

# **Risk factors for injury and injury prevention**

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**University Hospitals**

Cleveland | Ohio

# Risk factors for injury and injury prevention

## Allison Schroeder

Dancer (ballet, tap, jazz), swimmer, soccer player, basketball player

Runner:

Ohio D2 State Champion 300 m hurdles – 43.32

University of Notre Dame: 800m 2:08, 1500m 4:28 (converts to 4:47 1600m)

Recreational (retired??) runner

–Marathon 2:54 , half marathon 1:18 , 10K 36:11, 5K 17:48



**University Hospitals**

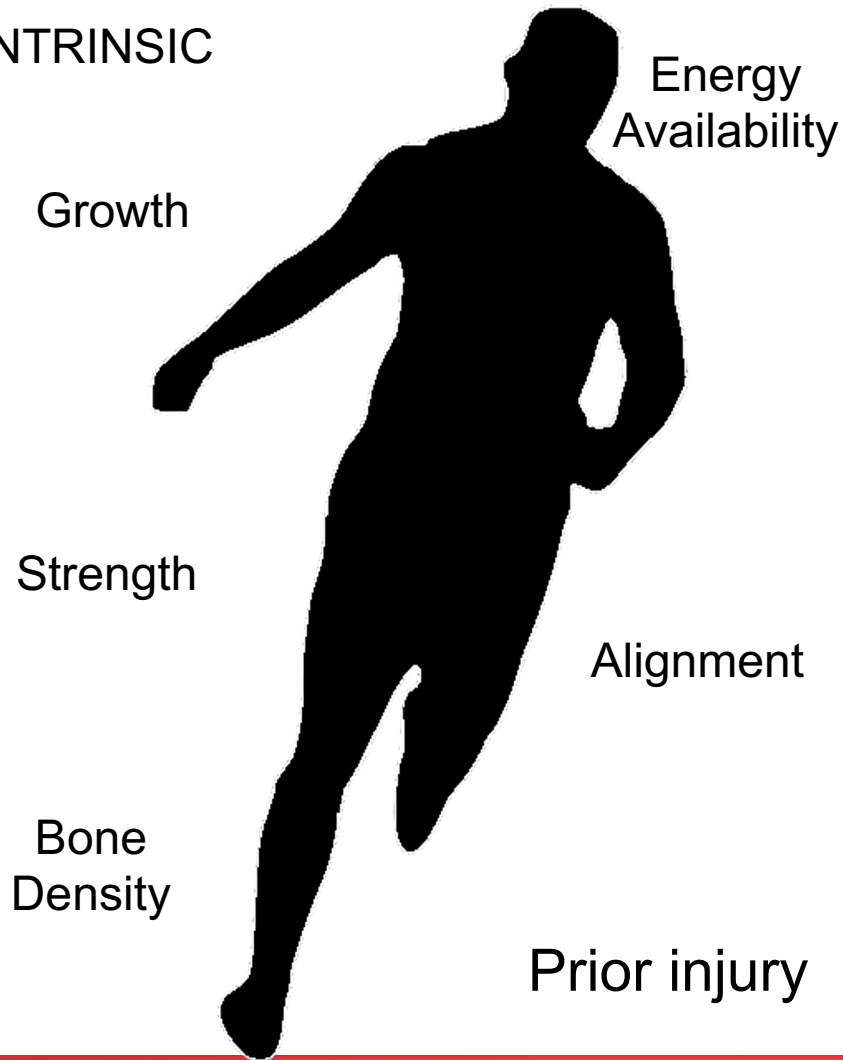
Cleveland | Ohio

# Outline

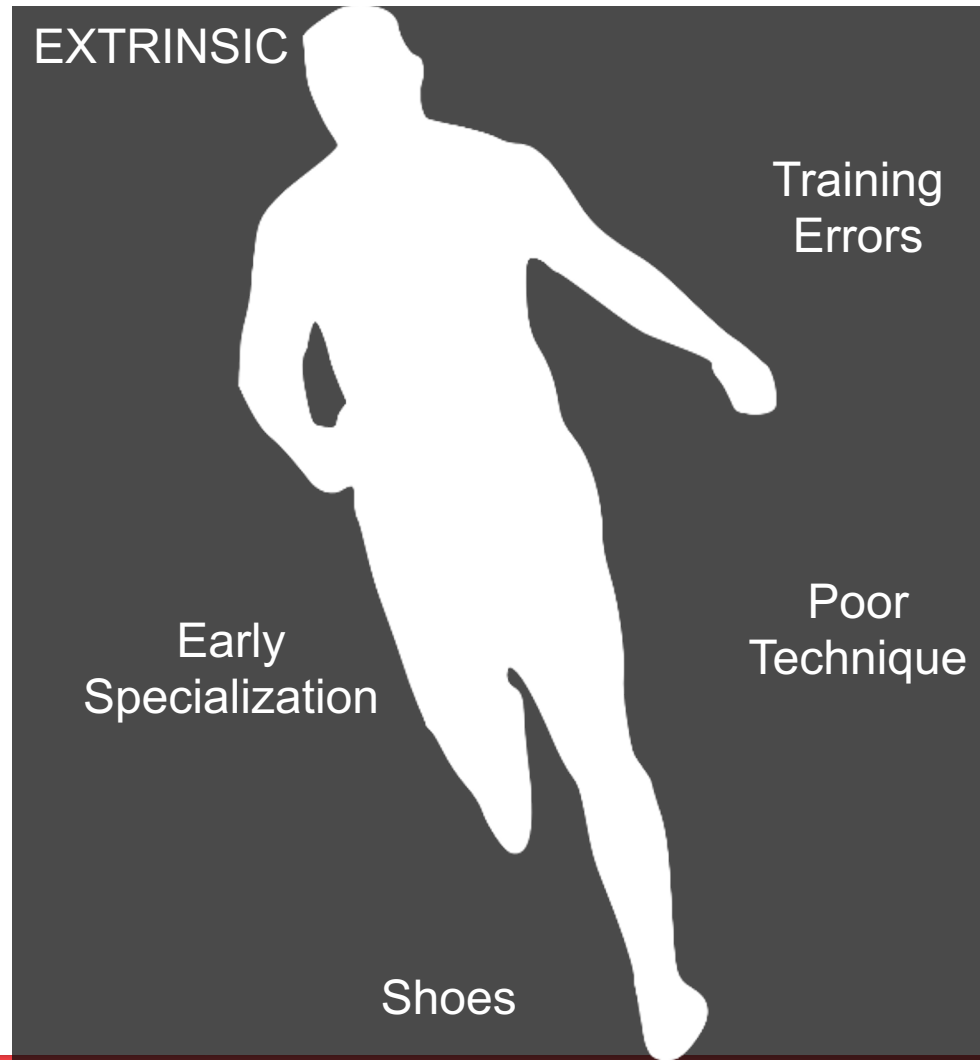
- Risk Factors for Injury
- Balancing Training and Recovery
- When to See a Physician

# Risk factors for injury

## INTRINSIC



## EXTRINSIC



# Risk factors for injury

## INTRINSIC

1. Growth

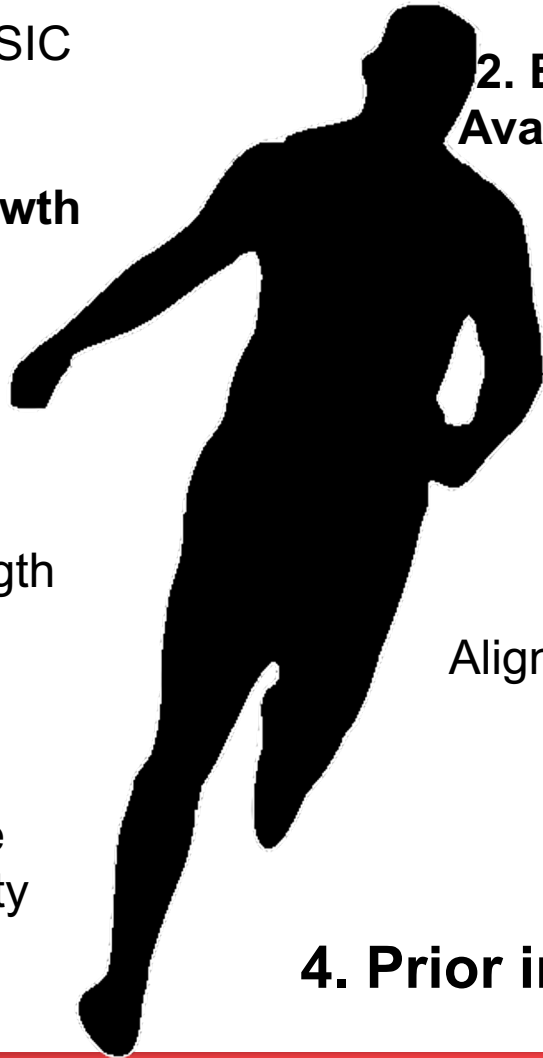
2. Energy Availability

Strength

Alignment

Bone Density

4. Prior injury



## EXTRINSIC

3. Early Specialization

Training Errors

Poor Technique

Shoes

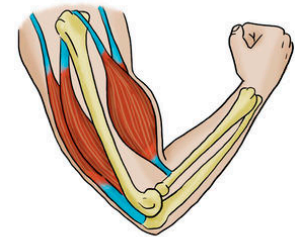


# Growth



# Energy Availability

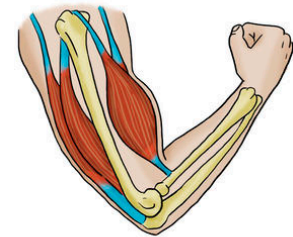
$$(\text{Energy IN} - \text{Energy OUT}) \div \text{Fat Free Mass}$$



# Low Energy Availability



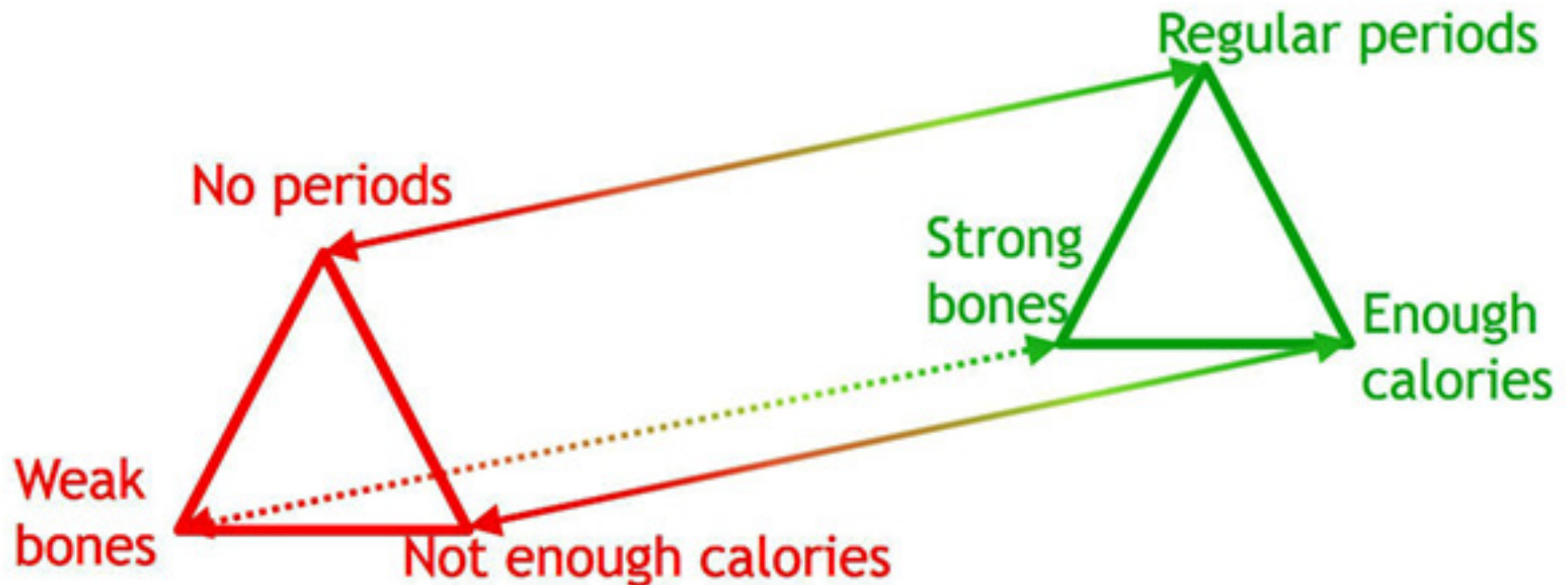
(Energy IN — Energy OUT) ÷ Fat Free Mass





# Female Athlete Triad

## RELATIVE ENERGY DEFICIENCY IN SPORT (RED-S)



# RED-S Affects Males Too



Far too many athletes and coaches are unaware of the dangers underfueling poses to performance and health, Riley, now 33, believes. “I knew that RED-S was a possibility. But I kind of thought you really had to try—you had to be essentially anorexic or bulimic, or really restricting yourself,” he said.


-Runner's World  
article

# Sports Specialization


- Early sports specialization
  - Intensive training or competition in **one sport for >8 months** a year
  - Focus on a single sport with the **exclusion** of all other sports or free play

# Early Sports Specialization

- Increased risk of overuse injury

An orange octagonal graphic with a gradient from light orange at the top to dark orange at the bottom, containing text about training hours.

Training more  
hours a week than  
your age in years

An orange octagonal graphic with a gradient from light orange at the top to dark orange at the bottom, containing text about regimented training.

Regimented training  
greater than twice as  
long as “free play”

**Early Sports  
Specialization**  
does NOT  
increase your  
chance of running  
in college

87% of DI female  
runners and  
91% of DI male  
runners were  
multisport athletes



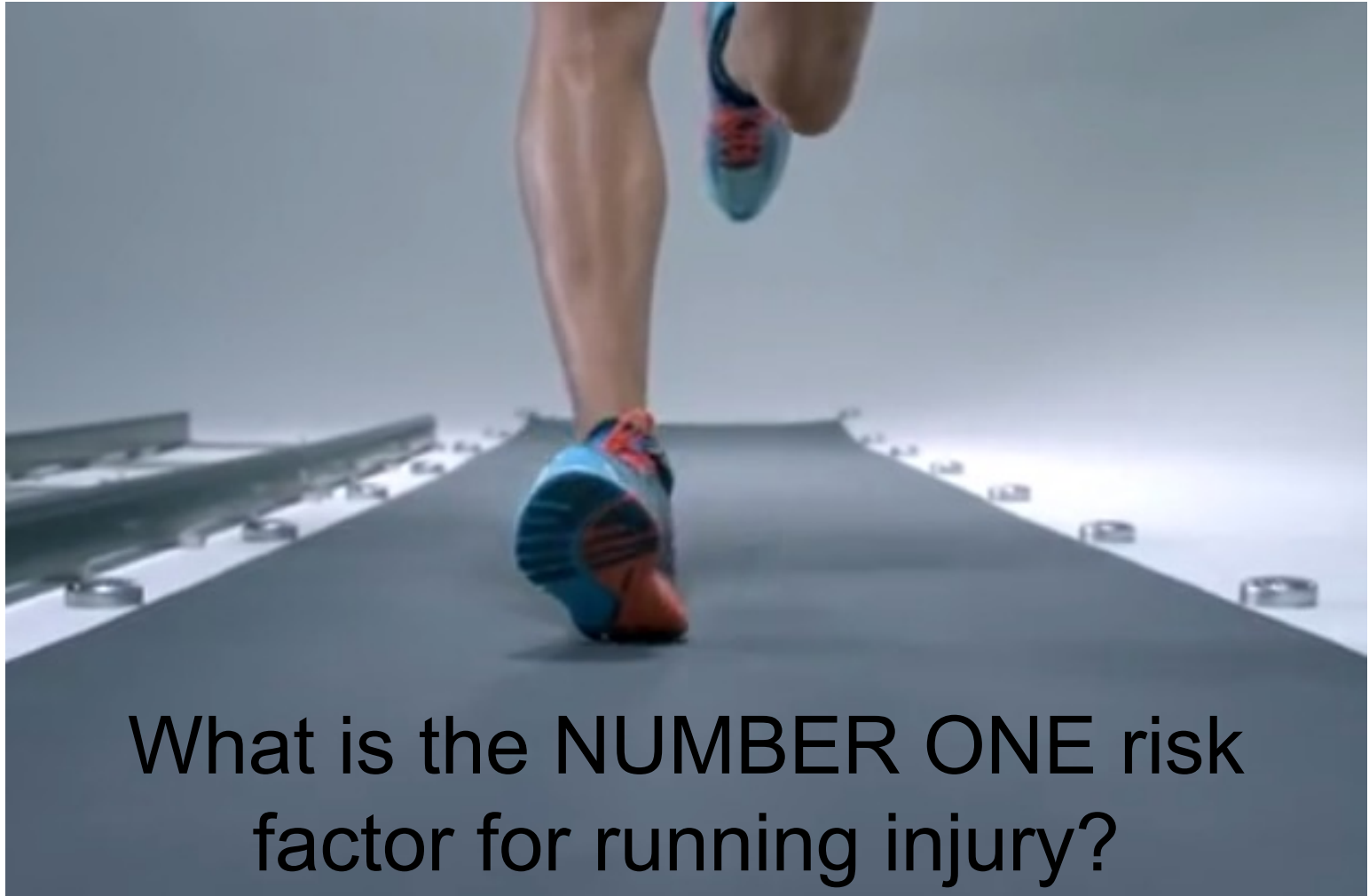


# Sports Diversification

↓ Burnout & ↑ Fun



# Prior Injury

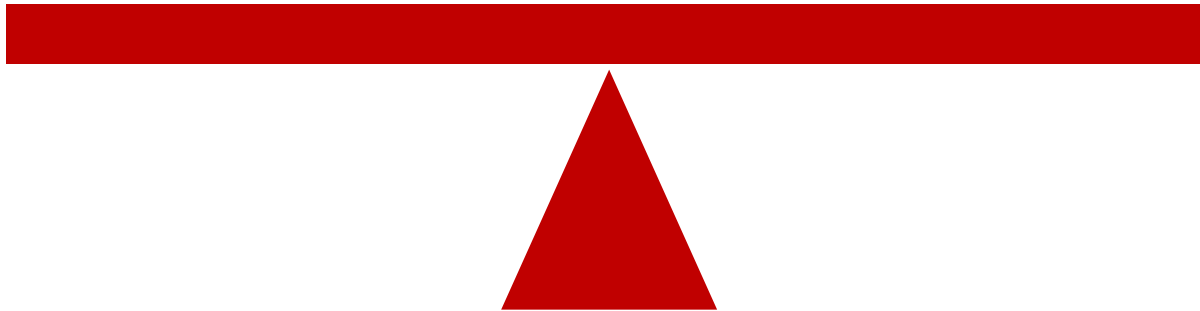


What is the NUMBER ONE risk factor for running injury?

# Optimizing Fitness and Preventing Injury

**RECOVERY**

**LOAD**



## Recovery:

- Hydration / Nutrition
- Sleep / Rest
- Relaxation / Mental Recovery

## Load:

- Training Load
  - Overload principle
  - Periodization
- Specialization
- School/Life Stress



↑ Injury Risk

**RECOVERY**

**LOAD**

### Recovery:

- Hydration / Nutrition
- Sleep / Rest
- Relaxation / Mental Recovery

### Load:

- Training Load
  - Overload principle
  - Periodization
- Specialization
- School/Life Stress

# When to stop running / seek medical care

1. Pain that increases while running or becomes sharp
2. Pain that lasts >24 hours after running
3. Pain >3/10 that persists
4. Pain causes a limp
5. Pain similar to prior injury that resulted in time off from running



# Take Home Points

- Intrinsic vs. extrinsic risk factors for injury
- You need to properly fuel your body for running success



RED-S Affects Men Too  
-Jake Riley



Dear Body I Love You  
-Allie Ostrander



Overcame ED to Win OLY Medal  
-Molly Seidel



- Ensure recovery and load are balanced
- Know when to see a doctor (and what type of doctor to see)



# Questions?



# References

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