

LEARNING OBJECTIVES

- Identify and explain the difference between traditional definitions of agility and multidirectional speed
- Identify and explain the component and sub-component speed qualities that make up multidirectional speed
- Recognize the "coaching pyramid" and identify the most effective cues for improving the shuffle/cut and crossover
- Identify and design effective movements skills programming for multidirectional speed

© 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.

What do we think of when we hear agility?



© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.

01

AGILITY



Agility is classically associated with a diversity of terms and definitions



© 2014 Athletes' Performance, Inc.

TRADITIONALLY DEFINED

- Whole body change of direction
- Synonymous Terms
  - Quickness
  - Cutting
- "Most research on agility testing has applied the term 'agility' to describe any dynamic sporting action that involves a change in body position"

(Sheppard & Young, 2006)

EXOS © 2014 Athletes' Performance, Inc. 9

Does the traditional approach adequately prepare athletes for the demands of competition?



?



EXOS © 2014 Athletes' Performance, Inc. 10

The 5 most popular 'agility' tests are all significantly correlated with one another

- **Design:**
  - N=44 physical education students performed 3 repetitions on the Illinois Agility Test, L-Drill, Pro-Agility, T-test, and 5-0-5
- **Results:**
  - Performance across all tests had strong positive correlations (r = 0.84-0.89)
  - Traditional tests "tell the same story"



(Stewart et al., 2012)

Popular agility tests do not differentiate between high and lower level athletes

- **Design:**
  - N=12 first team and N= 30 second team rugby players performed a series of reactive agility tests and non-reactive traditional agility tests
- **Results:**
  - Only the reactive agility tests were able to dissociate between the first and second team players



(Gabbett et al., 2008)

© 2014 Athletes' Performance, Inc.

WHAT IS MISSING?

- Inclusion of perceptual and decision making components…Reaction
- Ability to compare change of direction to reaction and decision making capabilities
- Testing and training construct that transfers to sport

EXOS © 2014 Athletes' Performance, Inc. 13

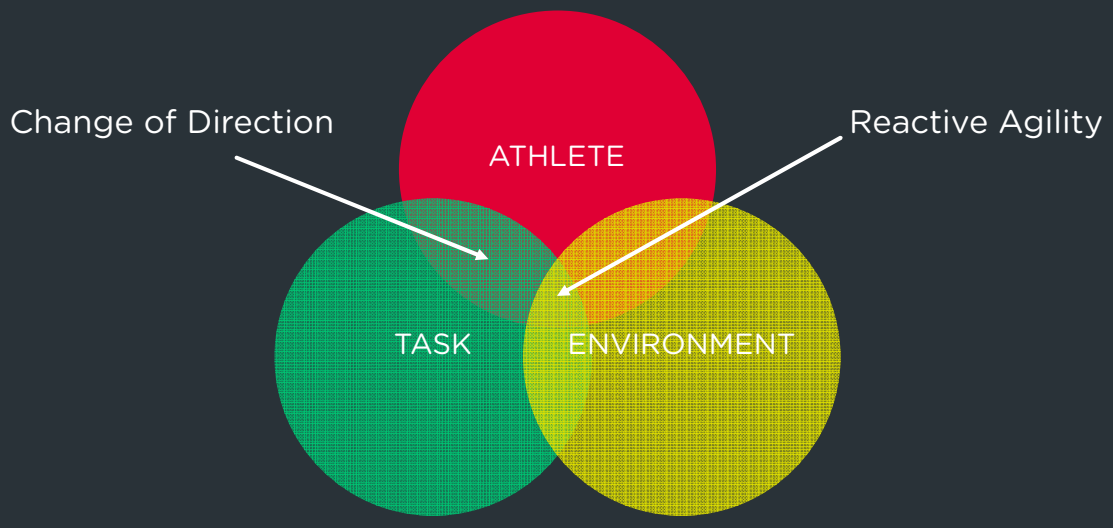


RE-DEFINING AGILITY

- The ability to change direction and react is fundamental to all sport and therefore we must be able to test both capabilities
- Change of Direction:
  - A pre-programmed rapid whole-body movement with change in velocity or direction of movement
- Reactive Agility
  - A rapid whole-body movement with change of velocity or direction in response to a stimulus

EXOS © 2014 Athletes' Performance, Inc. 15

RE-DEFINING AGILITY



CHECK FOR LEARNING

01

- Write down 2-3 primary differences between change of direction and reactive agility
- Write down 2 movements that you feel would be categorized as change of direction and 2 movements you feel would be categorized as reactive agility



EXOS

© 2014 Athletes' Performance, Inc.

17

02

MULTIDIRECTIONAL SPEED

© 2014 Athletes' Performance, Inc.

MULTIDIRECTIONAL SPEED: DEFINED

- "Agility" classically represents a category of drills rather than a movement classification
- This term does not adequately capture the diversity of movement qualities that need to be developed for optimal transfer from practice to competition
- MULTIDIRECTIONAL SPEED has been proposed as an alternative to the term "Agility"

© 2014 Athletes' Performance, Inc.

MULTIDIRECTIONAL SPEED: DEFINED

A category of movement skills that accounts for all movements and movement sequences that occur in sport under non-reactive (closed skill) and reactive (open skill) conditions

© 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.

MULTIDIRECTIONAL SPEED: NON-REACTIVE

- **Non-reactive (closed skills)**
  - Single movement patterns or movement pattern sequences developed under non-reactive conditions
  - Athletes have pre-determined understanding of the drill demands and the opportunity to start "when ready"
  - Develop physical competencies



EXOS © 2014 Athletes' Performance, Inc.

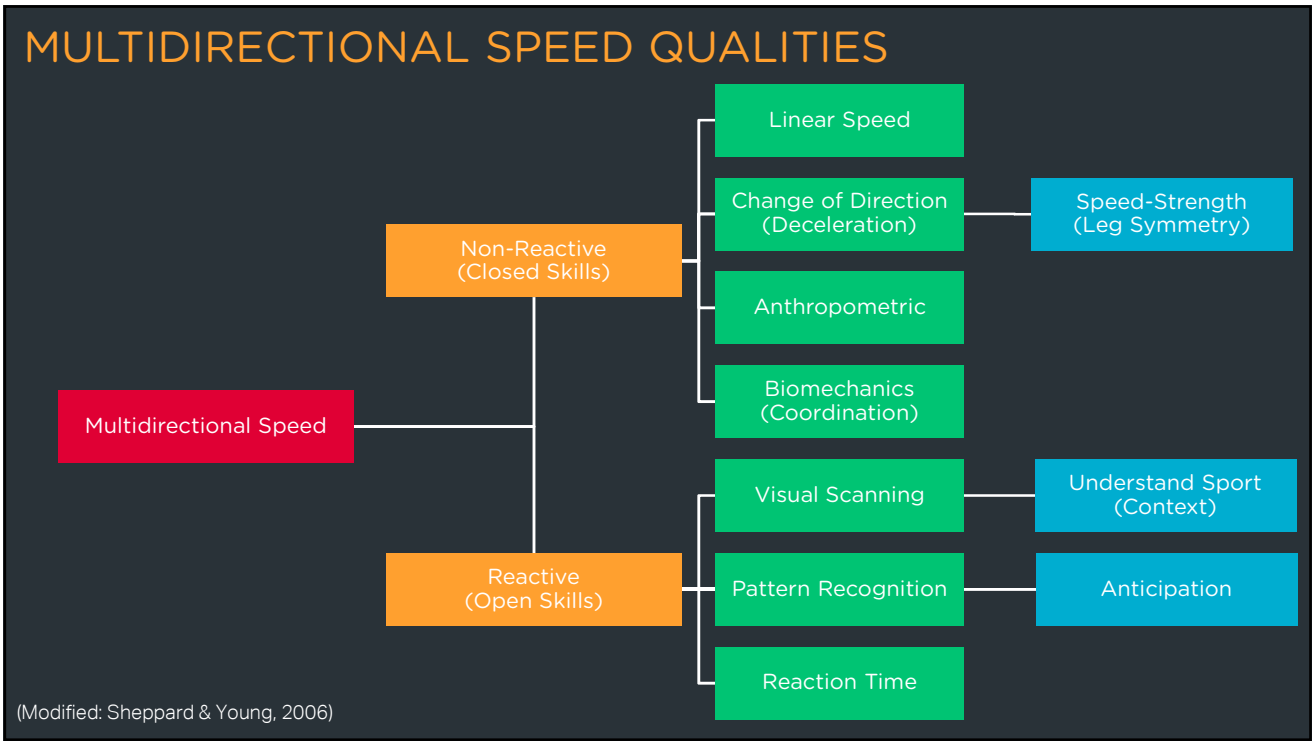
MULTIDIRECTIONAL SPEED: REACTIVE

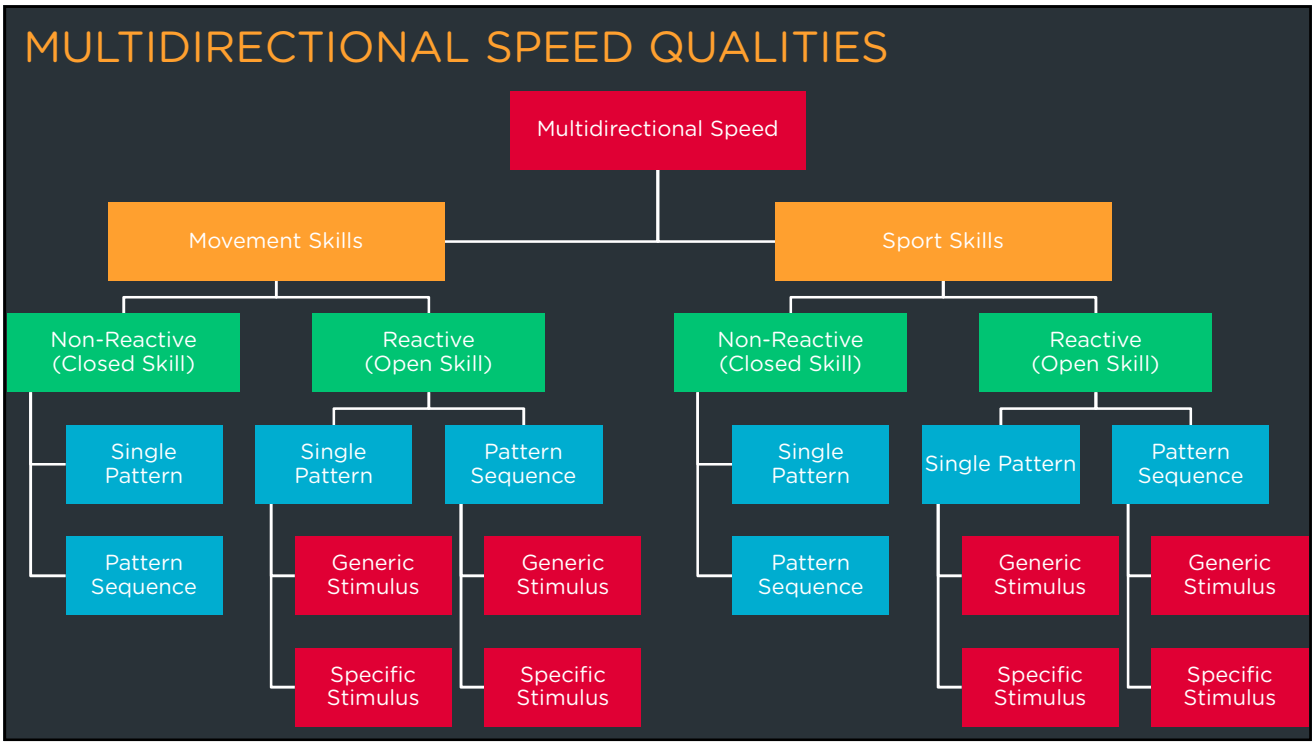
- **Reactive (open skills)**
  - Single movement patterns or movement pattern sequences developed under reactive conditions
  - Athletes may or may not have a pre-determined understanding of the drill demands and move through the drill in response to visual, auditory, or tactile stimuli
  - Develop physical and decision based competencies



EXOS © 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.

CHECK FOR LEARNING

02

- Write down the 2 components that make-up multidirectional speed and the 2 sub-components of each
- In your own words write down the importance of non-reactive skills relative to reactive skills



EXOS

© 2014 Athletes' Performance, Inc.

25

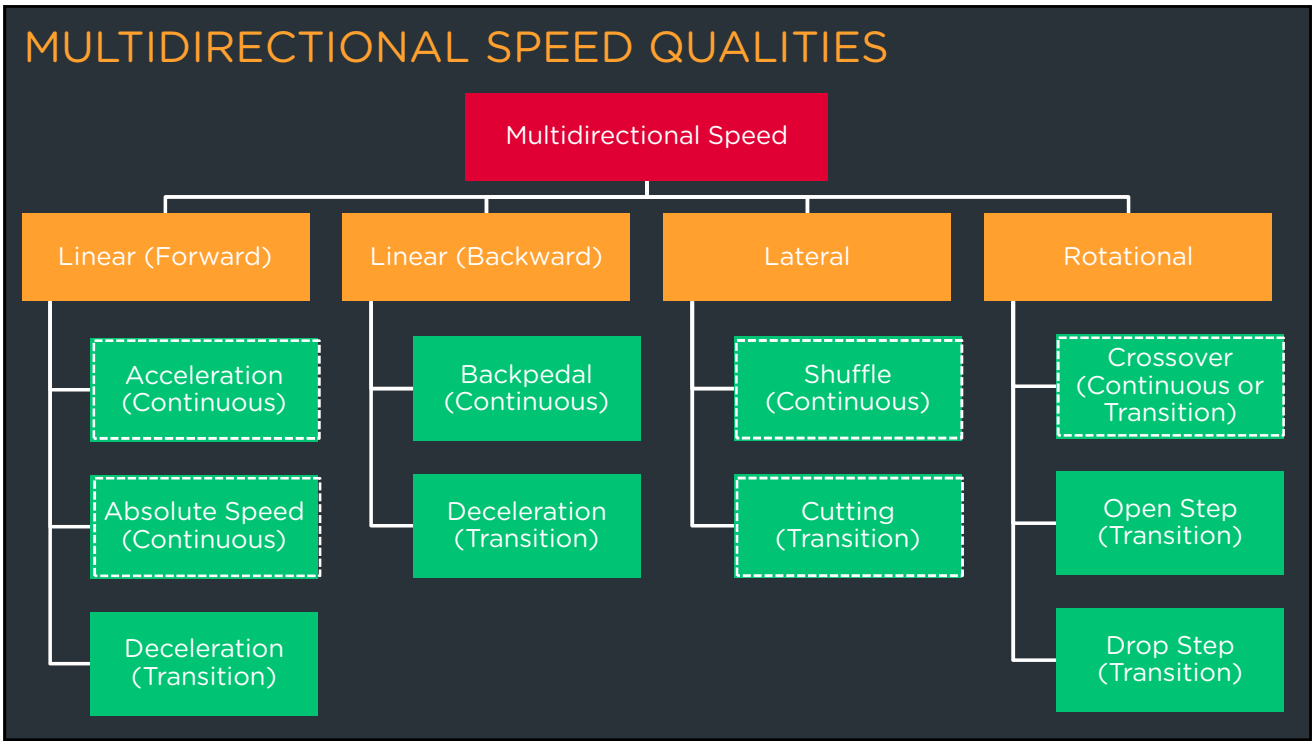
03

MULTIDIRECTIONAL SPEED

- Technical Model

© 2014 Athletes' Performance, Inc.

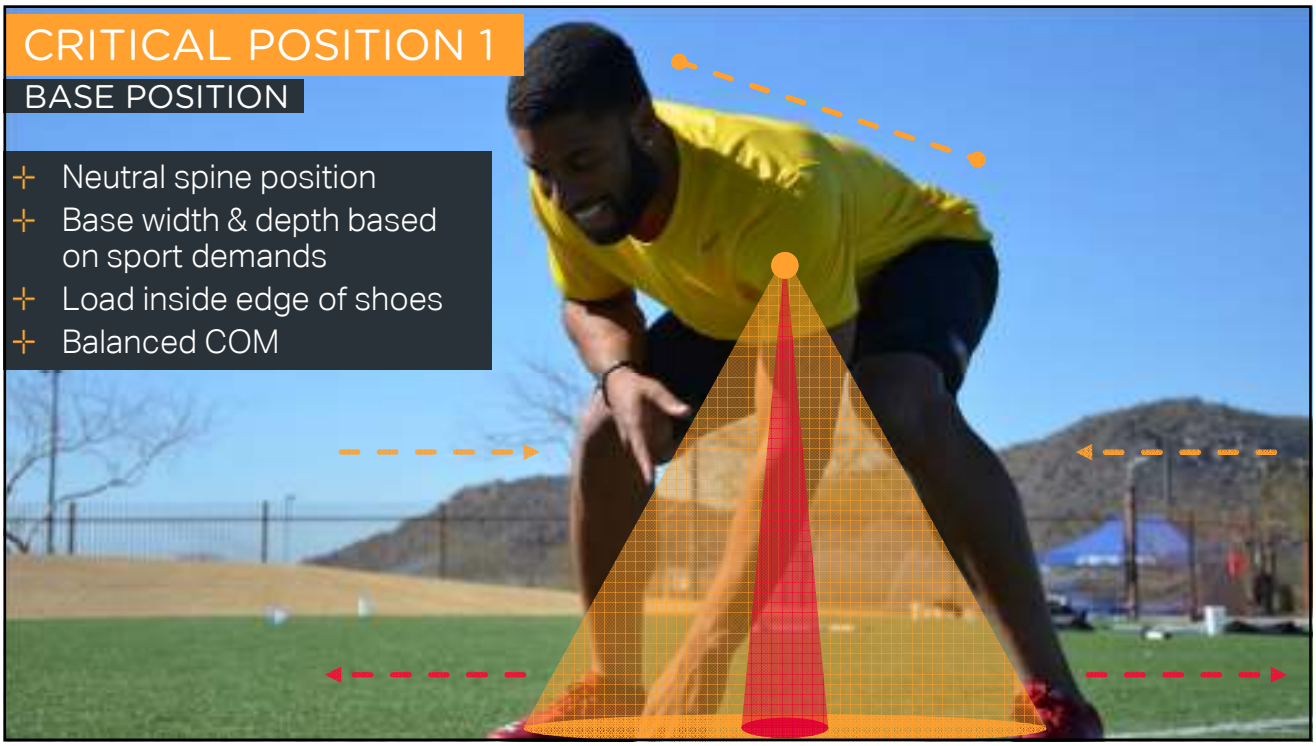
MULTIDIRECTIONAL SPEED QUALITIES



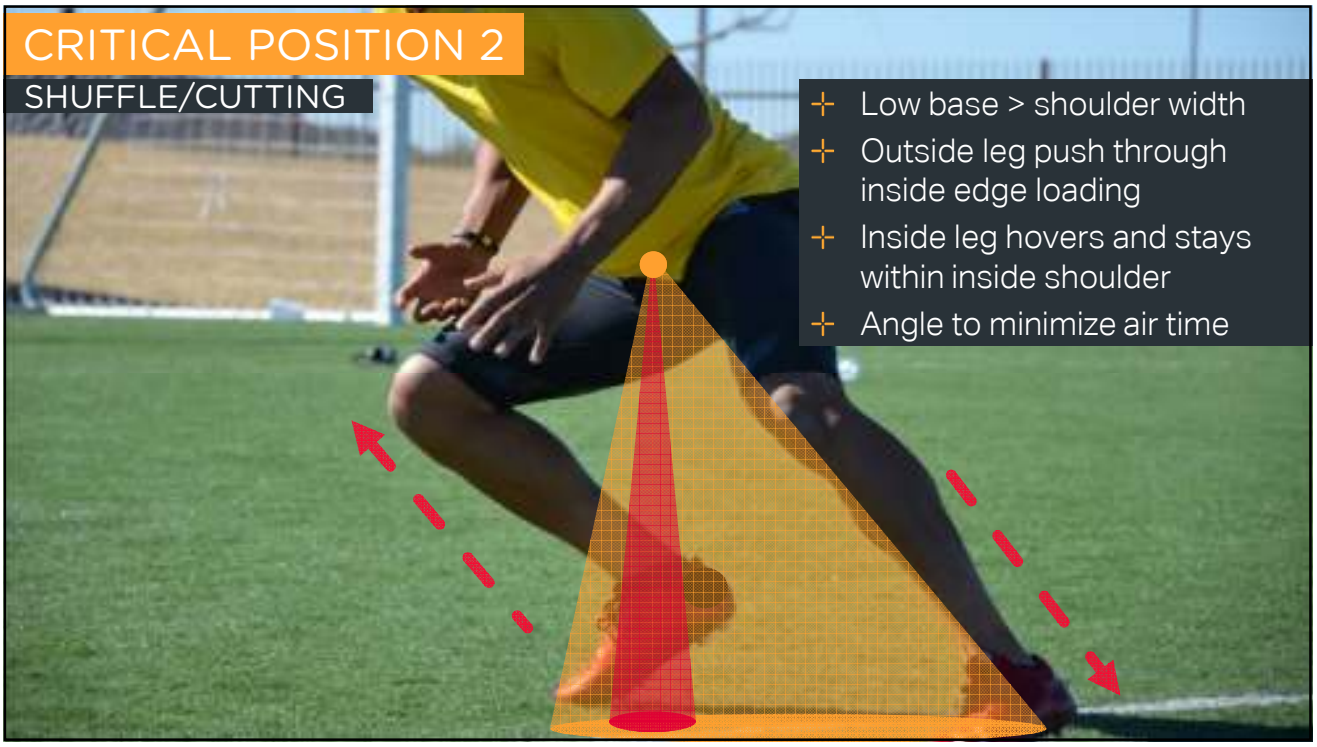
CRITICAL POSITION 1

BASE POSITION

- Neutral spine position
- Base width & depth based on sport demands
- Load inside edge of shoes
- Balanced COM



© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.

CHECK FOR LEARNING

03

- List the 4 movement categories under multidirectional speed
- For the shuffle/cut and crossover, list 2-3 technical components each



EXOS

© 2014 Athletes' Performance, Inc.

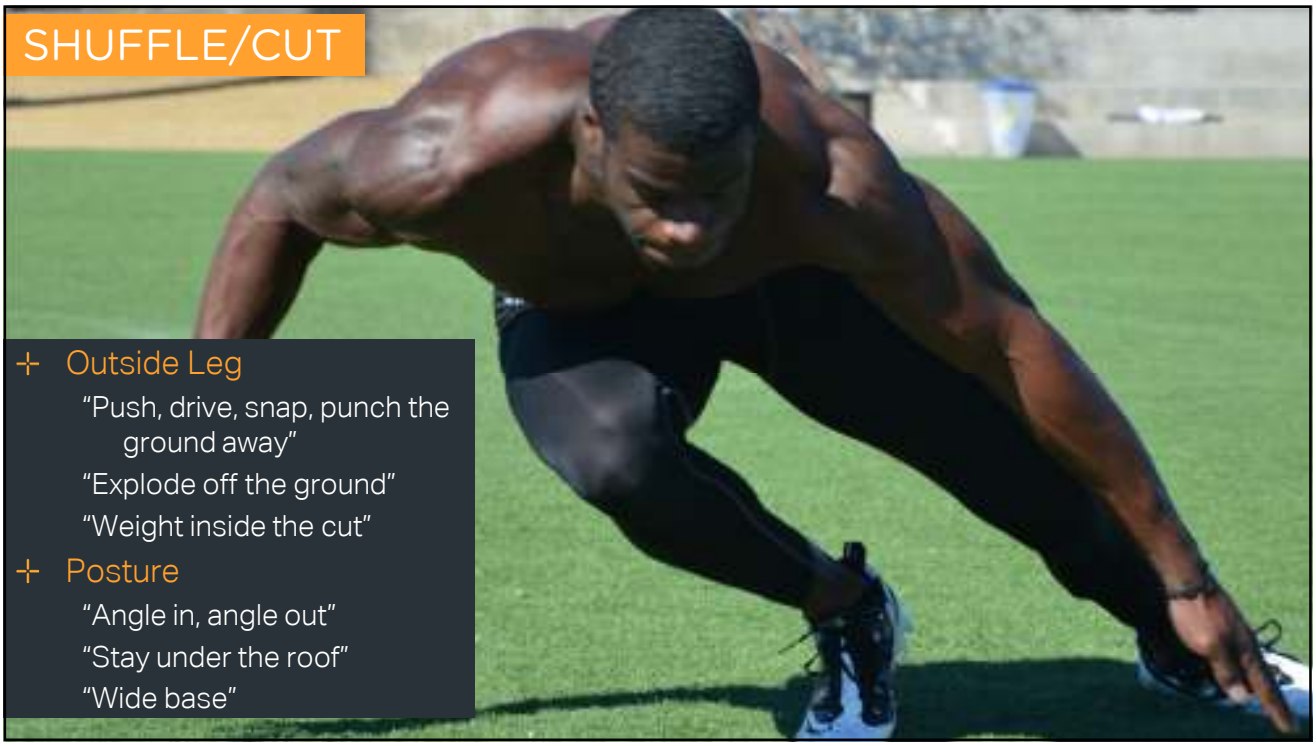
33

04

COACHING

© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.

CROSSOVER



- Inside Leg
  - "Push, drive, snap, punch the ground away"
  - "Explode off the ground"
- Outside Leg
  - "Snap knee across as if to break a pane of glass"
  - "Drive knee towards targeted direction"

CHECK FOR LEARNING

04

- Write down the primary considerations for correcting posture, leg action, and arm action
- List 2-3 cues for both the shuffle/cut and crossover



EXOS

© 2014 Athletes' Performance, Inc.

38

05 PROGRAMMING

PROGRAMMING CONSIDERATIONS



- Structure
- Frequency
- Volume
- Intensity
- Methods

© 2014 Athletes' Performance, Inc.

STRUCTURE: PILLAR PREPARATION

- **Multidirectional Focus**
  - Massage…Stretch…Activate
    - Shoulder
      - Internal & External Rotation
    - Thoracic
      - Extension & Rotation
    - Hip
      - Flexion & Extension
      - Abduction & Adduction
      - Internal & External Rotation
    - Ankle Dorsiflexion



EXOS © 2014 Athletes' Performance, Inc. 41

STRUCTURE: MOVEMENT PREPARATION

- **Multidirectional Focus**
  - Miniband
    - Lateral & Rotational
  - Dynamic Stretch
    - Total Hip (Rotational Emphasis)
  - Movement Integration
    - Lateral & Rotational Emphasis
  - Rapid Response
    - Lateral & Rotational Emphasis



EXOS © 2014 Athletes' Performance, Inc. 42

STRUCTURE: PLYOMETRICS

- **Multidirectional Focus**
  - Direction
    - Lateral & Rotational
      - Vertical & Horizontal
  - Initiation
    - Non-Countermovement
    - Double Contact
    - Continuous
  - Movements
    - Bound
    - Hop



EXOS © 2014 Athletes' Performance, Inc.

STRUCTURE: MULTIDIRECTIONAL SESSION

- **Technical (10-15min)**
  - Motor Learning Emphasis
    - Single Pattern
  - Decision Emphasis
    - Non-Reactive (Closed Drills)
  - High Recovery
- **Skill Application (10-20min)**
  - High Intensity Emphasis
    - Single Pattern
    - Pattern Sequence
  - Decision Emphasis
    - Non-Reactive (Closed Drills)
    - Reactive Drills (Open Drills)
  - High Recovery



EXOS © 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.

FREQUENCY & VOLUME

- **Frequency Per Week:**
  - 1-2 x Per Week (45-60min)
- **Volume Per Session:**
  - Distances: 5-10 (± 2.5) yards
  - Repetitions: 3-6 (± 2) each
  - Sets: 1-2 each
  - Rest:
    - Reps < 90s
    - Sets < 120s



EXOS © 2014 Athletes' Performance, Inc.

INTENSITY



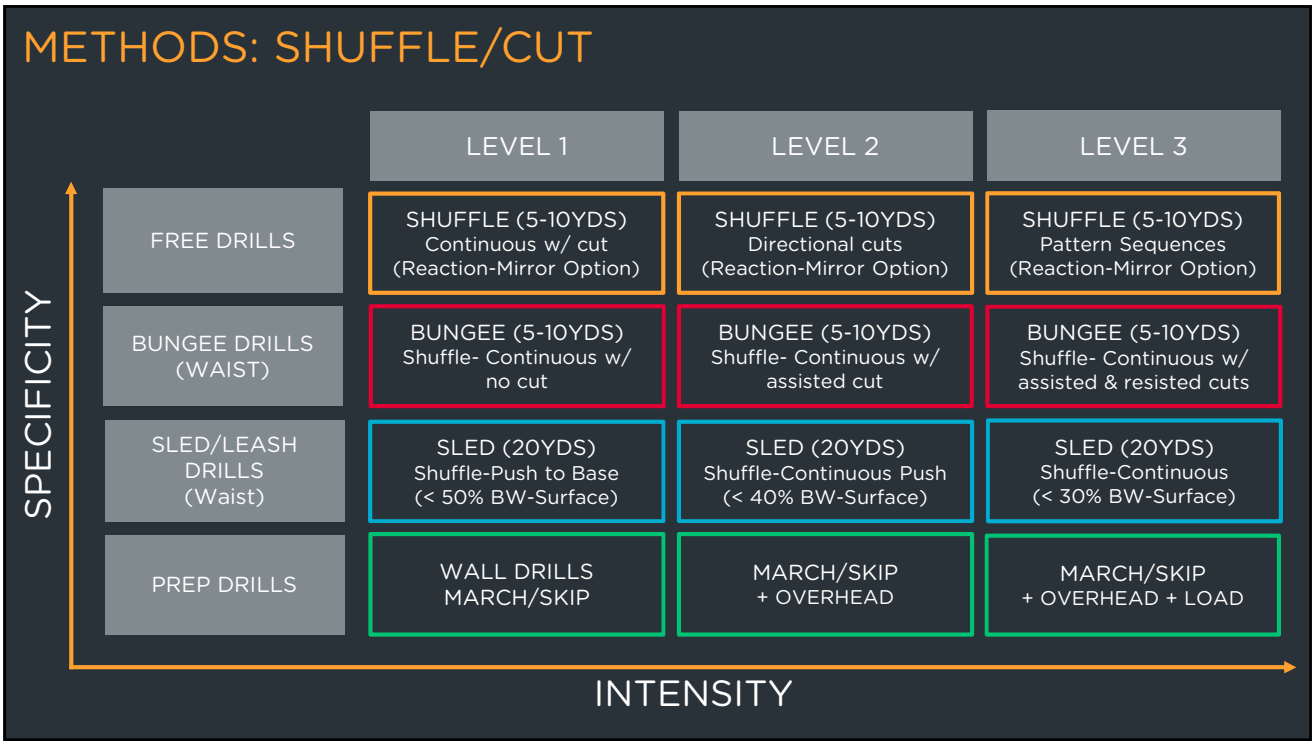
- **High Intensity: >95% (Full Speed Efforts)**
  - -Single Pattern (Non-Reactive or Reactive)
  - -Pattern Sequence (Non-Reactive or Reactive)
  - -Full CNS Demand + Neuromuscular Changes
  - -Complete Recovery In-Session (48hrs Between)

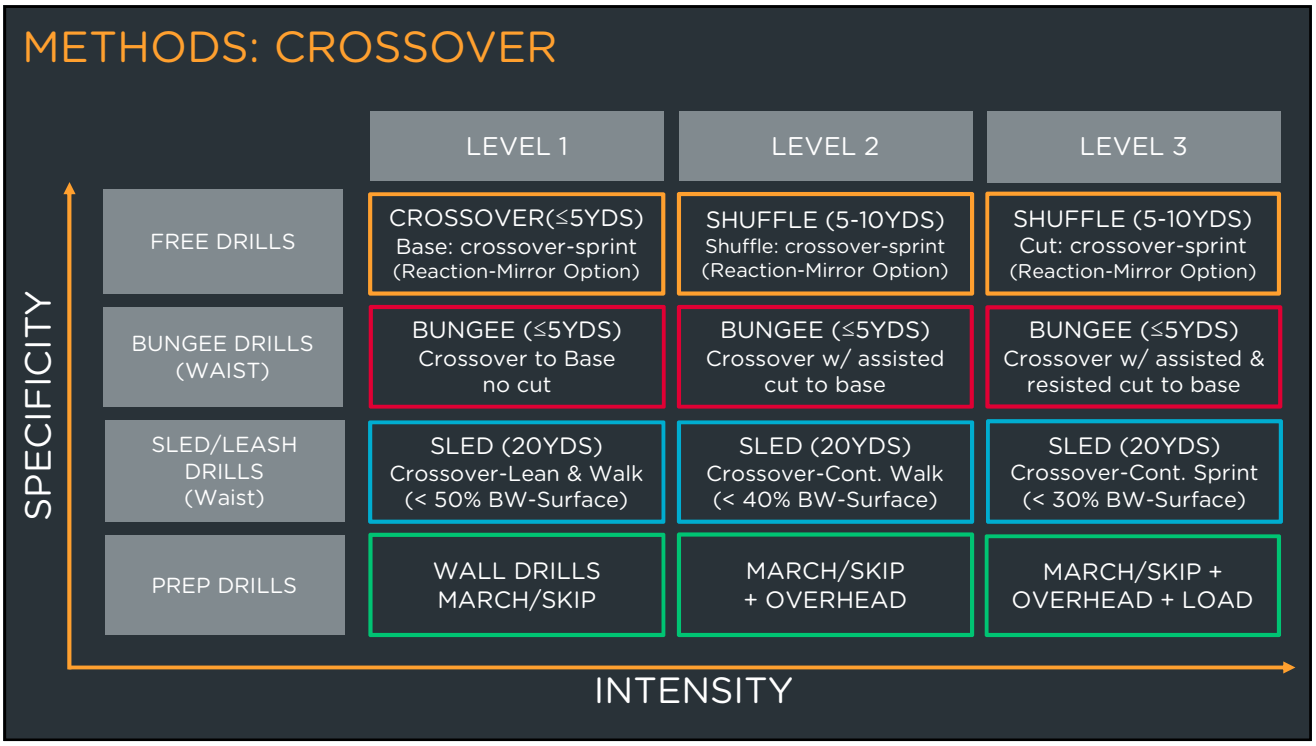
- **Low Intensity: 75% or Slower (Technical Efforts)**
  - Single Pattern (Non-Reactive)
  - Pattern Sequence (Non-Reactive)
  - Active Recovery + Motor Pattern Rehearsal
  - Physiological Changes: Improved Endurance

Adapted from CharlieFrancis.com, 2002

EXOS © 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.





© 2014 Athletes' Performance, Inc.

EXAMPLE PROGRAMMING: MULTIDIRECTIONAL SPEED

Multidirectional: Shuffle/Cut

Wall Drills:
- Cut Position Posture Holds (1 x 10s ea)
- Cut Position Load & Lift (1-2 x 5r ea)

Bungee (Waist) Drills:
- Shuffle-Cont. w/ no cut
  -(1-2 x (2-3ea) x 5yds)
- Shuffle-Cont. w/ assisted cut
  -(1-2 x (2-3ea) x 5yds)
- Shuffle-Cont. w/ assisted/resisted cut
  -(1-2 x (2-3ea) x 5yds)

Free Drills:
- Mirror Shuffle Drill (Leader + Follower)
  -(2-4 x 5-8s over 5yd Zone)

-Flag Tag (Offense + Defense: Pull Flag)
  -(2-4 x 5-8s over 5ydx5yd Zone)

Multidirectional: Crossover

Wall Drills:
- Crossover Posture Holds (1 x 10s ea)
- Crossover Load & Lift (1-2 x 5r ea)

Bungee (Waist) Drills:
- Crossover to base w/ no cut
  -(1-2 x 3ea)
- Crossover w/ assisted cut to base
  -(1-2 x 3ea)
- Crossover w/ assisted/resisted cut to base
  -(1-2 x 3ea)

Free Drills:
-Shuffle/Cut + Crossover-Sprint Mirror
  -(4-6 x 5-8s over 10-15yd Zone)

CHECK FOR LEARNING

05

- Create a 30-45min multidirectional speed session that emphasizes the shuffle/cut using Level 1-3 drills from any level of specificity
  (Note: Only create the movement skill portion and include as much detail on volume and intensity as possible)



EXOS

© 2014 Athletes' Performance, Inc.

50

06 CLOSING



- Optimizing multidirectional speed involves a balance of non-reactive and reactive based movements within single pattern and pattern sequences

© 2014 Athletes' Performance, Inc.

POSITION



- Rapidly lower COM and position within the base of support relative to desired direction of movement

DIRECTION



- Load the inside or outer edge of shoe (foot) to optimize the direction and magnitude of force

© 2014 Athletes' Performance, Inc.

EXOS EVERY DAY IS GAME DAY™

APPENDIX

- Cardinale, M., Newton, R., & Nosaka, K. (Eds.). (2011). *Strength and conditioning: biological principles and practical applications*. John Wiley & Sons.
- Gabbett, T. J., Kelly, J. N., & Sheppard, J. M. (2008). Speed, change of direction speed, and reactive agility of rugby league players. *The Journal of Strength & Conditioning Research*, *22*(1), 174-181.
- Gambetta, V. (2007). *Athletic development: The art & science of functional sports conditioning*. Human Kinetics.
- Jeffreys, I. (2006). Motor Learning---Applications for Agility, Part 1. *Strength & Conditioning Journal*, *28*(5), 72-76.
- Jeffreys, I. (2006). Motor Learning---Applications for Agility, Part 2. *Strength & Conditioning Journal*, *28*(6), 10-14.
- Jeffreys, I. (2010). *Gamespeed: Movement Training for Superior Sports Performance*. Coaches Choice.
- Sheppard, J. M., & Young, W. B. (2006). Agility literature review: classifications, training and testing. *Journal of sports sciences*, *24*(9), 919-932.

© 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.

APPENDIX

- Sheppard, J. M., Young, W. B., Doyle, T. L. A., Sheppard, T. A., & Newton, R. U. (2006). An evaluation of a new test of reactive agility and its relationship to sprint speed and change of direction speed. *Journal of Science and Medicine in Sport*, *9*(4), 342-349.
- Stewart, P. F., Turner, A. N., & Miller, S. C. (2012). Reliability, factorial validity, and interrelationships of five commonly used change of direction speed tests. *Scandinavian journal of medicine & science in sports*.

© 2014 Athletes' Performance, Inc.

© 2014 Athletes' Performance, Inc.