River City Running Symposium
2015

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A Brief History of my Running Career

Then and......  Now
Common Running Injuries- Prevention and Treatment

Jenelle Deatherage, PT, OCS
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“A smart runner has yet to be born”

-Amby Burfoot
Do we know what causes injuries?

Study out of Brazil, published in JOSPT Oct 2014

Interviewed 95 recreational runners of various ages and experience levels and asked

“What do you think can cause injuries in runners?”.............
What did the runners say?

- Not respecting the body’s limitations
- Excessive training
- Not stretching
- Foot type (arch height)
- Wearing the wrong shoes

#1 Most cited reason for injury-
NOT STRETCHING
What did the runners say?

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#1 Most cited reason for injury—NOT STRETCHING
Does Stretching **Prevent** Injuries?

- Two separate systematic reviews found stretching provides **no protective effect** against running injuries.
- warm-up to increase body temp vs. stretching
Why is this important?

How will you spend your extra 15 min?

“I DON'T HAVE TIME” IS THE GROWN-UP VERSION OF “THE DOG ATE MY HOMEWORK”
What did the runners say?

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#1 Most cited reason for injury- NOT STRETCHING
Traditional Footwear Recommendations

- Arch type- low, medium, high
- Shoe type- motion control, stability, cushion
Military Studies

- Air Force and Army
- Assigned shoes based on plantar shape
- Controls received stability shoe
- **No significant difference** in injury rate
So now what?

- Do not make radical changes
- Try on many different shoes
- Fit based on comfort
...maybe we should try to think out of the box?
Understanding Running Injuries

• Overuse = repetitive, cumulative, microtrauma

• Stress or trauma >> adaptation or repair

• “Envelope of function” - modifiable
Top 5 most Common Running Injuries

• Patellofemoral Pain Syndrome or “Runner’s Knee”
• Plantar Fasciitis
• ITB Syndrome
• Stress Fracture
• Achilles Tendonitis
- #1 most common running injury
- Shearing and/or compression between the kneecap and femur
Symptoms of PFPS

• Pain located underneath or around kneecap
• Generally achy but can become sharp
• Worse with squatting, descending stairs, impact activities
• Can be painful at rest with knees in bent
Structural Alignment Risk Factors

- Q angle
- Hip anteversion
- Tibial torsion
- Patellar hypermobility
- Shallow groove
- Over pronation at foot/ankle?
Dynamic Variables

Current evidence points to a “top down” breakdown of dynamic control
Hip control in patellofemoral pain

- Gluteal muscles not strong enough or not firing properly to control rotation of the leg when the foot strikes
- Causes “caving in” of entire lower leg
- Track (leg) moving underneath train (kneecap)
IT Band Syndrome - basic anatomy

• Connective tissue which originates at the hip and travels along the outside of the thigh
• A projection of the tensor fasciae latae and glut max muscles
• Attaches to side of femur and to the tibia
What is ITB Syndrome?

- Source of pain is abnormal friction between the ITB and the femur
- Truly “tightness” or functional malalignment due to muscle imbalance/dynamic forces
Symptoms of ITB Syndrome

- Sharp stabbing and/or burning pain on outside of knee
- Worse when knee is moving through 30 degrees of bend
- Worse with running downhill, going down stairs
- Does not “warm-up” but progressively worsens if activity is continued
- Horrible and you kind of want to cry a little
What causes ITB syndrome?

- Literature more mixed than for PFPS
- Likely similar causes - dynamic control issues
- Less likely true “tightness” and more imbalance between muscles which blend into ITB
How to we evaluate knee injuries in runners?

• Evaluate structural alignment
• Look at flexibility of hips/knees
• Assess strength with manual testing of patient on treatment table
• Evaluate dynamic control of leg, preferably with single leg activities
• Look for muscle recruitment patterns with single leg exercises
Squat Test

- Even contribution from hip and knee muscles
- Increased quadriceps, decreased gluteal activation
Step-down Test

Look for...

- Trunk position
- Pelvic alignment
- Leg position
Single Leg Squat Test
Looking for variables similar to Step Down Test
PFPS/ITB Treatment

- Starts with **good evaluation** into underlying causes
- Basic mat-based strengthening exercises
- Dynamic control exercises - single leg!
- Gait retraining.......
PFPS/ITB Treatment

- Changing firing patterns/muscle recruitment patterns
- Ensure runner knows what it feels like to move incorrectly/correctly and to recruit muscles properly
- Use visual feedback from mirror or help from family member for feedback
PFPS/ITB Exercise Examples

Mat based exercises

• “clamshells”
• side leg raise
• side plank
• bridging
Weight Bearing Exercises

“starting line” exercise

single leg squat with mirror
PFPS/ITB Prevention

• Gradual progression of mileage/intensity
• Incorporate gluteal exercises into strengthening program
• Incorporate single leg dynamic control exercises into program
• Do not ignore “sore knee” symptoms, think of threshold for tissue stress
• Consider gait evaluation
Achilles tendinitis/tendinopathy

- Acute vs chronic—different source of pain and different treatment approach
Who gets Achilles tendinopathy?

- Older runners at higher risk
- Changes in footwear
- Changes in running form
- Calf dominant runners
Achilles Rehab/Prevention

- Addressing any recent, self selected changes in footwear and/or gait mechanics
- Begin eccentric protocol if appropriate
- Address “calf dominance” with gait retraining and proximal hip strengthening
- If acute, consider temporary heel lift
Something hurts! Can I still run?

**yes if.....**

- Symptoms “warm-up” within 5-10 minutes and do not return
- No sharp pain
- No asymmetrical changes in running form due to pain (no limping)
- No localized pain following run for >2 hrs

*Consider where you are in your training cycle and is it worth the risk*
How to be a smart runner

- Gradual training progression
- Complete rehab of injuries
- Regular strength exercises
- Common Sense
- Know when to seek help
When in doubt........use your best judgment
Thank You!

DO NOT Make Me Use My Physical Therapist Voice!

WWW.ROCKVALLEYPT.COM
References


