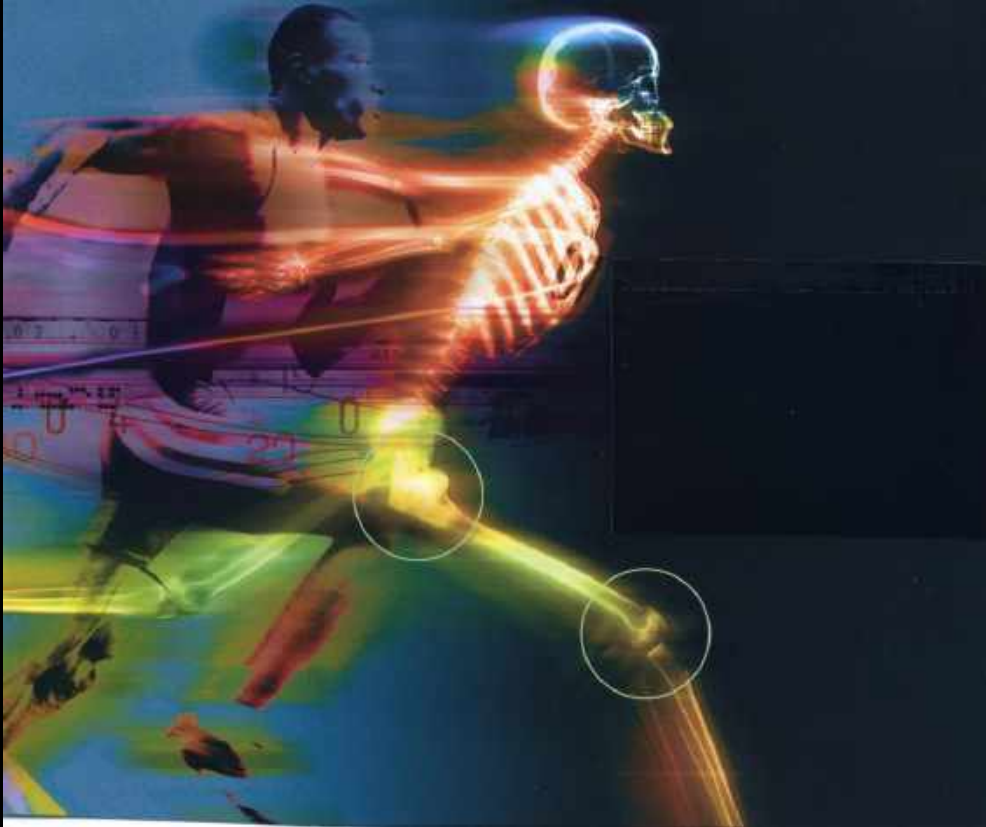


BEYOND BAILOUTS:

The Future of Healthcare

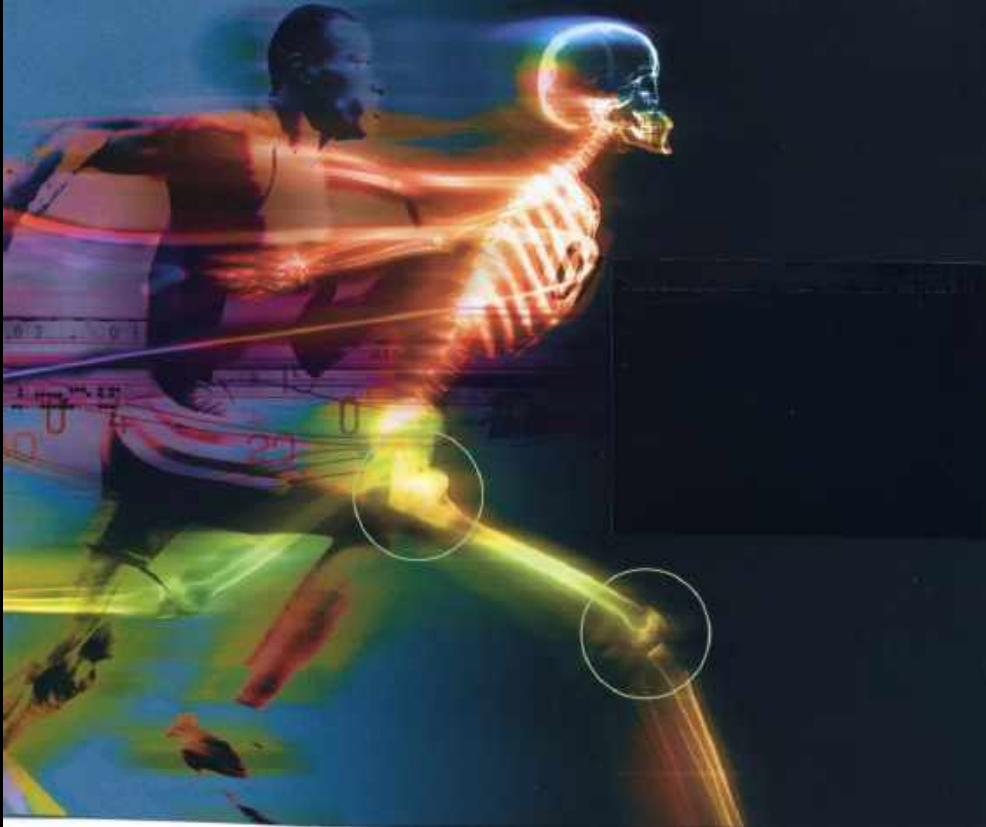


@drnickUSA

Nicholas A. DiNubile, MD

BEYOND BAILOUTS:

The Future of Healthcare



...my hope

@drnickUSA

#medfitglobal

Nicholas A. DiNubile, MD



**London,
circa
1952**

Physical Activity at Work

- Prof. Jerry Morris,
 - Physical Activity Epidemiology
 - Lancet 1953
- 31,000 London Transport Workers
 - Drivers and Conductors
 - London Double Decker Bus
- **Drivers** had higher rates of Coronary Occlusion (heart attacks) and higher early mortality than conductors

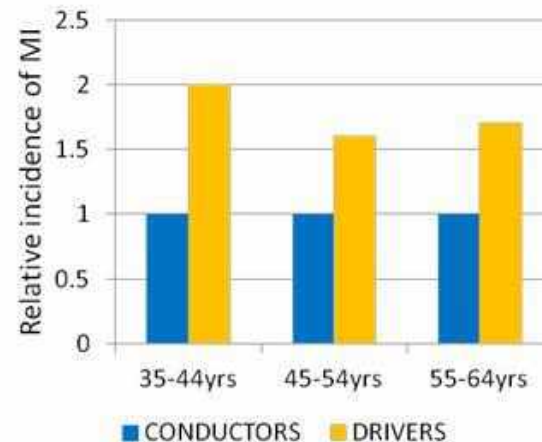


Occupational physical activity and heart attacks



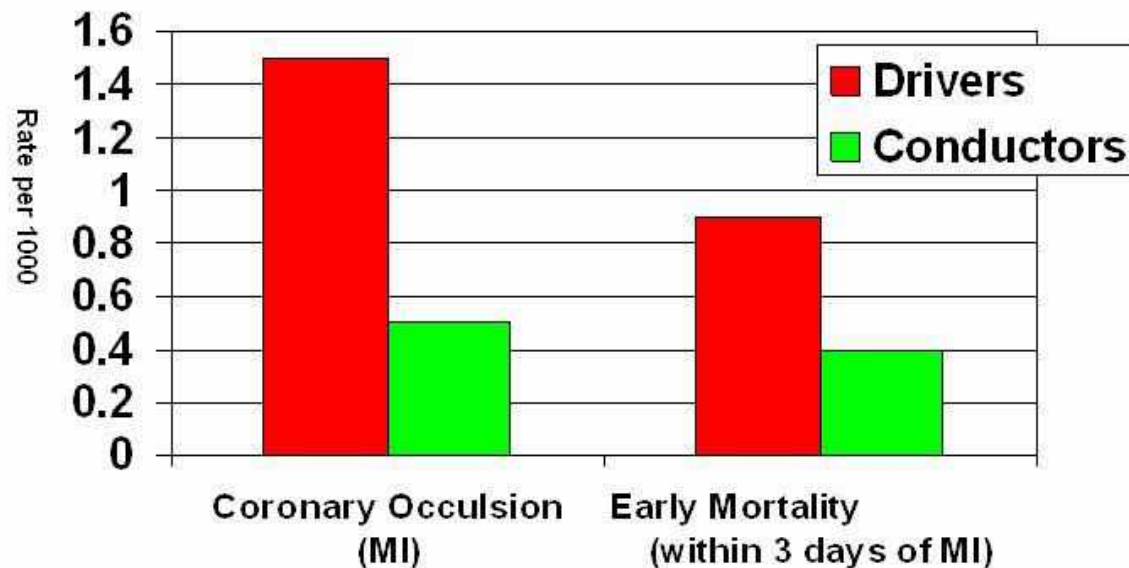
Morris et al (1953) "Coronary heart-disease and physical activity of work". *Lancet* 265 (6795): 1053–7

- Jerry Morris – compared heart attack incidence in drivers vs conductors



Results

Coronary Artery Disease of 31,000 London Transport Workers



Morris JN et al., *Lancet* 1953



Cricklewood 16

This bus is powered
by cleaner
electric hybrid technology

Another red bus going green for LONDON

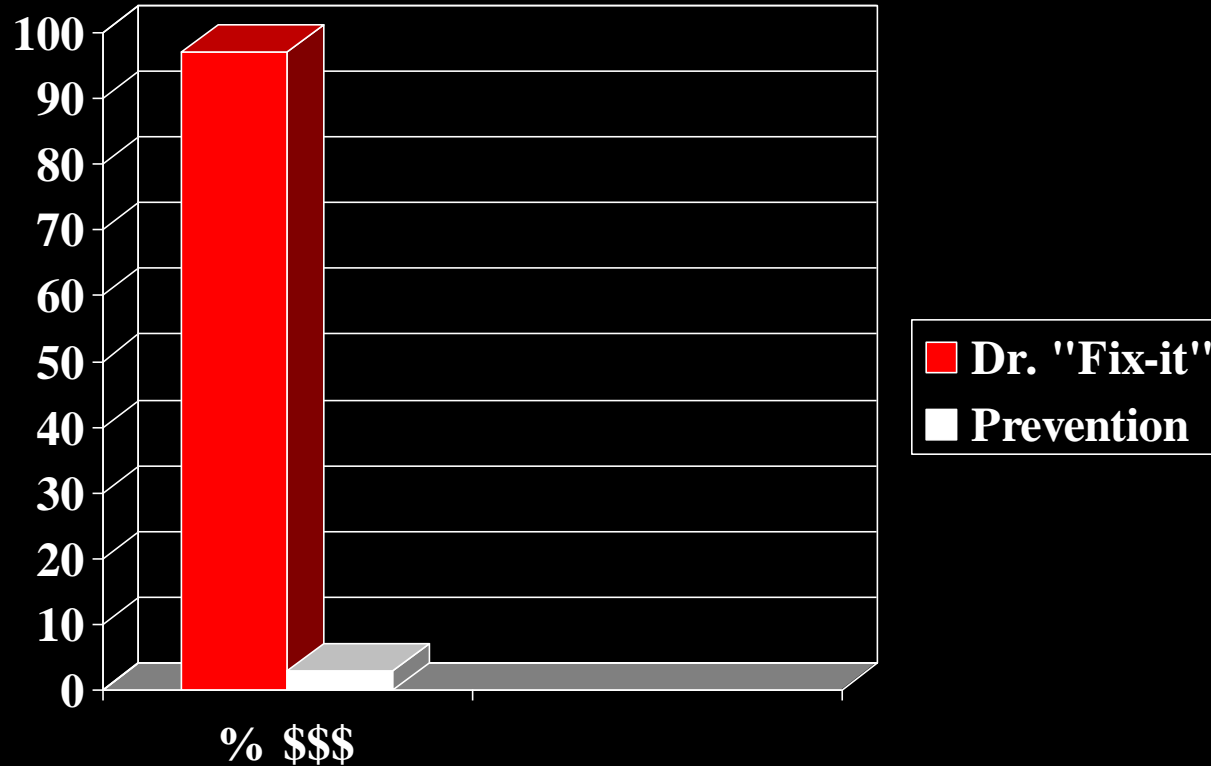
16 Via Edgware Road

MAYOR OF LONDON

Hybrid Technology

LN58 CPN

USA Health Care Spending



??? Wise Investment Strategy

Bailout ???



Health Spending USA

where does it all go???

- 10% of population → consumes 63% costs
- 1% → consumes 20%
- 50% → ZERO %

Dr. Gregory Curfman, Editor NEJM
Bloomberg Business Week Feb 23, 2012

Health Spending U\$A

- **1% of population → consumes 22% costs that's \$90,000 per person**
- **5% of population → 50% that's 36,000 per person**
- **Big Spenders (top 10%): females (60%), over age 65 (40%), white (80%)**
- **Low Spenders: Asian (2%), Hispanics (7%), younger age 19-29 folks (3%)**

Health Spending USA

End of Life

- **25% of Medicare spending (last year of life)**
- **10% of ALL healthcare spending (last year of life)**
- **25% of ALL healthcare spending (last 3 years of life)**
- **primarily result of CHRONIC DISEASE**

Jha AK. End-of-Life Care, Not End-of-Life Spending. JAMA Health Forum. Published online July 13, 2018.

French EB. End-Of-Life Medical Spending In Last Twelve Months Of Life Is Lower Than Previously Reported. Health Affairs July 2017.

Riley GF. Long-term trends in Medicare payments in the last year of life. Health Serv Res. 2010;45(2):565-576.

CHRONIC DISEASE USA

- **THE leading cause of morbidity & mortality**
- **Responsible for majority of our health care expenditures**
- **Most are preventable and are the result of an unhealthy lifestyle**
- **More than 80% of chronic conditions could be avoided/postponed through the adoption of healthy lifestyle recommendations**
- **80% of the population wants to live in a better state of health but do not know how to pursue it**
- **Minimal information is given by health care providers on HOW TO implement an effective, long-term plan to achieve health**
- **Implementation of lifestyle recommendations can save lives because lifestyle-related diseases are now the leading cause of mortality in the “modernized” world**

CHRONIC DISEASES IN AMERICA

6 IN 10

Adults in the US
have a **chronic disease**



4 IN 10

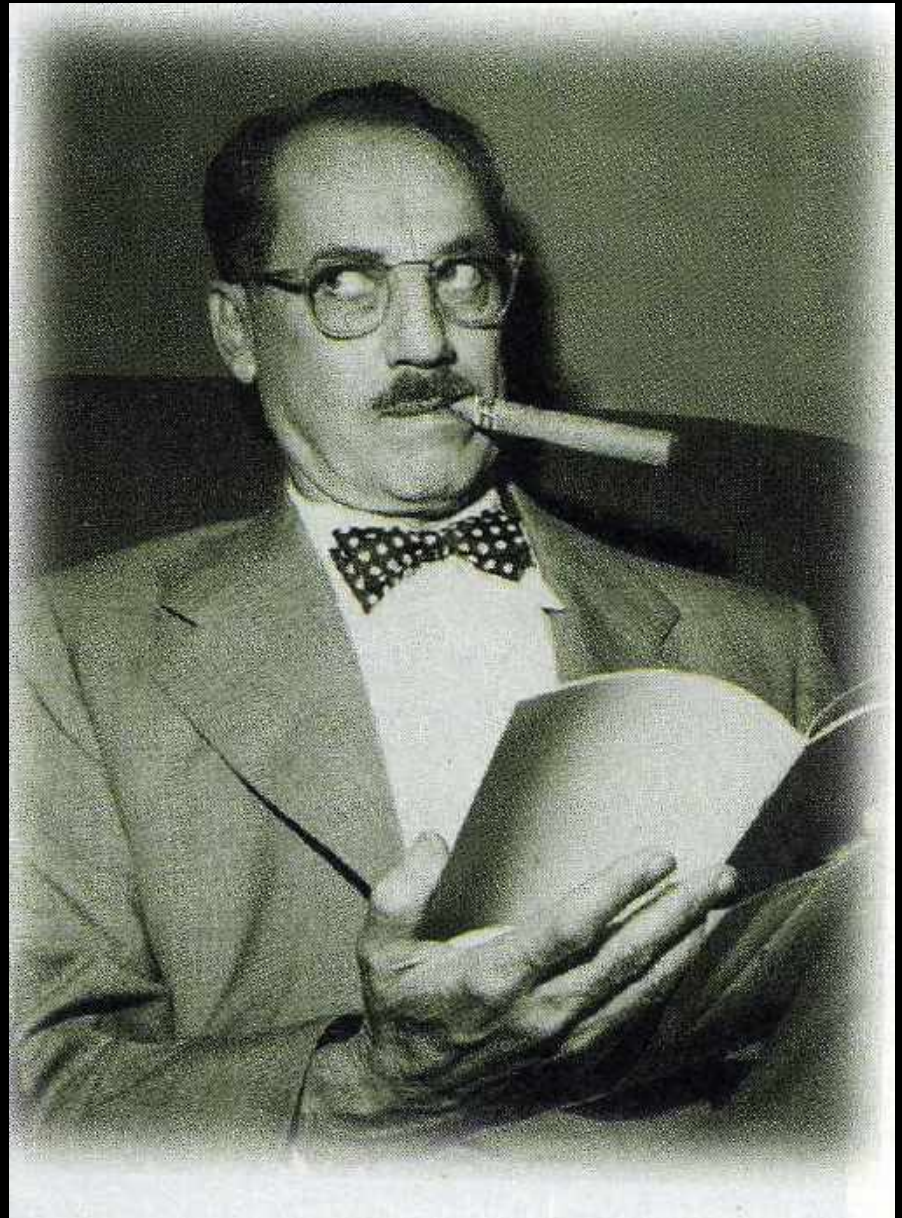
Adults in the US
have **two or more**

THE LEADING CAUSES OF DEATH AND DISABILITY
and Leading Drivers of the Nation's **\$3.5 Trillion** in Annual Health Care Costs

www.CDC.gov

Why???

**...and how did
we get here???**



Life Span

- 1796 – 25 years
- 1896 – 48 years
- 1996 – 80 almost
- 2046 - ?? 120-150

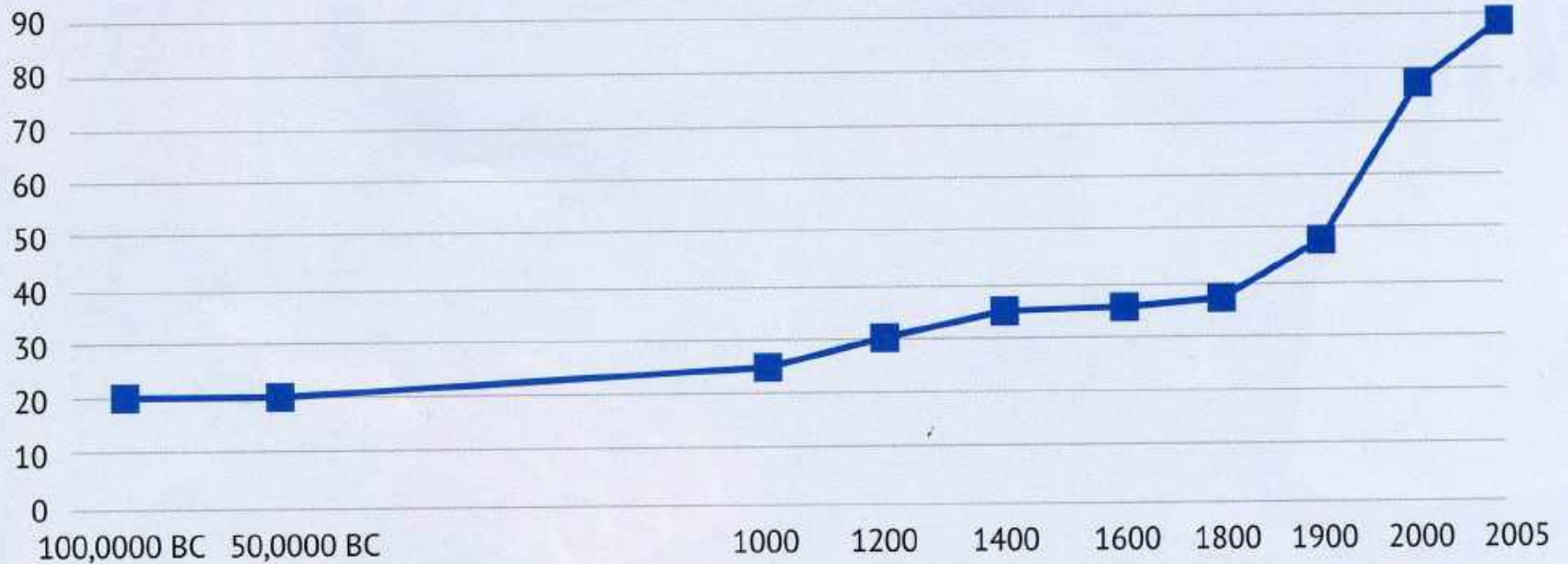
We have added more years to the human lifespan in the past 100 years than in the history of mankind

Census

- **1790 – 1/2 population under age 16**
1st census taken
- **1990 – 1/4 population under age 16**
- **2025 – two 65yo's for every teenager**

U.S. Census Bureau Prediction

A History of Life Expectancy at Birth



Source: Data 360

Figure 1. A history of life expectancy at birth. Courtesy of Barbara Waxman, *The Middlescence Manifesto*

Cause of Death in USA- then & now

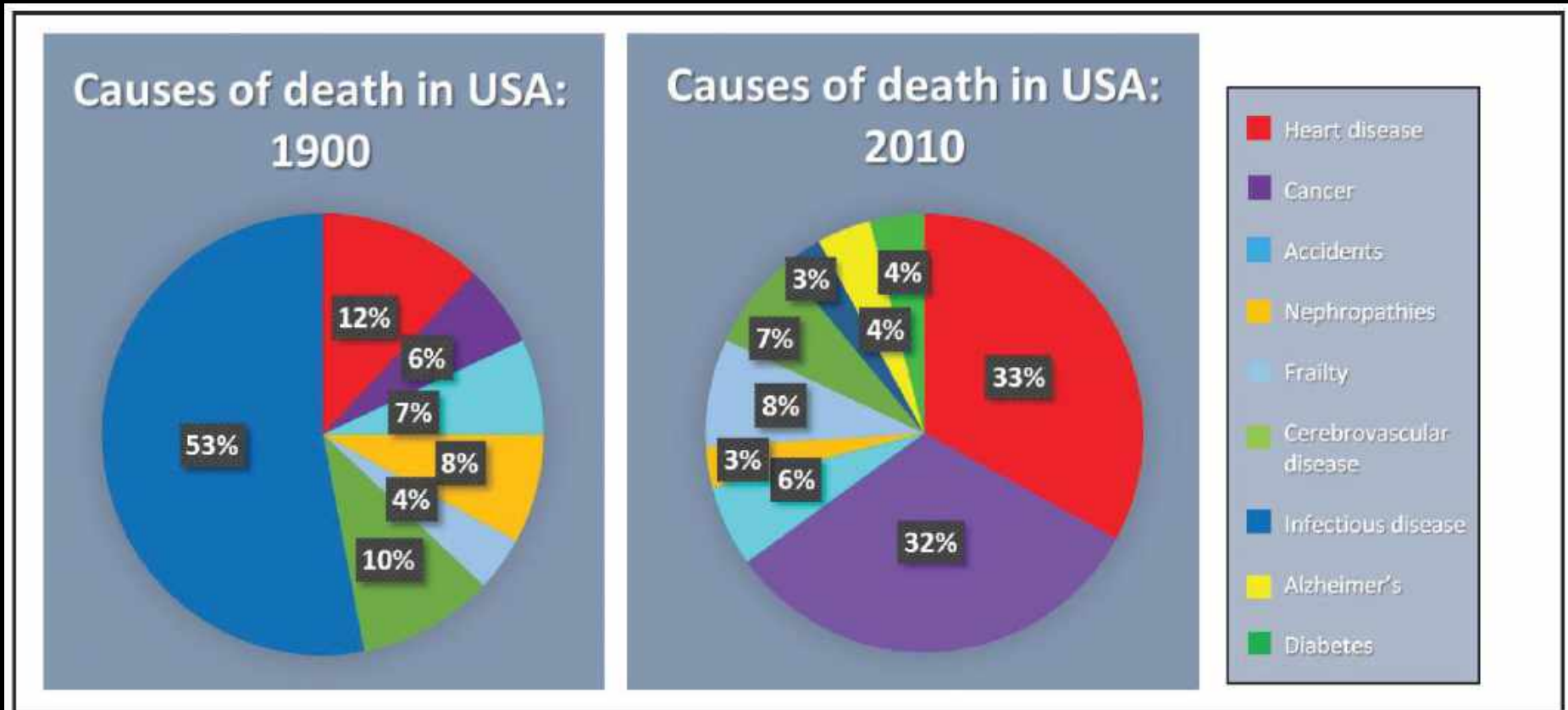


Figure 1. Leading causes of death in the US, 1900 and 2010.^a

^a Source: Centers for Disease Control and Infection data from Jones et al.⁹

Causes of Death: USA



© Olivier Vandeginste 2006

- Then- influenza, GI disorders, pneumonia (1896)
mostly beyond our control
- Now- heart disease, cancer, stroke (1996 → now)
lifestyle related... preventable
- So- living longer is (and *should* be) the norm

AGING



Longevity

the length or duration of life

Durability

able to resist wear, decay; lasting; enduring

If you really think things improve
with age, attend a class reunion.



som^{ee}cards
user card

MIS-MATCH

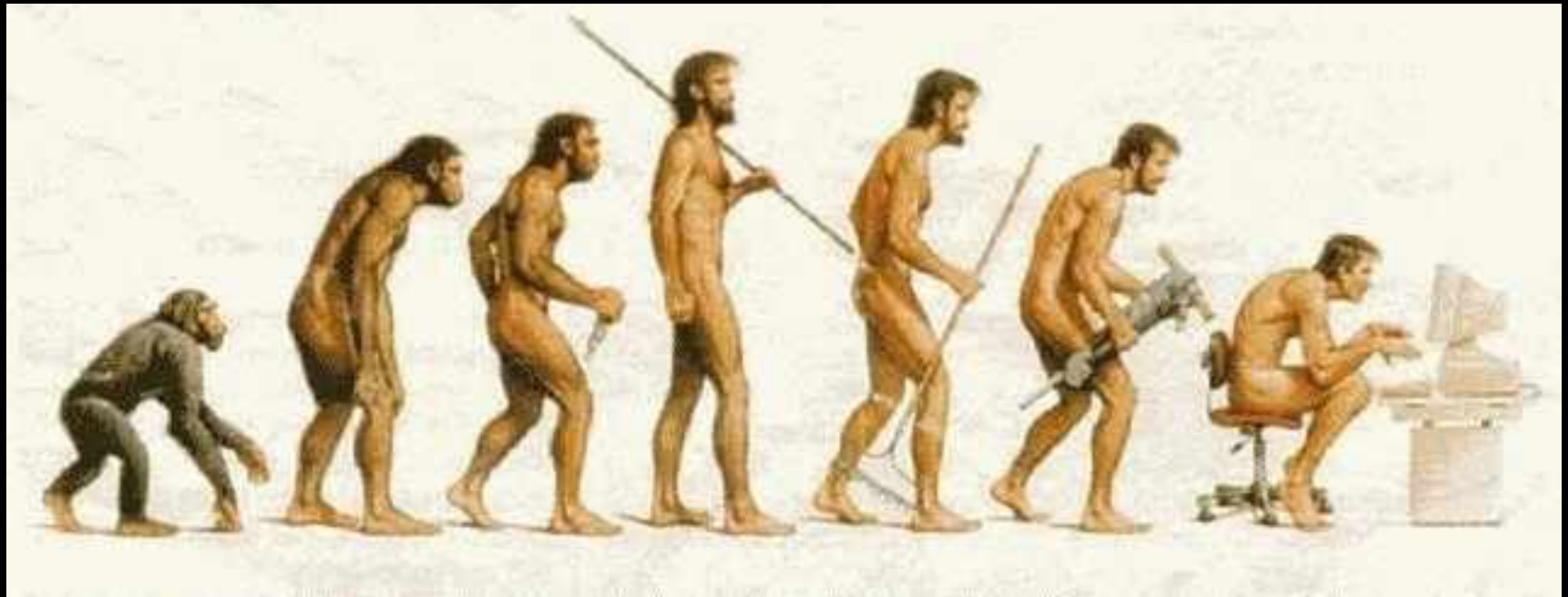
longevity vs. durability

MIS-MATCH

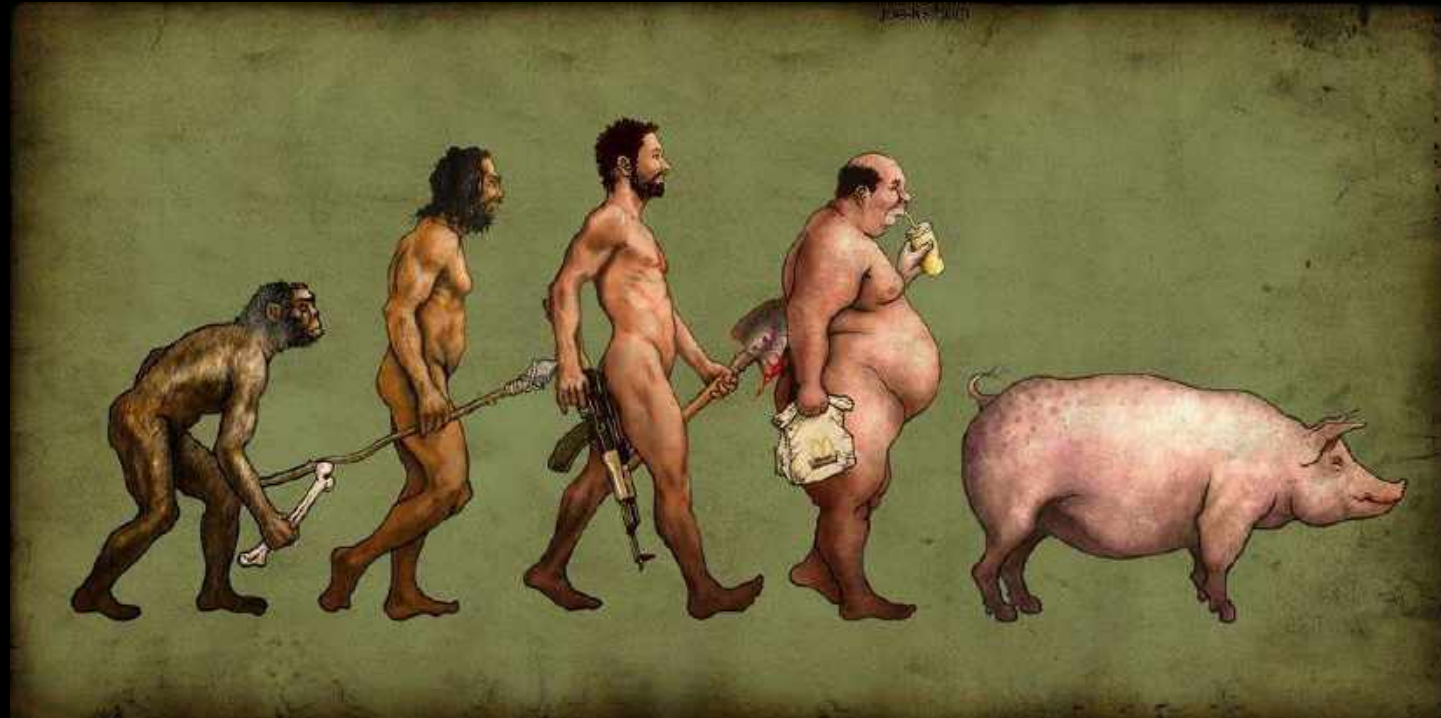
longevity vs. durability



- **Evolution- not fast enough**
- **We've outlived the warranty on our frame**
- **Frame fails → Orthopedic *overload***
- **Living *longer*... not necessarily *stronger***



Not So “Intelligent Design”



Evolving- ? *wrong* direction

USA Office Visits
circa 1990

#1 Respiratory

USA Office Visits

2001 → 2020

#1 Musculoskeletal

#2 Respiratory

Musculoskeletal Conditions

- **Cost - \$874 Billion**
5.7% GNP
- **18% of health care visits**
- **16% of health care spending**
- **> 50% adults in USA affected**
- **> 75% over age 65**

**AAOS boneandjointburden.org
2016 report**

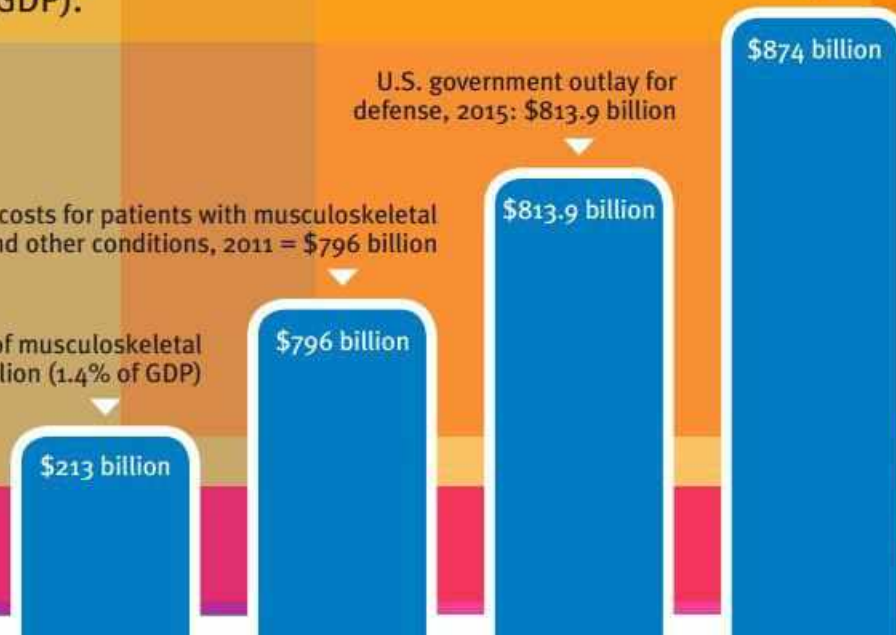
Musculoskeletal disorders cost \$213 billion in 2011 in direct and indirect costs, or 1.4% of the U.S. Gross Domestic Product (GDP).

Musculoskeletal disorder treatment costs plus indirect costs = \$874 billion, 2015 (5.7% of GDP)

U.S. government outlay for defense, 2015: \$813.9 billion

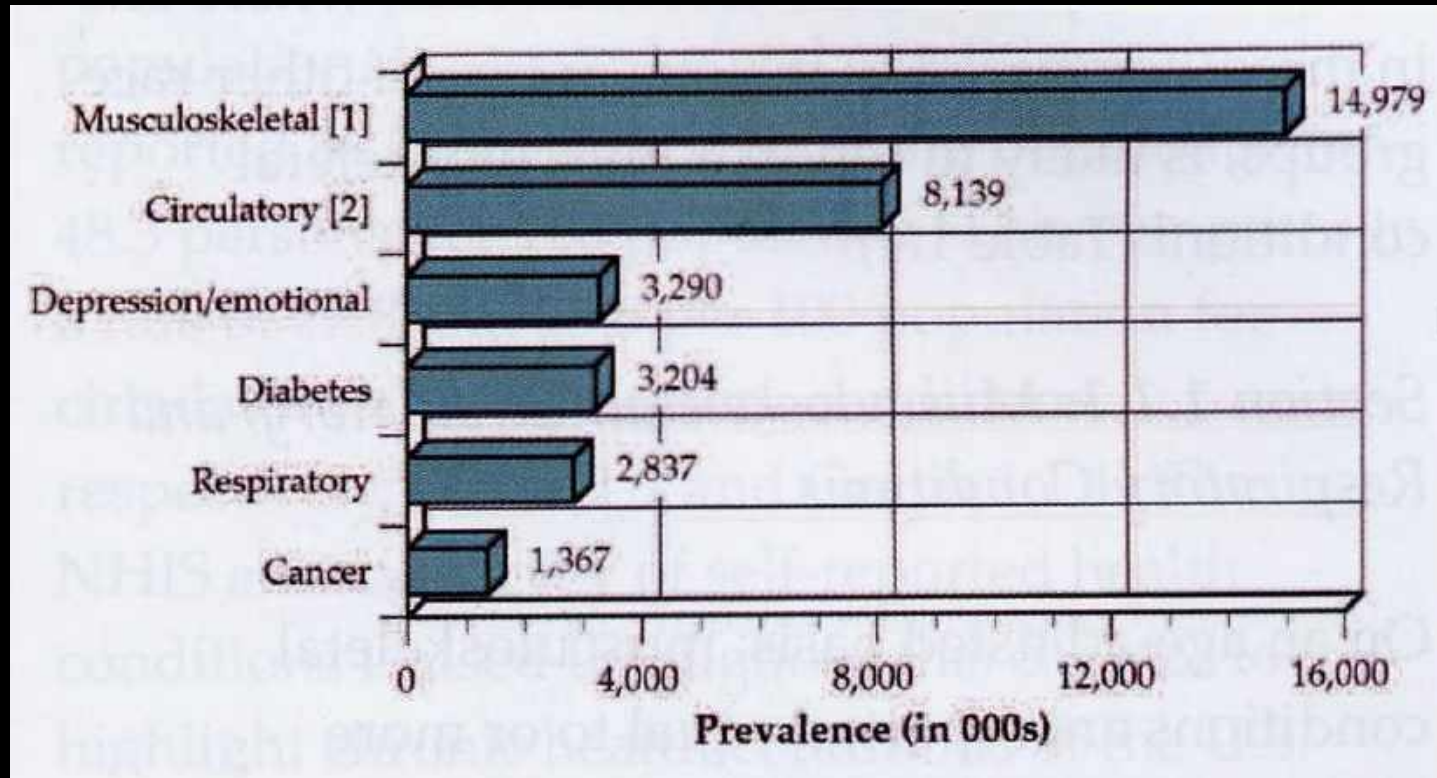
Treatment costs for patients with musculoskeletal disorders and other conditions, 2011 = \$796 billion

Direct and indirect costs of musculoskeletal disorders, 2011 = \$213 billion (1.4% of GDP)



boneandjointburden.org
2016 report

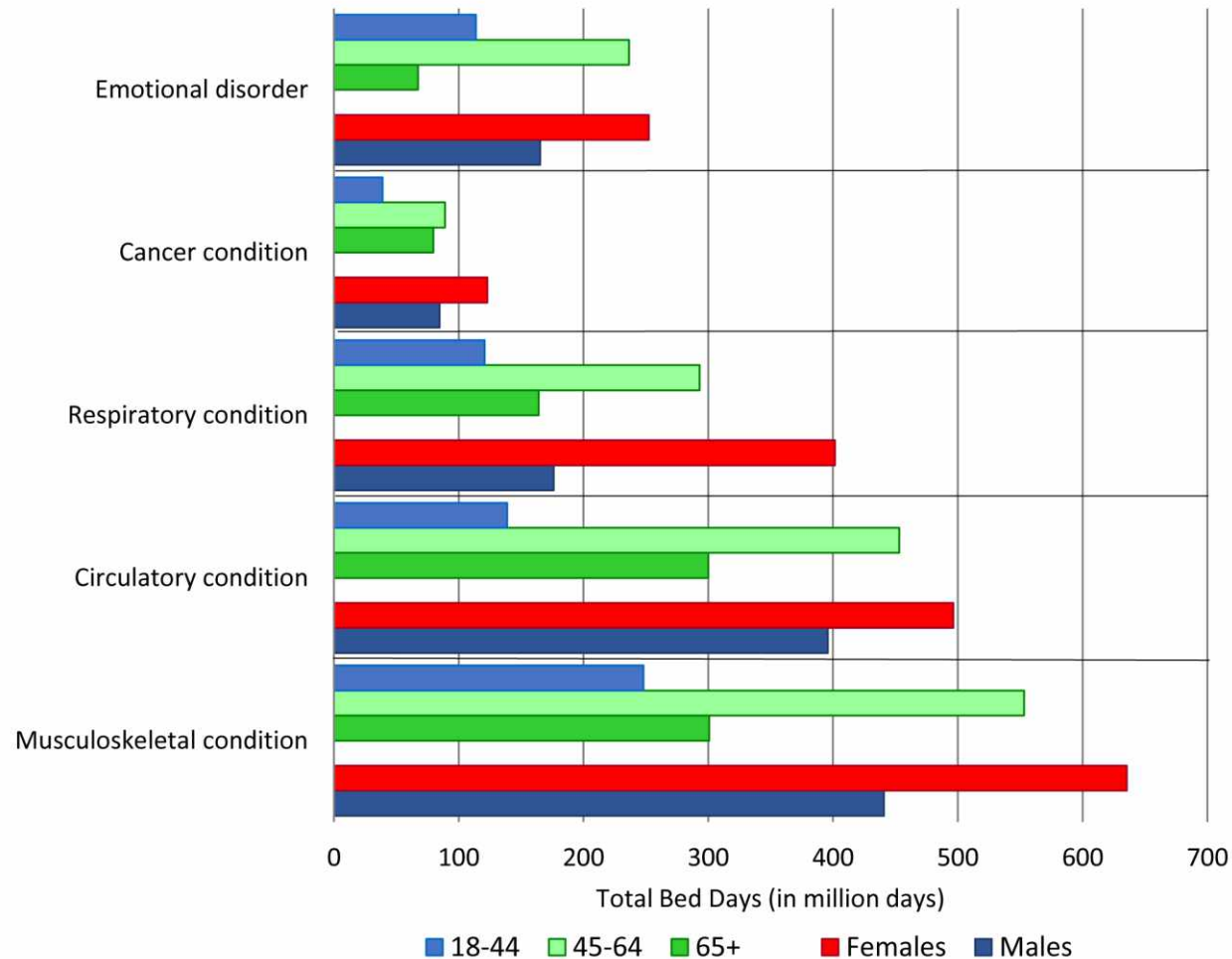
OUCH!



The Burden of Musculoskeletal Disease 2008

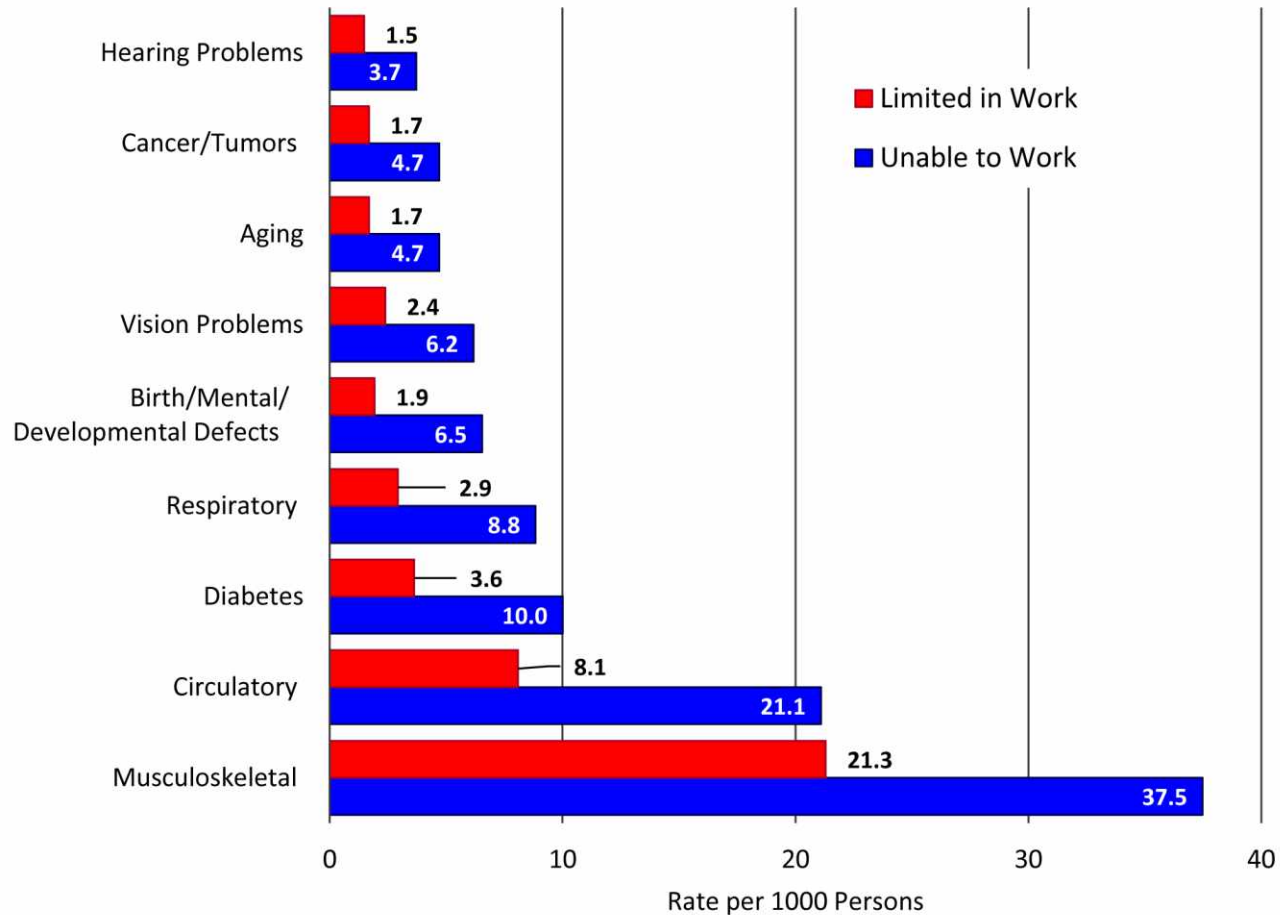
HOSPITALIZATIONS

Total Bed Days Reported by Adults with Select Medical Conditions, United States 2015



LOST WORK DAYS / PRODUCTIVITY

Prevalance of Self-Reported Work Limitations for Adults in the Work Force Due to Select Medical Conditions, United States 2015



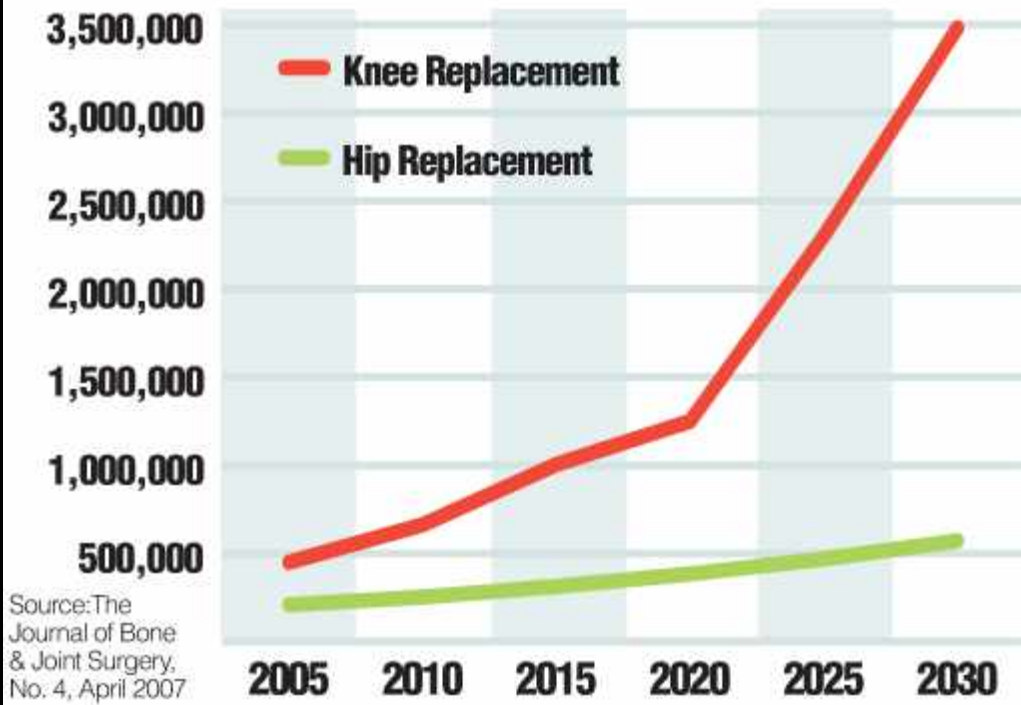
Source: National Health Interview Survey (NHIS)_Person Sample, 2015. <http://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm> July 23, 2016.

File: bmus_e4_G1.C.1.2.png

Total Joint Replacement Projections

Replacement surgery

The number of knee replacements in the U.S. will sharply increase by 2030, while hip replacements will moderately increase.



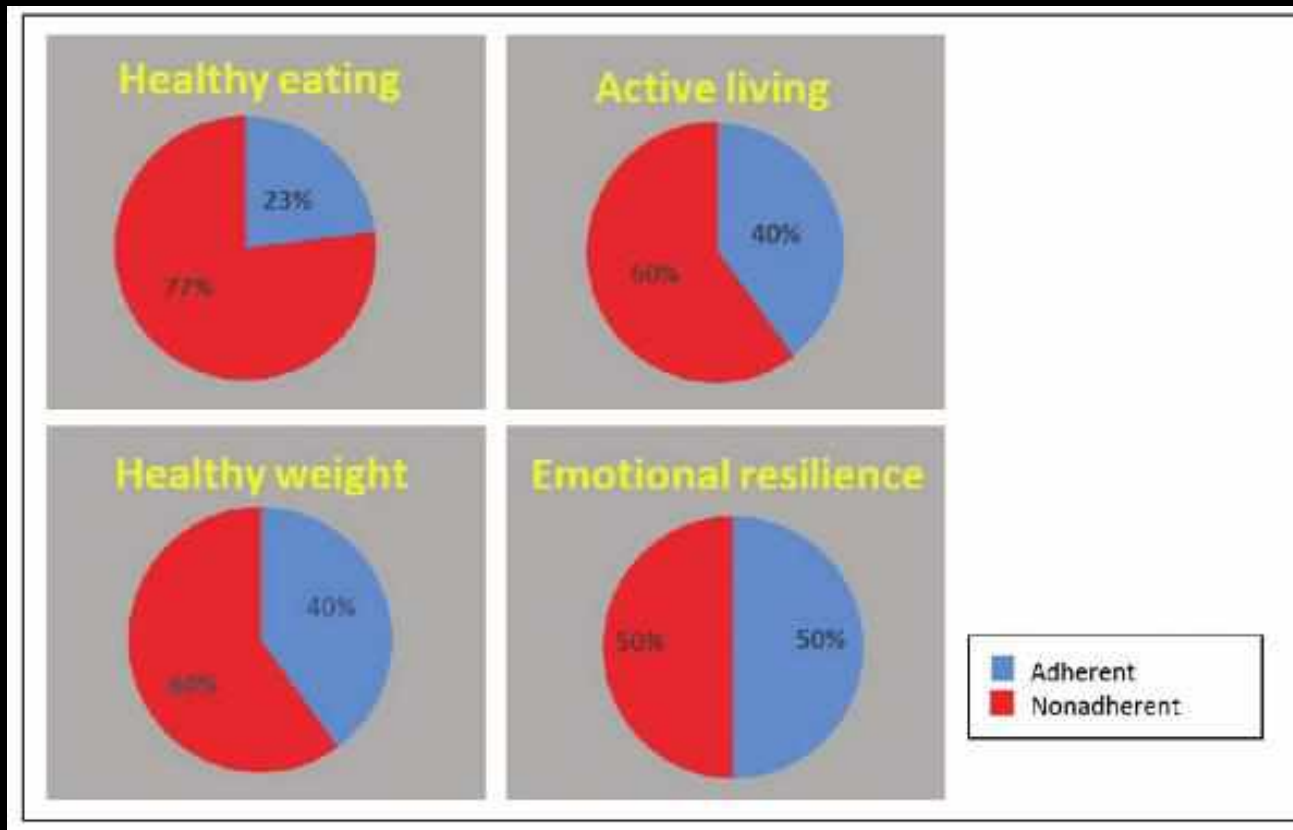
↑ Knee 673%
↑ Hip 174%
↑ “Younger” Pts.

Chronic Medical Ailments
+
Musculoskeletal Disease =



Lifestyle / Prevention

How Are We Doing???



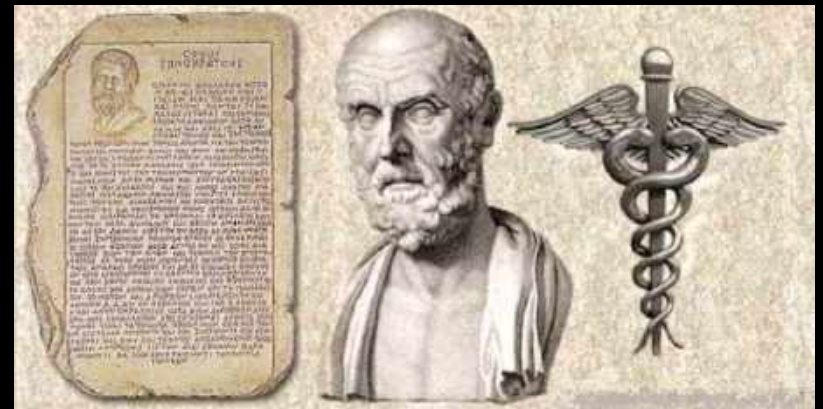
Bodai et al. Lifestyle medicine: A brief review of its dramatic impact on health and survival. Perm J 2018;22:17-025

"Approximately 80% of chronic disease and premature death could be prevented by not smoking, being physically active & adhering to a healthful dietary pattern."

~Dr. David Katz (Am J Health Promot. Jul 2018;32(6):1452-1458)

“If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health.”

~Hippocrates (460 BC- 370 BC)



EPIC Study on Lifestyle & Health

- **23,000 Europeans were followed/examined over an 8-year period**
- **Tracked based on who followed 4 simple healthy living behaviors vs those who did not**
 - ▶ **No smoking**
 - ▶ **Exercise 3-5 hrs/wk (cardiovascular & strength training), ave 30 min/day**
 - ▶ **Keep BMI (Body Mass Index) < 30 (avoid obesity)**
 - ▶ **Healthy eating (fruit, vegetables, seeds, nuts, whole grains, moderate amounts of meat, and limited amounts of alcohol)**

Ford ES, et al, Healthy living is the best revenge: findings from the European Prospective Investigation Into Cancer and Nutrition-Potsdam study. Arch Intern Med. 2009 Aug 10;169(15):1355-1362

EPIC Study: Results if 4 followed

- 93% of diabetes prevented.
- 81% of heart attacks prevented
- 50% of strokes prevented
- 36% of all cancers prevented
- Longevity- additional 14 additional years of life!!!

The risk for developing a chronic disease decreased progressively as the number of healthy factors increased.

CONCLUSION: Adhering to 4 simple healthy lifestyle factors can have a strong impact on the prevention of chronic diseases.

Ford ES, et al, Healthy living is the best revenge: findings from the European Prospective Investigation Into Cancer and Nutrition- Potsdam study. Arch Intern Med. 2009 Aug 10;169(15):1355-1362

Lifestyle Medicine

300-400%

The percentage that you **INCREASE** your risk of an early death by engaging in the following:

- Smoking
- Excessive alcohol intake
- Sedentary lifestyle
- Poor nutritional choices



A 'New' Path to Optimal Health

- **a road less traveled**
- **novel / creative approaches**
- **focus on lifestyle, personal responsibility & prevention**
- **mental health**
- **major OPPORTUNITY for those in medical fitness & wellness field**



SHIFT ►

Preventive Medicine

Lifestyle Medicine

Medical Fitness

PREVENTION TYPES

- **PRIMARY PREVENTION**- intervening before health effects occur (vaccinations, altering risky behaviors -poor eating habits, sedentary behavior, tobacco use) and banning substances known to be associated with a disease or health condition
- **SECONDARY PREVENTION**- screening to identify diseases in the earliest stages, before the onset of signs and symptoms (measures such as mammography, colonoscopy, Prostate PSA & regular BP testing)
- **TERTIARY PREVENTION**- managing disease post diagnosis to slow or stop disease progression (measures such as chemotherapy, rehabilitation, and screening for complications)

Cornerstones of Prevention

- ✓ **What you eat**
- ✓ **What eats you**
- ✓ **How/How much
you move**



Pill Poppin' Nation

“The desire to take medicine is perhaps the greatest feature which distinguishes man from animals”. -William Osler



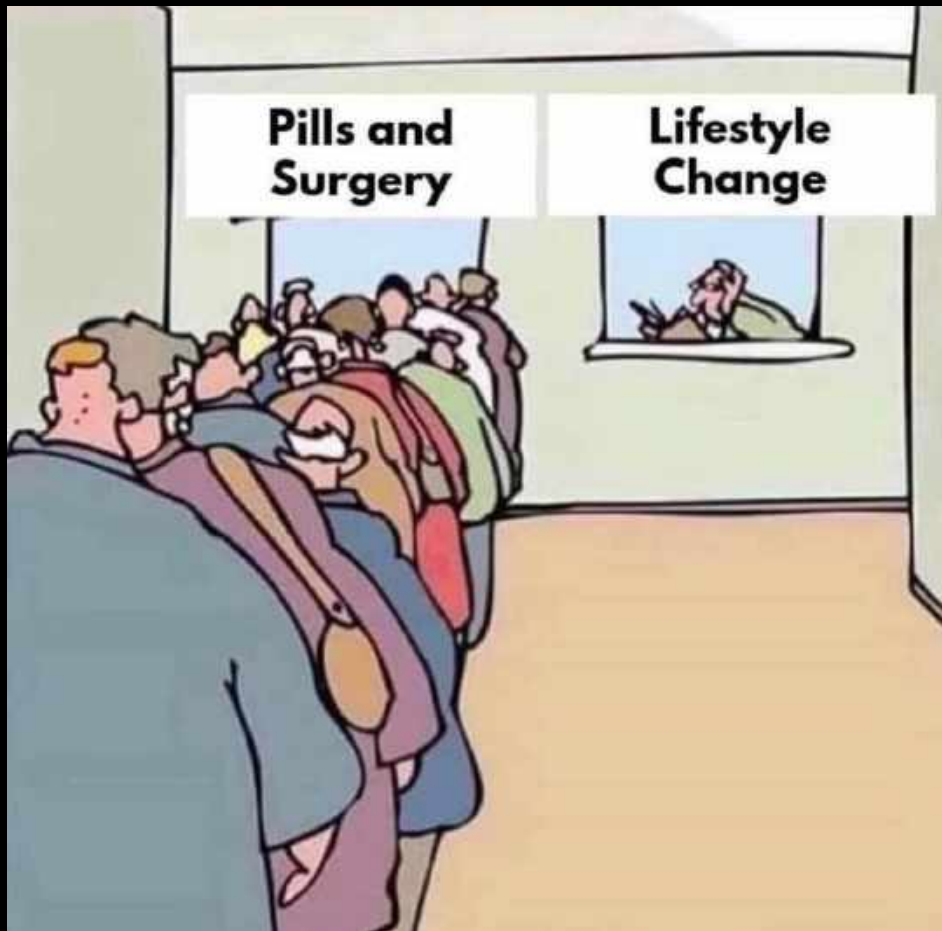
Pill Poppin' Nation, Huffington Post
Nicholas DiNubile, MD



HONEY, DID YOU
WANT THE ONE
THAT CURES HEADACHE
AND CAUSES STROKE
OR EASES BACK
PAIN BUT CAUSES
HEART ATTACK?

DANKS

I take Metformin for the diabetes
caused by the Hydrochlorothiazide
I take for high blood pressure
which I got from the Ambien I take
for insomnia caused by the Xanax
I take for the anxiety that I got from
the Wellbutrin I take for chronic
fatigue which I got from the Lipitor
I take because I have high
cholesterol because a healthy diet
and exercise with regular
chiropractic care and superior
nutritional supplements are just
too much trouble!



**If I told you there
was a pill that
could...**

- ↓ diabetes 93%**
- ↓ heart attack 81%**
- ↓ stroke 50%**
- ↓ cancer 36%**

& live much longer

Exercise is Strong Medicine!

“If exercise could be packed into a pill, it would be the single most widely prescribed and beneficial medicine in the nation.”

-Robert Butler, MD (circa 1980s)

Exercise is Strong Medicine!

**“We’ve yet to find a disease where
exercise isn’t helpful”**

-Miriam Nelson, PhD

*Scimus quod spiritus vitalis non est
frigidus vel calidus per se, sed
est spiritus vitalis*

BRAIN

AGE-RELATED MENTAL DECLINE,
ALZHEIMER'S, PARKINSON'S DISEASE,
STROKE, ANXIETY, DEPRESSION, STRESS
REDUCTION, CHRONIC PAIN, CHRONIC
FATIGUE, SELF-ESTEEM.

MUSCULOSKELETAL

OSTEOPOROSIS, OSTEOARTHRITIS,
RHEUMATIC DISEASE, FIBROMYALGIA,
NEUROMUSCULAR DISORDERS, AGE-
RELATED MUSCLE ATROPHY (PREVENTION),
MUSCLE STRENGTH AND ENDURANCE
(INCREASED), BONE STRENGTH
(INCREASED), FLEXIBILITY AND JOINT
RANGE OF MOVEMENT (IMPROVED), AGILITY
(IMPROVED) HANDICAPPING CONDITIONS,
INJURY REHABILITATION/ PREVENTION,
WORKPLACE INJURY (REDUCTION,
PREVENTION).



CARDIOVASCULAR

HYPERTENSION, CORONARY ARTERY DISEASE, HEART
FAILURE, CARDIAC FUNCTION (IMPROVE), CARDIAC
REHABILITATION.

PULMONARY

CHRONIC OBSTRUCTIVE PULMONARY DISEASE,
EXERCISE-INDUCED ASTHMA, ASTHMA,
PULMONARY FUNCTION (IMPROVED).

EXERCISE AS MEDICINE

EXERCISE HAS BEEN PROVED EFFECTIVE
IN THE PREVENTION AND/OR TREATMENT
OF A WIDE VARIETY OF HEALTH-RELATED
CONDITIONS.

METABOLIC

OBESITY, DIABETES MELLITUS, CHOLESTEROL PROFILE
(IMPROVED), LIPOPROTEIN PROFILE (IMPROVED),
CHRONIC INFLAMMATION, METABOLIC RATE
(INCREASED), RENAL DISEASE.

SPINE

BACK INJURIES,
BACK PAIN,
DEGENERATIVE DISC
DISEASE.

MISCELLANEOUS

ALL-CAUSE MORTALITY (DECREASED), LONGEVITY (IMPROVED),
CHRONIC INFLAMMATION (REDUCED) CANCER (CERTAIN TYPES-
PREVENTION), OBESITY AND WEIGHT CONTROL, IMMUNE FUNCTION
(IMPROVED), PREGNANCY.

CIRCULATORY SYSTEM

PERIPHERAL VASCULAR DISEASE,
THROMBOPHLEBITIS.



Leonardo Da Vinci

Exercise Preserves/Builds Muscle *At Any Age!!!*

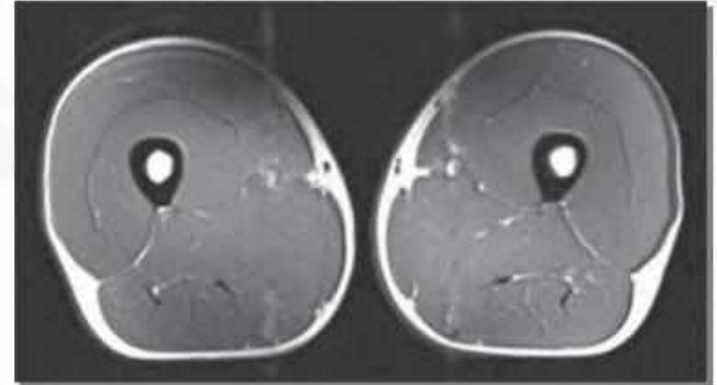
MRI Study: Quadriceps

IMAT= Intramuscular Adipose Tissue

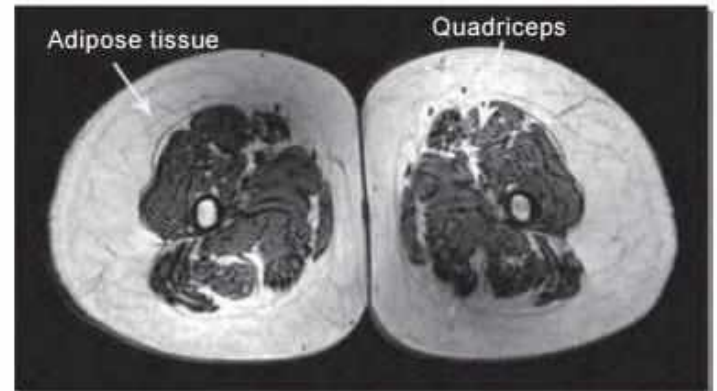
SCAT= Subcutaneous Adipose Tissue

Vonda Wright, MD

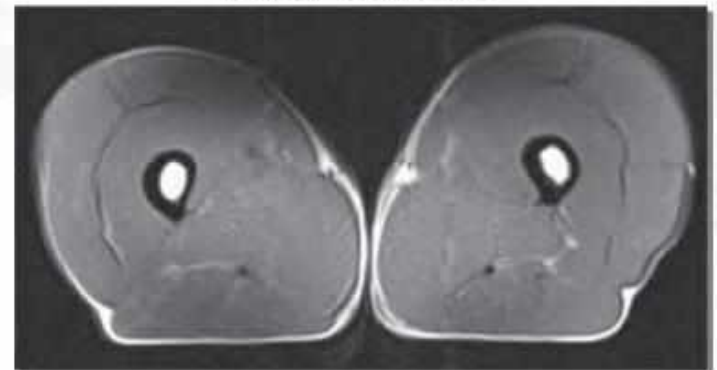
40-year-old triathlete



74-year-old sedentary man



70-year-old triathlete



**Two Women
born
on the
same day**



**HE'S
BACK!**



Exercise IS Medicine-and here's why:

- Treat & Prevent wide variety of med conditions
- Specificity
 - predictable specific changes / adaptations
 - both central & peripheral
 - structural, hormonal, biochemical
- Dose-Response Curve
- Half-Life
- Adverse Reactions
- Overdose
- Addiction
- Allergy

**Sounds like a
medicine,
right ???**

THE HUFFINGTON POST

INFORM • INSPIRE • ENTERTAIN • EMPOWER

THE BLOG

The Pharmacologics of Exercise: Yes, Exercise Is Medicine!

🕒 07/07/2014 10:31 am ET | Updated Sep 06, 2014

840



✓ Like 1.9K



Nicholas DiNubile, MD

Orthopedic Surgeon, Sports Medicine Doc, Team Physician & Best Selling Author. Dedicated to keeping you healthy in body, mind & spirit. @dmickUSA

THE BLOG

No Time for Exercise? Let's Do the Math!

🕒 10/06/2014 11:29 am ET | Updated Dec 06, 2014



👍 Like 127



Nicholas DiNubile, MD

Orthopedic Surgeon, Sports Medicine Doc, Team Physician & Best Selling Author. Dedicated to keeping you healthy in body, mind & spirit. @dmickUSA

“Those who have no time for exercise will sooner or later have to find time for illness.”

Edward Stanley, The Earl of Derby



R. Femur
{Runner}
MUSKOGEE CO. OKLA. 1924

THE SHATTER-PROOF SKELETON

Want an unbreakable superstructure? Building tough bones can be as easy as grabbing your skis and charging bumps all day long. **BY ROY WALLACK**

R. Femur
{Swimmer}
MUSKOGEE CO. OKLA. 1924



R. Femur
{Swimmer}
MUSKOGEE CO. OKLA. 1924

Our generic '**Exercise Medicine Label**' transforms how patients prevent and treat many chronic diseases with the help of a format that health professionals see and can recommend as a '**Medicine**'



Directions for use

At least 30 minutes 5 days a week, or 150mins of exercise a week.

Side effects

- 35-40% Reduction in risk of heart related events
- 50% reduction in breast cancer death
- 50% reduction in bowel cancer death
- 42% reduction in diabetes related death
- 42% reduction in risk of developing diabetes
- A significant reduction in blood pressure: about 7mmHg systolic and nearly 6mmHg diastolic
- Reduction in risk of falls and maintenance of bone health in men and post menopausal women
- And generally happier, healthier patients!

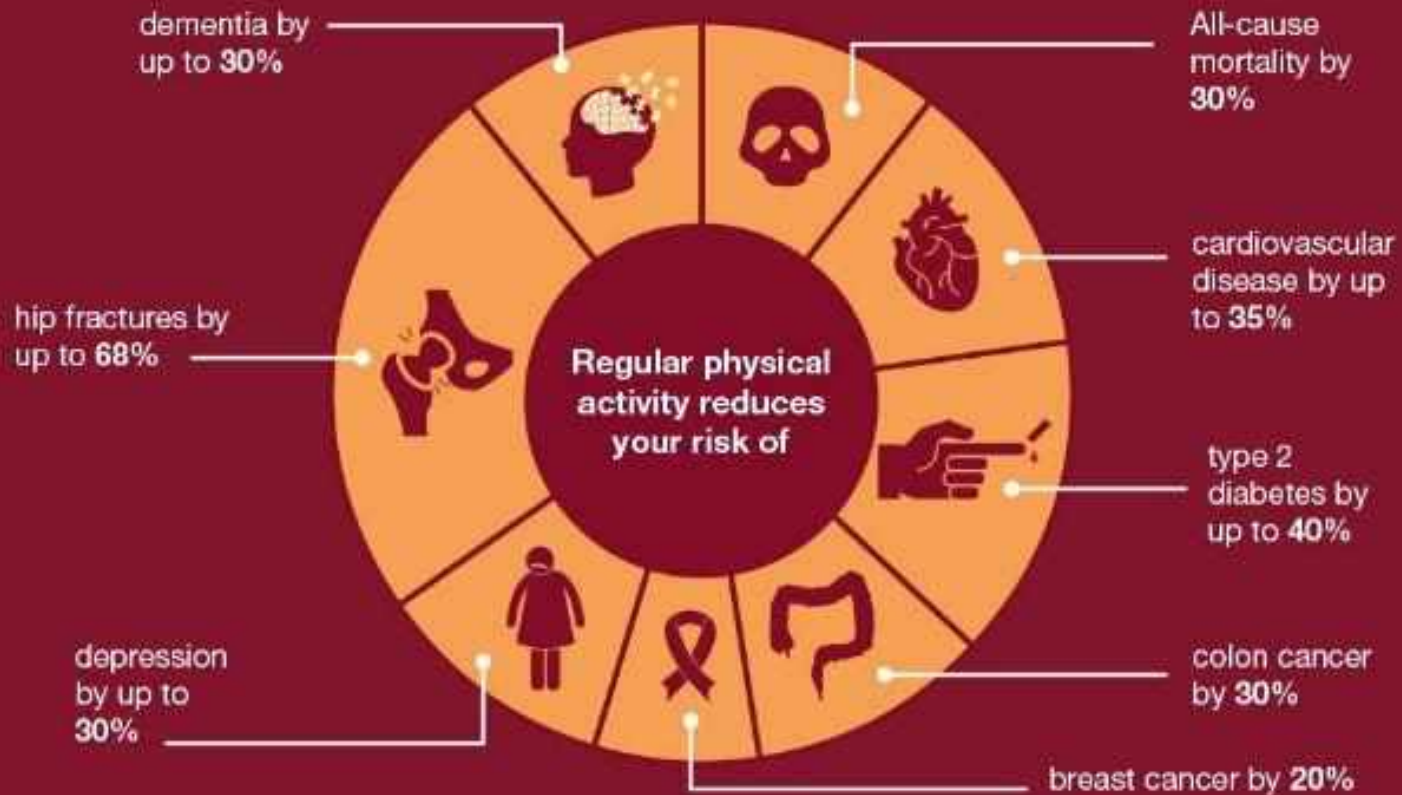
Uses

For the prevention and treatment of most non communicable diseases such as: heart disease, cancer, hypertension, stroke, obesity, diabetes, osteoporosis, mental health problems, parkinson's disease, multiple sclerosis, asthma, chronic obstructive airways disease, musculoskeletal problems and for over 100 different diseases that commonly present to family and hospital doctors and a wide variety of allied health professionals.

Copyright © 2013 Exercise Works

via @exerciseworks

What are the health benefits of physical activity?



**So why isn't it taught
in medical school???**



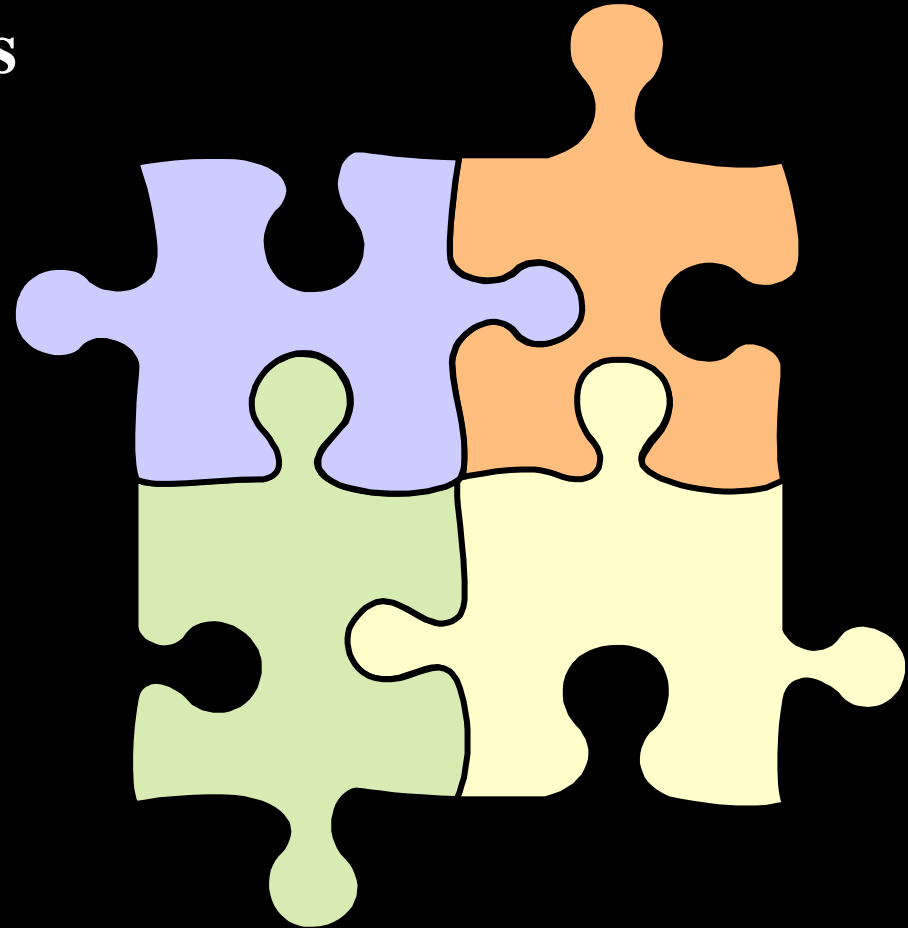
**So why isn't it taught
in medical school???**



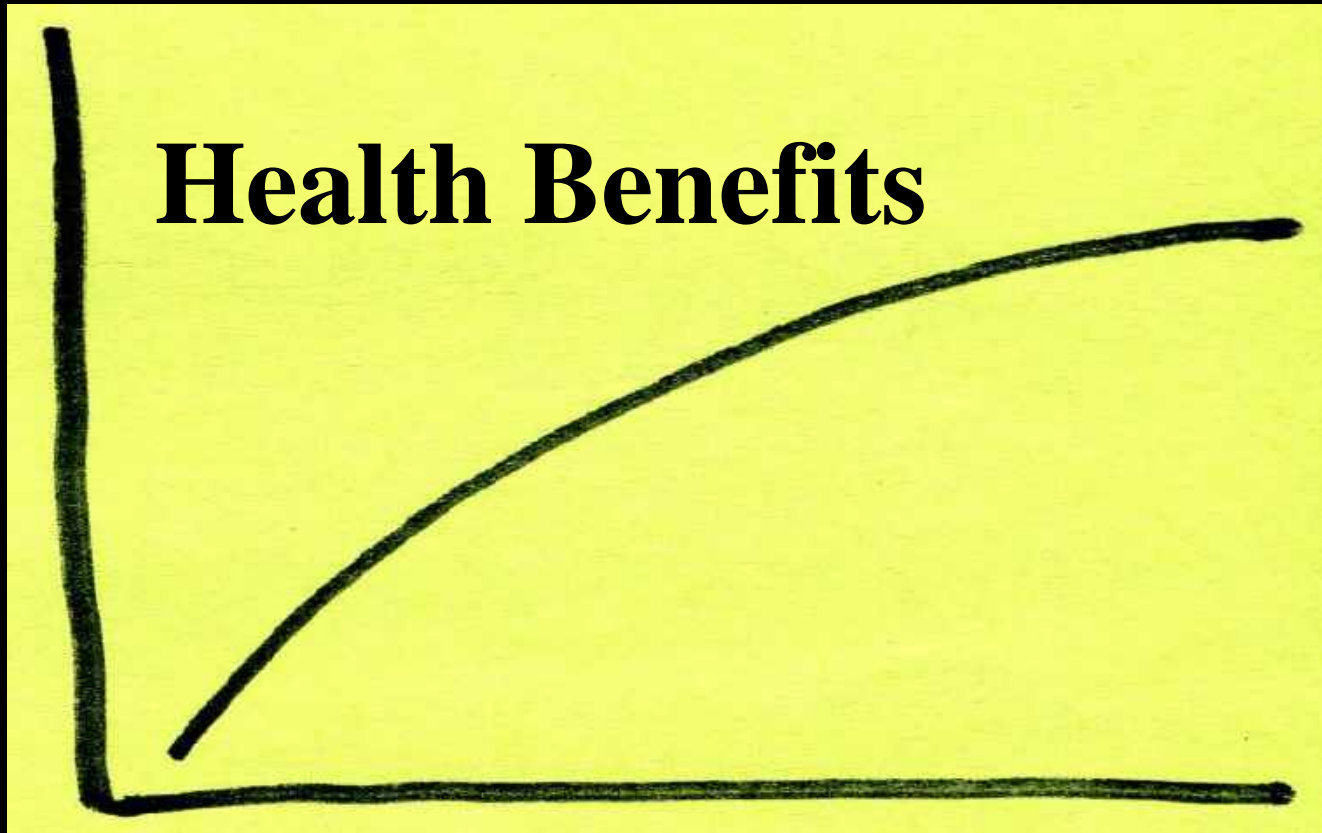
EXERCISE Rx

???"The *Ideal* Work-Out"???

- **Goals / Needs / Limitations**
- **MDR / MWR**
- **Essentials / Balance**
 - **Cardiovascular**
 - **Strength**
 - **Flexibility**
 - **Core**
- **Modifications**
- **Rehab Add-Ons**
- **Martial Arts, Ballet**
Yoga, Pilates

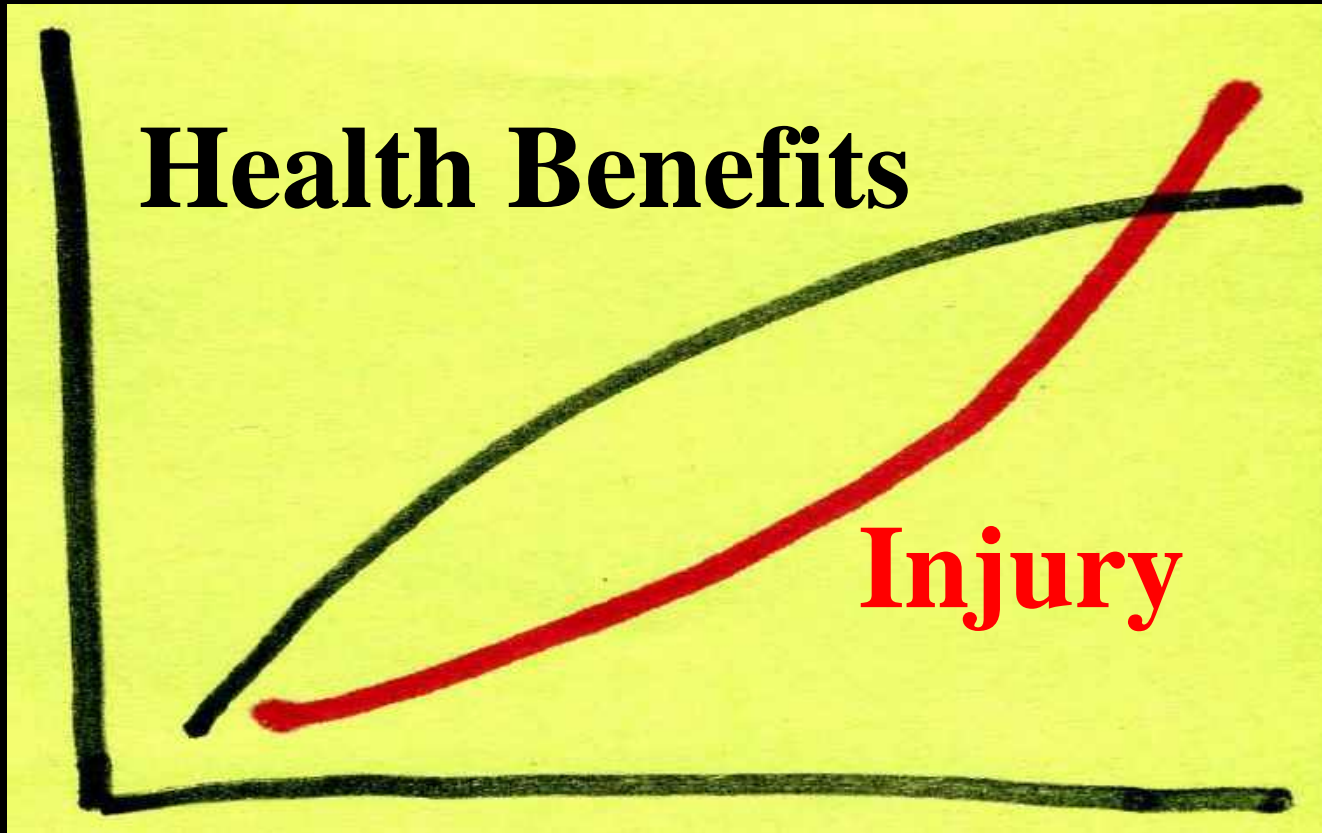


Activity Continuum



Sedentary → Activity → Exercise → Fitness → Performance

Activity Continuum



Sedentary → Activity → Exercise → Fitness → Performance

Associations of specific types of sports and exercise with all-cause and cardiovascular-disease mortality: a cohort study of 80 306 British adults



Pekka Oja¹, Paul Kelly², Zeljko Pedisic³, Sylvia Titze⁴, Adrian Bauman⁵, Charlie Foster⁶, Mark Hamer⁷, Melvyn Hillsdon⁸, Emmanuel Stamatakis⁵

British Journal of Sports Medicine Nov 2016

- 80,000 individuals in UK
- followed > 20 years (1994→2008)
- sports & activity monitored
- confirms being sedentary kills
- being active protects health (all cause mortality & CV death)
- **TENNIS #1 most protective** ↓ ACM 47% ↓ CV 56%



Re-Framing Fitness

- Cooper Clinic experience

1 of 3 participants dropped out
musculoskeletal issues

supervised medical program

Surprise???

- My Experience

80% of adults will need some customization
of their program to stay out of trouble
and avoid breakdown



**Get 6-pack abs
in just 20 seconds!!!**



Exercise Rx:

Outline or modify program for the individual based on his/her needs, interests, level of physical conditioning, and past or present injuries or medical conditions.



"MY DOCTOR PRESCRIBED EXERCISE.
DO YOU HAVE IT IN A CHEWABLE?"

Orthopaedic Exercise Rx:

Combine the principals of traditional exercise prescription with scientifically based injury rehabilitation and prevention concepts, and appropriate exercise modifications, to safely activate (or keep active) the large segment of our population with musculoskeletal ailments.

Exercise Rx: Orthopaedic Style

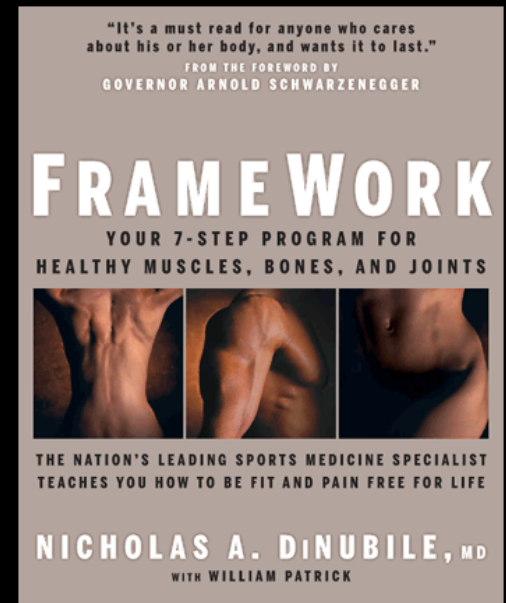
- **Balanced Fitness / Create Balance →
CV • Strength • Flexibility • Core**
- **Ideal Program Design based on assessment**
- **Exercise Modification**
- **Progression**
 - 10% Rule / adaptation / recovery**
 - prevention of overuse / overtraining**
- **Avoid X-Rated Exercises for certain ailments**
- **Careful with progressions & adding exercises- 1 new per session**
- **Monitor / Modify**

**Customization =
Creating
the Right Fit**



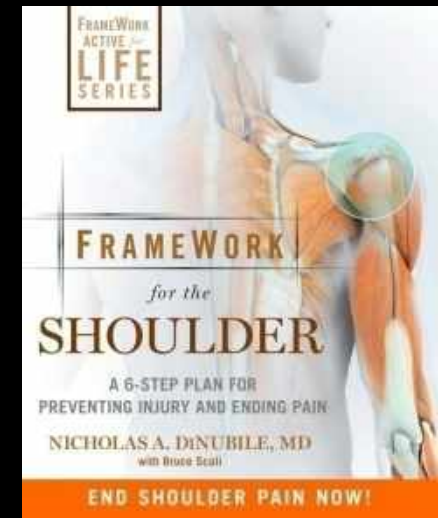
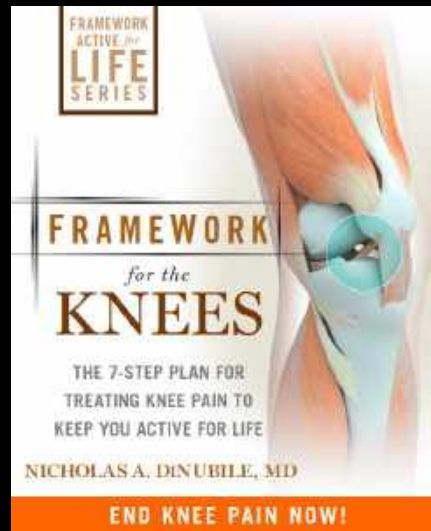
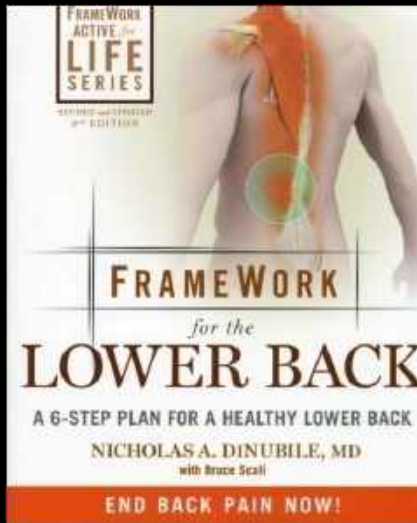
Troubleshooting: The Orthopaedic / Sports Med Top 20 and Their Workout Fix

- Rotator Cuff Problems
- Elbow Tendinitis
- Repetitive Strains (i.e. CTS)
- Knee Arthritis
- Hip Arthritis
- Hip Bursitis
- Knee Cartilage Tear
- Patellar Pain Syndromes
- Infrapatellar Tendinitis
- ACL Tear / Instability
- Muscle Pulls
- Tennis Leg
- Shin Splints
- Achilles Tendinitis
- ITB Friction Syndrome
- Ankle Sprains / “weak ankles”
- Heel Pain
- Lower Back Pain / Conditions
- Stress Fractures
- Neck Pain / Conditions

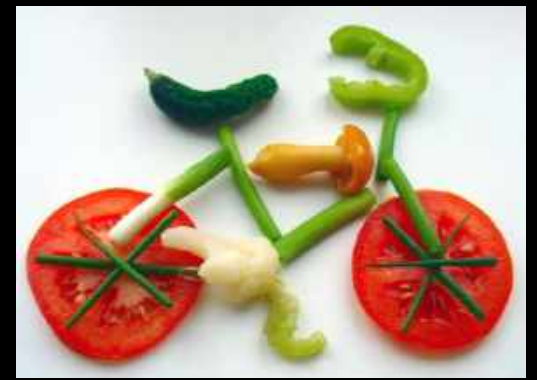


From: *FrameWork- Your 7 Step Program for Healthy Muscles, Bones and Joints*

FrameWork “*Active for Life*” series



NUTRITION



Fueling a Healthy Durable Frame

It's about choices:

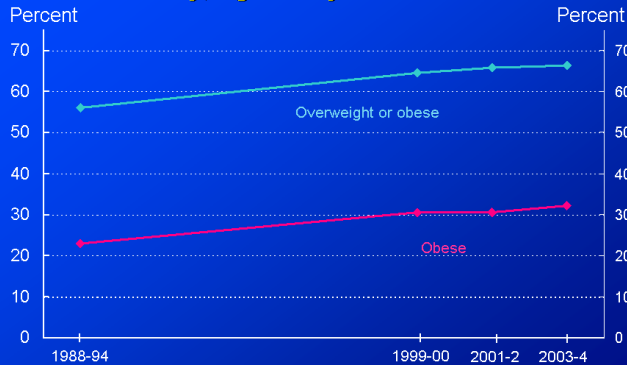
- Good Carbs
- Friendly Fats
- Quantity *and* Quality
- Inflammation & Food
- Diets don't work!



**“When it comes to nutrition, what you put in...
is what you get out.” ~Martina Navratilova**

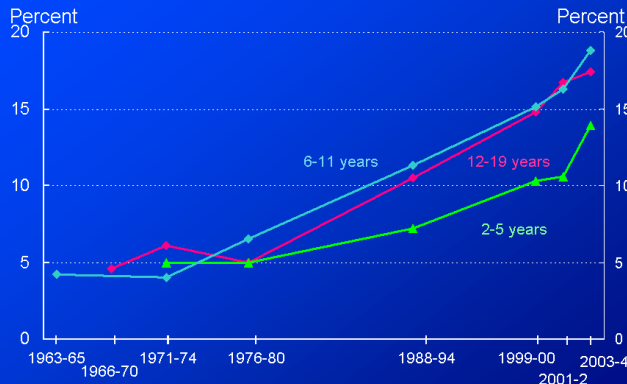
OBESITY in USA

Figure 1. Trends in Adult Overweight and Obesity, ages 20 years and over

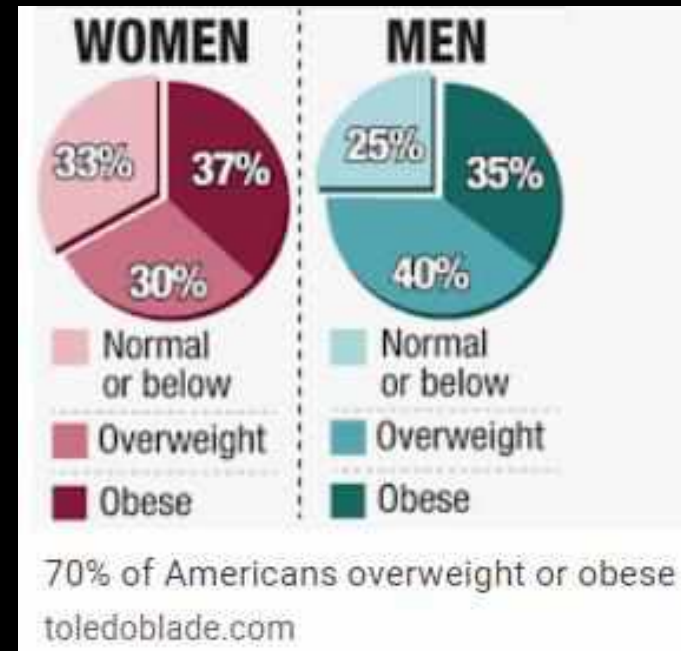


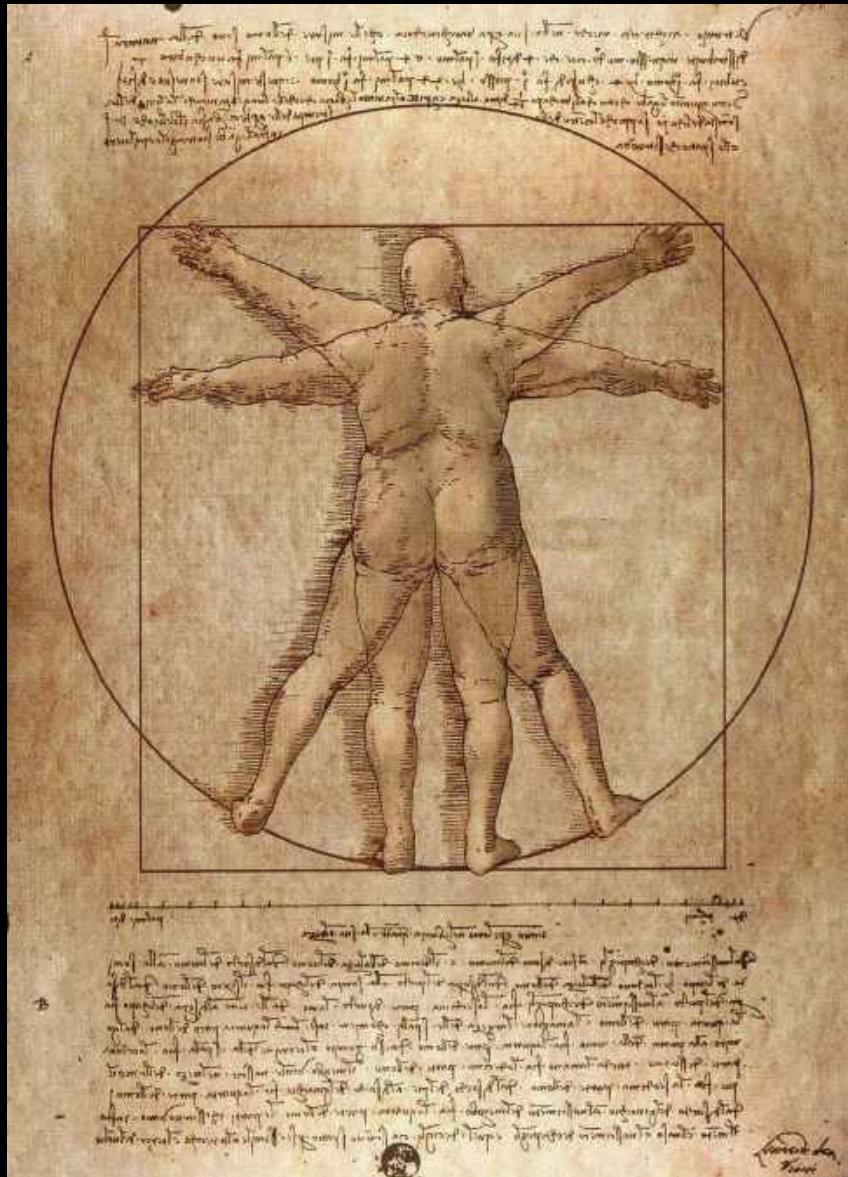
Note: Age-adjusted by the direct method to the year 2000 US Bureau of the Census estimates using the age groups 20-39, 40-59 and 60 years and over. Overweight defined as BMI>=25, Obesity defined as BMI>=30.

Trends in Child and Adolescent Overweight



Note: Overweight is defined as BMI >= gender and weight-specific 85th percentile from the 2000 CDC Growth Charts. Source: National Health Examination Surveys II (ages 6-11) and III (ages 12-17), National Health and Nutrition Examination Surveys I, II, III and 1998-2004, NCHS, CDC.

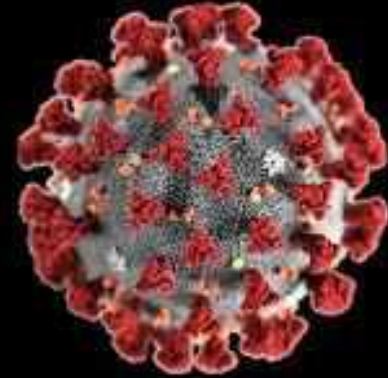




Obesity

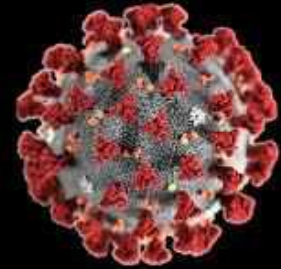
- metabolic stress
- mechanical stress
- inflammation
- ↑↑↑ comorbidities

COVID AWAKENING???



**COVID-19 is a
harsh reminder
that being
healthy protects
you in more
ways than one.**

COVID-19 Risk Factors

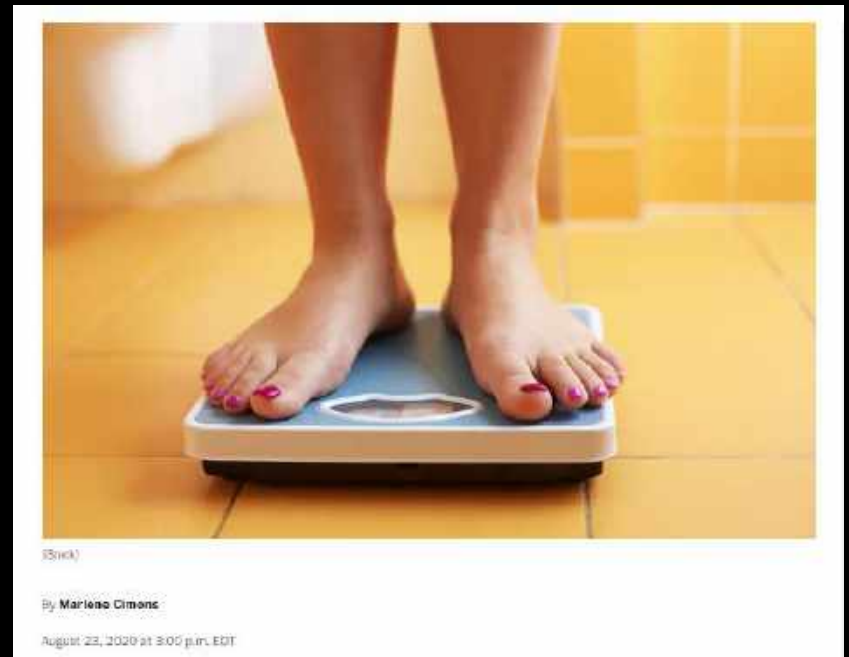


- **Age & male (not modifiable)**
- **Comorbidities- cardiovascular, diabetes, obesity, immune compromised, ↓ Vit D
↓ Zinc, smoking/vaping (most modifiable)**
- **Fitness *protects* ???**

If you need a lifesaving reason to lose weight, the novel coronavirus provides it...

Obesity =

- ✓ ↑ **Comorbidities**
- ✓ ↑ **Insulin Resistance**
- ✓ ↑ **Respiratory load**
- ✓ ↑ **Inflammation**
- ✓ ↑ **Coagulation/Clots**
- ✓ ↓ **Immunity**
- ✓ ↓ **Adiponectin**
→ ↑ **inflammation**
- ✓ ↑ **Plasminogen Activator
Inhibitor 1 (PAI-1)** → ↑ **clots**



Washington Post, August 23, 2020
~Marlene Cimonis

OBESITY & COVID-19*

- **UNC review data 75 studies, 400,000 patients**
- **↑ risk (46%) of contracting COVID-19**
- **↑ risk of hospitalization (113%) &**
- **↑ risk of ICU (74%)**
- **↑ mortality rate (48%)**
- **↓ likelihood vaccine would be effective?
(weakened immune response in obesity)**
- **...and FIT Athletes may have heightened response to flu shots & vaccines! Exercise amplifies immune response!****

***Popkin B et al, Individuals with obesity and COVID-19: A global perspective on the epidemiology and biological relationships. Obesity Reviews, August 2020**

****Brain Behavior & Immunity, Jan 2020**

****Medicine Science in Sports & Exercise, July 2020**



Dr Andrew Weil Anti-Inflammatory Food Pyramid

What Are Americans Eating?*

Top 10 Foods

- 1. Cake, cookies, quick bread, pastries & pies**
- 2. Yeast bread & rolls**
- 3. Soft drinks**
- 4. Beef**
- 5. Crackers, popcorn, pretzels & chips**
- 6. Cheese**
- 7. Milk**
- 8. Candy, sugars, & sugary foods**
- 9. Poultry**
- 10. Alcoholic beverages**

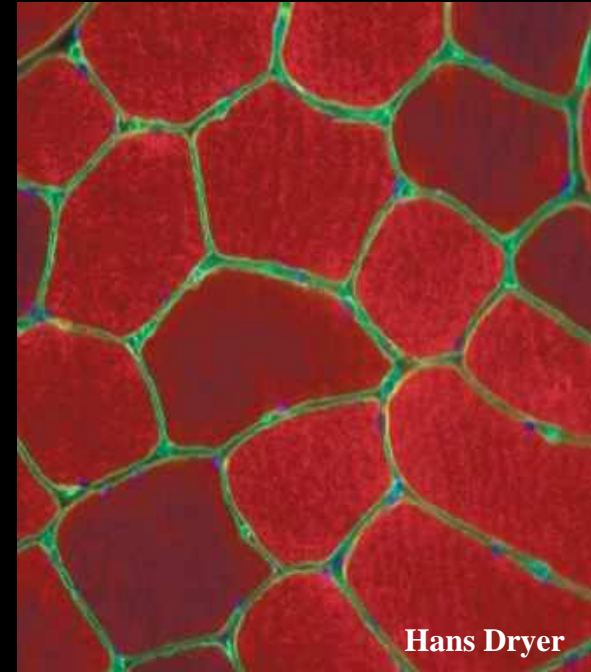
Together these foods make up 50.8% of daily consumed calories

*** What We Eat in America
Hurh et al, Nutr J 2013;12:116
NIH Nutrition Examination Survey (2003-2006)**

**“Our children are on a fast track
to becoming unhealthy adults”
-Kenneth Cooper M.D.**



Fuel for *Aging* Muscles



- Aging process reduces efficiency (50%) of protein absorption into muscle
- amino acids (muscle building blocks) from protein less able to “get in”
- This means 50% of protein consumed may be unavailable to muscles (growth & repair)
- With advancing age, need to increase protein intake especially if exercising regularly– to avoid sarcopenia (age related muscle loss)
- “Anabolic Resistance”

From “Get Stronger, Feel Younger”
Dr. Wayne Westcott & Gary Reinf

My Daily Supplements

- **Glucosamine / Chondroitin Sulfate**
ASU Avocado-Soybean Unsaponifiable
- **Omega 3's (EPA & DHA)**
- **Multivitamin**
- **Calcium & D3**
- **Vitamin C**
- **Turmeric/Curcumin**
- **Resveratrol**
- **BCAA's**



Brand Matters!!!

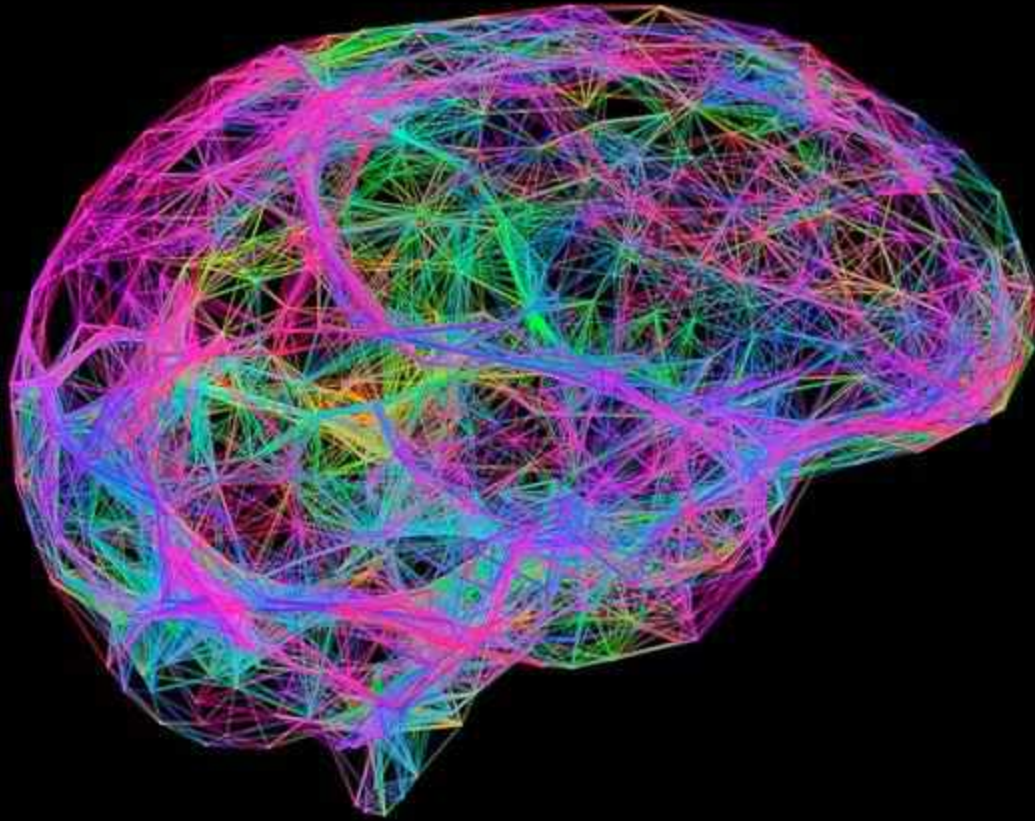
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Brand Matters!!!

Mind-Body



**Ignore this... and you won't be very successful in
medicine, healthcare or any healing arts**

Your Mind-Body-Frame Connection

Must consider/evaluate:

- **Stress / Anxiety**
- **Depression**
- **Addiction**
- **Pain**
- **Chronic Pain**



**“It is not a question of whether an illness is physical or emotional...
but how much of each.” ~Flanders Dunbar, MD**

Behavioral Health & Healthcare Spending

- Healthcare (HC) claims data for 21 million commercially insured lives (2017)
- Focus on prevalence of behavioral health (BH) conditions & levels of spending (both med/surg & BH)
- 10% of individuals → 70% of total healthcare costs (ave. annual \$41,000) → 21x's higher than remaining 90% (\$1900)
- of that 2.1 million "high cost" group, 51% with in BH issues (half of these individuals had less than \$95 spent on BH)
- BH group costs were 2.8→6.2 x's higher than non BH-- half of these individuals had < \$68, the next 25% ranges \$68-\$500 annual BH spending
- **CONCLUSION:** a small minority of high-cost individuals drive significant majority of healthcare costs. The majority of them were in the BH Group and BH Rx was a small % of their treatment costs (w/ many having minimal or no BH spending)
- **▶ BH NOT adequately addressed in managing health and healthcare costs**

Davenport S et al. How do individuals with behavioral health conditions contribute to physical & total healthcare spending? Millman Health & Research Group August 2020

CDC: Antidepressant use skyrockets 400% in past 20 years : (

- **11% of Americans (ages 12 years & older) took antidepressants**
- **1 of every 4 women (ages 40 to 59) are taking antidepressants.**
- **Women are more likely to take antidepressants**
- **about 1 in 25 teens take the medication**
- **< 1/3 of Americans taking one antidepressant and < 1/2 of those taking multiple antidepressants have seen a mental-health professional in the past year**

Stressful Times 2020



Google searches for anxiety symptoms, anxiety attack & panic attack were the highest they've been in the history of the search engine (mid-March to mid-May)

CDC: COVID-19 Mental Health Crisis

- **When cases of COVID-19 began to spike, the number of people experiencing loneliness and isolation spiked, too**
- **survey of 5,412 adults regarding their mental & behavioral health at the end of June 2020**
- **More than 10% of the respondents said they seriously considered suicide in the past 30 days (compared to 4.3% in 2018). The % higher for young adults, Black & Hispanic, essential workers, and unpaid caregivers**

COVID & Mental Health

During late June, 40% of U.S. adults reported struggling with mental health or substance use¹

ANXIETY/DEPRESSION SYMPTOMS



STARTED OR INCREASED SUBSTANCE USE



TRAUMA/STRESSOR-RELATED DISORDER SYMPTOMS



SERIOUSLY CONSIDERED SUICIDE²



¹Based on a survey of U.S. adults aged ≥18 years during June 24–30, 2020

²In the 30 days prior to survey

For stress and coping strategies: bit.ly/dailylifecoping

CDC.GOV

bit.ly/MMWR81320

MMWR

CDC: COVID-19 Mental Health Crisis

Contemplating Suicide:

- **Young Adults 18-24: 25%**
- **Unpaid caregivers for adults: 30.7%**
- **Essential workers: 21.7%**
- **Along with suicidal thoughts:**
 - 13.3% used substances (like alcohol or drugs) to cope
 - 26.3% experienced trauma & stressor-related disorders (TSRD)
 - 30.9% suffered from depression or anxiety disorders
- **CONCLUSION: Drastic & sudden decline in mental health**

The PAIN Game

- **#1 prescription drug in the USA: opioid painkillers!**
- **#2 leading cause of accidental deaths after car crashes**
- **15% to 20% of USA office visits involve an opioid Rx***
- **From 1997 to 2007*:**
 - **50% ↑ in prescriptions**
 - **400% ↑ in dosage (milligrams)**
- **Solves NO problem, but can create a 2nd bigger problem**
- **Also... pain is an age accelerator!**

***Archives of Internal Medicine**

PAIN Accelerates Aging!

- 2004 Health & Retirement study
*Kovinsky et al, UCSF**
- 18,531 age 50-plus participants
- Parameters measured:
 - ✓ Mobility (walking or jogging)
 - ✓ Stair climbing
 - ✓ Upper extremity tasks
 - ✓ ADL's (bathing, dressing, eating)

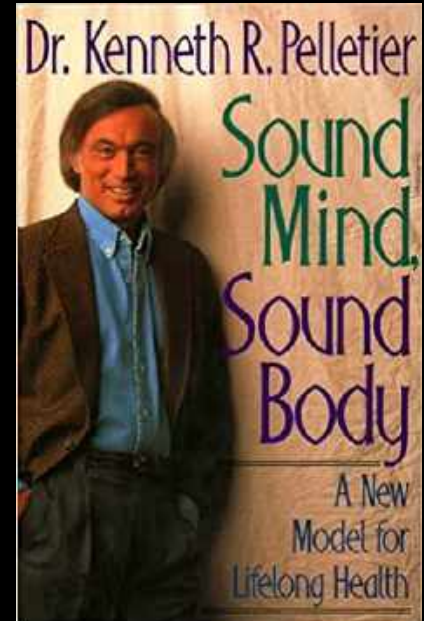
***Journal of American Geriatrics Society 2009)**

PAIN Accelerates Aging!

- 24% had significant pain issues!
(defined as moderate to severe pain most of the time)
- Middle aged patients with pain can resemble (in terms of disability & functional decline) those pain-free who are 2 to 3 decades older
- 50-59 yo (w/ pain) = 80-89 yo (w/o pain)
- 37% (50-59 w/o pain) could jog 1 mile & 91% could walk several blocks w/o difficulty
(compared to 9% & 50% w/ pain)
- Classic “age-related” functional limitations occur at much earlier ages
- Chicken / egg question- Does pain cause disability? Or does disability cause pain? Both? Viscous cycle → downward spiral

“It is not a question of whether an illness is physical or emotional... but how much of each.” ~Flanders Dunbar, MD

- ✓ **We cannot treat physical illness in a vacuum**
- ✓ **Mind-Body medicine is essential to curing our healthcare woes (physically & fiscally)**
- ✓ **It takes a team (most healthcare practitioners *don't have the training or the time*). But someone has to step-up!**
- ✓ **Include mind-body therapeutics like mindfulness, meditation, yoga, gratitude... and not just as an afterthought**



A silhouette of a person stands in the center, holding a glowing orb with both hands. The background is a warm, golden sunset sky. In the distance, there are faint silhouettes of buildings and trees. The overall mood is contemplative and hopeful.

The Future is NOW

**“It’s never too late...
to change your fate”**



I'M FAT
& LAZY.
YOU STILL
HAVE A CHANCE
FREE!

I'M FAT
& LAZY.
YOU STILL
HAVE A CHANCE
FREE!



One of my elderly patients told me that her husband started walking five miles a day when he was 60.

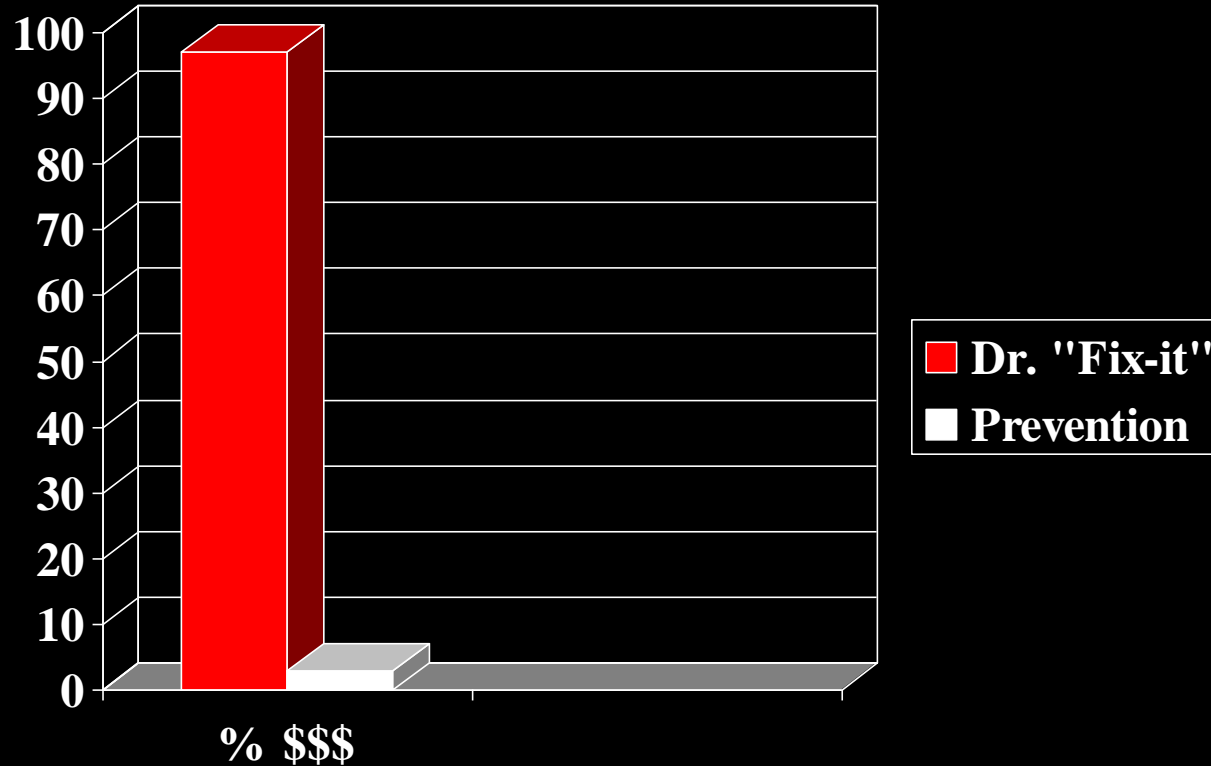
**Now he's 97 years old...
and she has no idea where the hell he is.**

“The best way to predict the future is to create it”

Peter Drucker

- **Innovators do not chart the future by looking in the rearview mirror**
- **Products & programs must be aimed at where we expect to be tomorrow— not yesterday**
- **There will be new problems, new issues and there will need to be new solutions**
- **For the health/fitness/wellness industry, this will present big challenges, and even bigger opportunity**

USA Health Care Spending



??? Wise Investment Strategy

NO Bailouts!!!





or... **SPEND MORE WISELY !!!**

- 2008 study from the nonpartisan Trust for America's Health (Washington, DC)
- Finding: **for every \$1 invested** in promoting physical activity & improving food choices, there was **\$5 savings** in health costs

***Are you* ready for change ?**

INSANITY (def):

**Doing the same thing over and over
and expecting different results**

Albert Einstein

Are your patients ready for change ?

If someone wishes for **good health**,
one must first ask oneself
if he is ready to do away
with the reasons for his illness.
Only then is it possible to help him.

– *Hippocrates*



**"Bad habits are like a
comfortable bed,
easy to get into but
hard to get out of."**

-anon

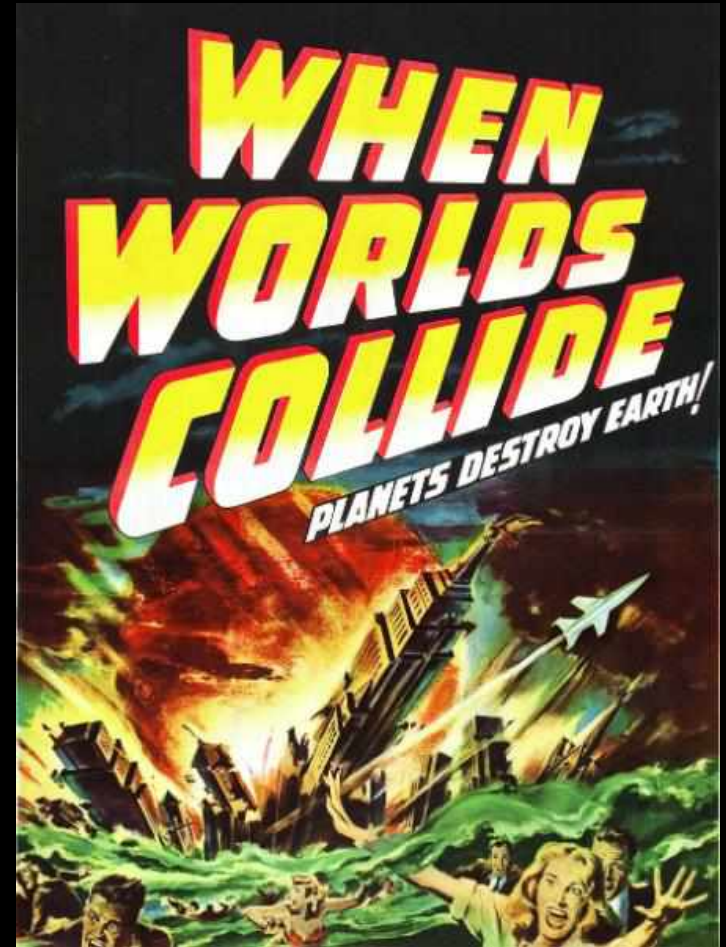
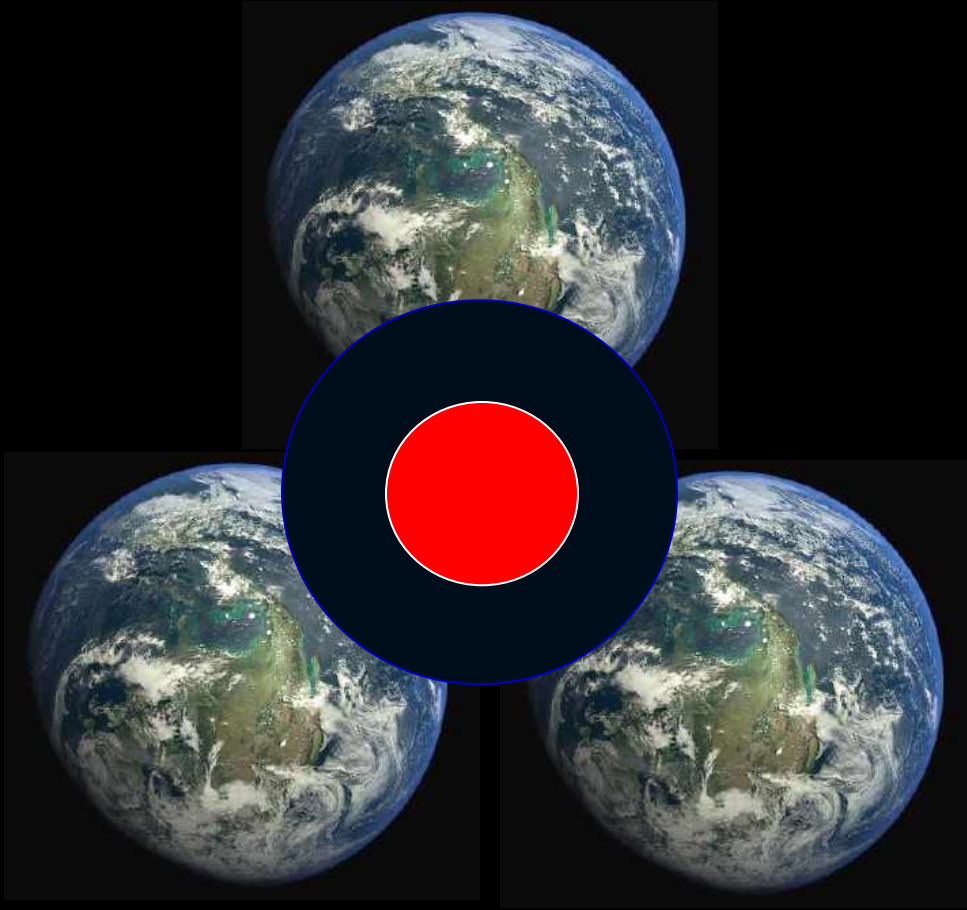
Where do you see yourself
in five years?



Current Programming



Future Programming



Future Programming



Medical
Fitness



Medical Fitness Professional

Toolbox Essentials

- **Specific targeted medical & orthopedic programming**
- **Assessment (Health & Musculoskeletal)**
- **Exercise & Exercise Modification**
- **Nutrition & Supplements**
- **Mental health**
- **Behavioral Change**
- **Continuing Education w/ specialized learning & skills**
- **Needs of consumers/patients & payors (moving target)**
- **The Ever *Evolving* Business of Healthcare**

HOW HEALTHCARE WORKS

EMPLOYER

INSURANCE

GOVERNMENT



CAWE
© 2000

The New Healthcare:

✓ Quality

✓ Service

✓ Price

Pick any two ;)



- **improve the quality of life for the aging population, and those with chronic disease/medical conditions by **connecting** them to fitness & healthcare professionals with an interest and background with these populations**
- **facilitate and expand **education** for professionals to learn how to best work with these populations**



“It is easier to maintain good health, than to regain it once it’s lost.”

**-Dr Kenneth Cooper,
Father of Aerobics**



**"Our modern life is a perfect cocktail designed to kill us... We exist in a state of constant stress, exposed to cheap fatty, sugary, fast foods, our walks consist of our front door to our cars & our environment has never been more toxic."
-Dr. Joe Maroon (A4M)**



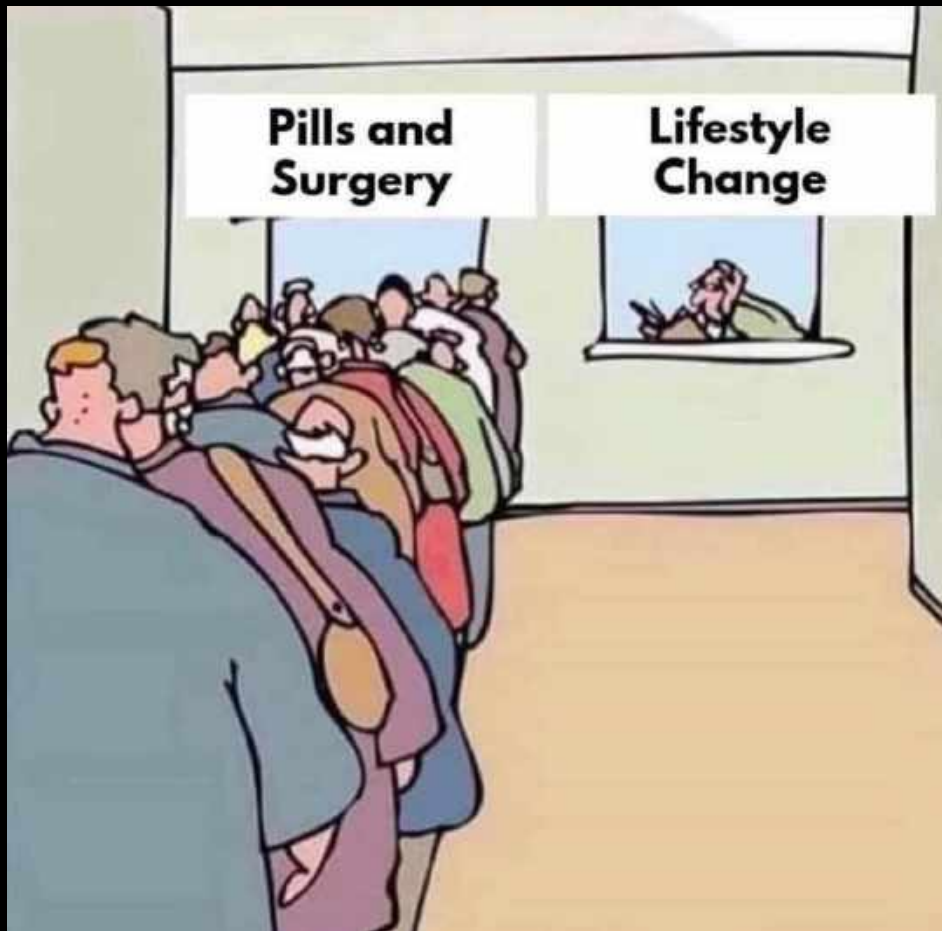


**“The achievement of longevity
will bring the challenge of durability
to the forefront of modern healthcare”
-N. DiNubile, MD**

**“It should be
the function of
medicine to
have people die
young,
as late as
possible”**



Ernst Wynder, MD



**“Healthcare Reform
without
Personal Healthcare
Reform...
is almost useless,
and something we
will never be able to
afford.”
-N. DiNubile, MD**

Turning Back The Clock & Extending The Warranty on your Frame

It is clear that a properly designed program of regular physical activity, proper nutrition & other lifestyle modifications can *both* optimize health & longevity *and* help prevent, maintain or restore musculoskeletal system structure & function.

▶ BE PART OF THE CHANGE!!! ◀

www.DrNick.com

[@DrNickUSA on Twitter](https://twitter.com/DrNickUSA)



A photograph of a boxing match. A boxer in white trunks and red gloves stands over a fallen opponent in a boxing ring. The text "THE END" is overlaid in the center. The scene is set in a dark arena with a crowd of spectators visible in the background. The lighting is focused on the ring, creating a dramatic atmosphere. The fallen boxer is lying on his back, and the standing boxer has a determined expression. The text "THE END" is in a bold, white, sans-serif font, centered horizontally and vertically over the image.

THE END



Thank You !