**American Adult Exercise Habits 1968-1990**

<table>
<thead>
<tr>
<th>Exercise</th>
<th>1968</th>
<th>1984</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercising</td>
<td>&lt; 24%</td>
<td>59%</td>
<td>40%</td>
</tr>
<tr>
<td>Jogging</td>
<td>&lt; 100,000</td>
<td>34 million</td>
<td>30 million</td>
</tr>
</tbody>
</table>

- Russia: ↑ 31%
- Poland: ↑ 36%
- Hungary: ↑ 40%
- Romania: ↑ 60%

Only after you’ve measured exercise in terms of essential benefits to your body — and that is what this book is all about — will you understand why some of the most popular forms of exercise are almost worthless and why others are neglected, score very high. Until now, not even the best exercise book — not even your own physician — could answer the question: What form of exercise and how much will improve my health and protect my life? Here, at least, is the answer.
### American Adult Exercise Habits 1968-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Medical Treatment</th>
<th>Lifestyle Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968 - 1990</td>
<td>33 %</td>
<td>67 %</td>
</tr>
</tbody>
</table>

- CV Deaths ↓ 48 %
- Cigarette Smoking
- Blood Pressure Control
- Cholesterol Reduction
- Stress Management
- Increased Activity

### News: Health & Behavior

*Lowering Heart Risk Saves as Many Lives as Treatment*

<table>
<thead>
<tr>
<th>Year</th>
<th>Medical Treatment</th>
<th>Lifestyle Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980 - 2000</td>
<td>48 %</td>
<td>52 %</td>
</tr>
</tbody>
</table>

- CV Deaths ↓ 40 %
- Cigarette Smoking
- Blood Pressure Control
- Cholesterol Reduction
- Increased Activity

Heart Disease / 100,000  |  Strokes / 100,000

<table>
<thead>
<tr>
<th>Year</th>
<th>Heart Disease</th>
<th>Strokes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>195</td>
<td>61</td>
</tr>
<tr>
<td>2005</td>
<td>144</td>
<td>47</td>
</tr>
</tbody>
</table>

- **Medical**
  - Early Detection
  - Treatment

- **Lifestyle Change**
  - Cigarette Smoking
  - Blood Pressure Control
  - Cholesterol Reduction
  - Increased Activity

```
Cardiovascular Disease Death Rates 1999-2005

January 23, 2008

Medical

- Early Detection
- Treatment

Lifestyle Change

- Cigarette Smoking
- Blood Pressure Control
- Cholesterol Reduction
- Increased Activity

```

```
Cardiovascular Disease Death Rates 1999-2005

January 23, 2008

Early Detection

- Resting and Stress ECGs
- Resting and Stress Echocardiograms
- Nuclear Scans
- CT Scans for Early Calcification
- CT Angiograms

Treatment

- Pharmaceutical
- Blood Lipids
- Angioplasties (with stents)
- Bypass Surgery

```

Boston.rev.4.24.09
“Signs of trouble loom on the horizon, among them twin epidemics of diabetes and obesity in young people.”

National Center for Health Statistics, January 23, 2008

Adopting A Healthy Lifestyle

- 5 or more Fruits and Vegetables
- Regular Exercise
- No Smoking
- BMI 18.5 – 29.9

- 15,708 Men and Women 45-64 years of age
- 1st visit: 8.5% all 4
- 6 years later: 8.4% all 4 (new adopters)

After only 4 years

<table>
<thead>
<tr>
<th></th>
<th>NA</th>
<th>N/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mortality</td>
<td>2.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>CV Mortality</td>
<td>11.7%</td>
<td>16.5%</td>
</tr>
</tbody>
</table>

**Adopting A Healthy Lifestyle**

- **The Healthy Aging & Longitudinal Study in Europe (HALE)**
  - 1507 men, 832 women, 70-90 years of age
  - Mediterranean Diet
  - Moderate Alcohol Use
  - Physically Active
  - No Smoking
  - After 10 yrs: 65% ↓ in all-cause mortality and CV disease

- **The Health Professionals Follow-Up Study (Men)**
  - After 16 yrs: 62% ↓ in coronary events
  - 5 Factors

*Dana King, MD, MS, et al, Am J Med, July 2007*

---

**Multiple Cardiovascular Risk Factors**

- 50% men and almost 40% women in the U.S. will develop CVD.
- For men and women with no risk factors at age 50, the risk of CVD had been essentially abolished.
- 3564 men, 4362 women (Framingham Study): No CVD at age 50.
- Survival for men: 80 years
  - Survival for women: 86 years
- Obesity ↑ CVD risk: 58% for men, 43% for women

*Circulation, Feb 14, 2007*
Actual Causes of Death 1990 /2000

- Tobacco: 400
- Diet/Exercise: 300
- Alcohol: 100
- Infection: 90
- Sex Related: 47
- Motor Vehicles: 43
- Guns: 35
- Drugs: 30
- Tobacco: 20
- Diet/Exercise: 17

*Alcohol-related deaths:
1990 – 22,084
2000 – 16,653

Body Mass Index

BMI = \frac{(Weight \text{ in pounds})}{(Height \text{ in inches}) \times (Height \text{ in inches})} \times 703

Examples

- \frac{130}{65 \times 65} \times 703 = 21.7 \text{ BMI}
- \frac{165}{65 \times 65} \times 703 = 27.5 \text{ BMI}

Range BMI

- \text{Normal} \quad < 25
- \text{Overweight (66 %)} \quad 25 \text{ – } 30
- \text{Obese (34 %)} \quad > 30
Obesity Trends* Among U.S. Adults

**BRFSS, 1990**

(*BMI \( \geq 30 \), or ~ 30 lbs overweight for 5’ 4” woman)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
</tr>
</thead>
</table>

Obesity Trends* Among U.S. Adults

**BRFSS, 2006**

(*BMI \( \geq 30 \), or ~ 30 lbs. overweight for 5’ 4” person)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
<th>20%–24%</th>
<th>25%–29%</th>
<th>( \geq 30% )</th>
</tr>
</thead>
</table>

[CDC Logo]


**Diabetes Trends* Among Adults in the U.S., (Includes Gestational Diabetes)**

*BRFSS 2005*
Contribution of Overweight and Obesity to Mortality from Cancer in the United States

How is Obesity Determined In Children?
**Body Mass Index**

$$\text{BMI} = \frac{\text{Weight in pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \times 703$$

OR

PERCENT BODY FAT as determined by skinfold measurements

Obese: Top 5 percentile
Overweight: Top 15 percentile

**Proportion of Overweight Children in the United States**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12-year-olds</td>
<td>4.2%</td>
<td>6.5%</td>
<td>15.3%</td>
<td>18.8%</td>
</tr>
<tr>
<td>12-19-year-olds</td>
<td>4.6%</td>
<td>5%</td>
<td>15.5%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention, 2003.
Obesity Projections in America – Adults and Children (2010 – 2048)

<table>
<thead>
<tr>
<th></th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>66.3%</td>
<td>36%</td>
</tr>
<tr>
<td>Children</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>2030</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>86.3%</td>
<td>51%</td>
</tr>
<tr>
<td>Children</td>
<td>80%</td>
<td>46%</td>
</tr>
<tr>
<td><strong>2048</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>100% Overweight or Obese</td>
<td></td>
</tr>
</tbody>
</table>

2030 Cost of Obesity = $860.7 - $956.9 Billion
Black women and Mexican-American men most affected

Source: Obesity, Vol. 16, no. 10, October 2008

There is an epidemic of adult-onset diabetes being seen in children. It is estimated that among children born after the year 2000:

- 1 out of 3 children will develop diabetes (higher in Hispanics and African-Americans)

If they develop adult-onset diabetes before 14 years of age, it is estimated that that will shorten their lifespan by 17 to 27 years. As a result, this may be the first generation in which parents live longer than their children.
Stanford Achievement Test
Ninth Edition
(SAT-9)
2004

FITNESSGRAM® Tests
AEROBIC CAPACITY

#1 PACER (Progressive Aerobic Cardiovascular Endurance Run)
Set to music, a paced, 20-meter shuttle run increasing in intensity as time progresses.
Or:
- One-Mile Run
  Students run (or walk if needed) one mile as fast as they can.
- Walk Test
  Students walk one mile as fast as they can (for ages 13 or above since the test has only been validated for this age group).
**FITNESSGRAM® Tests**

**BODY COMPOSITION**

#2 Skin Fold Test

Measuring percent body fat by testing the triceps and calf areas.

Or:

- **Body Mass Index (BMI)**
  Calculated from height and weight

**MUSCULAR STRENGTH AND ENDURANCE**

#3 Curl-Up

Measuring abdominal strength and endurance, students lie down with knees bent and feet unanchored.

Set to a specified pace, students complete as many repetitions as possible to a maximum of 75.
**FITNESSGRAM® Tests**

**MUSCULAR STRENGTH AND ENDURANCE**

#4 Trunk Lift

Measuring trunk extensor strength, students lie face down and slowly raise their upper body long enough for the tester to measure the distance between the floor and the student’s chin.

#5 Push-Up

Measuring upper body strength and endurance, students lower body to a 90-degree elbow angle and push up. Set to a specific pace, students complete as many repetitions as possible.

Or:

- **Modified Pull-Up (proper equipment required)**  
  With hands on a low bar, legs straight and feet touching the ground, students pull up as many repetitions as possible.

- **Flexed Arm Hang**  
  Students hang their chin above a bar as long as possible.
FITNESSGRAM® Tests

FLEXIBILITY

#6 Back-Saver Sit and Reach

Testing one leg at a time, students sit with one knee bent and one leg straight against a box and reach forward.

Or:

- Shoulder Stretch
  With one arm over the shoulder and one arm tucked under behind the back, students try to touch their fingers and then alternate arms.
2004 CST* Scores in Math
by Number of Fitness Standards

Grade 5 – 371,198 Students
Grade 7 – 366,278 Students
Grade 9 – 63,028 Students**

*CST Math Score

Number of Fitness Standards Achieved

Source: California Physical Fitness Test, 2004 Results, Calif. Dept. of Ed., April 2005

2004 CST* Scores in English-Language Arts
by Number of Fitness Standards

Grade 5 – 371,198 Students
Grade 7 – 366,278 Students
Grade 9 – 298,910 Students

*CST E-LA Score

Number of Fitness Standards Achieved

Source: California Physical Fitness Test, 2004 Results, Calif. Dept. of Ed., April 2005

*California Standards Test
** Grade 9 Students who took CST geometry
2004 CST* Scores in English-Language Arts in Grade 5
By Gender and Number of Fitness Standards

Source: California Physical Fitness Test, 2004 Results, Calif. Dept. of Ed., April 2005

Results using math scores were consistent with those using English-Language Arts scores.
Results for seventh- and ninth-grade students were consistent with those for fifth graders.

2004 CST* Scores in English-Language Arts in Grade 5
by Socioeconomic Status** and Number of Fitness Standards

Source: California Physical Fitness Test, 2004 Results, Calif. Dept. of Ed., April 2005

Results using math scores were consistent with those using English-Language Arts scores.
Results for seventh- and ninth-grade students were consistent with those for fifth graders.

*California Standards Test
**National School Lunch Program
“… discovered a link between marked obesity in toddlers and lower IQ scores, cognitive delays, and brain lesions similar to those seen in Alzheimer’s disease patients.”

"... emerging research showing that physical activity sparks biological changes that encourage brain cells to bind to one another. For the brain to learn, these connections must be made."

"... exercise provides an unparalleled stimulus, creating an environment in which the brain is ready, willing, and able to learn."

"Exercise is fertilizer for the brain."


---

**Senate Bill 530**

*Passed by Texas State House of Representatives and Senate on May 27, 2007*

*Signed into Law by Governor Rick Perry on June 13, 2007*

*Fitnessgram® approved as official testing vehicle by the Texas Education Agency on September 27, 2007*
Senate Bill 530

Exercise Requirements (Sep 2007)

Grades 1 – 5
- 30 minutes 5 times/week or
- 45 minutes 3 times/week (135 minutes total)
- 225 minutes over 2 weeks (45 minutes 3 times the first week, 45 minutes 2 times the second week)

Grades 6 – 8
- Same as above, but only 4 of 6 semesters are required

Grades 9 – 12
- No physical education requirement

Testing Requirements (using the Fitnessgram®)

- Beginning in the 2007-08 school year, all students grades 3 - 12 will be required to be tested annually at some time during the school year.

The Dallas Morning News

A backward lunge: Kids in sad shape

FITTNESS | ASSESING TEXAS' SCHOOLCHILDREN

Dallas, Texas, Wednesday, July 2, 2008

The Associate

Alicia: Kenneth Cooper of the Cooper Institute of Dallas said he hopes the results will "shock the state into reality and into action."
Texas Youth Evaluation Project 2008
Total # of Students Grades 3-12: 2,658,665

<table>
<thead>
<tr>
<th>Grade</th>
<th>Total # Students</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>102,342</td>
<td>33.25</td>
<td>28.60</td>
</tr>
<tr>
<td>4</td>
<td>80,539</td>
<td>28.50</td>
<td>21.14</td>
</tr>
<tr>
<td>5</td>
<td>66,798</td>
<td>23.82</td>
<td>17.89</td>
</tr>
<tr>
<td>6</td>
<td>60,663</td>
<td>23.08</td>
<td>17.60</td>
</tr>
<tr>
<td>7</td>
<td>55,441</td>
<td>21.32</td>
<td>17.26</td>
</tr>
<tr>
<td>8</td>
<td>48,971</td>
<td>18.99</td>
<td>17.88</td>
</tr>
<tr>
<td>9</td>
<td>39,456</td>
<td>13.90</td>
<td>15.04</td>
</tr>
<tr>
<td>10</td>
<td>28,650</td>
<td>12.42</td>
<td>13.70</td>
</tr>
<tr>
<td>11</td>
<td>21,152</td>
<td>10.68</td>
<td>12.24</td>
</tr>
<tr>
<td>12</td>
<td>13,040</td>
<td>8.18</td>
<td>8.96</td>
</tr>
</tbody>
</table>

6,532 campuses out of 9,212 (70.91%)
1,074 districts out of 1,267 (84.77%)

Texas Education Agency
Physical Fitness Assessment Initiative

10 Variables Compared with Levels of Fitness

- Attendance Rate
- Eligible for free lunch program
- Eligible for reduced lunch program
- TAKS
- Occurrence of substance abuse
- Occurrence of violence
- Occurrence of weapons
- Occurrence of truancy

- Obesity
- Diabetes
Dallas, Texas   Tuesday, March 10, 2009

Study: Fit kids do better in school

TEXAS elementary schools which are physically fit are more likely to do as well on standardized tests and have lower dropout rates, according to a study released today for the Texas Education Agency.

The study found that students who are physically fit are more likely to do well on standardized tests and have lower dropout rates. The study, conducted by the Cooper Institute for Aerobics Research, looked at data from 2007 and 2008 school years.

“The study found that students who are physically fit are more likely to do well on standardized tests and have lower dropout rates,” said Dr. Kenneth Cooper, president of the Cooper Institute.

The study looked at data from 2007 and 2008 school years and found that students who are physically fit are more likely to do well on standardized tests and have lower dropout rates.

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The study looked at data from 2007 and 2008 school years and found that students who are physically fit are more likely to do well on standardized tests and have lower dropout rates.
Association Between Fitness and Academic Performance (TAKS)

All students from all eligible schools

Spearman correlations between % achieving HFZ and % achieving TAKS standards adjusted for SES, minority % and school size

Higher Levels of Fitness Associated with Better Academic Performance

Association Between Fitness and School Incidence Rates

All students from all eligible schools

Spearman correlations between % achieving HFZ and % of negative incidence adjusted for SES, minority % and school size

Higher Levels of Fitness Associated with Fewer Negative School Incidents
Summary of Texas Youth Fitness Study
Initial Results

- Significant associations were consistently found between physical fitness and various indicators of academic achievement.

- The results were controlled for the influence due to school social economic status, minority status and school size.

- The consistent relationships observed support the thesis that physical fitness is associated with academic achievement in school aged youth. These are cross-sectional results and cannot be used to infer causality.
How do we measure cardiovascular fitness?
Definitions Of Fitness Categories
For Males

<table>
<thead>
<tr>
<th>Fitness Category*</th>
<th>&lt;30</th>
<th>30 - 39</th>
<th>40 - 49</th>
<th>50-59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>&lt;14:59</td>
<td>&lt;13:59</td>
<td>&lt;12:29</td>
<td>&lt;10:02</td>
</tr>
<tr>
<td>Poor</td>
<td>15:00-18:06</td>
<td>14:00 – 16:59</td>
<td>12:30 15:29</td>
<td>10:03 – 12:59</td>
</tr>
<tr>
<td>Good</td>
<td>22:06 – 26:00</td>
<td>21:00 – 24:42</td>
<td>20:000 – 23:13</td>
<td>17:00 20:29</td>
</tr>
<tr>
<td>Superior</td>
<td>29:00+</td>
<td>27:10+</td>
<td>26:16+</td>
<td>24:00+</td>
</tr>
</tbody>
</table>

*Based on the Cooper Clinic modified Balke treadmill protocol
**Definitions Of Fitness Categories**

**For Females**

<table>
<thead>
<tr>
<th>Fitness Category*</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>&lt;9:29</td>
<td>&lt;7:59</td>
<td>&lt;6:14</td>
</tr>
<tr>
<td>Poor</td>
<td>9:30 – 11:59</td>
<td>8:00 – 10:29</td>
<td>6:15 – 8:29</td>
</tr>
<tr>
<td>Good</td>
<td>15:21 – 18:59</td>
<td>14:00 – 16:59</td>
<td>11:21 – 14:03</td>
</tr>
<tr>
<td>Excellent</td>
<td>20:00 – 21:59</td>
<td>17:00 – 20:09</td>
<td>14:04 – 17:00</td>
</tr>
<tr>
<td>Superior</td>
<td>22:00+</td>
<td>20:10+</td>
<td>17:01+</td>
</tr>
</tbody>
</table>

*Based on the Cooper Clinic modified Balke treadmill protocol*
Age-Adjusted All-Cause Mortality by Fitness Groups, Men

Fitness Groups

0 10 20 30 40 50 60 70
Age-Adjusted All-Cause Mortality/10,000
Fitness and All-Cause Mortality, Men

![Fitness and All-Cause Mortality, Men Graph]

Age-Adjusted All-Cause Mortality/10,000 PY

- Very Poor
- Poor
- Good

Health & Longevity Fitness

Aerobic Fitness

Unfit
Fit

Exercising and Aging

- Telomeres are protective tips on bundles of genes inside cells
- Every time a cell divides, telomeres get shorter
- Aging occurs as cells reach the end of the telomere and die — muscle weakens, skin wrinkles, and thinking clouds

Arch of Int Med, Jan 28, 2008
Exercise and Aging

- **2,401 British Twins**
  - Long-term study, length of telomeres measured

<table>
<thead>
<tr>
<th>Exercise (min/wk)</th>
<th>Reduction in Age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>Baseline</td>
</tr>
<tr>
<td>100:00</td>
<td>5.0 - 6.0</td>
</tr>
<tr>
<td>180:00</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Arch of Int Med, Jan 28, 2008

Fitness, Body Composition and Distribution, and Mortality in ACLS Men

- Cohort of 21,925 men, followed an average of 8 years (176,742 man-years)
- Baseline exclusion for MI, stroke, or cancer
- Outcomes
  - All-cause mortality (428 deaths)
  - CVD mortality (144 deaths)
- Exposures
  - CRF from a maximal exercise test on a treadmill as an objective marker of habitual physical activity patterns
  - Body composition and fat distribution determined by hydrostatic weighing, sum of 7 skinfolds, and waist circumference

Adjusted RR for All-Cause Mortality by Fitness and % Body Fat

Adjusted RR for CVD Mortality by Fitness and % Body Fat


*adj for age, exam year, smoking, alcohol, & fam history
**Body Fat (BMI), Fitness, and Cancer Mortality**

(34,410 men, average age 43.8, 17-year followup)

Rate/10,000 man-years

- Fit (top 80%)
- Unfit (lower 20%)

BMI, kg/m²

18.5-24.9 P = 0.001
25.0-29.9 P < 0.001
>30 P = 0.01

**Quality of Life Variables by Fitness States**

(10,331 Men and Women)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low (n = 1077) %</th>
<th>Moderate (n = 3555) %</th>
<th>High (n = 5679) %</th>
<th>P for Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexplained Fatigue</td>
<td>25.8</td>
<td>16.3</td>
<td>11.2</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Problematic Snoring</td>
<td>49.9</td>
<td>34.8</td>
<td>21.9</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Frequent Heartburn</td>
<td>30.9</td>
<td>22.1</td>
<td>12.1</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Sexual Problems</td>
<td>11.0</td>
<td>7.4</td>
<td>5.0</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Decreased Sex Drive</td>
<td>29.8</td>
<td>22.2</td>
<td>19.6</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Impotence (men only)</td>
<td>9.7 (932*)</td>
<td>7.2 (3126*)</td>
<td>4.6 (4910*)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

* % (n)

Source: ACLS, The Cooper Institute, January 2006
### Quality of Life Variables by Fitness States
(10,331 Men and Women)

<table>
<thead>
<tr>
<th></th>
<th>Low (n = 1077) %</th>
<th>Moderate (n = 3555) %</th>
<th>High (n = 5679) %</th>
<th>P for Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Joint or Muscle Pain</td>
<td>34.0</td>
<td>29.3</td>
<td>23.5</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>44.8</td>
<td>41.5</td>
<td>35.4</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Frequent Headaches</td>
<td>16.7</td>
<td>15.0</td>
<td>12.0</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Difficulty Sleeping</td>
<td>28.7</td>
<td>24.9</td>
<td>21.9</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>20.9</td>
<td>15.9</td>
<td>12.9</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Anxiety</td>
<td>20.2</td>
<td>16.4</td>
<td>13.6</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Source: ACLS, The Cooper Institute, January 2006

### Aerobic Fitness

- **35 Aerobic points/week**
- **Run 2.0 miles < 20:00 minutes 4x/week**
- **Walk 3.0 miles < 45:00 minutes 5x/week**
- **Aerobic dance 45:00 minutes 4x/week**
Health and Longevity Fitness

15 aerobic points /week
Walk 2.0 miles < 30:00 minutes 3x/week
Walk 2.0 miles < 35:00 minutes 4x/week
Walk 2.0 miles < 40:00 minutes 5x/week
Walk 3.0 miles < 45:00 minutes 2x/week
Aerobic dance 45:00 minutes 2x/week