

Bike and Run Technique



Outline of topics

- Glutes and Hips
- Core
- Run Action Items
- Bike Action Items
- Pully System Mechanical Advantage

- Step Up Challenge



Glutes & Hips Bike

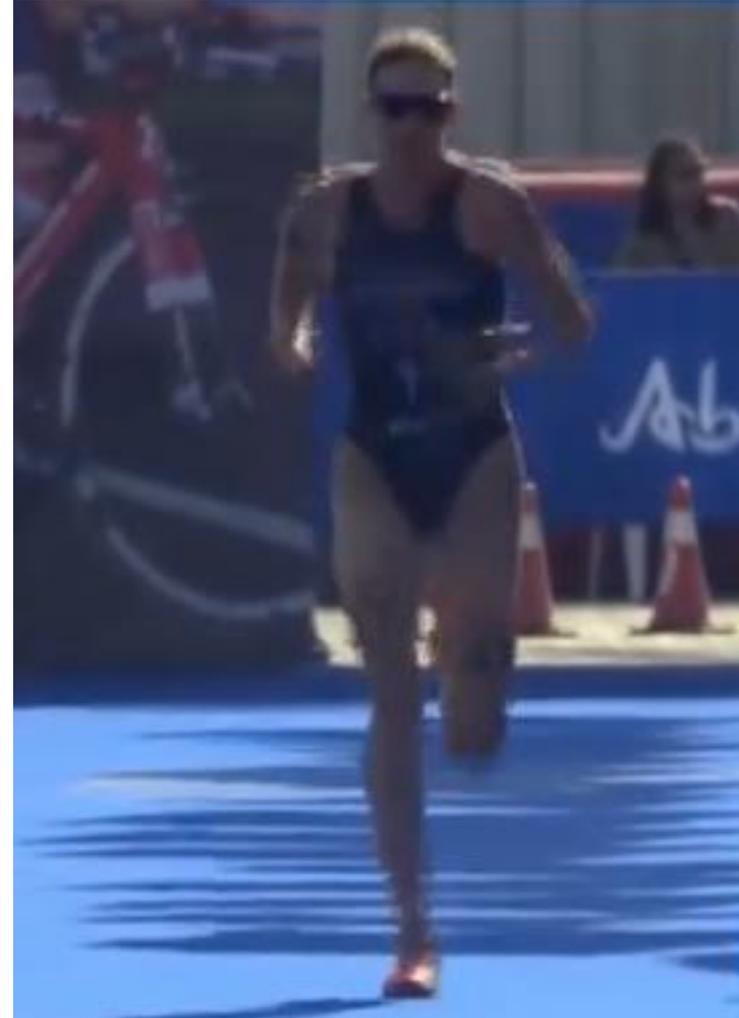
The Body drives from the Glutes

- Push into Extension
- Pull into Flexion
- Seesaw Game



Core

- **Guide wires holding a tower**
- **Abdominal**
- **Side**
- **Rotational**
- **Back**



Run Action Items

Basic Run Techniques

- Lean
- RPMs
- Stiff Knee/Shin Angle
- Stability: Pelvis and Leg

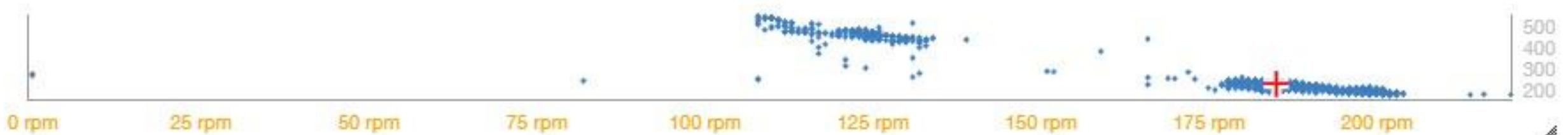
Advanced Run Techniques

- Foot Speed
- Elastic Return
- Fluid Motion/Flow

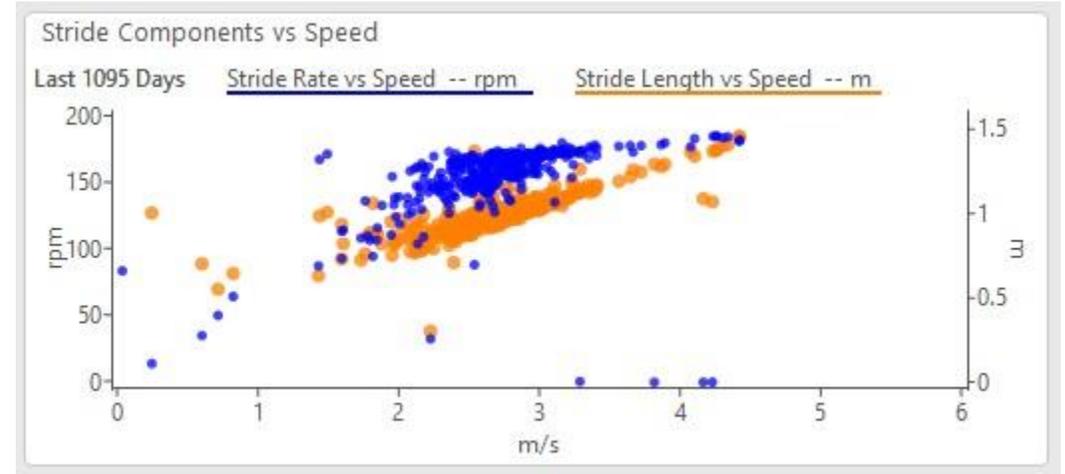
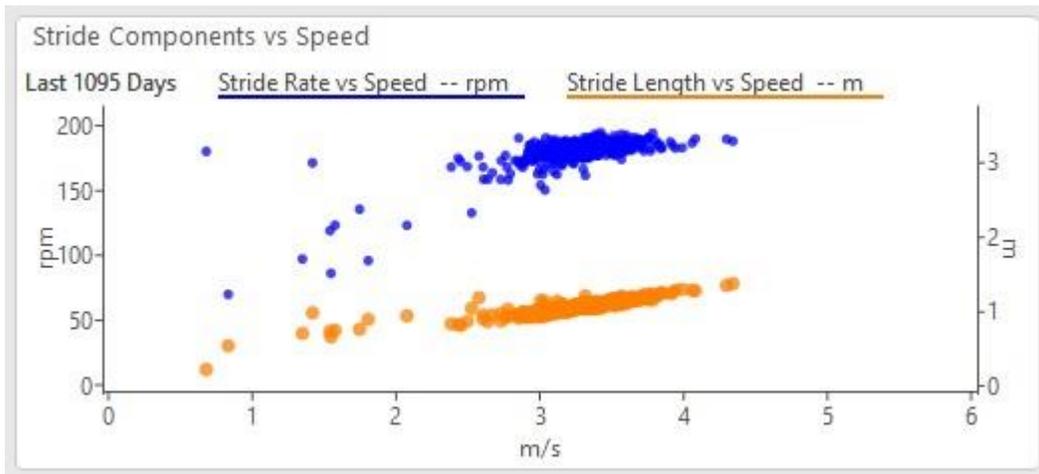


Cadence and Ground Contact Time

■ X-Axis: Cadence ■ Y-Axis: Ground Contact Time



Cadence and Stride Length



Bike Action Items

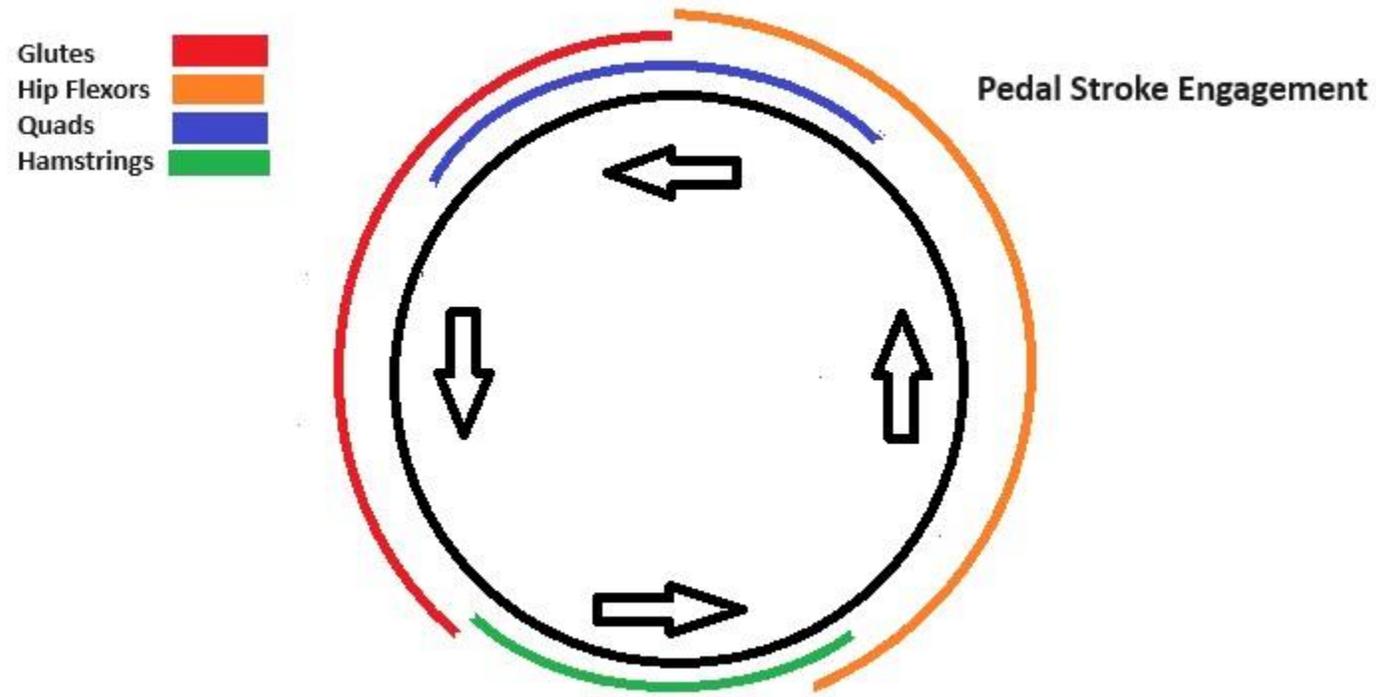
Basic Bike Technique

- Step up and over
- Glute from the Top
- Smooth and constant
- RPMs

Advanced Bike Techniques

- Maximum Authentic Strength
- Core Engagement
- Shoulder position
- Trade off to aerodynamics
- Cornering with hips and COG

Muscles in Pedal Stroke



Mechanical Advantage

- Force = Load / Effort
- 48 teeth Chainring/16 teeth Cog = 3 Wheel Revolutions
- 1 Wheel Revolution = $27'' \times \pi = 84.75''$
- Total Distance = $254'' = 21' 2''$ @ 60 RPMs = 1270'/min (14.5 MPH)
- 48 teeth Chainring/24 teeth Cog = 2 Wheel Revolutions
- 1 Wheel Revolution = $27'' \times \pi = 84.75''$
- Total Distance = $170'' = 14' 2''$ @ 90 RPMs = 1275'/min (14.5 MPH)

Training Zones

Zone	RPE	Length in time	Race type
Zone 1 Recovery	1-3 Chill	All day	Ultra marathon
Zone 2 Aerobic Zone 3 (2B) Aerobic Max	4-6 Relaxed Challenging	2+ hours	marathon
Zone 4 Mixed Fiber	7-8 Focused Strong	1-2 hours	half marathon
Zone 5 Lactate Threshold Zone 5+ Threshold Max	9 Comfortably Hard Uncomfortably Possible	7 minutes-60 minutes	5k to 10k
Zone 6 VO2	10 Final Push	60 seconds -6 minutes	800 meters – 1 mile
Zone 7 Maximum	10+ Done	Under 60 seconds	Sprint

Questions?

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Training Group

Broad Ripple home base

Tuesday, Thursday and Saturday runs

Wednesdays bike or brick

Swim Clinic: signup form

