Lifestyle Medicine: Yesterday and Today

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Definition

• Lifestyle Medicine (LM) is the use of lifestyle interventions in the treatment and management of disease. Such interventions include diet (nutrition), exercise, stress management, smoking cessation, and a variety of other non-drug modalities. *American College of Lifestyle Medicine*

• The Evidenced-Based practice of assisting individuals and families to adopt and sustain behaviors that can improve health and quality of life. *JAMA 2010;304:202-203*
Actual Causes of Death in the United States, 2000

Ali H. Mokdad, PhD
James S. Marks, MD, MPH
Donna F. Stoup, PhD, MSc
Julie L. Gerberding, MD, MPH

CAUSES OF DEATH

<table>
<thead>
<tr>
<th>Actual Cause</th>
<th>No. (%) in 1990</th>
<th>No. (%) in 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>400,000 (14)</td>
<td>435,000 (18.1)</td>
</tr>
<tr>
<td>Poor diet and physical inactivity</td>
<td>300,000 (14)</td>
<td>400,000 (16.6)</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>100,000 (6)</td>
<td>80,000 (5.6)</td>
</tr>
<tr>
<td>Motor vehicle</td>
<td>60,000 (5)</td>
<td>55,000 (2.3)</td>
</tr>
<tr>
<td>Total</td>
<td>1,000,000 (50)</td>
<td>1,119,000 (48.2)</td>
</tr>
</tbody>
</table>

*Data are from McHines and Foeg. The percentages are for all deaths.

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Actual Causes of Living

**HEALTH CARE REFORM**

Healthy Living Is the Best Revenge

*Findings From the European Prospective Investigation Into Cancer and Nutrition–Potsdam Study*

Earl S. Ford, MD, MPH; Manuela M. Bergmann, PhD; Janine Kröger; Anja Schienkiewitz, PhD, MPH; Cornelia Weikart, MD, MPH; Heiner Boeing, PhD, MSPH

- 23,153 adults between 35-65 years old followed over an average of 7.8 years
- Health Factors: Never smoking, BMI <30, exercise 3.5 hrs /wk, healthy diet
- Those people with all four health factors had:
  - 93% lower chance of developing diabetes
  - 81% lower chance of having a heart attack
  - 50% lower chance of having a stroke
  - 36% lower chance of developing cancer
Authoritative Guidelines Emphasize Lifestyle

Major authoritative guidelines for prevention and treatment of chronic disease recommend lifestyle behaviors for prevention and treatment of chronic disease and place emphasis on implementation

- Dietary Guidelines for Americans 2010 (released 1/31/2011)
- Physical Activity Guidelines for Americans 2008
- National Cholesterol Education Program
- JNC VII Guidelines for Prevention and Management of Hypertension
- Institute of Medicine Guidelines for Management of Obesity

- AHA Guidelines for the Prevention and Management of Coronary Artery Disease
- AHA Nutrition Implementation Guidelines
- AHA 2020 Strategic Impact Goals
- Guidelines from the American Diabetes Association for the Management of Diabetes
- American Academy of Pediatrics Guidelines for Prevention and Treatment of Childhood Obesity
- American Academy of Pediatrics Guidelines for Heart Disease Risk Factor Reduction in Children
- AHA and AAP Guidelines for Prevention and Treatment of Metabolic Syndrome
- AHA and American Cancer Society Joint Statement on prevention of heart disease and cancer.
- Endocrine Society guidelines for prevention of CVD and type 2 diabetes in patients at metabolic risk
- American Dietetic Association position paper on Total Diet Approach to Communicating Food and Nutrition Information
Go East Young Man (and have a heart attack)

<table>
<thead>
<tr>
<th>Location</th>
<th>Cholesterol Level (mg/dL)</th>
<th>Rate of CHD (per 1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>181</td>
<td>25.4</td>
</tr>
<tr>
<td>Hawaii</td>
<td>218</td>
<td>34.7</td>
</tr>
<tr>
<td>San Francisco</td>
<td>228</td>
<td>44.6</td>
</tr>
</tbody>
</table>
The China Study

CHINA - Provinces and County boundaries

**Seven Countries Study**

*FIGURE 7.1 Ten-year coronary death rates and median serum cholesterol level. B, Belgrade; C, Crevalcore; D, Dalarna; E, East Finland; G, Gote; I, Italian railroad; K, Ceste; M, Montepulciano; N, Zagreb; R, American railroad; S, Slovenia; T, Tokyo-Shima; U, Ushibuka; V, Velika Kranj; W, West Finland; Z, Zrenjanin. (From Keys, with permission. Copyright 1980 by the President and Fellows of Harvard College.)*
Luck of the Irish

- 1000 men over 20 years.
- Three cohorts of Irish genes
- All show ↑ risk of CHD with cholesterol and saturated fat intake.

Vegetarian Diet Slows the Progression Leiden Intervention Trial
The Influence of Diet on the Appearance of New Lesions of Human Coronary Arteries

- Cholesterol Lowering Atherosclerosis Study
- Men 40-59 s/p CABG randomized
- 24 hour dietary recalls
- Angiography and eval of diet for those with new lesions

<table>
<thead>
<tr>
<th></th>
<th>No new lesions</th>
<th>New lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total kcal</td>
<td>1835</td>
<td>1953</td>
</tr>
<tr>
<td>Kcal Protein</td>
<td>17.4%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Kcal Carbo</td>
<td>52.3%</td>
<td>50.6%</td>
</tr>
<tr>
<td>Kcal total fat</td>
<td>27.5%</td>
<td>34.1%</td>
</tr>
<tr>
<td>Kcal sat fat</td>
<td>7.4%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Kcal PUFAs</td>
<td>8.6%</td>
<td>10.9%</td>
</tr>
<tr>
<td>PUFA/Sat fat ratio</td>
<td>1.36</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Lyon Heart Study

**Table 3.** Daily Nutrient Intake Recorded on the Final Visit in 83 Control and 144 Experimental Nonselected Consecutive Patients

**Control** | **Experimental** | **P**
--- | --- | ---
Total calories | 2058 (498) | 1947 (488) | 0.033
Total lipids | 33.6 (7.80) | 30.4 (7.50) | 0.002
Saturated fats | 11.7 (3.90) | 8.0 (3.70) | 0.0001
Polyunsaturated fats | 6.10 (2.90) | 4.60 (1.70) | 0.0001
18:1 (ω-9) (linoleic) | 10.8 (4.10) | 12.9 (3.30) | 0.0001
18:2 (ω-6) (linoleic) | 5.30 (2.80) | 3.60 (1.20) | 0.0001
18:3 (ω-3) (linoleic) | 0.29 (0.19) | 0.34 (0.19) | 0.0001
Acetyl | 5.98 (3.90) | 5.33 (3.80) | 0.80
Protein, g | 16.6 (3.80) | 16.2 (3.10) | 0.30
Fiber, g | 15.5 (6.80) | 18.6 (8.10) | 0.004
Cholesterol, mg | 312 (180) | 203 (140) | 0.0001

Values are mean (SD).
Pritikin Longevity Center

Nathan Pritikin’s Autopsy

Proving one last time that he was right!

Several systemic arteries showed some yellow, flat streaks. No elevated plaques were present, and no reduction of the lumen was found. No infarcts of any size, or other findings referable to vascular disease, were present in any organ.

In a man 69 years old, the near absence of atherosclerosis and the complete absence of its effects are remarkable.

Intensive Lifestyle Changes for Reversal of Coronary Heart Disease

• RCT “experimental” (#28) vs. usual care (#20)
• Experimental = low fat, veg. diet, not smoking, stress reduction and exercise
• Year 1, exper. grp. saw reduction in chol and regression in atherosclerotic lesions
• Year 1, usual care saw progression of atherosclerotic lesions
• Year 5, experimental group had 25 cardiac events (@ 3% regression in lesions)
• Year 5, usual care had 45 cardiac events (@12% progression in lesions)

Esselstyn Study

Figure 1
The Esselstyn Study: Coronary angiograms of the distal left anterior descending artery before (left) and after (right) 32 months plant-based diet without cholesterol lowering medication, showing profound improvement.
A Sure Way to Take the Life Out of the Party

Women’s Health Study

- 39,876 female health professionals without hx of CVD at baseline
- Prospective assessment of fruit and vegetable intake
- Five year outcomes = Inverse relationship between fruit and vegetable intake and risk of CVD
40+ Years of Lifestyle Medicine Research

And There’s More......

The New England Journal of Medicine

In 2010 the NIH, working with the Centers for Disease Control and Prevention, the YMCA, and insurance giant United Healthcare (UNH, Fortune 500), launched the Diabetes Prevention Program nationally, based on the 2002 study results. The way the DPP works is simple and cheap: The YMCA runs a 12-month group program to get people to eat better and be more active, with the goal of losing that 7%. The program costs about $400 per person and is often paid for by participants’ insurers; it subsidizes payments for the uninsured.
Mediterranean Diet, Lifestyle Factors, and 10-Year Mortality in Elderly European Men and Women
The HALE Project

- 2,339 adults ages 70-90 in Europe
- Mediterranean diet
- Physical Activity
- Never smoked (or quit > 15 yrs ago)
- Moderate alcohol consumption
Intensive Therapy Increases Problems

Cardiovascular Events and Correlates in the Veterans Affairs Diabetes Feasibility Trial

Veterans Affairs Cooperative Study on Glycemic Control and Complications in Type II Diabetes

Carlos Abuin, MD, John Colwell, MD, PhD, Frank Nault, MD, PhD, Clark T. Sexton, MD, William Henderson, PhD, John P. Conlin, MD, Nicholas V. Emanuel, MD, Seymour R. Levin, MD, Ivan Paukstis, MD, Hae Soon Lee, and the Veterans Affairs Cooperative Study on Glycemic Control and Complications in Type II Diabetes (VACDC-DM) Group

“...found a strong tendency toward worsening of CV outcomes in patients with intensive control.”

Diabetes Care. 2001 May;24(S):942-5.

Intensive Therapy Increases Problems

The NEW ENGLAND JOURNAL of MEDICINE

Effects of Intensive Glucose Lowering in Type 2 Diabetes

The Action to Control Cardiovascular Risk in Diabetes Study Group

Intensive therapy was stopped before study end because of higher mortality in that group

Angioplasty Fails

OAT (Occluded Artery Trial)

2166 stable patients, total occlusion 3 to 28 days after myocardial infarction high-risk criterion.

PCI did not reduce the occurrence of death, reinfarction, or heart failure, and there was a trend toward excess reinfarction during 4 years of follow-up.

Portfolio Diet

• Plant stanols
• Soy protein (soy milk, soy burgers)
• Viscous fiber (oats, barley, psyllium, okra, eggplant)
• Almonds

Reduction of LDL by @ 30%
Docs Urged to Treat Unhealthy Habits Before Damage Is Done

Target problems like smoking, poor eating and being overweight, heart association says

MONDAY, Oct. 7 (HealthDay News) -- Doctors need to treat patients' unhealthy lifestyle habits -- such as smoking, poor eating and being overweight -- as aggressively as high blood pressure, high cholesterol and other cardiovascular disease risk factors, a new American Heart Association policy statement says.

Education

We help clinicians get patients healthier.

Our mission is to reduce lifestyle related death and disease in society through clinicians direct tailored interventions with patients.

The Institute of Lifestyle Medicine (ILM) led the development of a broad-based collaborative effort to transform the practice of primary care through lifestyle medicine. This transformation is supported by research indicating that modifiable behaviors, especially physical activity and nutrition eating -- are major drivers, of death, disease, and healthcare costs. While the medical profession is generally aware of this, there has yet to be a systematic and comprehensive effort to incorporate lifestyle medicine into standard practice.
Publications

• American Journal of Lifestyle Medicine – 7th volume
• Text – Lifestyle Medicine (almost 1600 pages)
• Encyclopedia of Lifestyle Medicine & Health
• Obesity Prevention and Treatment and other behavior specific journals
CMS Coverage

Decision Memo for Intensive Behavioral Therapy for Obesity (CAG-00423N)

Note: JA6850 was revised to add a reference to MLN Matters® article MMT113 (http://www.cms.gov/MLN MattersArticles/downloads/MMT113.pdf), which announces that (through a National Coverage Determination [NCD]) CMS has determined that, effective for claims with dates of service on and after August 12, 2010, the Ornish Program for Reversing Heart Disease and the Philbrick Program each meet the ICD program requirements.

American Journal of Health Promotion

The Effectiveness and Efficacy of an Intensive Cardiac Rehabilitation Program in 24 Sites

Omnish vs. Recruited Control
N = 130 (All Products)

<table>
<thead>
<tr>
<th></th>
<th>Pre-Enrollment</th>
<th>Year One</th>
<th>Year Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omnish</td>
<td>25</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>48</td>
<td>52</td>
<td></td>
</tr>
</tbody>
</table>

Annual Admissions/1000
Health Plan Payment for CAD Members

Healthplan Payment for CAD members: Ornish vs. Recruited Control
N = 110 (Managed Care Products)

![Bar Chart]

HealthLeaders Media

Healthways Inks Deal with Ornish

Programs developed by Dean Ornish, MD, for coronary artery disease, Type II diabetes, and early-stage prostate cancer are expected to extend Healthways' existing portfolio of well-being improvement programs.

Margaret Dick Tacknell, for HealthLeaders Media, July 23, 2013
The American College of Lifestyle Medicine

Total Membership

NAMCP Center for Preventive Health and Lifestyle Medicine

10 commandments of injury prevention

By Heidi Lawrence

Injury prevention strategies are big business in professional sports. This is due to the cost in terms of treatment and playing time lost when an injury occurs. But it’s not just professional athletes who should be taking injury prevention seriously. Even for an amateur athlete or “just for fun” athlete,
"Hippocratic Oath: Primum Non Nocerum (First, Do No Harm)"

Iatrogenic Disease (Medical Errors): the 3rd Most Fatal disease in USA

Estimated Deaths Associated with Medical Errors Compared to Top 10 Leading Causes of Death in the U.S.

<table>
<thead>
<tr>
<th>Cause of Death*</th>
<th>2000*</th>
<th>2009*</th>
<th>2010*</th>
<th>2011 (Preliminary)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>710,760</td>
<td>596,413</td>
<td>597,689</td>
<td>596,319</td>
</tr>
<tr>
<td>Cancer</td>
<td>553,091</td>
<td>567,628</td>
<td>574,743</td>
<td>575,313</td>
</tr>
<tr>
<td>Medical Errors (Starfield Low Estimate)**</td>
<td>225,000</td>
<td>225,000</td>
<td>225,000</td>
<td>225,000</td>
</tr>
<tr>
<td>Lung Disease</td>
<td>322,009</td>
<td>317,353</td>
<td>318,040</td>
<td>319,382</td>
</tr>
<tr>
<td>Stroke (CVD)</td>
<td>167,661</td>
<td>128,842</td>
<td>129,476</td>
<td>129,911</td>
</tr>
<tr>
<td>Accidents</td>
<td>107,500</td>
<td>110,021</td>
<td>110,859</td>
<td>111,757</td>
</tr>
<tr>
<td>Medical Errors (IOM High Estimate)**</td>
<td>98,000</td>
<td>98,000</td>
<td>98,000</td>
<td>98,000</td>
</tr>
<tr>
<td>Alzheimer's Disease</td>
<td>49,554</td>
<td>79,003</td>
<td>83,494</td>
<td>84,601</td>
</tr>
<tr>
<td>Diabetes</td>
<td>66,705</td>
<td>68,705</td>
<td>69,071</td>
<td>71,282</td>
</tr>
<tr>
<td>Kidney Disease</td>
<td>37,251</td>
<td>46,935</td>
<td>50,876</td>
<td>45,731</td>
</tr>
<tr>
<td>Pneumonia and Flu</td>
<td>55,313</td>
<td>53,692</td>
<td>50,907</td>
<td>53,467</td>
</tr>
<tr>
<td>Medical Errors (IOM Low Estimate)**</td>
<td>44,000</td>
<td>44,000</td>
<td>44,000</td>
<td>44,000</td>
</tr>
<tr>
<td>Suicide</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
</tr>
<tr>
<td>Infection</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
<td>&gt; 10th cause</td>
</tr>
<tr>
<td>Total # of Deaths</td>
<td>2,403,351</td>
<td>2,437,163</td>
<td>2,448,435</td>
<td>2,513,171</td>
</tr>
</tbody>
</table>

** Is US Health really the Best in the World? JAMA, July 6, 2000 - Vol 284, No.4
*** To Err is Human: Building a Safer Health Care System, Institute of Medicine (IOM), 1999. Death in hospitals due to medical errors.

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Tomorrow

ACOs
Bundled payments
Certification
RSAfeer@jhhc.com