Every patient is an athlete.
Exercise counseling and prescription in primary care

Carlin Senter, M.D.
Assistant Clinical Professor
Primary Care Sports Medicine
UCSF Orthopaedics and Internal Medicine

Physical inactivity in the US, 2008


Obesity in the U.S. in 2008

What % of adults in California did no leisure-time physical activity in 2008?

http://apps.nccd.cdc.gov/PASurveillance/StateSumResultV.asp

Case

- 55 y/o woman presents for routine annual exam. No complaints but shocked that she gained 10# since she saw you last year. Takes no medications.
- BP 140/80, HR 80, Height: 5’3”, weight 170# (BMI 30)
- Labs:
  - HgA1c 6.3%
  - Fasting glucose 104
  - Total cholesterol 192, TG 119, HDL 50, LDL 118

Outline

- Why every patient should be an athlete
- Physical activity recommendations for adults
- Action plan: Every patient is an athlete
- Resources
- Quiz
- Special populations

Definitions

- Physical activity: any body movement that results in energy expenditure (exercise, ADLs, active transportation)
- Exercise: physical activity that is planned, structured, repetitive with objective to improve or maintain physical fitness.

Why every patient should be an athlete

• Long-term health benefits
  – Strong evidence
  – Moderate evidence
• Immediate health benefits

Strong evidence that physical activity associated with lower risk of

• Coronary heart dz
• Stroke
• HTN
• Dyslipidemia
• DM2
• Metabolic syndrome
• Colon cancer
• Breast cancer
• Falls
• Depression


Coronary artery disease risk factors

• Family history
• Age
• Male gender
• Smoking
• Dyslipidemia
• HTN
• Diabetes
• Physical inactivity
• Obesity

Physical activity lowers cardiovascular risk in dose-dependent fashion

• Compared to people with no physical activity
  – 150 min/week of moderate-intensity physical activity → 14% lower CHD risk
  – 300 min/week → 20% lower risk
  – Higher levels of activity conferred lower and lower risk


http://www.heart.org/HEARTORG/Conditions/HeartAttack/UnderstandYourRis kofHeartAttack/Understand-Your-Risk-of-Heart-
How does physical activity lower cardiovascular risk?

- Increased HDL and lower TGs independent of weight loss
- Possibly lower level inflammatory markers (CRP and IL-6) independent of weight loss
- Lower LDL only if physical activity leads to weight loss


Moderate evidence that physical activity associated with

Lower risk of...
- Hip fracture
- Lung cancer
- Endometrial cancer

Improved...
- Bone density
- Sleep quality
- Weight maintenance after weight loss


Immediate benefits of exercise

- Blood pressure
  - Exercise session with VO2max 50-100% →
    - ↓ SBP 18-20mmHg
    - ↓ DBP 7-9mmHg
    - x 12-16° after exercise

- Blood sugar
  - Exercise at 55-75% VO2max →
    - ↓ blood sugar 20-40 mg/dL
    - x 2-3 days

Kesaniemi et al, Medicine & Science in Sports & Exercise, 2001

Physical activity recommendations:
4 types of activities
Physical activity recommendations: components of each activity

- **Frequency**
- **Intensity**
- **Time**
- **Type**

Estimating exercise intensity

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Moderate</th>
<th>Vigorous</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>&lt;50% max</td>
<td>50-70% max</td>
<td>&gt;70% max</td>
</tr>
<tr>
<td>Talk test</td>
<td>Can talk and sing</td>
<td>Can talk but not sing</td>
<td>Can only say a few words before pause for breath</td>
</tr>
<tr>
<td>Borg rating of perceived exertion</td>
<td>9 – very light (slow walk)</td>
<td>11 – light</td>
<td>13 – somewhat hard (very heavy, tired)</td>
</tr>
</tbody>
</table>

- RPE x 10 = HR
- Good way to measure intensity for person on meds that affect HR

Recommendations: combine activity with components

- **Frequency**
- **Intensity**
- **Time**
- **Type**
### CV fitness recommendations

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5x/week</td>
<td>Moderate</td>
<td>30 minutes</td>
<td>Major muscle groups</td>
</tr>
</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3x/week</td>
<td>Vigorous</td>
<td>20 minutes</td>
<td>Major muscle groups</td>
</tr>
</tbody>
</table>


### Balance recommendations

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3d/week</td>
<td>Unknown</td>
<td>20 minutes</td>
<td>Tai Chi, tennis, yoga, surfing</td>
</tr>
</tbody>
</table>


### Strength recommendations

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3d/week</td>
<td>Novice: 40-50% Experienced: 80%</td>
<td>Unknown</td>
<td>All major muscle groups</td>
</tr>
</tbody>
</table>


### Flexibility recommendations

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3d/week</td>
<td>Stretch to feeling of tightness</td>
<td>Hold 10-30 seconds</td>
<td>All major muscle-tendon units</td>
</tr>
</tbody>
</table>

Action plan:
Every patient is an athlete

- 55 y/o woman presents for routine annual exam. No complaints but shocked that she gained 10# since she saw you last year. Takes no medications.
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Should we spend time on exercise counseling?

- USPFT: “the evidence is insufficient to recommend for or against behavioral counseling in primary care settings to promote physical activity.”
- BUT
  - Huge benefit of physical activity for health
  - There is evidence that certain techniques more helpful than others


What works for you in counseling a patient in the office on behavior modification?

Why don’t patients always follow our advice when they leave the office?
What are some barriers to physical activity?

Make the most out of your counseling on physical activity

- Program characteristics
  - Moderate intensity
  - Supervised activity by experienced leader
  - Group support
  - Pedometers
- Individually tailored program
  - Goal-setting
  - Reinforcement: social support for behavioral change
  - Problem-solving
  - Prevention of relapse into sedentary behavior


Physician Action Guide

1. Is the patient exercising?
2. Is the patient healthy enough to start exercising?
3. Assess the patient’s stage of change
4. Write an exercise prescription

Step 1: is patient currently exercising?

1. If yes: types of activity and duration
2. If no: why not? Willing to start exercising?
   1. If no: counsel on benefits of exercise and f/u in future on this with patient
   2. If yes: go to Step 2
Step 2: is patient healthy enough to start exercising?

**PAR-Q & YOU**

1. A Questionnaire for People Aged 15 to 80

People who are aged 15 to 80 and have been of normal activity level regularly can start exercising. However, those who have not been active for more than 6 months or have been inactive for more than 1 year should be evaluated by a doctor before they start exercising.

- “There is insufficient evidence at this time to recommend exercise testing as a routine screening modality in asymptomatic adults.”
- “Potentially beneficial” to screen
  - Middle aged sedentary patients before vigorous exercise esp. diabetics
  - People with multiple CV risk factors to help guide risk reduction therapy


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Step 3: assess patient’s stage of change

<table>
<thead>
<tr>
<th>Stage of Change</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation (Patient not ready to exercise)</td>
<td>Encourage patient to consider exercising; tell patient about health benefits of exercise.</td>
</tr>
<tr>
<td>Contemplation (If patient interested in or thinking about exercising)</td>
<td>Write prescription; refer to non-clinical fitness professional. Refer to clinical exercise professional if necessary.</td>
</tr>
<tr>
<td>Preparation (If patient exercising less than recommended amount)</td>
<td>Write prescription; refer to non-clinical fitness professional. Refer to clinical exercise professional if necessary.</td>
</tr>
<tr>
<td>Action and Maintenance (If patient is exercising recommended amount)</td>
<td>Encourage continued exercise. Encourage continued supervised exercise.</td>
</tr>
</tbody>
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Step 4: write an exercise prescription

**EXERCISE PRESCRIPTION & REFERRAL FORM**

- Purpose: To have a health or fitness professional guide exercise regimen.

- Patient’s Name:
- Date:
- Physician’s Name:
- Phone:
- Address:
- Age:
- Gender:
- Weight:
- Activity Level:
- Type of physical activity:
- Number of days per week:
- Minutes per day:
- Total minutes per week:
- Date next appointment:
- Notes:

http://exerciseismedicine.org/documents/B_ExPrescripReferral.pdf
Case

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What are the steps in counseling this patient about physical activity?

What makes up the exercise prescription?

<table>
<thead>
<tr>
<th>Fitness component</th>
<th>Frequency (days/week)</th>
<th>Intensity</th>
<th>Time</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiorespiratory</td>
<td>3</td>
<td>50% max</td>
<td>30 minutes</td>
<td>Stationary bike</td>
</tr>
<tr>
<td>Resistance</td>
<td>2</td>
<td>50% max</td>
<td>2 sets of 8 reps</td>
<td>8 exercises of major muscle groups</td>
</tr>
<tr>
<td>Balance</td>
<td>7</td>
<td>n/a</td>
<td>5 minutes</td>
<td>Walk sidewalk lines</td>
</tr>
<tr>
<td>Flexibility</td>
<td>5</td>
<td>Stretch to tightness but not to pain</td>
<td>15 seconds</td>
<td>2x/stretch</td>
</tr>
</tbody>
</table>
“All parts of the body if used in moderation and exercised in labors to which each is accustomed, become thereby healthy and well developed, and age slowly; but if unused and left idle, they become liable to disease, defective in growth, and age quickly.”

Hippocrates
**Pedometers**

- Popular and effective for promoting physical activity
- 10,000 steps/day was old recommendation
- Update for 2011:
  - Pedometers don’t measure speed
  - May need <10,000 steps/day for sig health benefit
  - 100 steps/minute is rough estimate of moderate intensity exercise
  - Recommend using steps/minute and the the number of minutes/session (30)

ACSMP Position Stand on Prescribing Exercise, Medicine & Science in Sports & Exercise, 2011.
What are the 4 types of activity and the 4 components of activity?

Quiz

• List one immediate benefit of physical activity
• List 3 medical problems that are less likely to occur if a patient is physically active

What are the CDC + ACSM recommendations for

– Cardiorespiratory fitness
– Strength
– Balance
– Flexibility
What are the 4 steps in prescribing exercise?

References

**Special populations**

Exercise is an excellent way to control blood pressure

- **Frequency**: 3-7 days/week; daily exercise best to control BP
- **Intensity**: 40-70% VO2 max
- **Time**: 30-60 minutes
- **Type**: emphasize aerobic training

**Hypertension pointers**

- Resistance training: lower weight, higher repetitions (avoid valsalva)
- Beta blockers → ↓HR → ↓ exercise capacity
- Beta blockers + diuretics may increase risk for heat illness in hot + humid conditions
- Vasodilators can → postexertional vasodilation. Incorporate gradual cool-down.

**Arthritis pointers**

- Type of activity: aquatic, cycling, walking
- Start low (10 minutes a day), go slow
- Perform functional activities daily
  - Climb stairs
  - Sit to stand exercise
Diabetes pointers

Exercise is an excellent way to control blood sugar!

- Must have good blood sugar control before starting exercise rx
- Exercise with partner or under supervision
- Review symptoms of hypoglycemia with patient
- Postexercise hypoglycemia can last 48 hrs after exercise
  - Monitor plasma glucose levels
  - Ingest carbohydrates as needed

- Retinopathy: high arterial pressures can cause retinal detachment. If severe, avoid SBP >170.
- Peripheral neuropathy: may have balance and gait abnormalities
- Autonomic neuropathy: use RPE to monitor intensity

≥ 75 y/o previously sedentary:

- ETT
  - Higher percentage of asymptomatic coronary artery disease on EKG compared to age 65-74
  - Many of these abnormalities decrease the utility of treadmill stress test
  - Routine stress tests → invasive cardiac procedures → iatrogenesis
  - Multiple chronic medical conditions + physical limitations
    - Less favorable risk/benefit for coronary interventions
    - Inability to complete treadmill test: even of those with no physical limitations, only 25% able to achieve maximal exercise effort

- Invasive cardiac procedures
- Routine stress tests
- Iatrogenesis

Recommendations ≥ 75 y/o previously sedentary

- Instead of ETT
  - walk up flight of stairs
  - bicycle in air x 1 minute
- Low intensity rx: gait training, balance exercises, Tai Chi, lower ext resistance training with elastic tubing or weights
- Supervision for first session
- Warm up and cool down
- START LOW GO SLOW

Exercise in monitored setting if ≥ 75 y/o and…

- MI within 6mo
- Angina
- Physical signs or symptoms of CHF
- SBP >200, DBP >110