Acceleration

Mechanics, Drills, Synthesis

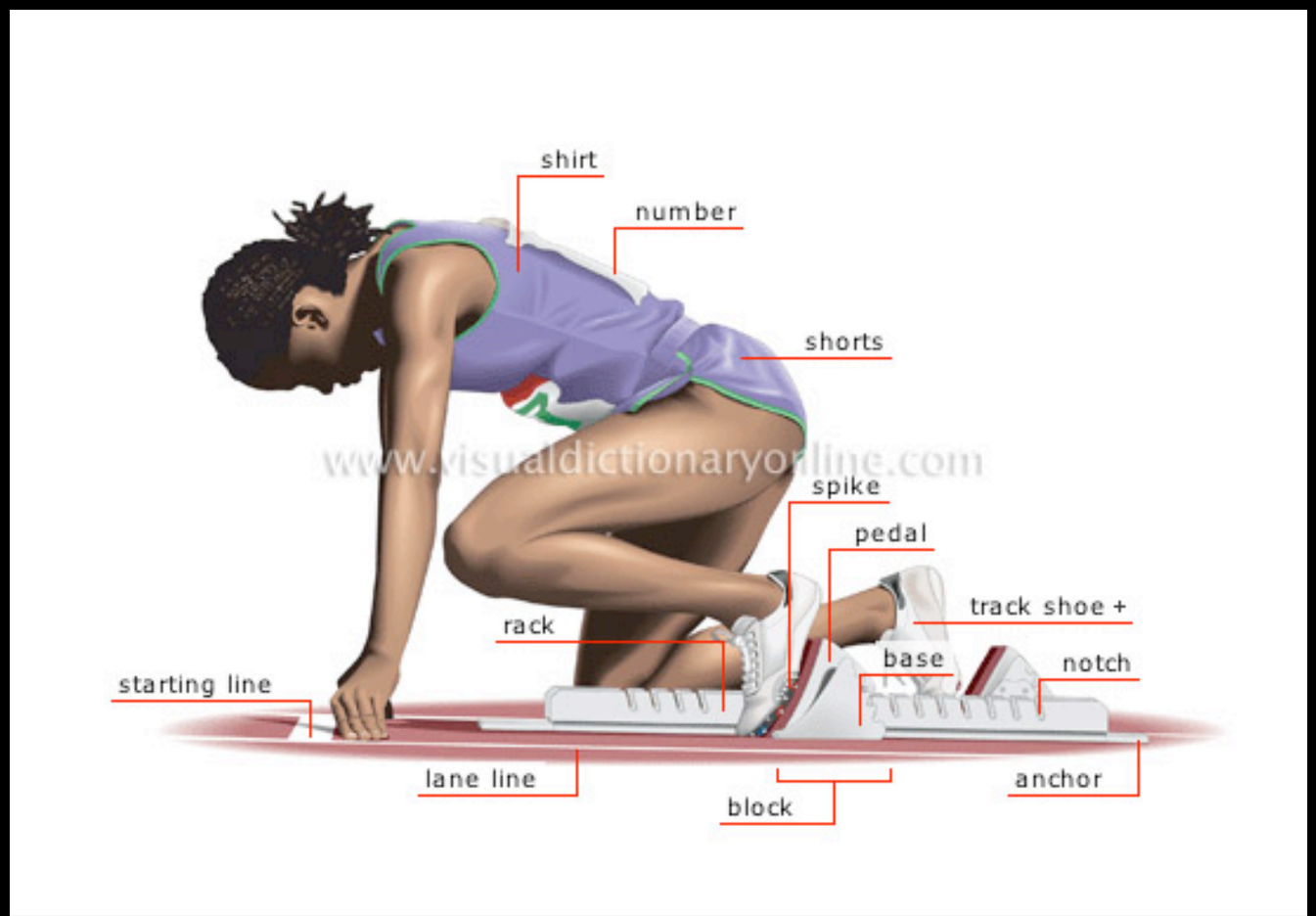
Acceleration

Mechanics: The Start

General Considerations

- Feet Staggered 6-12 inches apart
- Weight centered on the front foot
- Knees fixed, shin angles acute
- Hips higher than shoulders
- Head and neck neutral position with the spine

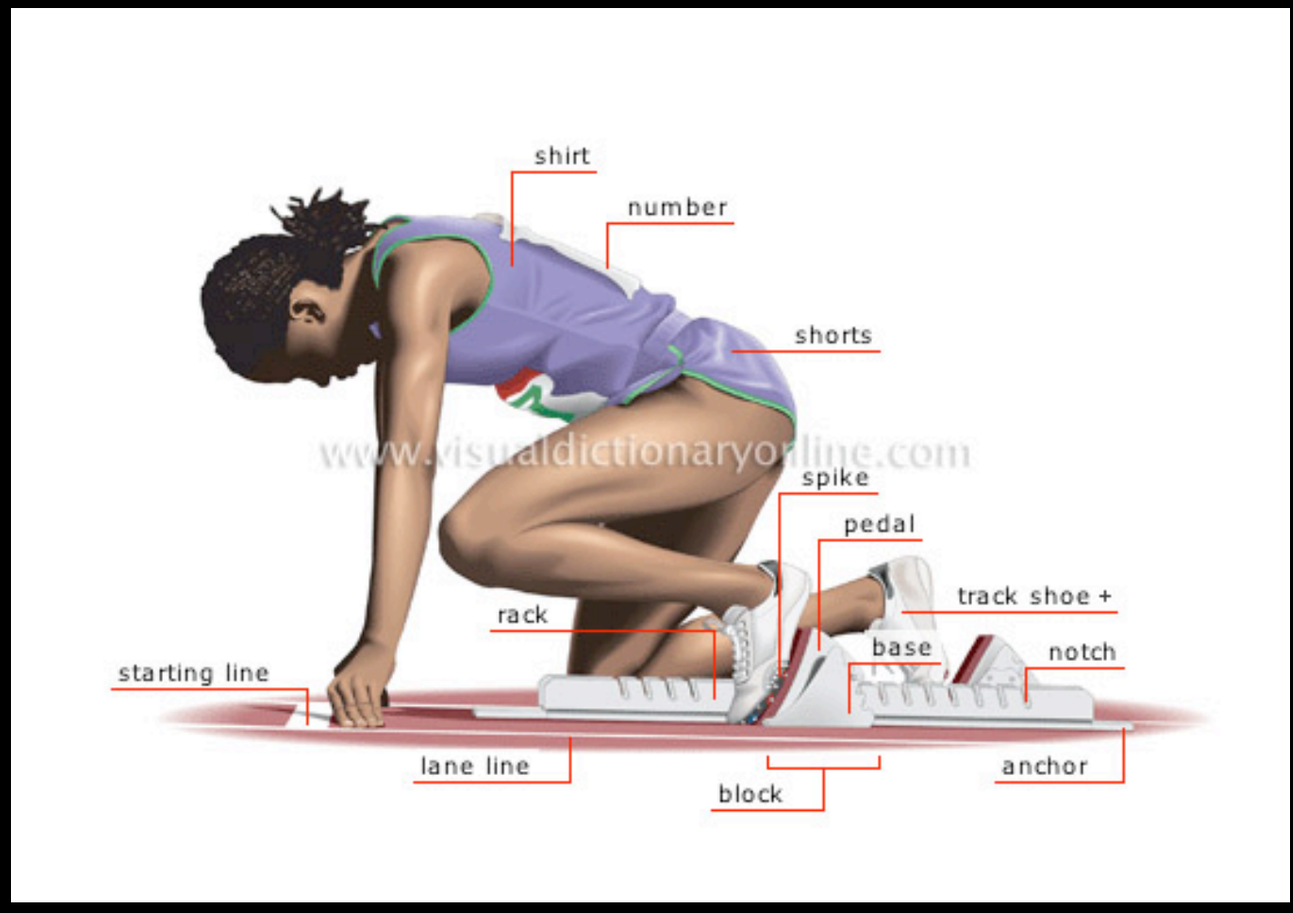
Block Start: Position to Push



- Strong leg in front, Smart or Quick leg in the back
- Individuals with lower power components are often difficult to assess.
- Set blocks 2 feet to front, 3 to back
- or .55m leg length to front, .42 to back

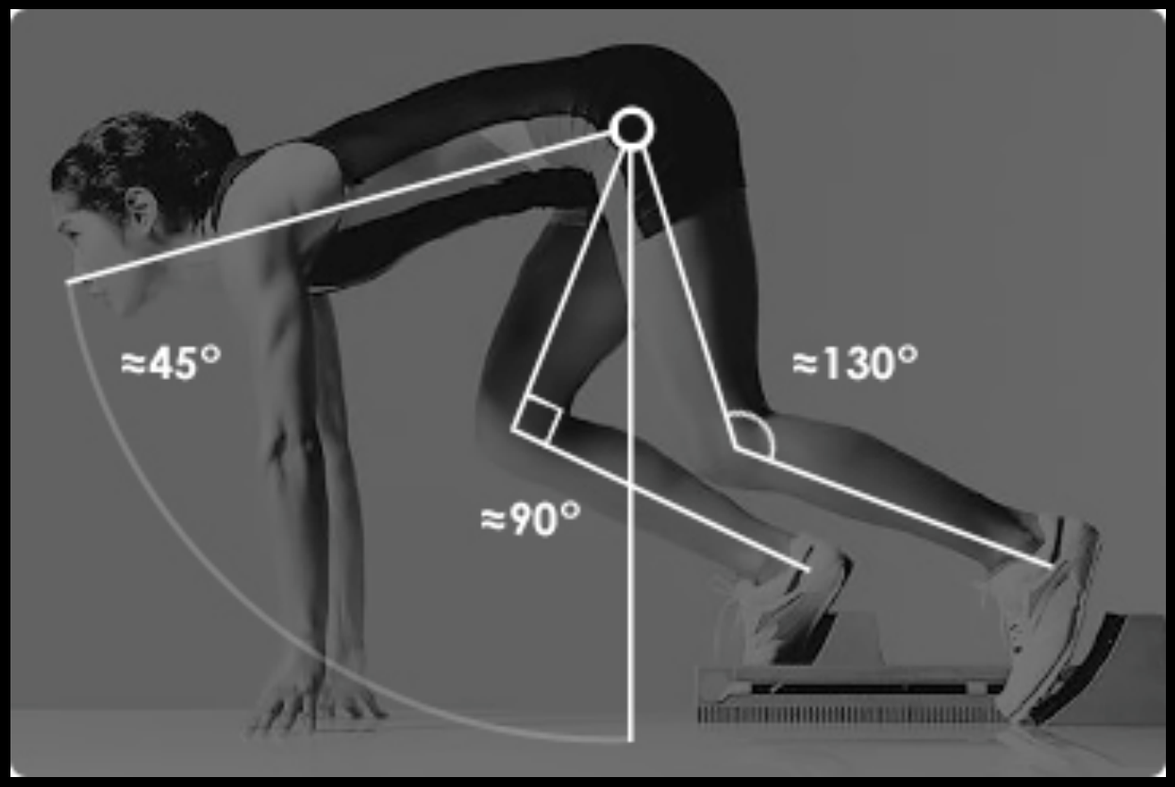
Block Start: Position to Push

- Back into blocks front to back
- Press feet firm against the blocks with toes on track. Kneel on rear knee only.
- Arms are perpendicular to track, thumbs under the shoulder
- Hands form a bridge
- Shoulders directly over hands
- Head and neck neutral position with the spine
- Front knee in line with elbow, back knee 3-5 inches in front of front foot.
- Taller and longer-legged athletes need fine tuning.



Set Position

- Hips will raise slightly higher than the head.
- Concentrate on motor task, not opponents, gun, fans, etc.
- Front leg approximately 90 degrees.
- Rear leg flexed at approx. 130 degrees
- Shins parallel, front shin determines angle at 45 degrees to track
- Shoulders remain above hand.
- Emphasis on balance
- Bodyweight evenly distributed between hands and feet
- Hip-Ankle relationship must not be compromised.
- Pressure on/Pressure off the block?

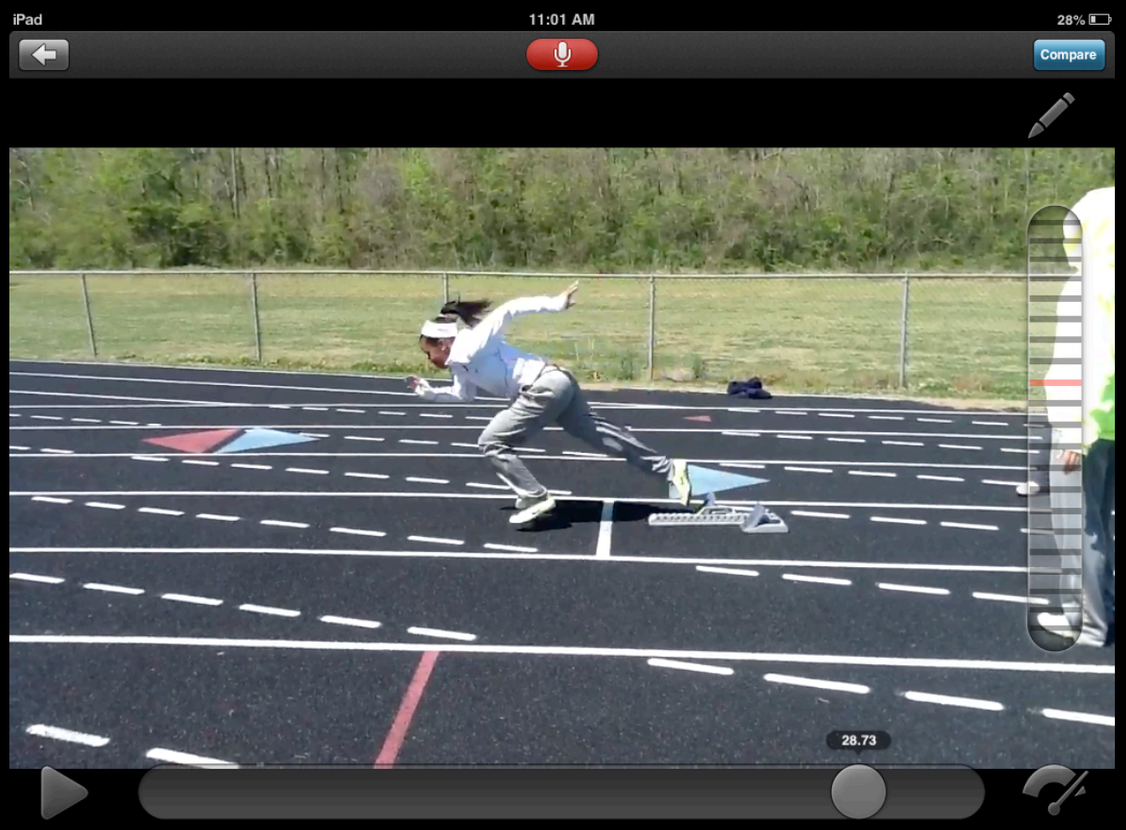


Starts: Initiating the Accelerative Process

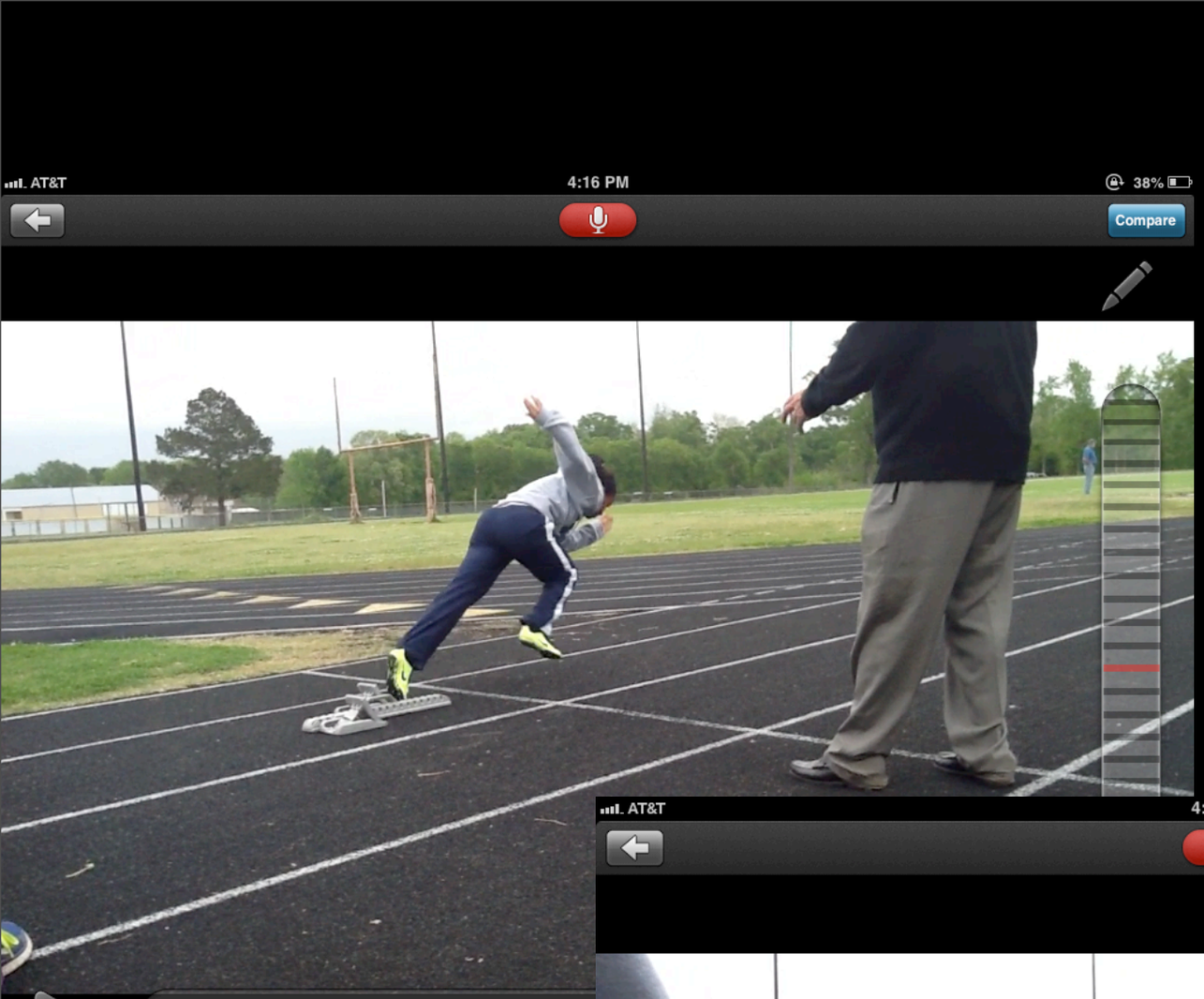
- The initial propulsion comes from the hips
- Rear leg pushes against the rear block (one of the most common causes of poor start mechanics)
- Front leg pushes through full extension
- Arms move with powerful, aggressive action with large amplitude
- Head and neck stay in neutral alignment through the spine
- Biggest coaching point: entire body displaces with significant flight time.

What should this look like?

Cues



What are some cues we can use to get the athlete to accomplish the dynamics required to start properly?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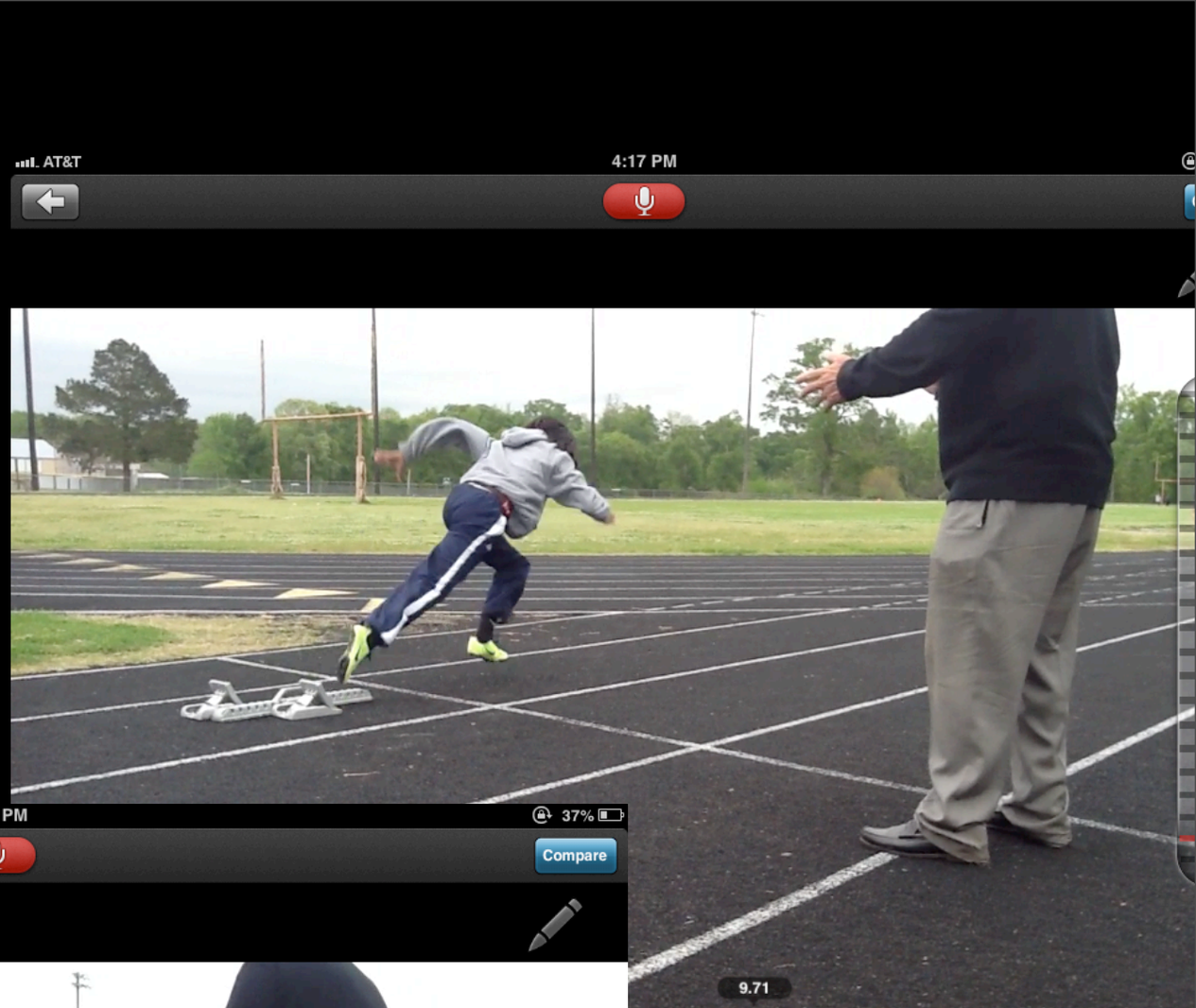
Compare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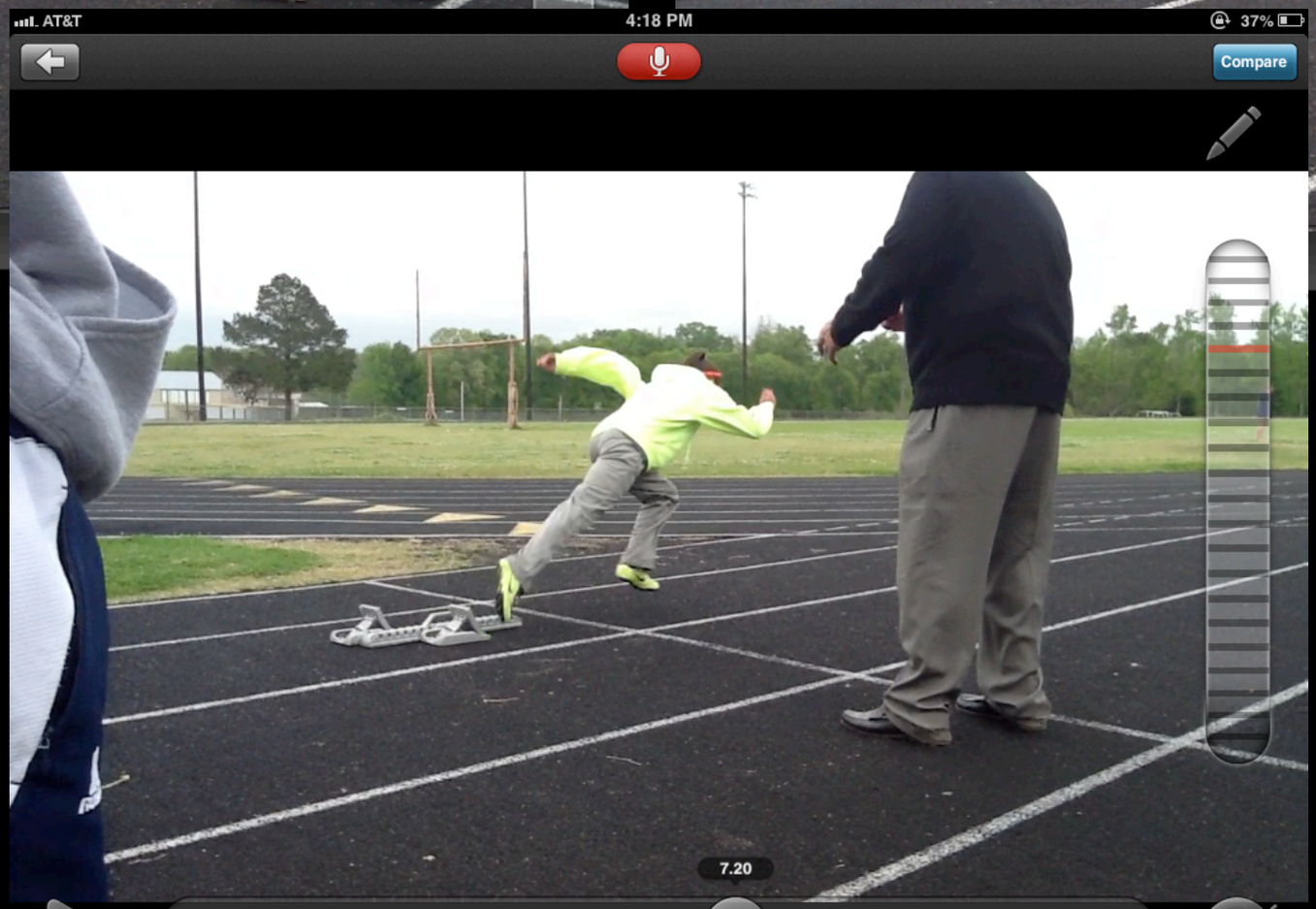
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Compare
7.20

Common Faults

- Stepping Out
- Popping Up
- Lateral Deviation
- Bend at waist instead of entire body lean
- Impatience in drive mechanics
- Incorrect start position
- Any others?

Drills

- Walls Drills
- Punch-Punch Drill
- Lunge Walk + Push
- Falling Starts
- Hanging Starts
- Clap Starts
- Hop-Hop Starts
- Progressions (earlier slide)

Ancillary Exercises

- Short Hill Runs
- Short Stadium Runs
- Sled or harness runs
  - Be careful with weight and decrement in performance. Keep at 5% or less.

Synthesis

- 2 point
- Rolling
- 3 point
- 4 point
- Blocks

Synthesis

Synthesis

Block Starts Plus Acceleration: The Final Product

- Acceleration distance depends on level of the athlete
- Duration between 4-6 seconds
- Initial postural positions must be conserved
- Head, neck, pelvis remain in neutral position.
- Misalignment of pelvis will cause gross mechanical deficiencies and force application faults.
- Straight line from head to feet
- Pushing mechanics must be conserved throughout the acceleration process.

What should this look like?

3 point Starts:
An Alternative

Thanks

- I would like to thank a multitude of people for sharing their knowledge with me, especially Boo Schexnayder, Gary Winckler, Dan Pfaff, and Loren Seagrave. Also, many thanks go out to the athletes that gave me the chance to experiment with them, sometimes mess them up in the process, yet still believed in me through the whole process. And thanks to you for having me here today.