

Biomechanics of Sports

Biomechanical Terms and Concepts

Acceleration and Max Velocity

April 30, 2020



Lesson: April 30, 2020

Objective/Learning Target: To understand and identify the differences between maximum velocity sprinting and acceleration.



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Background Information: There are differences in mechanics depending on where you are in a race. Your goal is to learn what you know about top end mechanics or max velocity, and compare them to the mechanics of acceleration.



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Instructions: Watch the online practice opportunity videos listed below and answer the supporting questions.

Acceleration

Forward lean

First step – Body angle ~45°
Stronger athletes may have lower angles

Parallel shins and body

Attack back at the ground

Toe up

Creates a pre-stretch

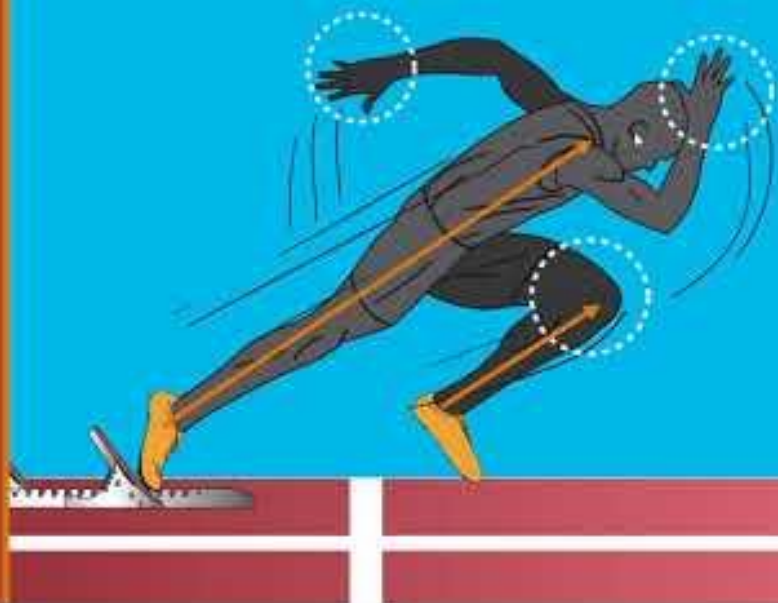
Low ground clearance

Head facing down

Big arms

Slower ground contact times

More time to apply force
More strength based





Questions:

1. What are the fundamental concepts used for both maximum-velocity and acceleration?
2. Identify the key concepts associated with acceleration.
3. Identify the key concepts associated with maximum velocity.
4. Why is striking the ground too far in front of your center of mass a bad thing in maximum velocity sprinting?



Email your discussion questions to the following instructors:

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