress
- Work-related stress costs the EU more than 265 billion Euros annually
- Chronic stress is a determinant of Depression, Heart Disease, Diabetes, & Syndrome X
- Stress contributes to half of all illnesses in the United States
- 70-80% of all doctor visits are for stress-related illnesses
- More than half of all deaths before age 65 result from stressful lifestyles
- Generalized anxiety disorder affects ~183 million people worldwide
- People with high anxiety are 4.5x more likely to die of a heart attack or stroke
- 80% of workers report feeling stress on the job (only 13% are "engaged" with work)
- 65% = American Psychological Association
- 70-80% = World Health Organization (WHO) & Centers for Disease Control (CDC)
- 90% = American Institute of Stress (AIS)

Sources: Working on Stress - European Agency for Safety and Health at Work (http://agency.osha.eu.int)

U.S. Center for Disease Control

World Health Organization; www.whmc.af.mil

2000 Gallup Poll "Attitudes in the American Workplace"

Stress-Related Conditions

Metabolic and Long-Term Health Effects of Elevated Stress (Cortisol Overexposure/Metabolic Imbalance)

- Increased appetite, Accelerated muscle catabolism, Suppressed fat oxidation, Enhanced fat storage **(Obesity - 2,694)**
- Elevated cholesterol and triglyceride levels; Elevated blood pressure **(Heart disease - 4,604)**
- Alterations in brain neurochemistry [dopamine/serotonin/norepinephrine] **(Depression/Anxiety/ADHD - 22,491)**
- Physical atrophy of brain cells **(Memory problems/Dementia - 3,169)**
- Insulin resistance and elevated blood-sugar levels **(Diabetes - 1,203)**
- Accelerated bone resorption **(Osteoporosis - 2,675)**
- Reduced levels of testosterone **(Suppressed libido - 1,439)**
- Suppression of immune-cell number/activity **(Frequent Colds/Flu/infection; Increased Cancer risk - 9,651)**

Causes of "Imbalance" (Stress)

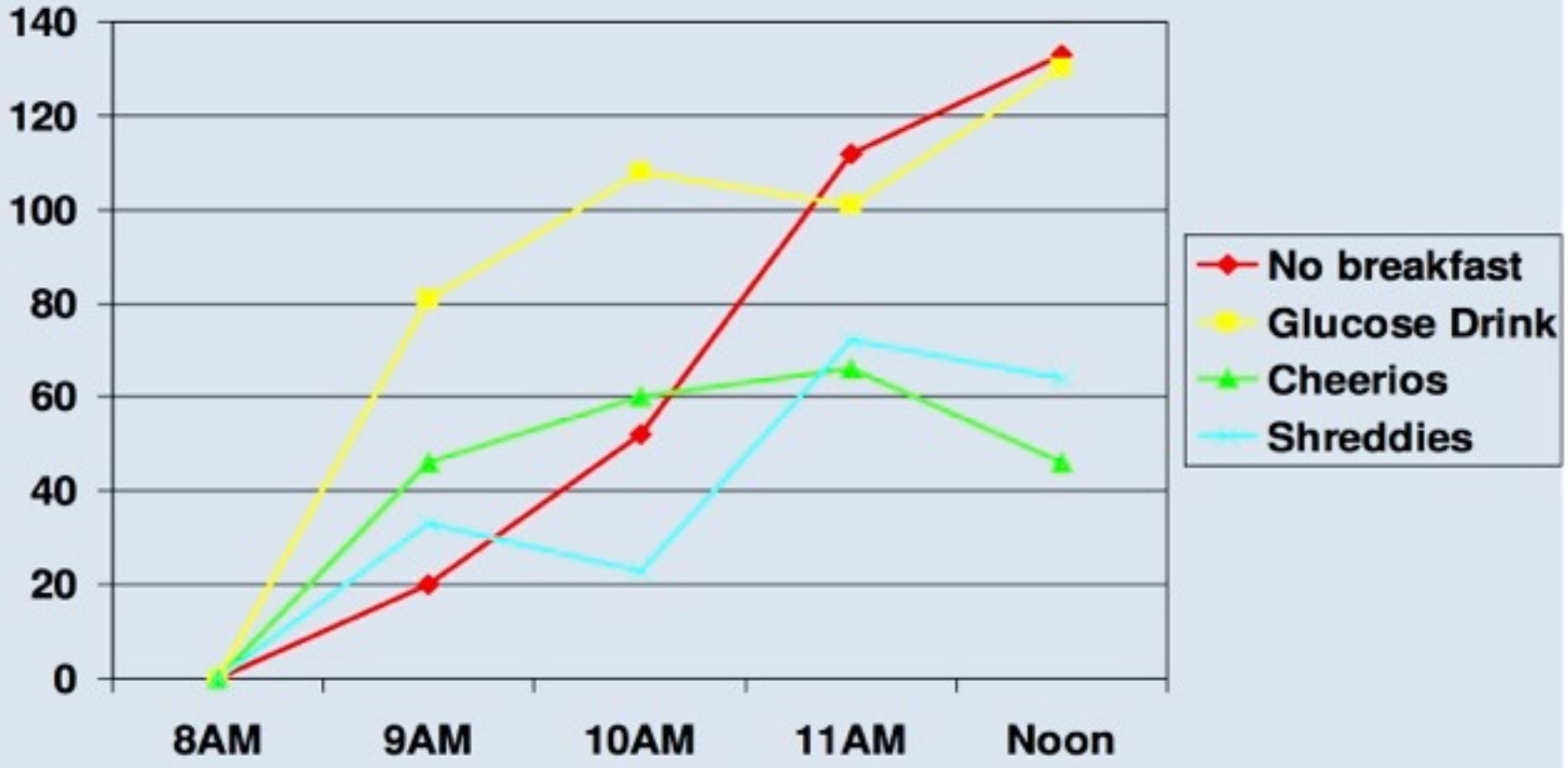
- Emotional stress (deadlines, bills, traffic…)
- Physical stress (aging, sleep deprivation, exercise…)
- Environmental stress (air/water pollution, heat, cold…)
- Non-Optimal Diet (processed foods, inadequate nutrients/phytonutrients…)
- Sources of Imbalance (stress) are:
  - Internal
  - External
  - Everywhere!
  - Unavoidable!!
- Athletes / Dieters / Short-Sleepers / Stressed
  - Share the SAME *biochemical* disruptions
  - Share the SAME *psychological* outcomes
  - Exhibit the SAME benefits to *restored biocher*

Tired, Stressed, Depressed

Diet / Vigor Relationship

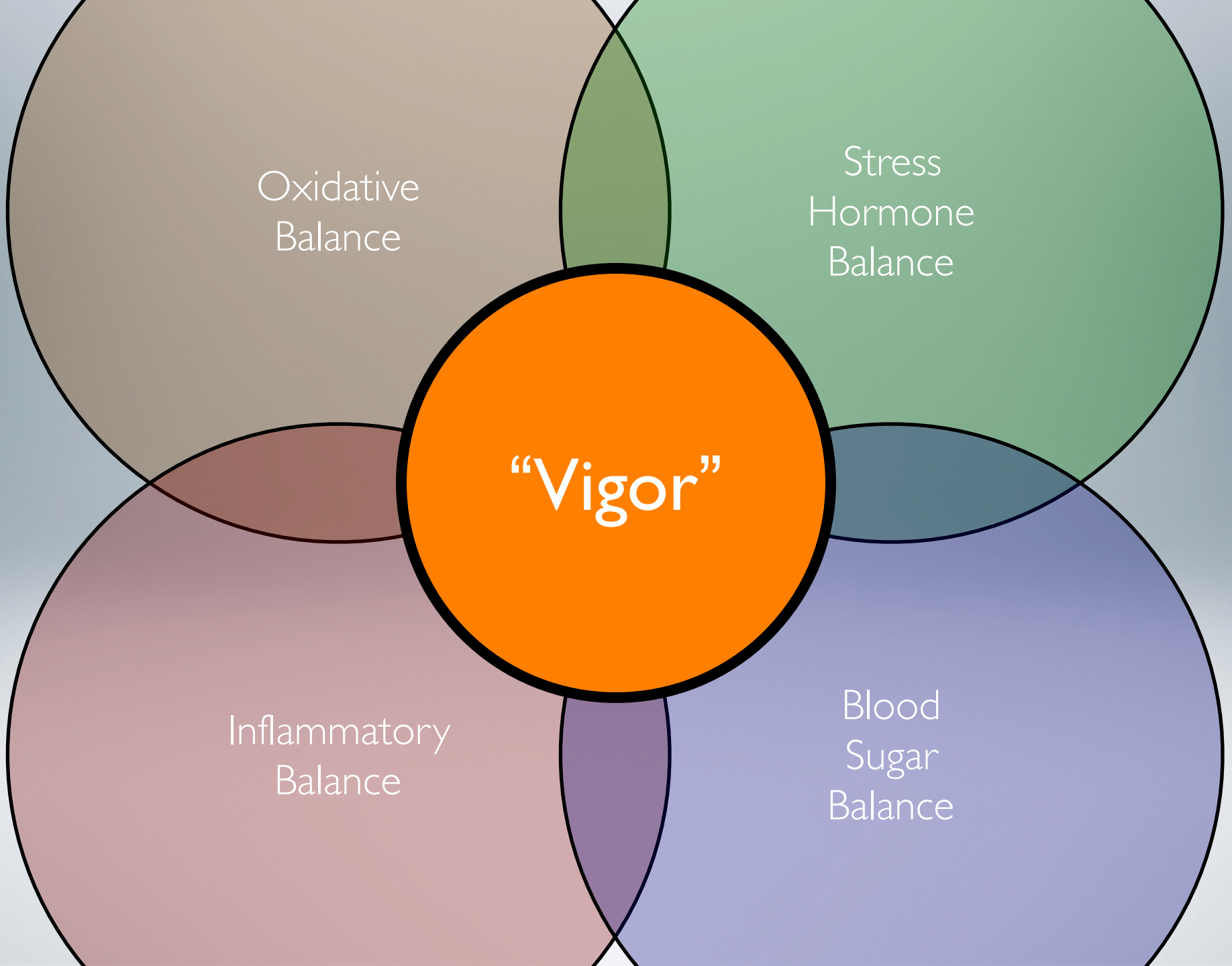
- Mediterranean diet = Improved QOL
  - Henriquez-Sanchez et al. *Eur J Clin Nutr* 66(3): 360-8, 2012
- Omega3s = Reduced ADHD Sx / Improved QOL (cancer)
  - Van der Meij et al. *Eur J Clin Nutr* 66, 399-404, 2012
- Multivitamin = Increased Attention, Mood, Vigor
  - Kennedy et al. *Psychopharmacology* 211:55-68, 2010
- Overall Diet Quality = Reduced Depression / Improved QOL
  - Kuczmarski et al. *J Am Diet Assoc.* 110(3): 383-389, 2010
- Low Fat Diet (20%) = Lower Anxiety/Depression / Higher Vigor
  - Torres & Nowson CA. *Nutrition*. Sep;28(9):896-900. 2012
- Fast Food / Commercial baked Goods = Higher Depression Risk
  - Sanchez-Vilegas et al. *Public Health Nutr* 15(3), 424-432, 2011
- Diet/Exercise - 10% weight loss (overweight) = Increased Vitality
  - Imayama et al. *Int J Behav Nutr & Phys Activity* 8:18, 2011
- Food restriction (lightweight athletes) = Reduced Vigor
  - Filaire et al. *Int J Sports Med*. Aug;22(6):454-9. 2001
- Bonito (tuna) Broth (EAAs) = Reduced Fatigue / Improved Vigor
  - Kuroda & Nozawa. *Biomed Res* 29(4), 175-179, 2008
- Depressed Patients (cancer) = Lower use of CAM
  - Stein et al. *Cancer* Sept 15, pp 4397-4408, 2009
- Positive Psychological Well-Being = longer survival (healthy/diseased)
  - Chida & Steptoe. *Psychosomatic Med* 70:741-756, 2008

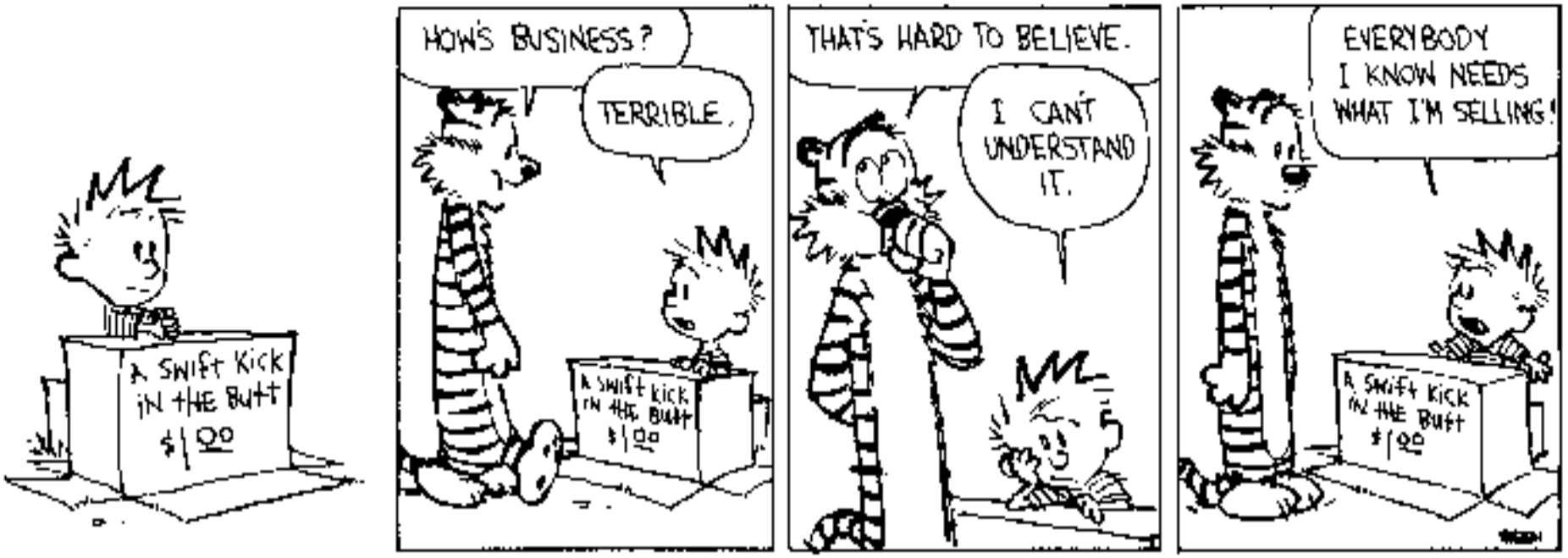
Breakfast Experiment
Attention Deterioration from 8 AM
(Higher Score Worse) --Normal Kids



Wesnes et al (2003) Breakfast reduces declines in attention and memory over the morning in schoolchildren. *Appetite, 41*, 329–331


PROZAC
STARBUCKS COFFEE
Lexapro
Folgers
MONSTER ENERGY
Celexa
Lunesta
$80B+
PAX
zoloft
EFFEXOR XR
AMBIEN
ROCKSTAR ENERGY DRINK
Luvox
Cymbalta
Peets Coffee & Tea

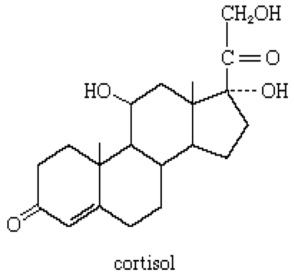

Oxidative Balance
Stress Hormone Balance
"Vigor"
Inflammatory Balance
Blood Sugar Balance



People will pay for what they want, but not for what they need.

Everyone living in the 21st century needs cortisol control!

What is Cortisol?



cortisol

- **Cortisol is the body's primary stress hormone**
  - "Fight-or-Flight" response
  - Regulates inflammation, carbohydrate metabolism, blood pressure, cardiovascular function, etc…

•BUT ➡ too much cortisol for too long leads to problems

Analogy...

- Cholesterol: hormone synthesis and cell membrane structure
- Too much cholesterol: leads to arterial plaque and heart disease (bad)
- Solution: control cholesterol (reduce it, don't obliterate it)

ACUTE STRESS

- brief
- normal circadian rhythm
- adaptive

CHRONIC STRESS

- prolonged & repeated
- disrupted circadian rhythm
- maladaptive

Why Zebras Don't Get Ulcers…

Robert Sapolsky, PhD
Stanford University
Stress Physiology

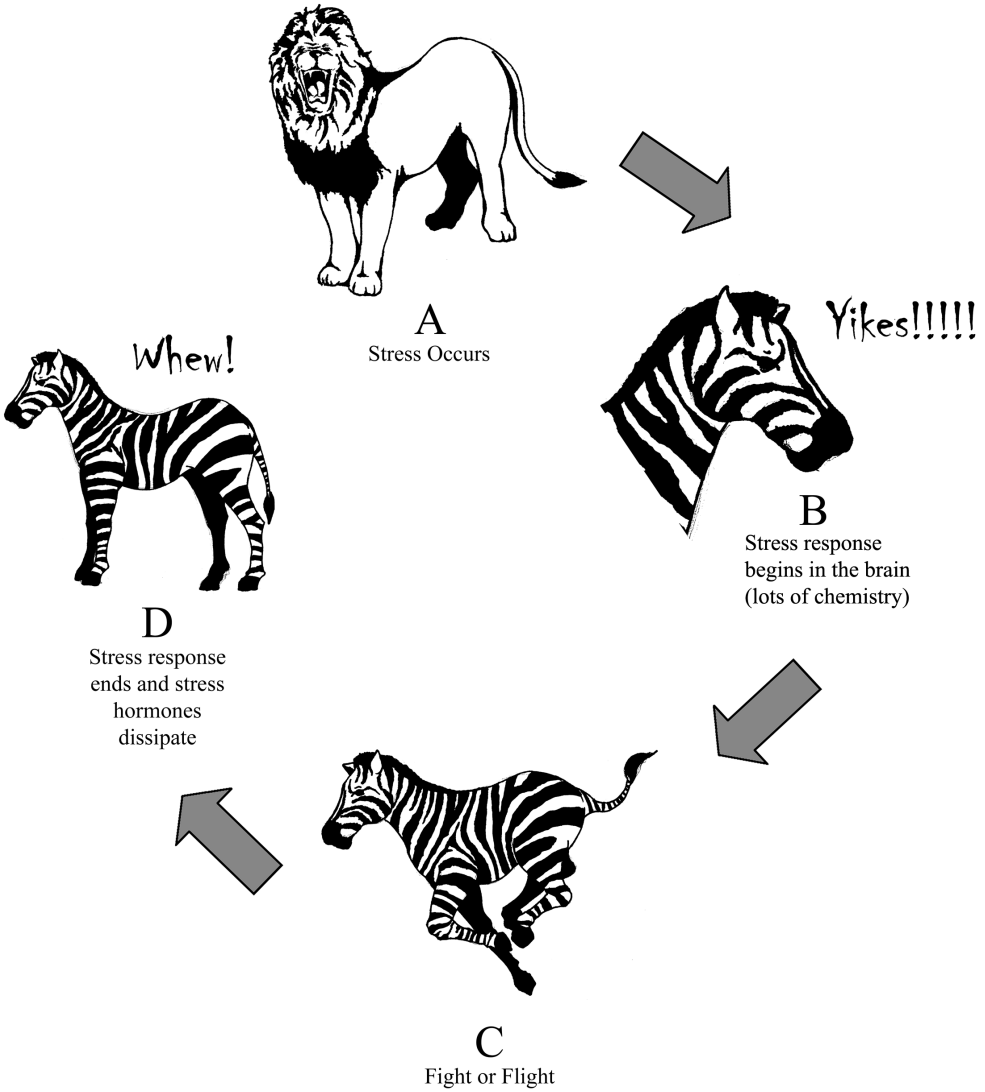


Figure 1.1
The "normal" stress response

Humans are *not* Zebras…

…and are not meant to harbor *chronic* stress

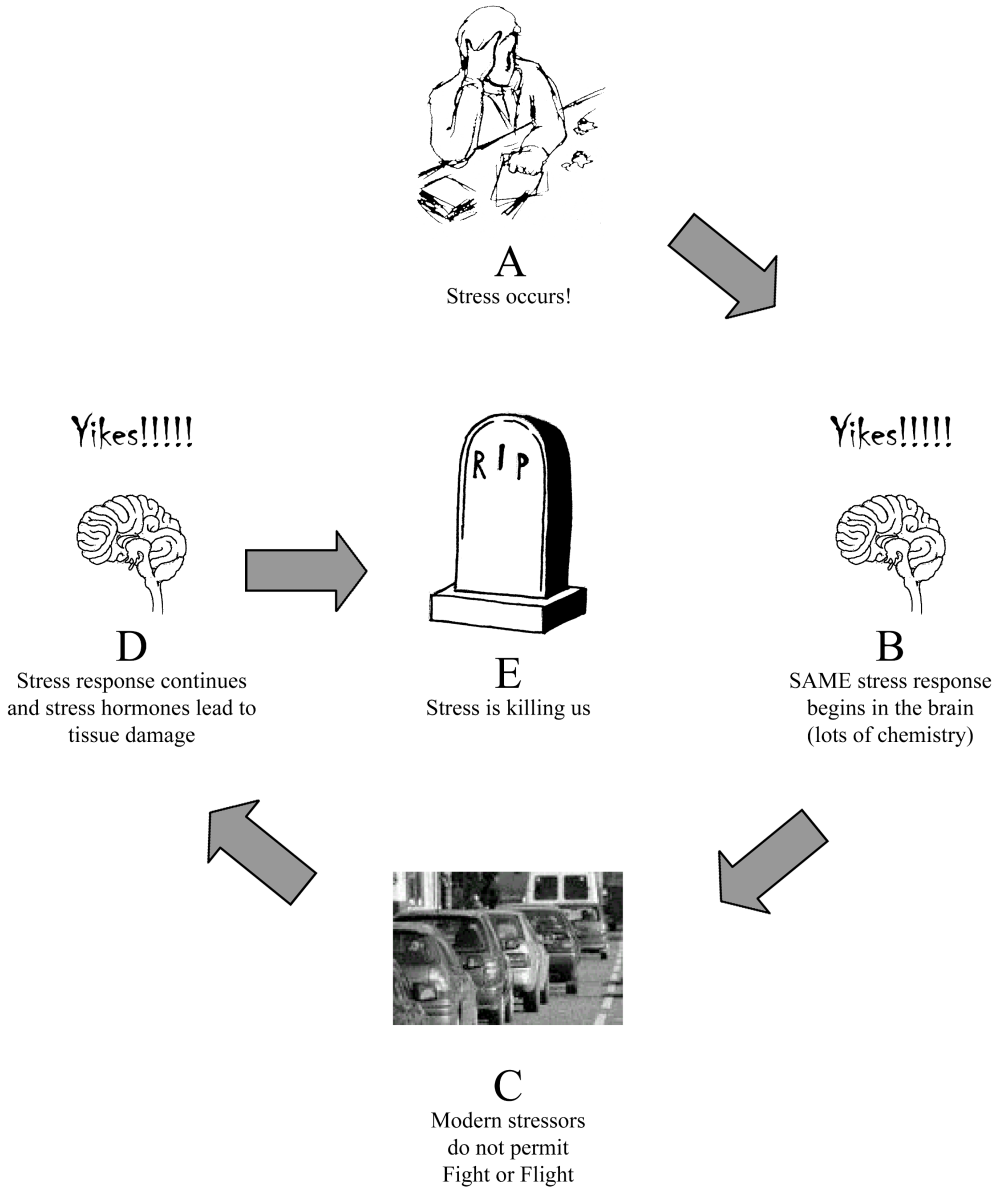
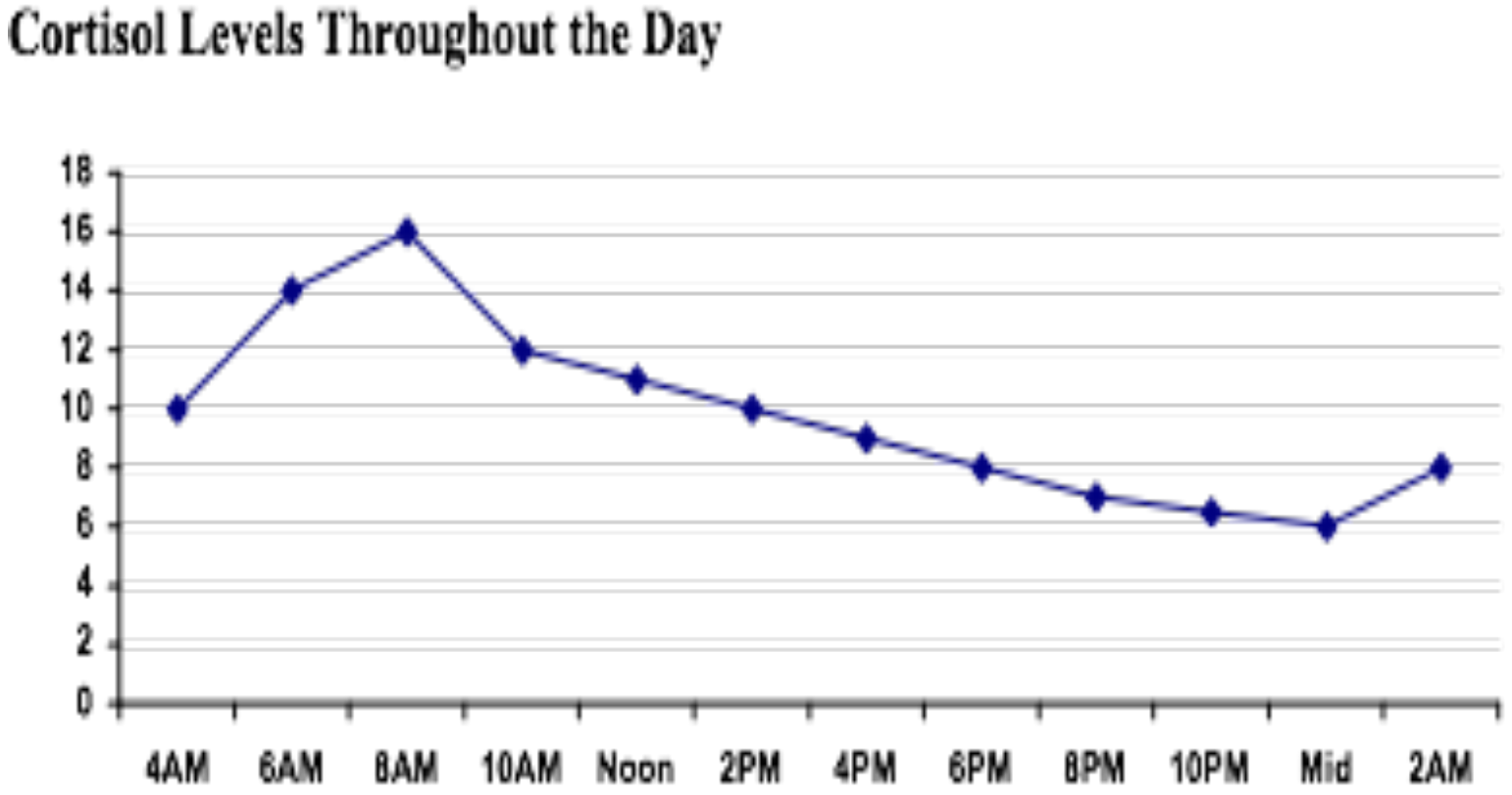
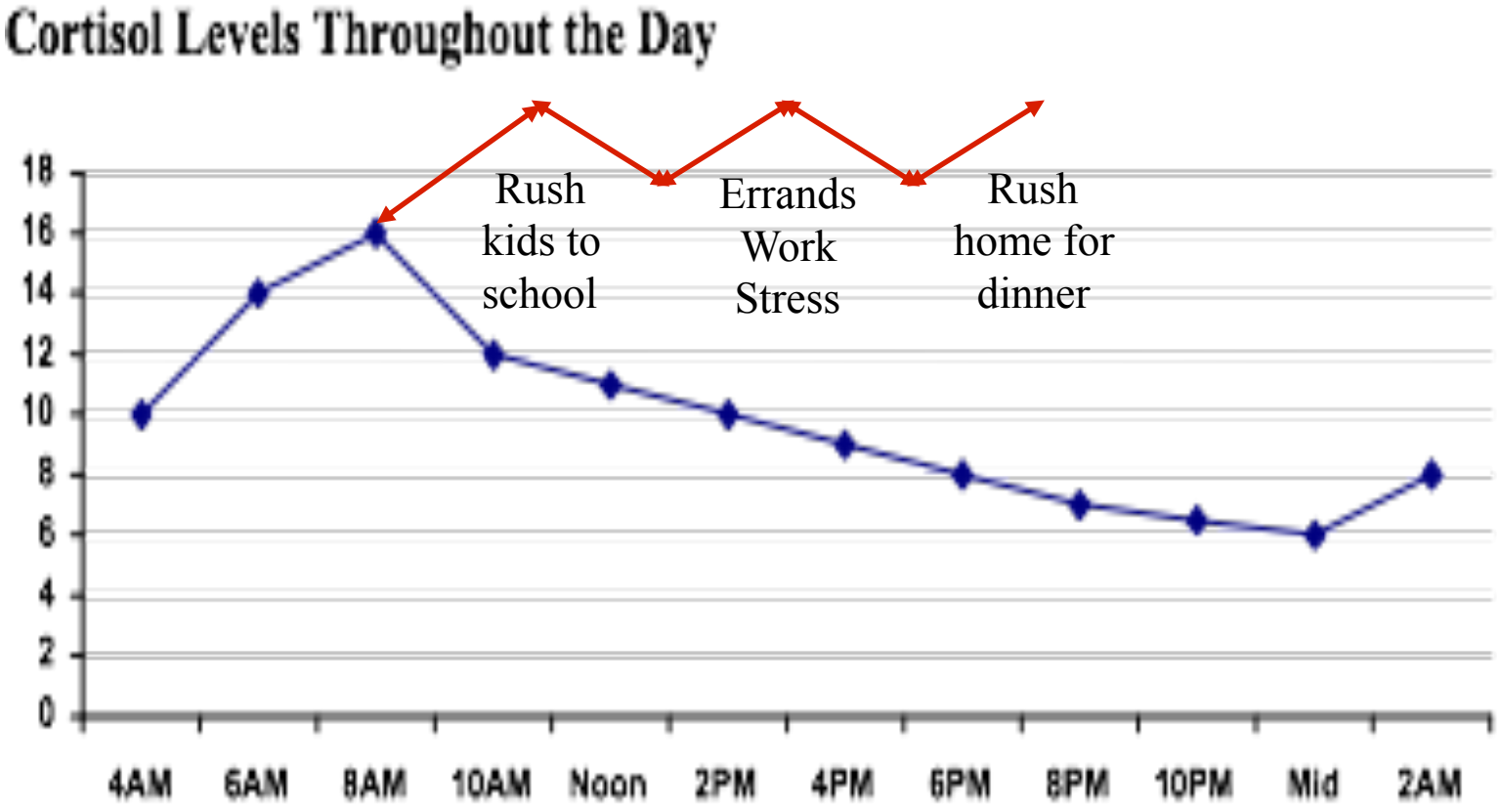


Figure 1.2
The "Type C" personality (The HUMAN stress response)

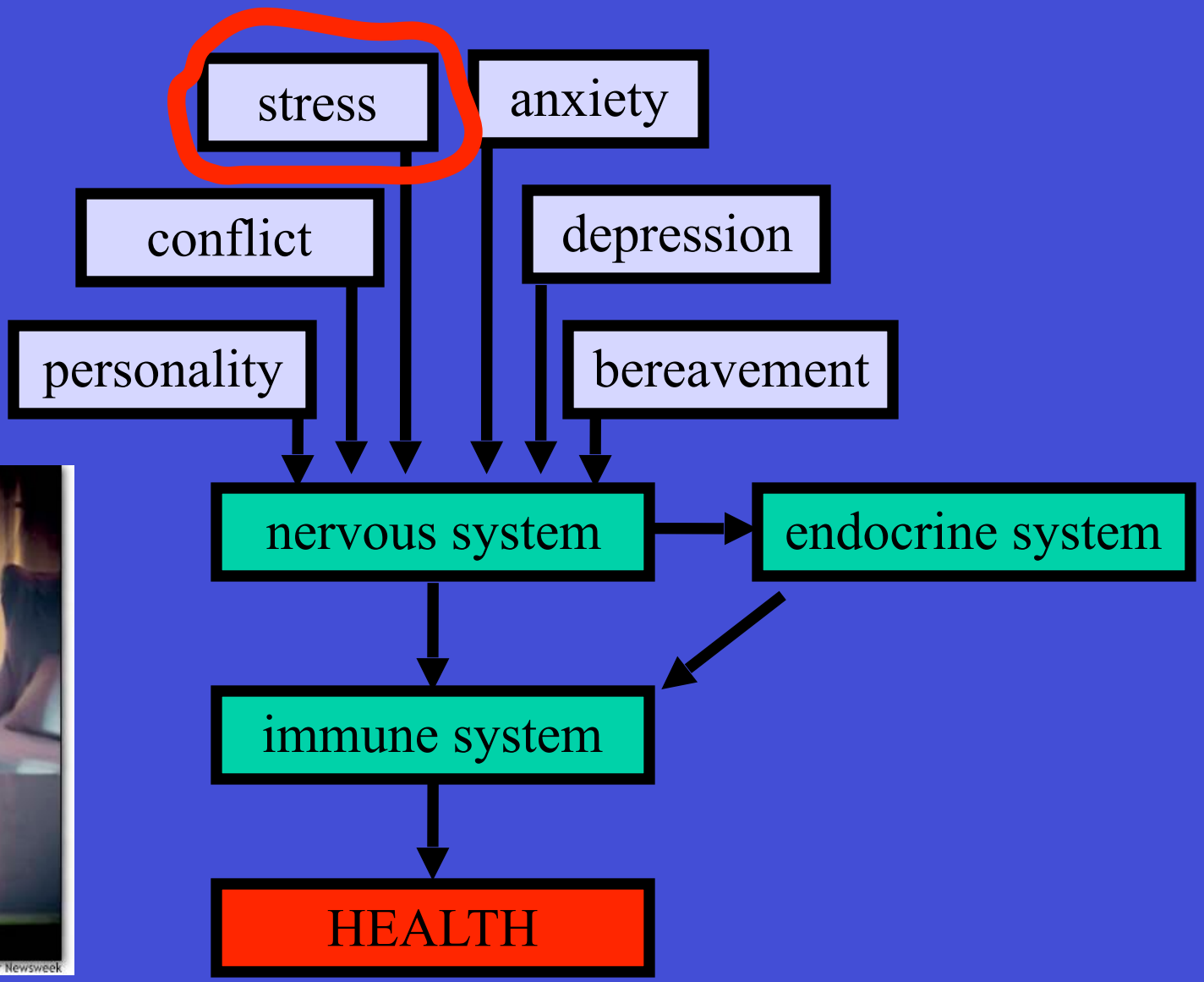
“Normal” Diurnal Cortisol Rhythm



“Modern” Cortisol Rhythm



Psycho-Neuro-Immunology



Conditions Linked to Cortisol Dysregulation

Obesity
Appetite Regulation
Diabetes/Metabolic Syndrome X
Cardiovascular Dysfunction
Hypertension
Impaired Immune Response
Premenstrual Syndrome
Menopausal Symptoms
Osteoporosis
Depression (some)
Anxiety disorders (some)
Memory/Learning Impairment
Mania

Acne/Skin Wrinkling
Sleep deprivation
Chronic migraine headaches
Cushing's syndrome
Hyperthyroidism
Atypical seasonal depression
Chronic fatigue syndrome
Fibromyalgia
Hypothyroidism
Nicotine withdrawal
Rheumatoid arthritis

Based on data from G. Chrousos and P. Gold, NIH, and B. McEwen, Rockefeller

Elevated Cortisol and Appetite

- Women with high cortisol response
  - (compared to a low cortisol response):
    - consumed more calories
    - ate significantly more sweet foods
    - had more negative moods

- High dietary restraint is associated with high urinary cortisol excretion
  - Dietary Restraint = Consciously trying to limit food intake to achieve or maintain a desired body weight

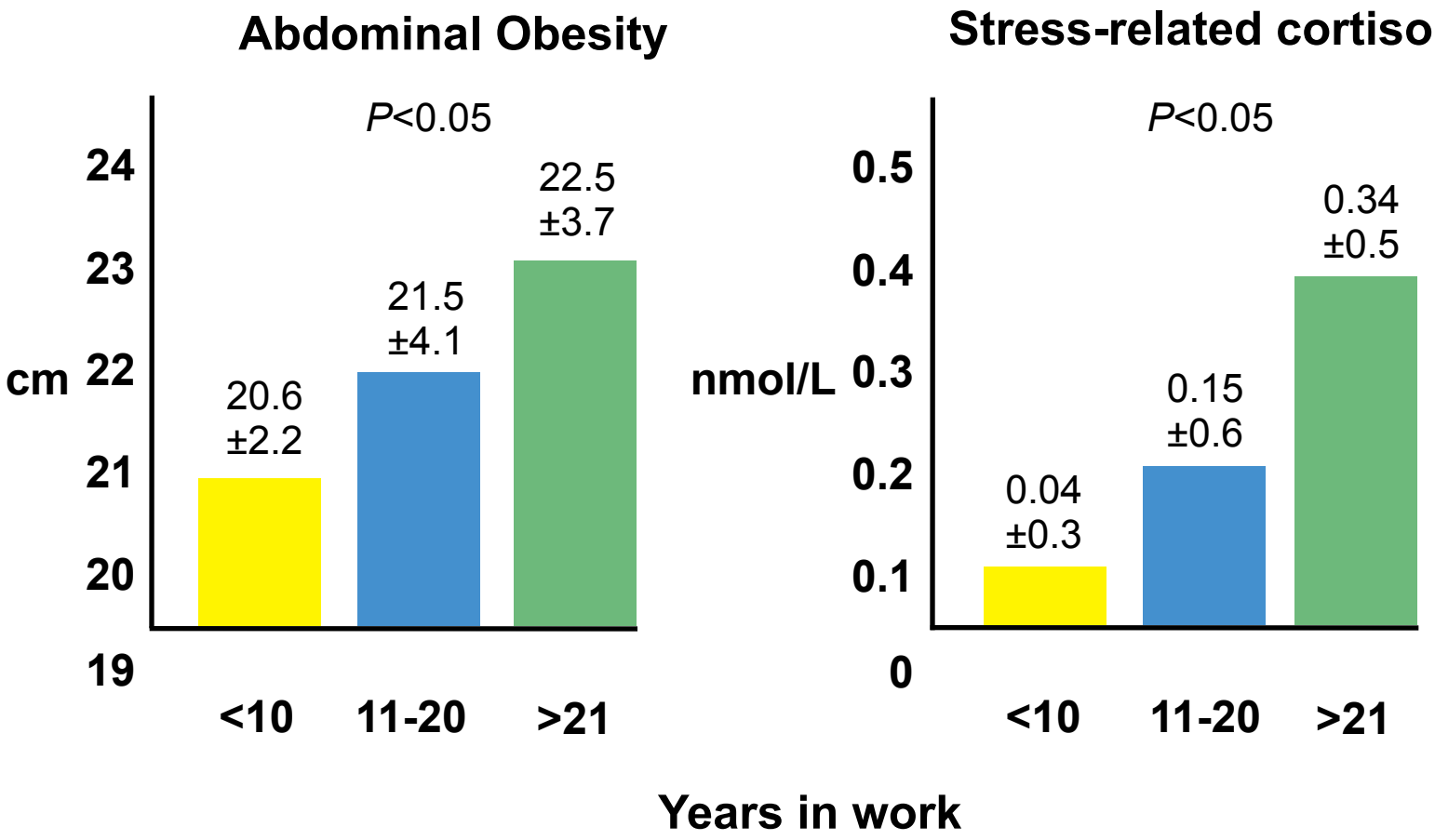
1. Epel ES, et al. Psychoneuroendocrinology 2001;26:37-49.
2. McLean JA, Barr SI, Prior JC. Am J Clin Nutr 2001;73:7-12.

Elevated Cortisol, Obesity & Metabolic Syndrome

- High cortisol secretion is associated with abdominal fat
- Abdominal fat is most highly associated with illness and death from:
  - cardiovascular disease, diabetes, and metabolic syndrome, including hypertension, hyperlipidemia, hyperinsulinemia, and insulin resistance[1]
- High cortisol secretion may be a contributing factor to the abnormal metabolism often seen in abdominal obesity[2]

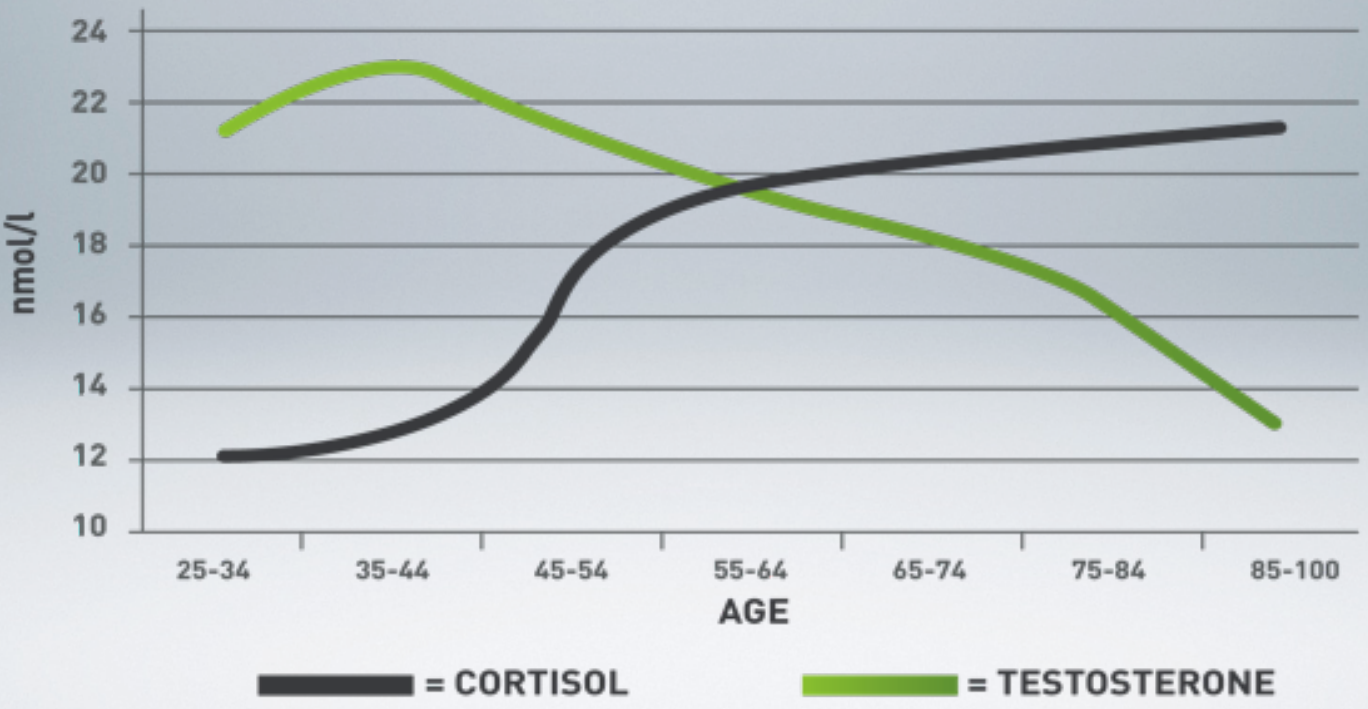
1. Peeke PM, Chrousos GP. Ann NY Acad Sci 1995;771:665-76.
2. Bjorntorp P, Rosmond R. Nutrition 2000;16(10):924-36.

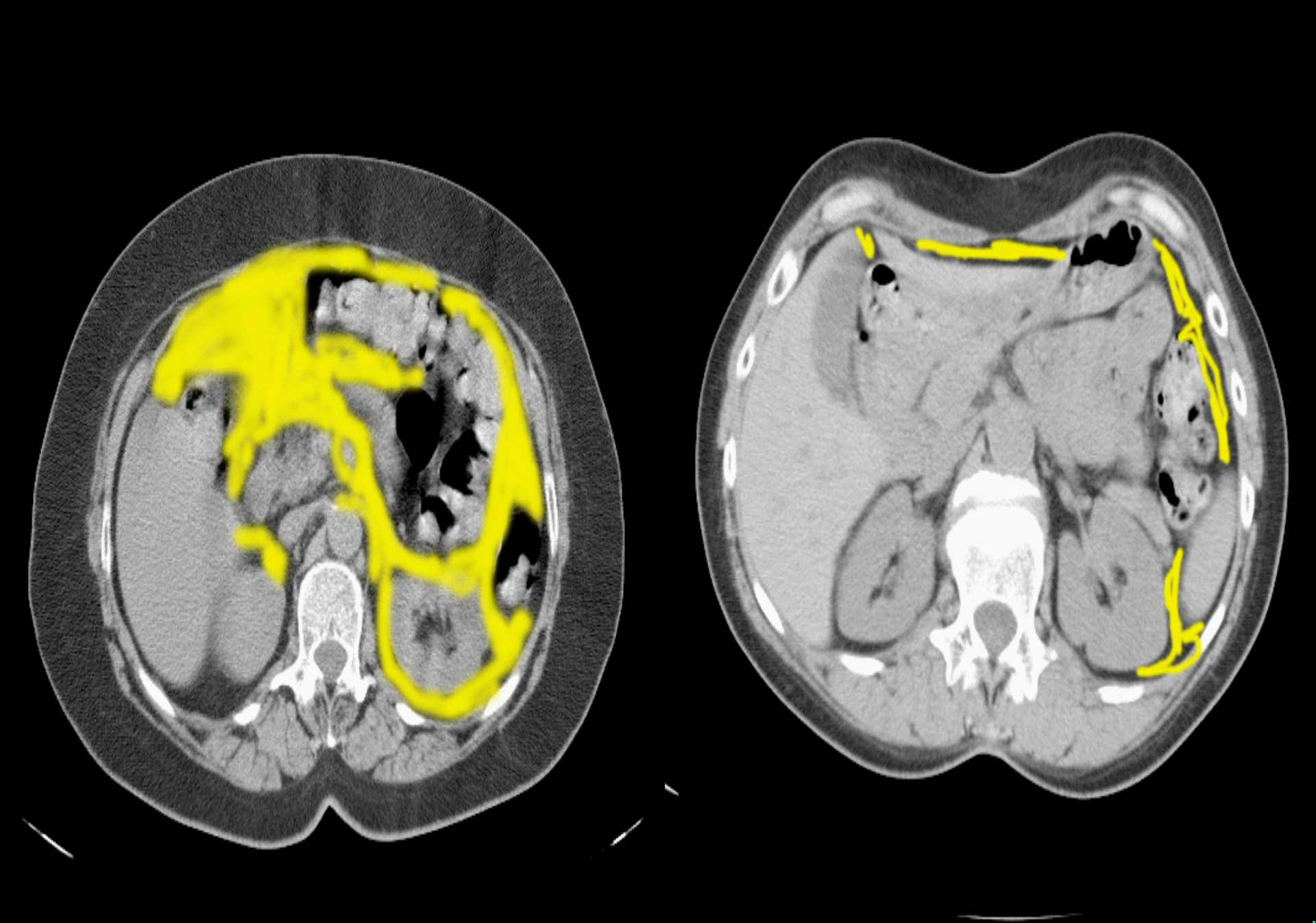
Abdominal Obesity & Stress-Related Cortisol

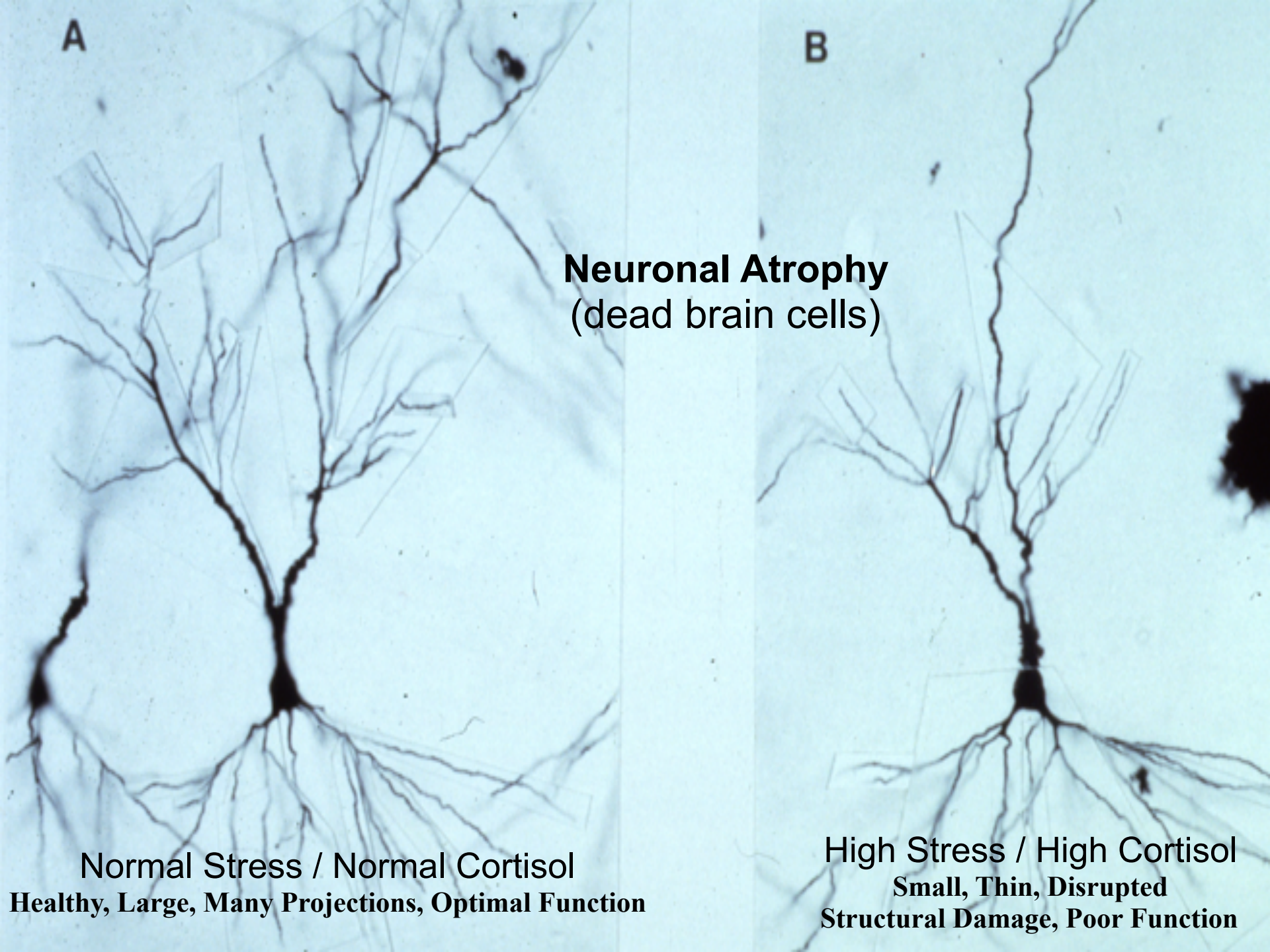


Rosmond, et al. Obes Res 2000;8:445-450.

Effects of Aging




High Stress / High Cortisol
Normal Stress / Normal Cortisol


A
B
Neuronal Atrophy
(dead brain cells)
Normal Stress / Normal Cortisol
Healthy, Large, Many Projections, Optimal Function
High Stress / High Cortisol
Small, Thin, Disrupted
Structural Damage, Poor Function

Cortisol Levels Are Elevated In...

- Chronic Stress
- Aging
- Dieting / Restrained Eating
- Sleep Deprivation

The Link Between Cortisol and Blood Sugar

- Controlling your cortisol levels is important at *all* times
- Control of blood-sugar levels at *specific* times (few hours following each meal)

Sleep deprivation and elevated cortisol levels

American Diabetes Association (2001) / University of Chicago sleep researchers…

- Inadequate sleep leads to:
- Increased cortisol levels
- Insulin resistance
- Higher blood-sugar levels
- Elevated appetite
- Weight gain

- "normal" sleepers (averaging 7.5 to 8.5 hours of sleep per night)
- "short" sleepers (averaging less than 6.5 hours of sleep per night)
  - 50 percent more cortisol and insulin
  - 40 percent less sensitive to the effects of insulin

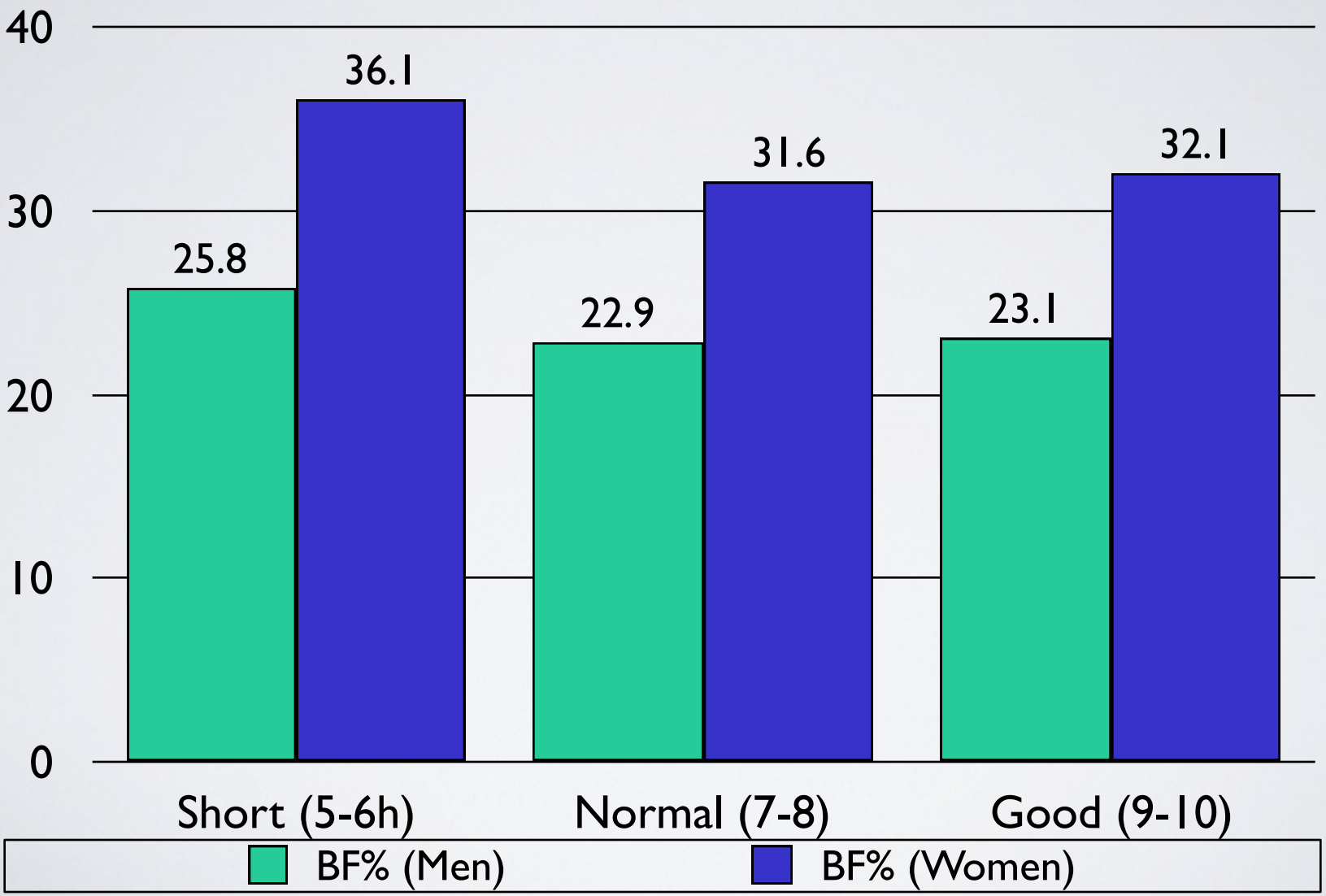
Sleep Loss = Fat Gain

- In the last 40 years - daily sleep duration in the USA has fallen by 1-2 hrs
- Proportion of adults sleeping < 7 hours/night has more than doubled
  - 1960 = 15%
  - 2002 = 37%
  - 2013 = 40%
    - (National Sleep Foundation & Gallup)

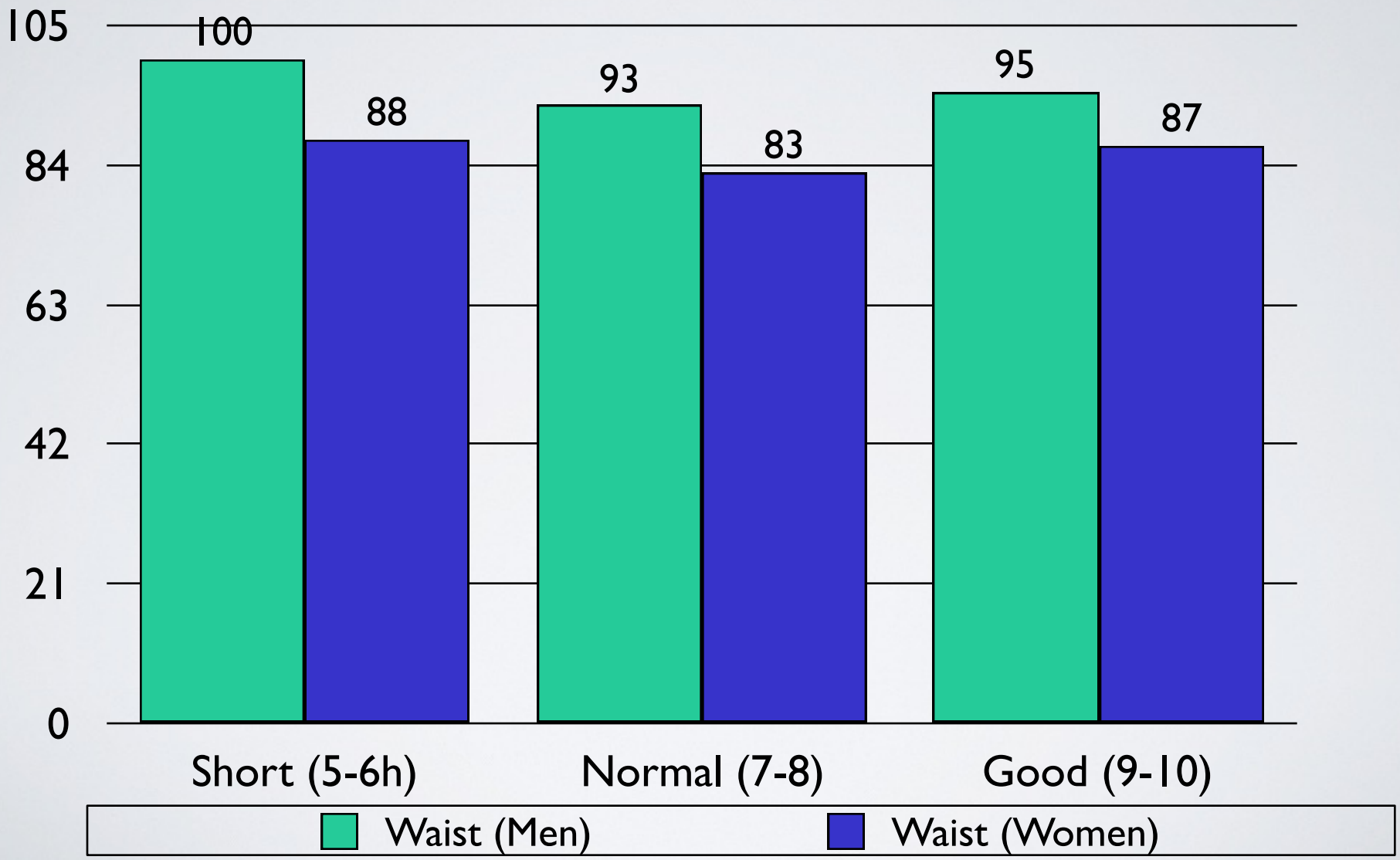
- Archive of Internal Medicine (Sept 2006)
  - Direct relationship between higher BMI (weight/height) and sleep loss (990 adults)
  - **Each 1-hour decrease in sleep = 3 pounds gain**

- Obesity (Jan 2007)
  - 740 adults, aged 21-64 years
  - Normal sleepers (7-8 hours)
  - "Short" sleepers (5-6 hours)
  - "Good" sleepers (9-10 hours)

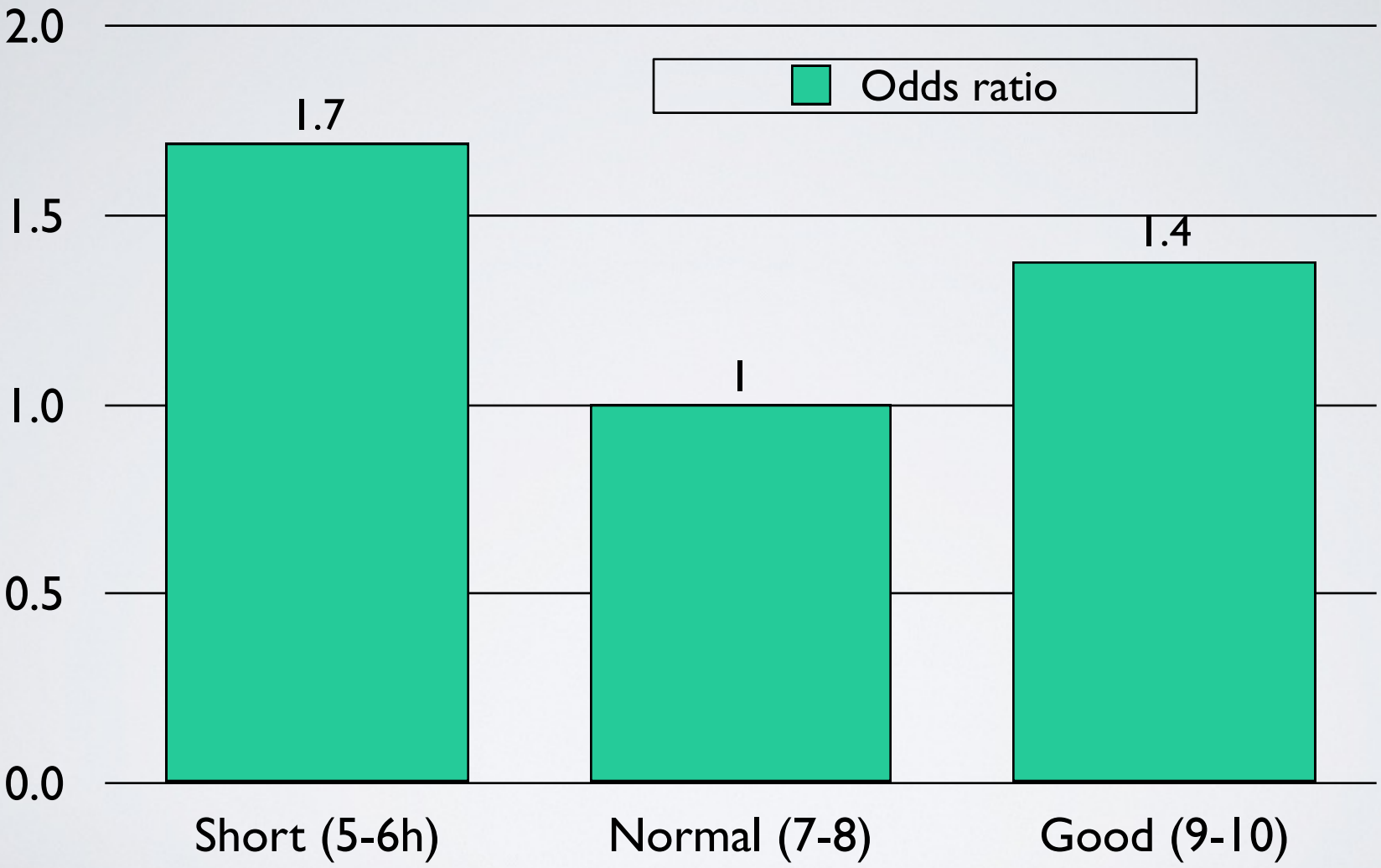
Body Fat % and Sleep



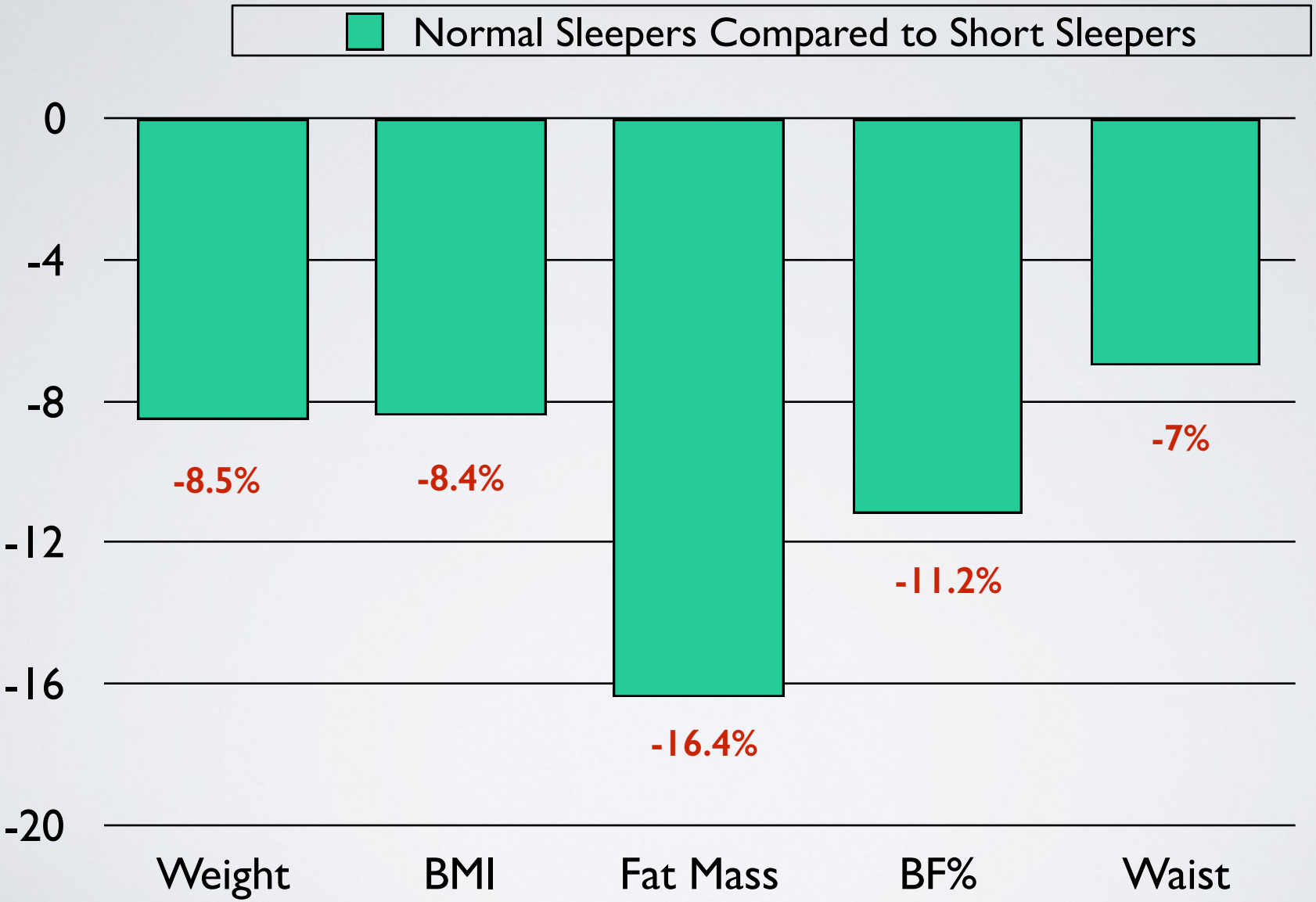
Waist Girth (cm) and Sleep



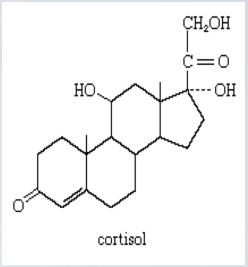
Sleep and Risk of Weight Gain



Sleep Yourself Thin?



Conclusion



cortisol

There is a strong scientific association between chronically elevated cortisol levels and stress-related diseases.

Therefore, *cortisol management* is important for long-term health and well-being.

Vigor = “Mental + Physical Energy”
Traditional Medicine = “Qi” – “Prana” – “Life Force”

Scientific Sessions

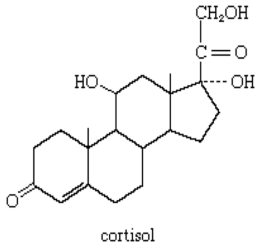
Series of research studies over the past decade…

All geared toward = "Improving Mood State & Metabolic Parameters in Stressed Subjects"

- Experimental Biology: 2006, 2007, 2009
- American College of Nutrition: 2005, 2007, 2009, 2010
- American College of Sports Medicine: 2006, 2007
- International Society for Sports Nutrition: 2006
- The Obesity Society: 2006


Stress Management
Exercise
Nutrition
Supplementation
Evaluation

You can control cortisol levels via:



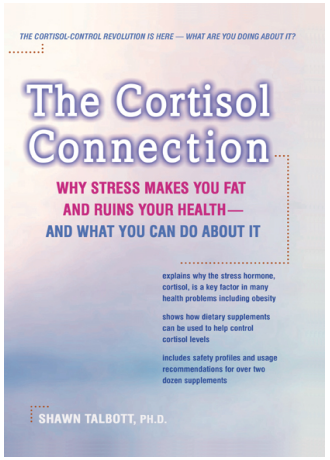
cortisol

Stress Management Techniques

- Meditation, Coping strategies, etc…

Exercise

- Daily, moderate aerobic and strength training



Nutrition

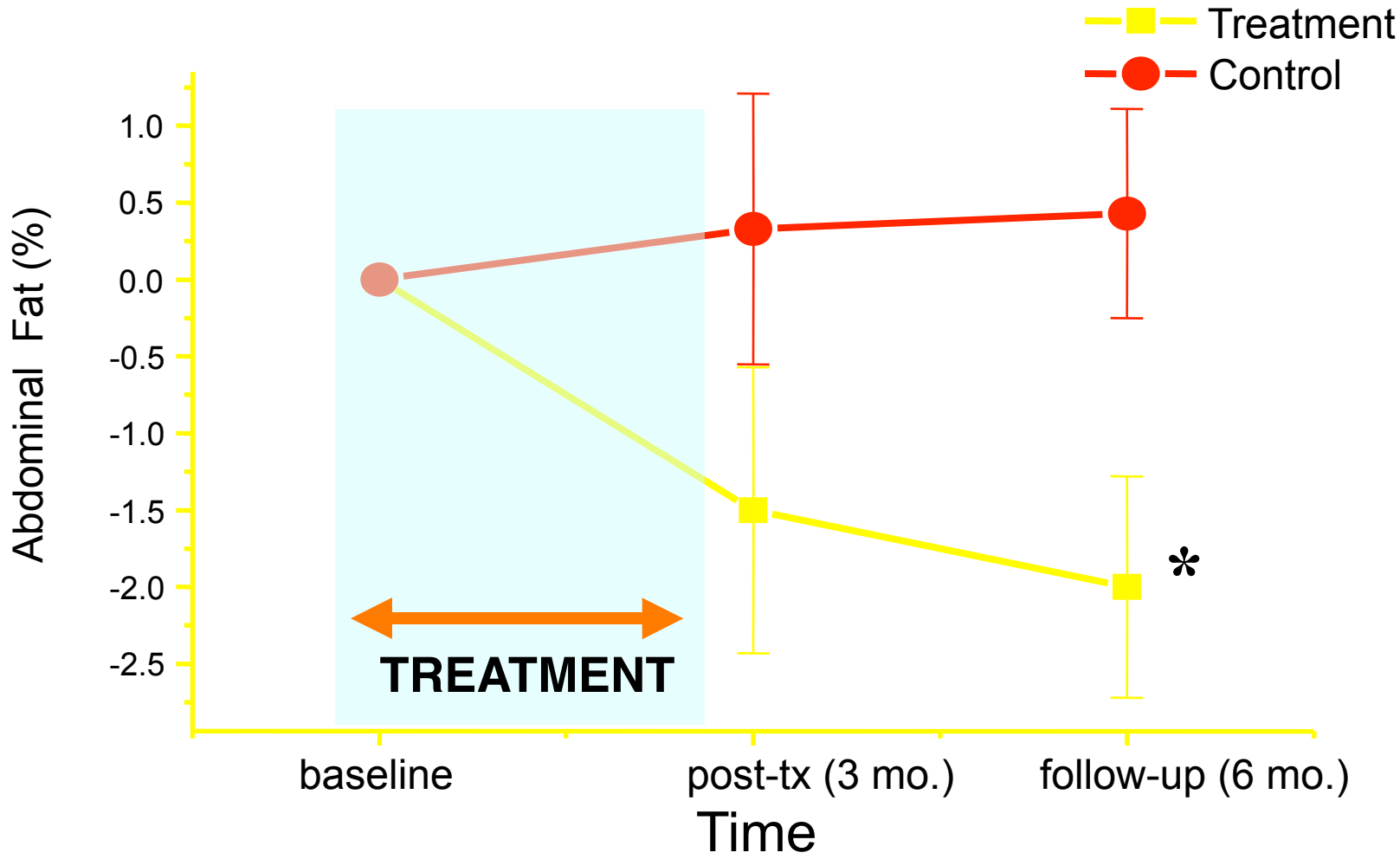
- Balance carbohydrates with protein
- Maintain adequate hydration
- Avoid “too much” caffeine

Supplements

- Cortisol-controlling supplements (Calcium, PMFs, Eurycoma...)
- Relaxation supplements (Magnolia bark, Theanine, Ashwagandha…)

Evaluation (periodically to see how you are doing - weekly/monthly)

% Change in Abdominal Fat After CBSM



F=9.7, p< .008

Epel et al. Psychosom Med 2000;62(5):623-32.

Hormone Balance Supplements

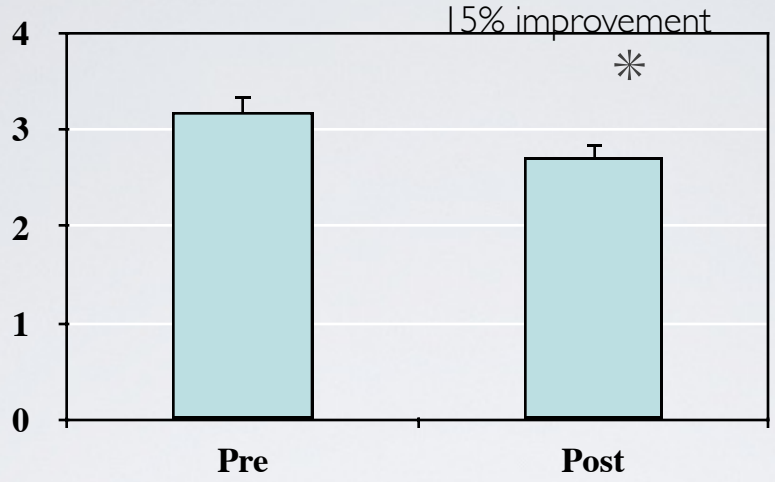
- *Eurycoma longifolia* root extract (Eurypeptides)
- *Citrus sinensis* peel extract (PMFs)
- *Camellia sinensis* leaf extract (Catechins)
- L-Theanine (pure amino acid)
- *Cordyceps sinensis* mycelia extract (Cordycepic acid)
- *Rhodiola rosea* root extract (Rosavin)
- *Eleuthercoccus senticoccus* root extract (Eleutherosides)
- *Withania somnifera* root extract (Withanolides)

- Intended to:
  - Maintain "Metabolic Hormone Balance"
    - Cortisol:Testosterone
    - Dopamine:Norepinephrine
    - HSD
  - Deliver Healthy Energy (VIGOR)
  - Enhance Mood

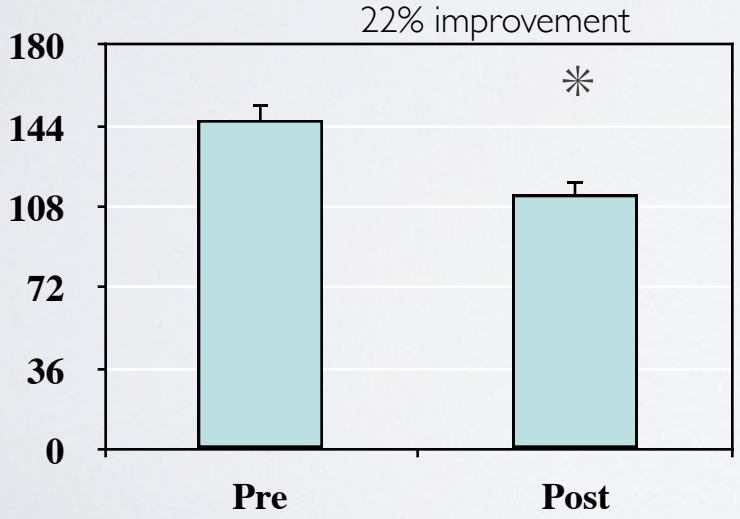
"Healthy-Stressed" Subjects

- N=50 (8 men, 42 women)
- Screened for "moderate" levels of psychological stress
- Followed for 8 weeks…
  - **S**tress Management
  - **E**xercise
  - **N**utrition
  - **S**upplementation
  - **E**valuation

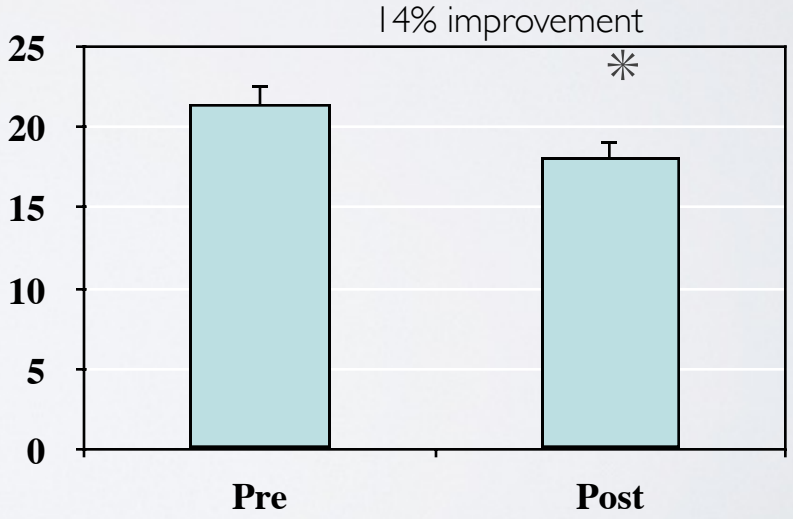
C:T Ratio (x1000)



Global Mood State (POMS)

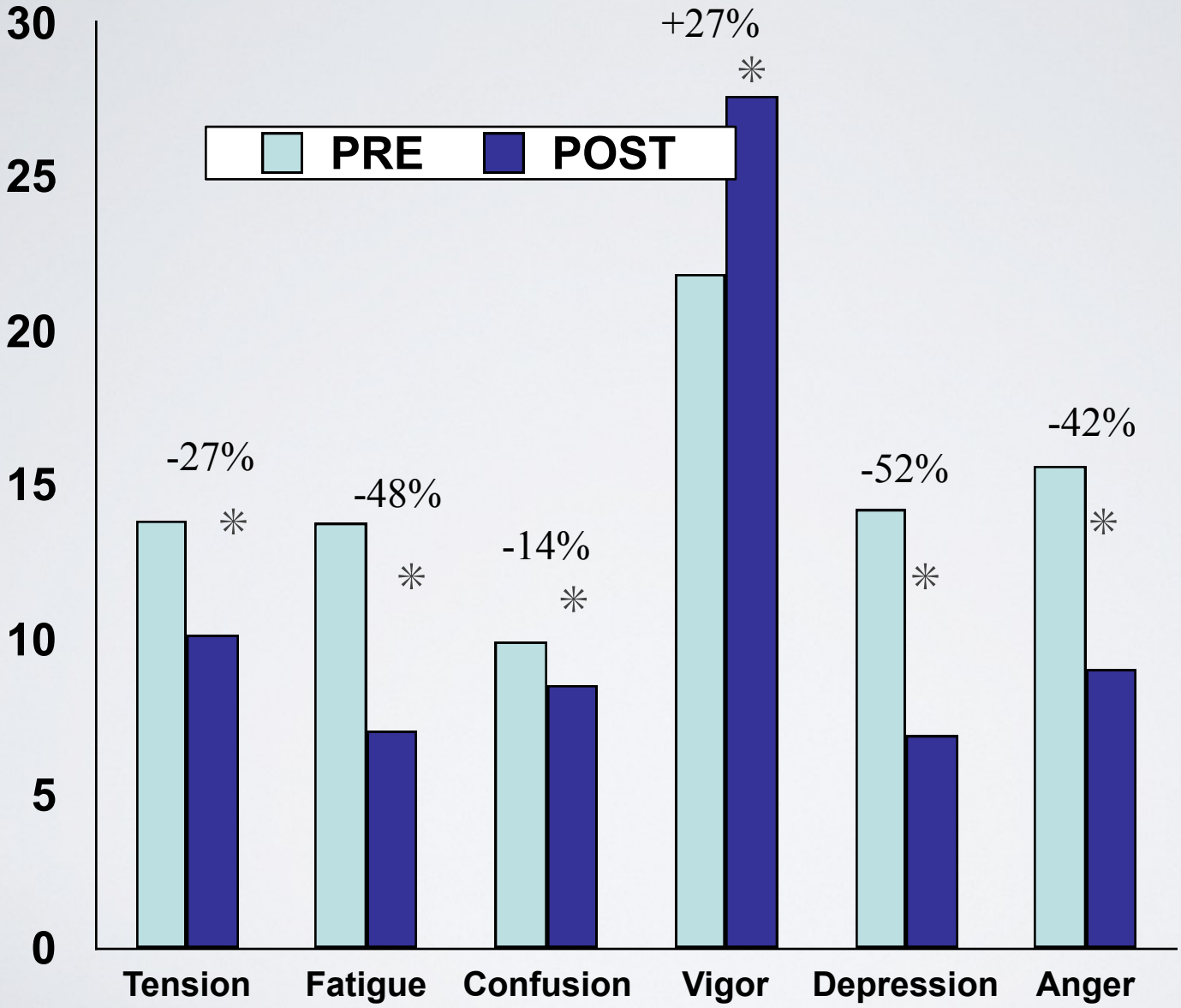


Subjective Stress



All, $p \leq 0.05$ compared to pre value

Profile of Mood States (POMS)



All, $p \leq 0.05$ compared to pre value

Conclusions

- Top reasons for primary care visits involve Stress, Fatigue, Depression
- The ***magnitude*** of overall effect (~20% Global Mood State) is roughly equivalent to:
  - Pharmaceutical treatment (Prozac, Zoloft, Celexa, etc)
  - CBSM (cognitive behavioral stress management)
- A balanced program of Exercise, Nutrition, and Supplementation is effective in maintaining Vigor, Mood, & Hormone Balance…
  - In humans…
  - At recommended usage levels…
  - Under conditions of elevated physical & psychological stress…

GOOD HEALTH!