

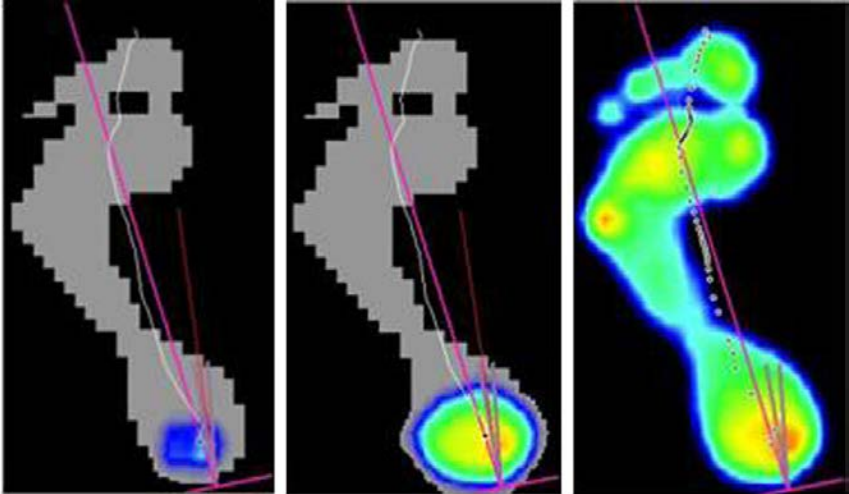
# Toe Running: The Good, The Fad, and The Ugly

By: Molly Quinn-Shea

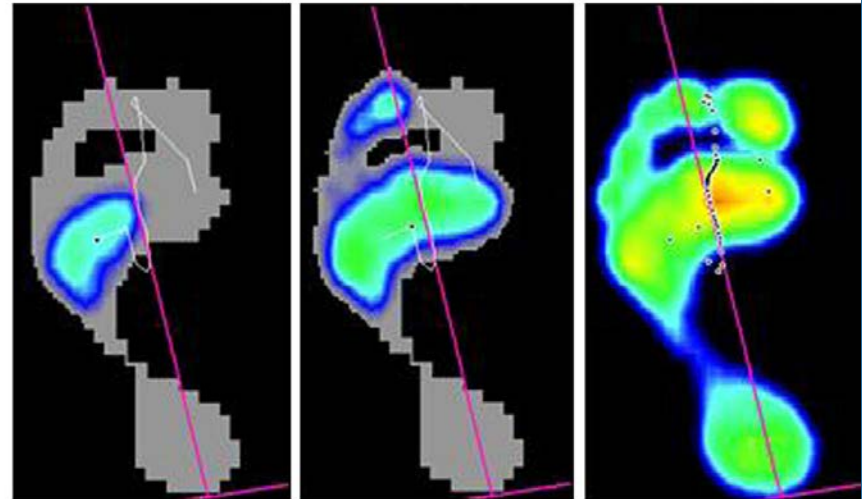
## Heel Strike

## Forefoot strike

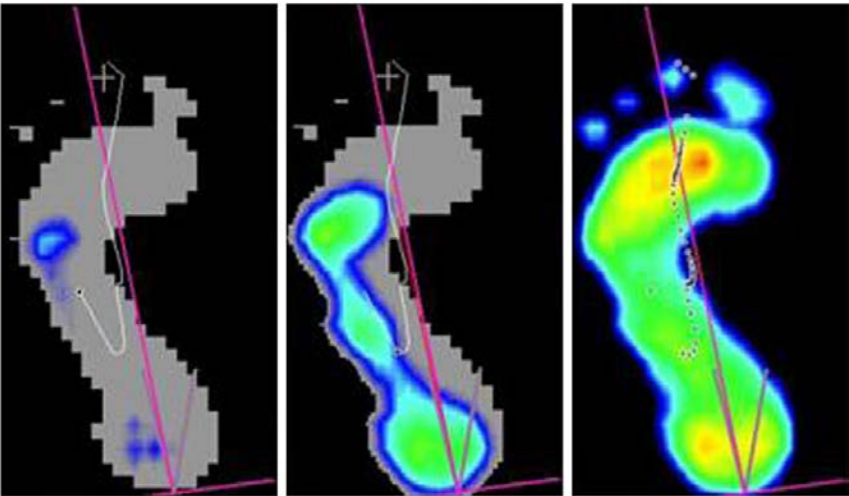
HS



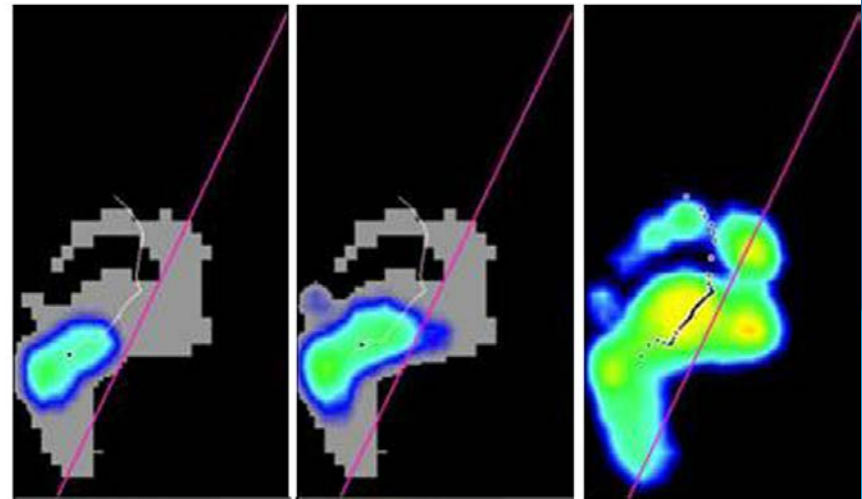
FS



MS



TR



# BORN TO RUN

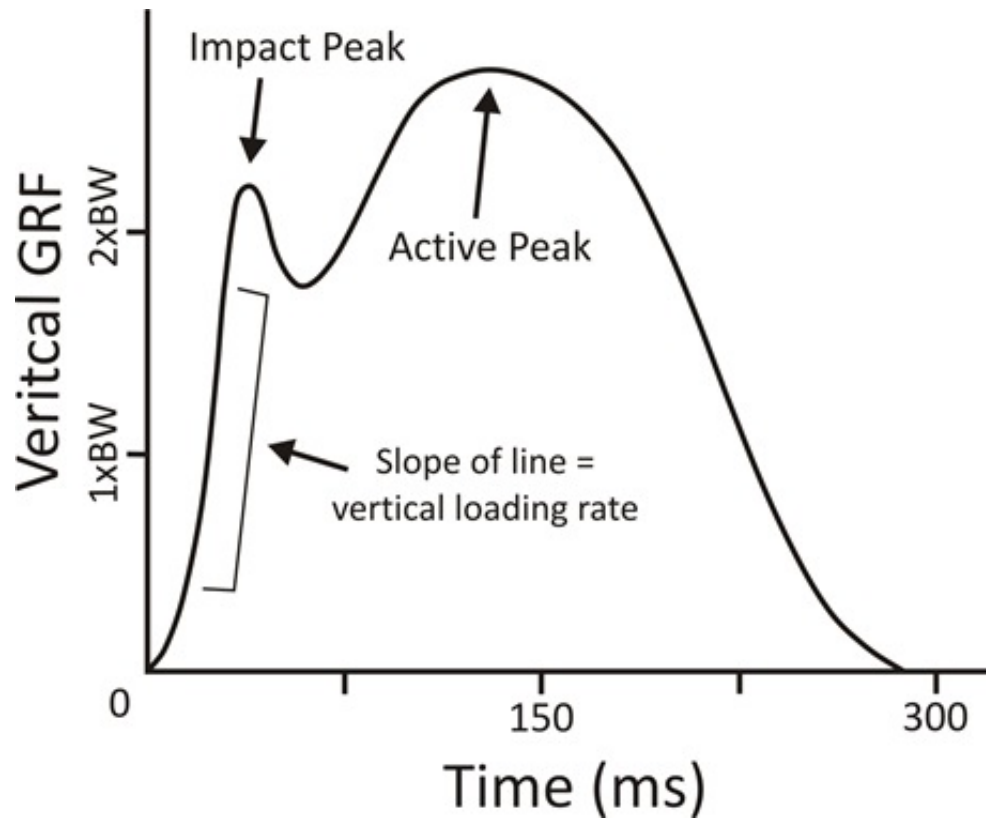
A Hidden Tribe, Super Athletes,  
and the Greatest Race the World  
Has Never Seen

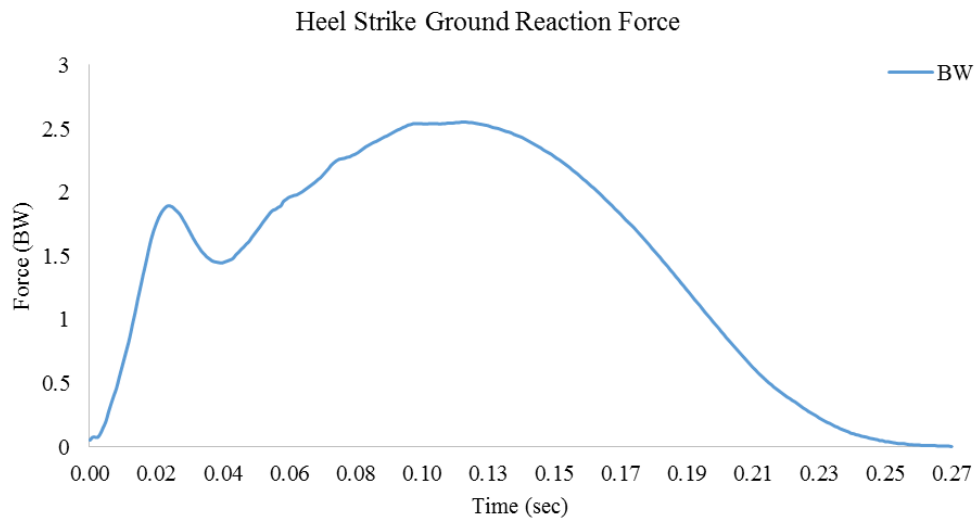
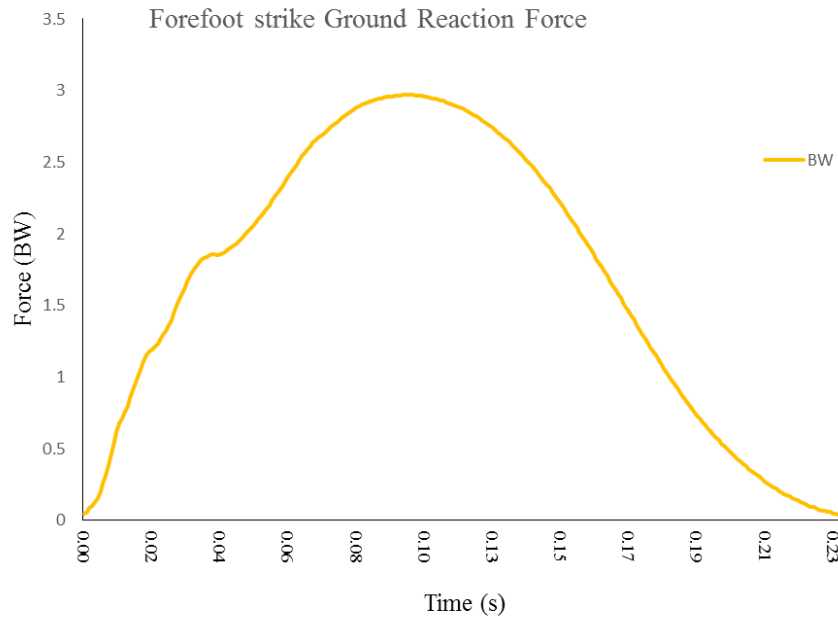
Christopher McDougall



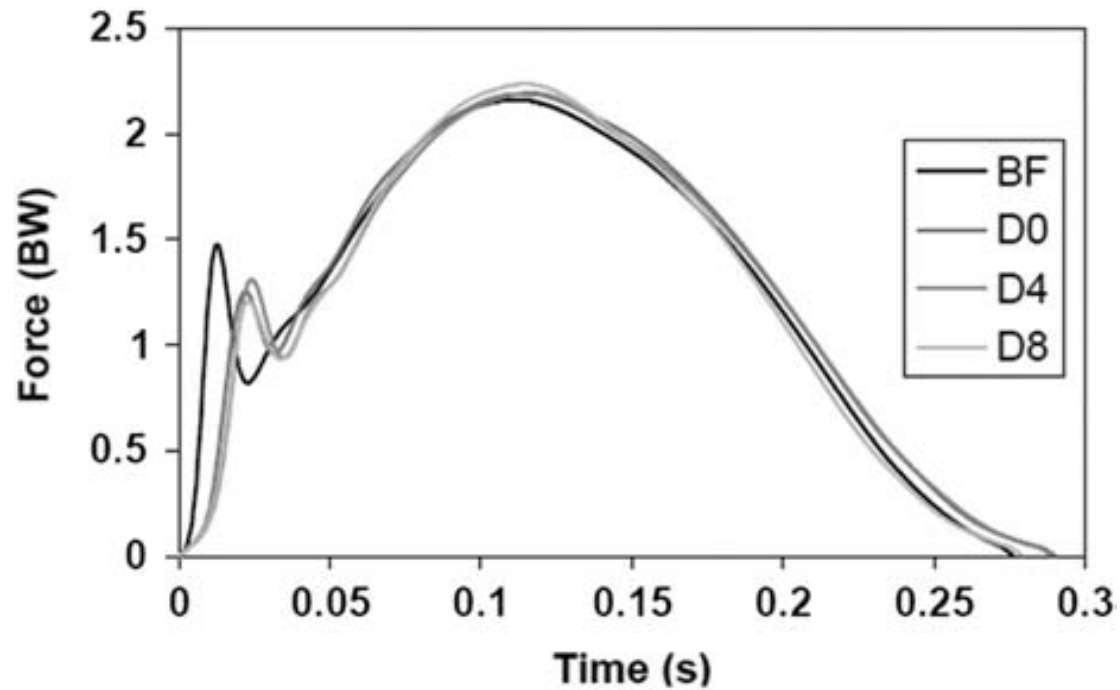
# Ground Reaction Forces

## Heel Strike





# Conflicting GRF





# Injuries?

- ▶ No change in injury rates!!
- ▶ Heel strike runners absorb more force in knee
  - ▶ Patellofemoral pain syndrome accounts for 20% of all running-related injuries
- ▶ Forefoot strike runners absorb more force in the ankle/calf
  - ▶ Increased risk of metatarsal stress fractures, Achilles tendonitis, and plantar fasciitis in toe running
  
- ▶ Transition period is the most dangerous

# Efficiency?

- ▶ Some found evidence that reveals forefoot running is more efficient
  - ▶ Efficiency: energy demand
  - ▶ Higher cadence, lower stride
- ▶ Others found this efficiency only comes into effect when running at 6:25 mile pace or faster
  - ▶ Majority of sprinters run on balls of their feet
  - ▶ Marathon runners who start with forefoot or toe running often fatigue and finish with heel strike
- ▶ Highest efficiency with training or “preferred type of foot contact”
  - ▶ May decrease initially with foot strike change



# What the studies did agree on...

- ▶ Forefoot strike
  - ▶ Higher knee flexion
  - ▶ Higher plantarflexion
  - ▶ More muscular demand from foot and calf muscles
- ▶ Heel strike
  - ▶ Straightened leg
  - ▶ Stresses on knee, hip, and back

# Interviews

- ▶ Runners: running style, running experience, pace, injuries, exercises, etc.
  - ▶ A lot of variety
- ▶ Physical Therapists: patients with running related injuries, personal opinions on running style, practicing technique with runners, specific stories, etc.
  - ▶ Focus on stride and the whole body...not just the foot
  - ▶ Pay attention to placement of injury
  - ▶ Will not change foot strike unless obvious pain relation

# Take Home Messages

- ▶ Research inconclusive—no “right” or “wrong”
  - ▶ Potential advantages and disadvantages
- ▶ Influence of media
- ▶ Whole body mechanics
- ▶ Are we born to run?



Thank you for coming!