Exercise & Aging: The Fountain of Age

Ken Brummel-Smith, MD
Charlotte Edwards Maguire Professor & Chair,
Department of Geriatrics
FSU College of Medicine
EXERCISE:
THE MEDICINE OF CHOICE.
Objectives

- Discuss the risks of a sedentary life
- Discuss the benefits of activity
- Discuss the components of a healthy activity program
- Discuss precautions
Surgeon General States….

“Inactivity is detrimental to your health!”

Sedentary Americans

- 1 in 4 exercise regularly
- 22% never exercise
- 30% of those over age 65 never exercise
- Less than 10% participate in vigorous exercise
“When I get the urge to exercise, I lie down until it passes.”

W.C. Fields
DID YOU KNOW?

Overusing this device may be hazardous to your health.
Results of Inactivity

- High blood pressure
- Diabetes
- Osteoporosis
- Falls
- Arthritis
- Cancer
- Heart disease
- Obesity
- Dementia
- Depression
- Parkinson’s
- Stroke
- Macular degeneration

There is scientific evidence exercise prevents these.
<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>2.5</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>2.4</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>2.1</td>
</tr>
<tr>
<td>Sedentary</td>
<td>1.9</td>
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</tbody>
</table>
Centers for Disease Control

“Every American should accumulate 30 minutes or more of moderate-intensity physical activity over the course of most days of the week.”
Changing Views

- Any activity is better than none
- Health, not aerobic fitness
- Physical activity, not exercise
- 30 minutes is good, but less is OK
Benefits of Activity

- Decreased heart disease
- Reduced weight
- Better control of diabetes
- Less constipation
- Longer independence
- Reduced pain in arthritis
- Improved activities of daily living
- Improved self image
- Better thinking
- Modify most diseases
Exercise and Medical Problems

- Heart disease *
  - Decreases heart attacks
  - Improves heart failure
  - Increases function
  - Decreases meds used
  - Decreases mortality

- High blood pressure*
  - Lowers systolic and diastolic BP
  - Improves recovery time
  - Decreases meds used

*Endurance & resistance
Exercise and Medical Problems

- **Cholesterol**
  - Raises HDL
  - Lowers LDL
  - Lowers TG

- **Stroke**
  - Reduces stroke risk
  - Improves recovery rate

- **Peripheral Vascular Disease**
  - Increases distance walked

*Endurance
Exercise and Medical Problems

- Diabetes
  - Increases insulin sensitivity
  - Decreases meds used
  - Improves control
  - Reduces complications

- Osteoporosis
  - Reduces fracture rate
  - Increases balance
  - Decreases fall rates
  - Decreases meds used
Exercise and Medical Problems

Osteoarthritis
- Decreases pain
- Increases mobility
- Decreases need for joint replacement
- Increases ADLs
- Decreases meds used

Rheumatoid arthritis
- Increases flexibility
- Increases strength
- No effect on disease activity or progression
Exercise and Medical Problems

- **Low back pain**
  - Decreases episodes
  - Increases return to activities in chronic (not acute) LBP
  - Improves quality of life

- **Emphysema**
  - Increases endurance
  - Increases functional capacity
  - Decreases shortness of breath
  - Decreases hospitalizations
  - Decreases meds used
Exercise and Medical Problems

- **Sleep**
  - Increases duration
  - Increases total sleep time
  - Late exercise can decrease REM sleep

- **Depression**
  - Decreases recurrence
  - Increases resolution
  - Decreases meds used
Exercise and Medical Problems

Smoking
- Increases success rates with withdrawal programs

Balance
- Walking, Tai Chi, stationary cycling all improve balance
- Decreases fall rates

Cancer
- Prevents colon cancer
- Prevents breast cancer
- Improves prognosis
- Improves symptom tolerance during therapy
The Cost of Inactivity

“The overall costs avoided by exercise were $0.68 per person for people aged 15-44, and $30.39 for people aged 45 and over.”

$30 \times 200,000,000 = $6,000,000,000

Nicholl JP, Coleman P, Brazier JE.
Health and healthcare costs and benefits of exercise.
Fitness & Mortality

Cardiorespiratory Fitness Groups

Risk Factors:
- Smoking
- SBP >140 mmHg
- Chol >240 mg/dl

Source: Blair SN et al. JAMA 1996; 276:205-10
Fitness and Mortality
Women and Men ≥60 Y/O

All-cause deaths/10,000 person-years

Sui M et al. JAGS 2007.
Fitness and Weight (Women)

*adj for age, exam year, smoking, & health status

Adj RR*

Farrell *Obes Res.* 200
Fitness and Blood Pressure

CRF:
- Low
- Moderate
- High

Causes of Mortality
40,842 Men & 12,943 Women, ACLS

The “Best” Activity?

The one that you will do!
The Ideal Combination

- Strength (muscles)
- Endurance (heart and lungs)
- Balance (nerves)
- Stretching (muscles and joints)

Fiatarone Singh, Exercise to prevent frailty, Clinics Geri Med 2000
Strength

- Lift small weights (one can of peas) in a plastic shopping bag,
  - 10 repetitions on each side (vary the muscle groups)
- Bag handles can be placed over feet
- Do sit-to-stand-to-sit exercises while watching TV
- Join a health club that has both free weights and weight machines and do strength training 2-3 times per week

Fiatarone Singh
Helen Zeichmeister, age 91
Endurance

- Some activity for 30 minutes a day
- Never use an elevator or escalator when stairs are available
- Walk or bike on errands that would take less than 10 minutes to drive
- Don’t use remote control devices
- Usual manual devices when possible (lawn mower, brooms, etc.)
- Park a long distance from the main door when shopping

Fiatarone Singh
Heart Rates

- 220-age = maximum heart rate
- Target heart rate = 60-75% of maximum
  - 220-70 = 150
  - 150 x 0.6 = 90
  - 90 divided by 6 = 15

So, a 70 yr-old starts with a target heart rate 10 second count of 15
Balance

- Engage in exercise that requires balance (Tai Chi, dancing)
- While standing in line or cooking stand on one leg (or with feet in tandem)
- Try heel or toe walking for short distances (10 - 20 feet)
- Stand up and sit down on chairs using one leg (with hand support if needed)

Fiatarone Singh
Stretching

Once a day

Stretch to limit of “sweet tension” (not pain)

Don’t bounce

Hold the stretch to count of “20”

Neck, back, arms, hips, legs
Strategies for Success

- Make it FUN!
- Start slowly
- Set goals
- Increase activities in daily life
- Monitor how you’re doing
- Enlist support
- Give yourself rewards
- Learn from relapses
- Know your resources
- Lifelong orientation
Reasons to See a Dr. First

- Heart or lung disease
- Significant arthritis
- Certain medications (high blood pressure)
- Prior problems with activity
References

- Dare to be 100, Walter Bortz, Fireside, 1996
- Vitality and Aging, Fries & Crapo, WH Freeman, NY, 1981
- Growing old is not for sissies, Etta Clak, Pomagranate Books, Petaluma, 1990
- [www.nih.gov/nia/health/pubpub/exercise.htm](http://www.nih.gov/nia/health/pubpub/exercise.htm)