ELEANOR TILLETT

A Practical Guide For Prescribing Exercise in Arthritis

This speaker has no conflicts of interest
Overview

With evidence mounting for the benefits of physical activity for patients with arthritis, this talk will focus on the practicalities:

1. Are there any risks and how to risk stratify patients before prescribing physical activity

2. What are the key components of a physical activity programme and how to get patients started

3. Barriers and adherence, maintenance and prevention of relapse

4. Modifications for more severely affected patients
NICE Guidelines

- Education, advice, information access
- Oral NSAIDs including COX-2 inhibitors
- Opioids
- Intra-articular corticosteroid injections
- Topical NSAIDs
- Local heat and cold
- Assistive devices
- Weight loss if overweight/obese
- Strengthening exercise, aerobic fitness training
- TENS
- Manual therapy (manipulation and stretching)
- Joint arthroplasty
- Shock-absorbing shoes or insoles
- Supports and braces
An Evidence Selection…

• Knee OA: Systematic review of 17 studies (n=2500)
  • Randomly assigned exercise vs other or no treatment
  • Exercise has a positive effect on both pain and physical function in knee osteoarthritis
    

• Lower limb OA: Systematic review
  • Exercise improves symptoms
    
    Uthman OA et al. BMJ 2013

• Exercise training compared to NSAID treatment:
  • Greater reduction in pain is seen after 6–8 weeks of exercise training
    
And For Inflammatory Arthritis....

- Regular PA improves:
  - Aerobic capacity
  - Muscle function
  - Bone density
  - Daily activity performance
  - Quality of life

Eversden L et al. BMC Musculoskeletal Disorders 2007
Mechanisms? OA…

• Muscle activity relieves pain (esp NWB resistance)  

• Aerobic fitness training increases endorphin levels

• Increased muscle strength & improved neuromuscular function improve joint stability, thereby reducing loading

• May be associated weight loss, which reduces joint loading

• Improves cartilage quality  
  Roos EM et al. Arthritis Rheum 2005
Mechanisms? Inflammatory Arthritis…

• Daily moderate intensity PA improves muscle function & quality of life in pts with early RA
  

• General PA appears to be beneficial for maintaining joint flexibility
  
  Han A et al. Cochrane Database Syst Rev 2004

• Systemic benefits including reduced risk of premature death from CVD
Pre Intervention Assessment

1. Medical history / risk stratification
2. Exercise history
3. Goals
4. State of change / motivation
Pre Intervention Assessment

1. Medical history / risk stratification
2. Exercise history
3. Goals
4. State of change / motivation
Risks?

1. Risks of exercising

2. Disease specific risks of exercising
   - OA
   - Inflammatory arthritis
1. Risks of Exercising

*Paradox*...

Regular physical activity (PA) reduces the risk of CVD

Vigorous exercise can transiently raise the risk of a cardiac event in susceptible persons
In excercising adults:

- Healthy adults:
  - Men: 0.3 – 2.7 CV events per 10,000 hrs PA
  - Women: 0.6 – 6 CV events per 10,000 hrs PA

- Cardiac Rehab
  - Fatal events 1/81,670

Risk modified by frequency of PA

Exercise & acute CV events: ACSM 2007

“No evidence suggests that the risks of physical activity outweigh the benefits for healthy subjects. Indeed, the converse appears to be true.”
2. Disease Specific Risks: OA

- Injury will potentially worsen OA
- Consider appropriateness of impact & contact sports
2. Disease Specific Risks: Inflammatory Arthritis

- Appears to be no evidence that moderate to high-intensity PA will increase disease activity
  
  *de Jong Z et al. Arthritis Rheum 2003*

- No negative effects of moderate intensity PA on joint destruction (limited studies)
  
  *de Jong Z et al. Curr Opin Rheumatol 2005*

- Long periods of high-intensity PA appear to accelerate joint destruction
  
  *Munneke M et al. Arthritis Rheum 2005*

*NB*

- *Other disease risks*: pericarditis, CHF, pleuritis, pulmonary fibrosis, vasculitis, nephritis
- *Treatment risks*: steroid injections
Questionnaire: PAR-Q+

Section 1: General Health

1. Heart condition OR high blood pressure?

2. Pain in your chest at rest, during your daily activities of living, OR when you do physical activity?

3. Lose balance because of dizziness OR have you lost consciousness in the last 12 months?

4. Diagnosed with another chronic medical condition?

5. Prescribed medications for a chronic medical condition?

6. Bone or joint problem that could be made worse by becoming more physically active?

7. Has your doctor ever said that you should only do medically supervised physical activity?
Section 2: Other Medical Conditions

1. Arthritis, Osteoporosis, or Back Problems
2. Cancer
3. Heart Disease
4. Metabolic Conditions
5. Mental Health Problems or Learning Difficulties
6. Respiratory Disease
7. Spinal Cord Injury
8. Stroke / TIA
9. Do you have any other medical condition not listed above or do you live with two chronic conditions?
PAR-Q+ Outcomes

If you answered NO to all of the questions:
  ➢ Ready to become more physically active

If you answered YES to one or more of the questions:
  ➢ Seek further information from a licensed HCP before becoming more active

Delay becoming more active if:
  ➢ Not well because of a temporary illness (wait until recovered)
  ➢ Pregnant (seek further advice from your health care practitioner)
  ➢ Your health changes (seek further advice from your health care practitioner)
ACSM Classification

- **Class A:**
  - Apparently healthy (No CVD)
  - May have CVD risk factors
  - Moderate intensity PA without further screening

- **Classes B & C:**
  - Symptomatic CVD
  - Examination and maximal exercise test before participate in moderate or vigorous PA

- **Class D:**
  - Unstable CVD
  - Further evaluation but generally contra-indicated
Pre Intervention Assessment

1. Medical history / risk stratification

2. Exercise history

3. Goals

4. State of change / motivation
Exercise History

• Previous PA

• Current PA

• What enjoy / not enjoy
• Solitary vs team
• Indoors / outdoors
• ‘Formal’ or ‘informal’
Pre Intervention Assessment

1. Medical history / risk stratification

2. Exercise history

3. Goals

4. State of change / motivation
Types Of Goals

- Pain reduction
- Weight loss
- Live independently
- Continue work
- Become healthier
- Improve fitness
- Play with children / grandchildren
- Disease modification
- Specific sporting challenge

etc
Pre Intervention Assessment

1. Medical history / risk stratification

2. Exercise history

3. Goals

4. State of change / motivation
Readiness To Change

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance

Progress and Relapse
Pre Intervention Assessment

1. Medical history / risk stratification
2. Exercise history
3. Goals
4. State of change / motivation
Exercise / Physical Activity Intervention

1. Lifestyle advice

2. Formal prescription / referral
Advice

• Still needs to be specific
  • Tailor to state of change / goals

• Written & verbal
  • Message consistency & frequency
• Starting an exercise programme
http://exerciseismedicine.org/documents/StartingExProgram.pdf

• Exercising with arthritis
http://exerciseismedicine.org/documents/YPH_Arthritis.pdf
More Patient Info

• Exercise and arthritis ‘Keep Moving’

• Disease specific additional guidance

• NHS Health & fitness
  http://www.nhs.uk/Livewell/fitness/Pages/Fitnesshome.aspx

• Walking for health
  http://www.walkingforhealth.org.uk
http://www.fyss.se/fyss-in-english/
Adapted From FYSS Activity Pyramid

Walking, using stairs, getting off bus/tube a stop early, gardening, playing with children / grandchildren, housework, shopping etc

PLUS daily mobility/flexibility exercises

5 x 30mins / week

Moderate intensity

Walking, Nordic walking, cycling, swimming, aqua aerobics etc
Adapted From FYSS Activity Pyramid

Inactivity

Strength & Balance

Measuring PA Intensity:
- Able to sing – low
- Able to talk – moderate
- Not able to talk - high

Walking, using stairs, getting off bus/tube a stop early, gardening, playing with children / grandchildren, housework, shopping etc PLUS daily mobility/flexibility exercises
Adapted From FYSS Activity Pyramid

Minimise

2-3 x weekly
1-2 sets x 8-10 exercises, 8-12 reps
Body weight / resistance / bands
Tai Chi, yoga, pilates

5 x 30mins / week
Moderate intensity
Walking, Nordic walking, cycling, swimming, aqua aerobics etc

Walking, using stairs, getting off bus/tube a stop early, gardening, playing with children / grandchildren, housework, shopping etc PLUS daily mobility/flexibility exercises
F.I.T.T. Principle

Frequency
5 days per week (most days)

Intensity
Moderate

Time
30 minutes (60 minutes) in minimum of 10 minute bursts

Type
Cardio, strength, flexibility, core
Details eg specific exercises, sets/reps/time

Plus warm up / cool down
Formal Exercise Rehab Programme: OA

Mr Bruce Paton – Specialist Musculoskeletal Physiotherapist, ISEH / UCLH
Thank you for the IP & Data!
Example Programme

Knee Circuit Exercises

- 6 week program
  - 2 x 1 hour sessions/ week
- Warm up 15 min
- Leg press
- Bike
- Functional: sit to stand / steps
- Glutes / hamstrings / calf
- Proprioception/ balance work
- Modelled on evidence based programs

Education

*Hurley et al Arth& Rheum 2007*
*MCArthyet al HTA 2004*
Example Programme

**Knee Circuit Exercises**

- 6 week program
  - 2 x 1 hour sessions/ week
- Warm up 15 min
- Leg press
- Bike
- Functional: sit to stand / steps
- Glutes / hamstrings / calf
- Proprioception/ balance work
- Modelled on evidence based programs

*Hurley et al Arth& Rheum 2007
MCArthy et al HTA 2004*
Example Programme

Knee Circuit Exercises

- 6 week program
  - 2 x 1 hour sessions/ week
- Warm up 15 min
- Leg press
- Bike
- Functional: sit to stand / steps
- Glutes / hamstrings / calf
- Proprioception/ balance work
- Modelled on evidence based programs

Education

Hurley et al Arth & Rheum 2007
MCArthyet al HTA 2004
Example Programme

Knee Circuit Exercises

- 6 week program
  - 2 x 1 hour sessions/week
- Warm up 15 min
- Leg press
- Bike
- Functional: sit to stand / steps
- Glutes / hamstrings / calf
- Proprioception/ balance work
- Modelled on evidence based programs

Education

Hurley et al Arth & Rheum 2007
MCArthy et al HTA 2004
Outcomes (N=126)

Primary Outcome

Baseline WOMAC (OA index) = 66.13

FU WOMAC = 60.23

Mean difference = -5.907 ($p<0.001$)

Other Outcomes

• Age and symptom duration were the only 2 factors that predicted outcome

• Severity of KL scale did not predict response
Recommendations: Inflammatory Arthritis Prescription

- Very active disease status or significant disability, emphasise:
  - Flexibility
  - Strength training abdominals, gluts & quads

- All pts (irrespective of disease status):
  - Low-intensity exercise (land or water based)

- Moderate to high-intensity exercise for 30 minutes at least 3 times a week:
  - To increase oxygen uptake capacity, muscle function, bone density & ability to carry out daily chores
Cautions / Adaptations

1. Reduce the risk of aggravated symptoms introduce PA slowly
   • Initial loads should be smaller than generally recommended
   • Increased every 2-3 wks

2. Counsel re potential initial increase in symptoms
   • Temporary & not related to disease

3. Step down as well as up
   • According to disease status

4. Use the ‘24-hour rule’
# Inflammatory Arthritis: Example Prescription
*(Adapted from FYSS)*

<table>
<thead>
<tr>
<th>Objective</th>
<th>Frequency</th>
<th>Intensity</th>
<th>Type</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote health</td>
<td>4-7 / week</td>
<td>Low - moderate</td>
<td>Aerobic eg walking, gardening, housework etc</td>
<td>30mins / session</td>
</tr>
<tr>
<td>Improve mobility / flexibility</td>
<td>Daily</td>
<td>Sensation of stretch, no pain</td>
<td>All major muscle groups, dynamic +/- static</td>
<td>10-20mins / session</td>
</tr>
<tr>
<td>Improve aerobic fitness</td>
<td>3 / week</td>
<td>Moderate - high</td>
<td>Aerobic eg walking, cycling, water based etc</td>
<td>30-60mins / session</td>
</tr>
<tr>
<td>Increase strength</td>
<td>2-3 / week</td>
<td>50-80% of 1RM</td>
<td>All major muscle groups (weight bearing)</td>
<td>1-2 sets, 8-12 exercises</td>
</tr>
<tr>
<td>Improve muscle endurance</td>
<td>2-3 / week</td>
<td>30-40% of 1RM</td>
<td>All major muscle groups</td>
<td>1-2 sets, 8-12 exercises</td>
</tr>
<tr>
<td>Improve balance</td>
<td>2-3 / week</td>
<td>Low</td>
<td>Home exercises double/single leg, Tai Chi</td>
<td>10-30mins / session</td>
</tr>
</tbody>
</table>
Summary

- Consistency & frequency of message
- Goal-oriented
- Tailored advice based on ‘stages of change’
- Don’t try and change too much at once
- Be specific
  - FITT principles
- Support systems
- Follow-up

“It’s not a rash, it’s moss. You need to start being more active than a tree.”