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## *QT2 Run Mechanics*

### Qualitatively

#### Objectives

- Run Faster in Triathlon – reduced braking force
- Injury Prevention
- Less fatigue

#### Key Areas to Address

- Posture & body position
- Point of foot force transfer (when foot “closes”)
- Arm usage
- Cadence
- Power losses through lateral movement
- Specific flexibilities
- Imbalances
- Hip strength – ID through hip drop (addressed through strength routine)
- Core strength

#### Posture to look for

- Minimal Braking
- “Straight” Line from ankle to ear
- Chest & Pelvis aligned (equal distance between bottom of rib cage and top of pelvis both front and back)
- Leaning slightly forward from ankles

#### Arm & Shoulder Usage

- Arms bent 90\* or more
- Head & Eyes look forward or 5 deg down
- Hands inside elbows
- Shoulder moves out of way to let hand move rearward
- Elbows tucked in
- Emphasis on rearward pull of elbow
- Good shoulder rotation – If not there, address rotational core strength

#### Foot Strike Types

- Heel striking
- Use whole foot (best)
- Fore foot running
- Supination (shoe type choice)
- Over pronation (shoe type choice)

#### Cadence

- Have stride rate be a function of lean & push
- Cognitive cadence = possible injury



- 90+ steps per minute (per single leg)

#### Flexibilities Required

- Soleus – Check with squat stance heels on ground (address with stretch/raises)
- Pecs – See shoulder rotation (small means tight)
- Psoas – Pelvis location relative to foot strike (far back means tight)

#### Nutrition/Perception Tie-ins

- “I am a runner and am strong”
- Create an anabolic atmosphere
  - Chest out and strong
  - Shoulders neutral/back
  - Protein focus and nutrient dense foods
- Perfect nutrition/pacing on bike to be prepared to execute a run race
  - Nutrition based on athlete specific needs
  - Pacing with greater than 75% of the points within 50 watts +/- average
  - Bike cadence avg of 85+

#### Quantitatively

- $>20^\circ$  – Thigh behind body from vertical at full recovery extension [extension angle]
- $>6^\circ$  – Hip to ear from vertical [aggressiveness, forward more aggressive]
- $>45^\circ$  – Knee lift from vertical [hip flexor snappiness]
- $<165^\circ$  – Knee angle at full extension [over stride – higher more likely over stride]
- $<25^\circ$  – Knee angle at full extension minus “N Angle” [over stride]
- $<10^\circ$  – Hip drop from horizontal [hip strength and potential over stride]
- $<90^\circ$  – Elbow angle [efficiency]

