Objectives

1) What are the benefits of running? Is there such a thing as too much running?

2) Why is knee pain so common in runners?

3) Which anti-inflammatory is best for tendonitis?

4) What about footwear?

5) When should I seek medical attention?
Why should I run?
Physical Benefits of Running

- Maintain healthy weight
- Lowers cholesterol
- Decreases risk of heart disease
- Decreases risk of cancer
- Stronger bones
Psychological Benefits of Running

- Lower stress
- Decreased depression
- Improved self-esteem
- Better sleep
Is there such a thing as too much running?
Problems with too much running

- Arthritis
- Stress fractures
- Tendon pain
- Impaired immune system
- Elevated cholesterol
Epidemiology of Running Injuries

- Annual incidence is 67%

Fredericson, Sports Med, 2007
Epidemiology of Running Injuries

- 90% sustain an injury during marathon training
- Novice runners are at highest risk

Fredericson, Sports Med, 2007
Risk Factors for Running Injuries

- **High training mileage**
  - Cut-off around 20 miles per week

- **Previous injury**
  - Prior 12 months
  - Inadequate rehabilitation

- **Abrupt change in training**
  - Frequency
  - Intensity
  - Surface
  - Cross-training
Running & Osteoarthritis (OA)

- Lack of conclusive evidence
  - No increase in 60 yo runners
    (180 min/w x 12 years)
  - Increased hip OA in runners (>65 m/w)
  - No increase in complaints of joint pain in runners vs. non-runners

- Runners with OA may have faster progression compared to non-runners

McDermott 1983; Lane 1993; Kujala 1995; Ding 2007
Why are knee injuries most common?
Knee Injuries in Runners

- Patellofemoral Pain Syndrome
- Iliotibial Band Friction Syndrome
- Osteoarthritis
- Meniscal tears
Patellofemoral Pain Syndrome (PFPS)

- Runner’s knee
- Pain around/behind the knee cap
- Increased pressure/motion between the femur and the knee cap
- More common in females
- Multiple causes
Causes of Runner’s Knee

① Hip/pelvis
  - Weak hip muscles

② Knee
  - Tight IT band
  - Asymmetric pull of quads

③ Foot/ankle
  - Excessive pronation/flat foot
Causes of Runner’s Knee

- Knee is the victim of poor **hip** or **foot** mechanics
Treatment of Runner’s Knee

- Hip and lower leg strengthening
- Functional movements
Treatment of PFPS

- Taping
- Bracing
- Orthotics
- Improve running technique
- No injections!!!
What anti-inflammatories are best for Achilles tendonitis?
Achilles Tendon Pain

- True inflammation is rare
  - Not tendonitis!!!

- Overuse $\rightarrow$ thickened, irregular tendon
  - “Tendonopathy”
  - “Tendonosis”
Ultrasound of Tendonopathy
Treatment of Achilles Tendonopathy

- Pain control
  - Ice
  - Heel lift/CAM walker
  - Tylenol

- Activity modification – as tolerated; alter running mechanics

- Rehabilitation

- Injections

- Surgery
Rehabilitation

3x15
Twice a day
7d/week
Total 12 weeks

93% symptom-free after 5yrs

Alfredson 2005
Injections

+ NO STEROIDS

+ Bioinjectibles
  + Tenotomy
  + Autologous blood
  + Platelet-rich plasma (PRP)
What about footwear?
BORN TO RUN
A Hidden Tribe, Super Athletes, and the Greatest Race the World Has Never Seen
Christopher McDougall
What about footwear?
Rear Foot Strike without shoes

Loading Rate = 600 BW/s
Peak = 2 x BW

Lieberman 2010
Rear Foot Strike with shoes

Loading Rate = 100 BW/s
Peak = 0.2 x BW

Lieberman 2010
Midfoot or Forefoot Strike without shoes

Decreased peak
Decreased loading rate
What about footwear?

Your mechanics are far more important than what you wear on your feet!

+ Your mechanics are far more important than what you wear on your feet!
When to seek medical attention?
Reasons to see a medical provider

- Inability to bear weight or limping
- Red, warm joint
- Night pain
- Pain that is getting progressively worse
- Unable to meet goals due to pain/injury
Questions?
References


References


