Rehab and Return to Run with Knee Arthritis

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1

OBJECTIVES

Upon completion of this lecture, participants should be able to:

1. Understand prevalence of osteoarthritis in older runners
2. Identify appropriate training volume and intensity for masters runners
3. Describe the unique rehabilitation needs of masters runners
4. Develop a basic training plan for a runner with osteoarthritis

2

How large is this population?

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Who Runs?

- 1.1 million marathon participants globally in 2019
- 5K – Marathon participation has increased in runners >40 years old
- Increasing age of marathon finishers since 1986

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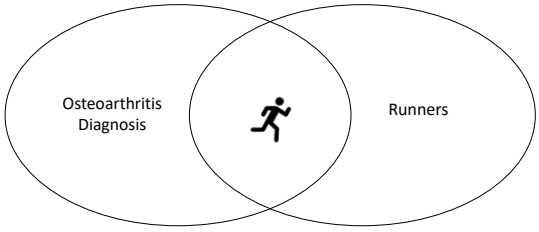
Who Has Arthritis?

Symptomatic OA: Estimated 26% of US adults >45 years old

Radiographically Confirmed OA: Greater than 10% of those >60 years old

5



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Is running a good exercise option as we age?

7

Is Running a Risk Factor for Knee OA?

- U shaped dose response
- Higher Risk
  - Long history of high intensity or high-volume training
  - Non-Runners
- Lower Risk
  - Recreational runners
  - Moderate volume and intensity

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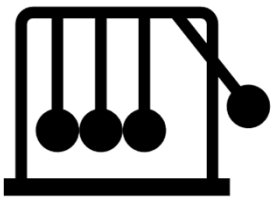
8

What do Runners Need?

9



Energy Release and Storage

11

10

What do Runners Need?

MOBILITY STRENGTH POWER STABILITY ENDURANCE

11

11

What is different about older runners?

12

Differences in Running Mechanics for Masters Runners

- Higher cadence
- Reduced step length
- Decreased ankle, knee, hip excursion
- Decreased vertical oscillation
- Decreased peak propulsive and vertical ground reaction forces
- Decreased plantarflexor muscle mass, cross-sectional area, rate of force production, and tendon stiffness
- Decreased leg and ankle stiffness

7

13

Differences in Injury Profile for Masters Runners

- Increased musculotendinous injuries
  - Hamstrings
  - Plantarflexors
  - Achilles
- Higher incidence of Achilles tendinopathy

7

14

What Do Masters Runners Need?

- Plantarflexor strengthening program
- Slow, heavy resistance training – At least 6 months
  - Plantarflexors
  - Quads
  - Gluteals
  - Hips
- Plyometrics
- Consider addition of cross training to replace some runs

7

15

How Do We Apply This to Runners With Knee Osteoarthritis

- Symptoms?
- Pain Level?
- Training Level?
- Mileage?
- Intensity?

16

Acute Phase: Reduce Inflammation and Pain

Pain Modulation

Ice
Manual therapy
Bracing
Topical or oral painkillers
Injection

Training Modification

Short rest from running
Cross-training
Walk/Run
Decrease mileage
Decrease pace

Therapeutic Exercise

ROM
Isometrics

3

17

Recovery Phase: Restore/Improve Function

Pain Modulation

Over the counter analgesics
Ice
Manual Therapy

Training Modification

Walk/Run
Cross-training
Lower mileage
Avoid hills
Decrease pace

Gait Modifications

Increased step rate
Decreased step length
Forefoot running

Therapeutic Exercise

Squats
Knee flexion and extension
Hip abduction and adduction
Flexibility
Balance
Plyometrics

3

18

Functional/Return to Sport

Gait Modifications

Continue to monitor gait

Allow patient to return to reasonable preferred gait pattern

Training Progression

Maintain mileage at stable symptomatic level

Progress mileage by <10%

Encourage cross-training for some aerobic benefit

Therapeutic Exercise

Continue with strength, mobility, and balance

Plyometrics

3

19

Take Aways

Treating runners with knee osteoarthritis isn't that different from other runners

Consider differences in injury profiles of older runners

Consider limiting weekly mileage more than for younger runners

Help the patient devise a plan for progression and a plan for monitoring symptoms

For many, running is a safe option

Runners are going to run!

20

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21

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22