Assessment of the running athlete

Luke Nelson- Sports & Exercise Chiropractor
B App Sci (Clin Sci.)/B Chiro Sci, ICSSD, Postgrad.Dip.Sport Chiro, M.Sport.Sci, FAICE

Pete Garbutt- Sports & Exercise Chiropractor
B.Sc., M.Chiro., M.Chiro.Sport.Sci., ICCSP, FASMF, FAICE

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"Running is born out of our inner need to move & breathe & experience all that we are capable of. It is the true expression of life in motion"

Pete Garbutt- "The Running Machine"

2

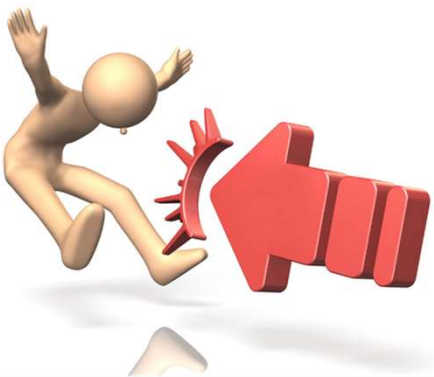
Injuries & more injuries

- Injuries varies from 19-92%. **Generally accepted figure of 50%** (van Gent et al., 2007)
- 25% of runners will be injured at any one time
- Those that are injured are then 50% more likely to be reinjured (Fields et al., 2010)

3

By the numbers

- Each time your foot hits the ground it absorbs about **2.5 times your body weight** (at 70kg, your body absorbs 175kg each landing!)
- The average jogger makes 1,000 foot strikes per km. That is **10,000 foot impacts for every 10km's**.



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Injury distribution

Vast majority (>80%)
are overLOAD injuries

Back 3-11%

Thigh 3%

Hip/pelvis 2-11%

Lower leg 2-30%

Knee 25-50%

Ankle 9-20%

Feet 2-22%

(van der Worp 2015)

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Types of running injuries

Iliotibial band syndrome
1.9-12%
F:62%, M:38%

Patellofemoral pain
48.8% of injuries
Female: 62%
Male: 38%

Tibial stress fracture
2.2-7.8%
F:73.6%, M:26.4%

Medial tibial stress
13.6-20%

Achilles tendinopathy
9.1-10.9%
F:42%, M:58%

Plantar heel pain
4.5-10%

(Lopes 2012)

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What causes a running injury?

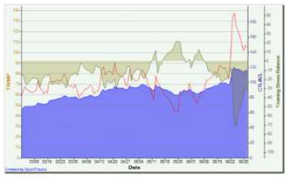
Genetics

Psychosocial

Structure

Mechanics

Training loads



Tissue qualities

Health
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Realise your goals.

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What causes a running injury?

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Stress

Workload:
Volume
Intensity
Frequency

Recovery:
Sleep
Nutrition

Psychosocial

Capacity

Strength
Motor control
Mobility
Genetics
Biomechanics
Running gait

Previous injury

Health
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Realise your goals.

Adapted from Tom Goom @Running_Physio

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Intrinsic risk factors
Gender? Females increase risk of stress fx
Anatomy?
Age?
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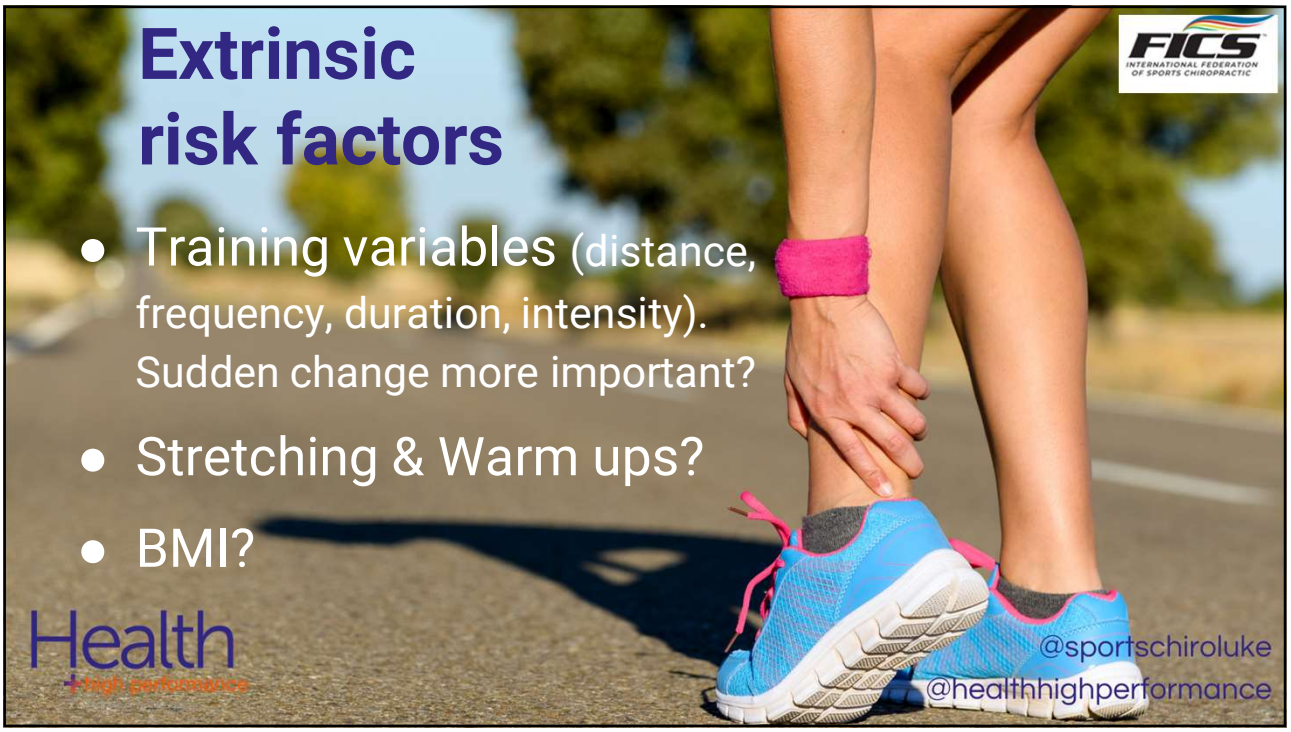
Extrinsic risk factors
Training variables (distance, frequency, duration, intensity). Sudden change more important?
Stretching & Warm ups?
BMI?
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Extrinsic risk factors
Shoewear
Orthotics
Running surface
Running technique
Impact forces (vGRF, Braking force)
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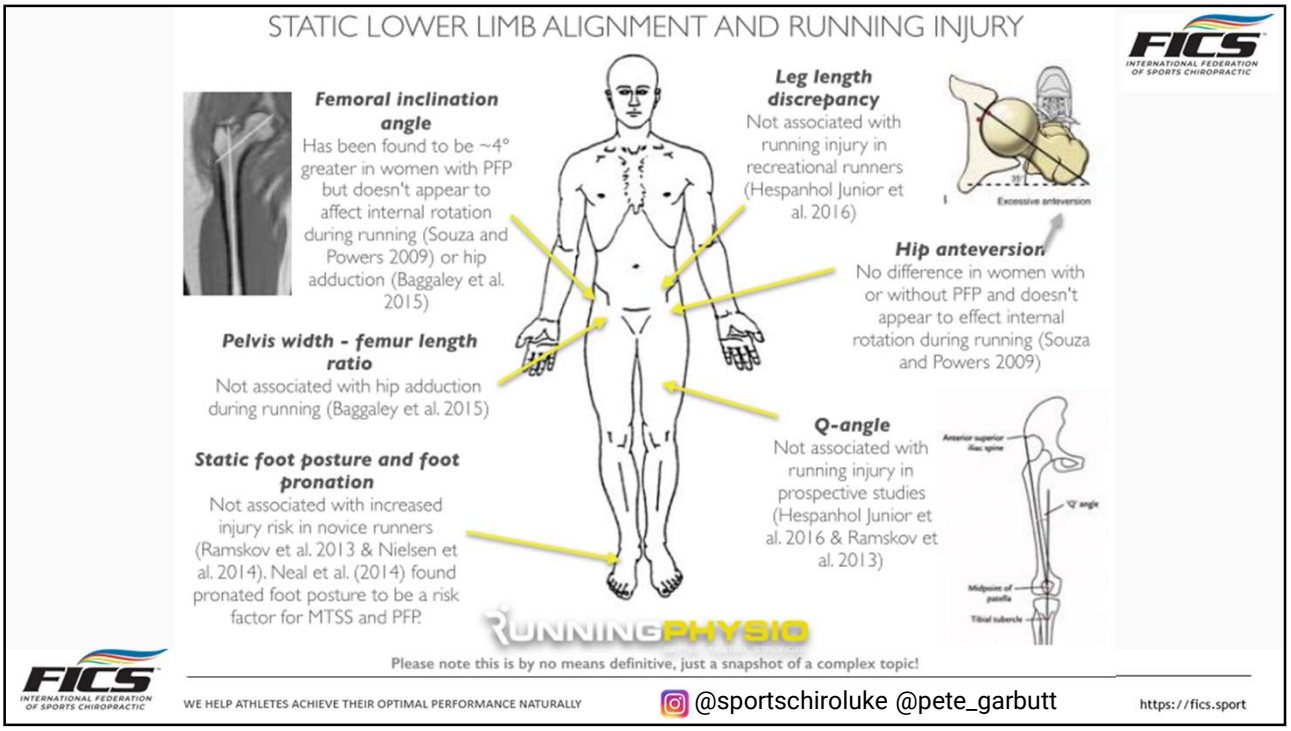
STATIC LOWER LIMB ALIGNMENT AND RUNNING INJURY
Femoral inclination angle
Has been found to be ~4° greater in women with PFP but doesn't appear to affect internal rotation during running (Souza and Powers 2009) or hip adduction (Baggaley et al. 2015)
Leg length discrepancy
Not associated with running injury in recreational runners (Hespanhol Junior et al. 2016)
Excessive anteversion
Hip anteversion
No difference in women with or without PFP and doesn't appear to effect internal rotation during running (Souza and Powers 2009)
Pelvis width - femur length ratio
Not associated with hip adduction during running (Baggaley et al. 2015)
Static foot posture and foot pronation
Not associated with increased injury risk in novice runners (Ramskov et al. 2013 & Nielsen et al. 2014). Neal et al. (2014) found pronated foot posture to be a risk factor for MTSS and PFP.
Q-angle
Not associated with running injury in prospective studies (Hespanhol Junior et al. 2016 & Ramskov et al. 2013)
RUNNINGPHYSIO
Please note this is by no means definitive, just a snapshot of a complex topic!
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