Movement Preparation

Canadian Soccer Association

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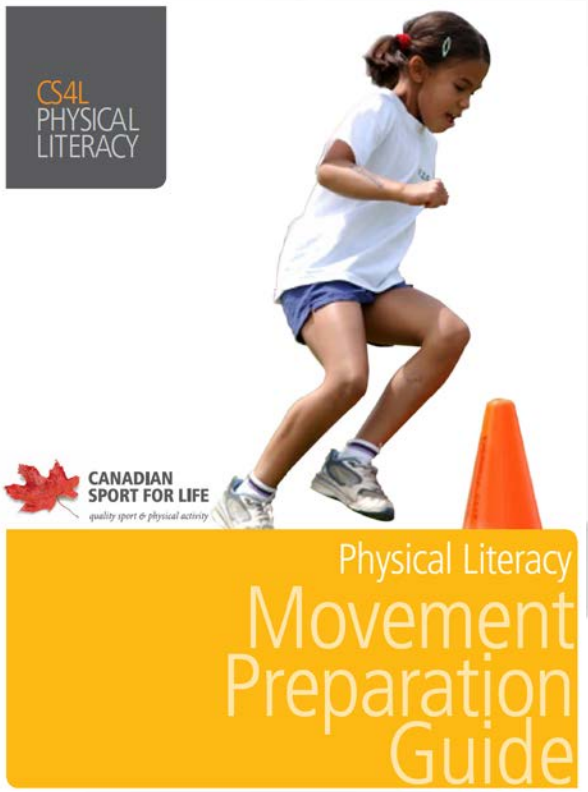
Movement Preparation

A component of training to **enhance performance** and **durability.**



Physicalliteracy.ca

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Movement Preparation

Objectives

1. **enhance performance**
2. **enhance durability**

Using well established, science-based principles of training the physiology and psychology of the player, and rooted in concept of physically literacy.

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How is MP different than warm-up?

- Initially, we used **warm-up and cool-down** approaches to prepare body for immediate action (game or training) – literally warming the body or "breaking a sweat" in the early years.
- Then we progressed to **dynamic warm up** which really focused on prepping both the muscles (heart and skeletal) and brain for immediate action.
- At this stage, the term "neuromuscular" training arose to recognize that preparation is both brain and muscle.
- MP is a term which embodies both warm-up and dynamic warm-up concepts (brain and muscle training), but also adds the dimension of **<u>accumulating</u>** benefit. MP is not just for the immediate activity.

Performance in Soccer

- What are the key physical characteristics to develop in a player?
- What are the key psychological characteristics of a player?
- Take a moment to create a top three list for physical and for mental characteristics.

Performance in Soccer

Physical Characteristics

1. Speed & Acceleration
2. Aerobic fitness and endurance
3. Power
4. Agility
5. Spatial awareness
6. High motor proficiency in movement skills
7. Diverse movement repertoire
8. Symmetrical motor competence

… many others

Performance in Soccer

Psychological Characteristics

- Self or intrinsically motivated
- Confident
- Focused and determined
- Able to manage emotions and anxiety
- Goal setter and executes on plan
- Punctual
- Aware of people and environment
- Commitment
- Control over the outcome

Performance in Soccer

- Is related to physical and mental characteristics

- BUT is also related to the ability of the player to “keep in the sport”, and this is where durability comes in

Durability

"The ability to endure"

--- Ability to Participate ---

- Endure training, endure in sport, and life
- Includes both MENTAL and PHYSICAL characteristics
- Is a **positively** framed concept

- Is an inclusive term
  - Fitness & exercise
  - Physical literacy
  - Motor control
  - Biomechanics
  - Nutrition
  - Sleep, rest, recovery and regeneration
  - Psychological
  - Injury prevention
  - Awareness and hazard detection
  - Etc.

PHYSICAL LITERACY

A FOUNDATION FOR MOVEMENT PREPARATION

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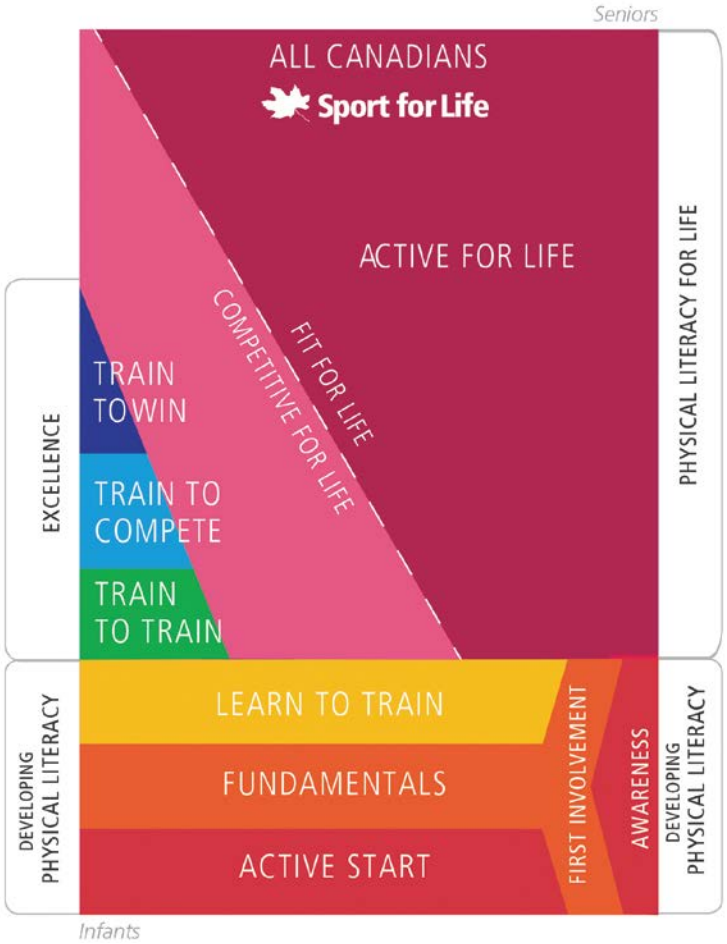
Movement Preparation & LTAD/LTPD

Movement Preparation and its component parts can be utilized from ages 5 and up.



Movement preparation can be used from stages 1 to 7

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Canada's Physical Literacy Consensus Statement | June 2015

The Elements of Physical Literacy

The definition of physical literacy includes four essential and interconnected elements whose relative importance may change throughout life.

Definition of Physical Literacy

Physical literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life.

International Physical Literacy Association, May, 2014

Motivation and confidence (Affective)

Motivation and confidence refers to an individual's enthusiasm for, enjoyment of, and self-assurance in adopting physical activity as an integral part of life.

Physical competence (Physical)

Physical competence refers to an individual's ability to develop movement skills and patterns, and the capacity to experience a variety of movement intensities and durations. Enhanced physical competence enables an individual to participate in a wide range of physical activities and settings.

Knowledge and understanding (Cognitive)

Knowledge and understanding includes the ability to identify and express the essential qualities that influence movement, understand the health benefits of an active lifestyle, and appreciate appropriate safety features associated with physical activity in a variety of settings and physical environments.

Engagement in physical activities for life (Behavioural)

Engagement in physical activities for life refers to an individual taking personal responsibility for physical literacy by freely choosing to be active on a regular basis. This involves prioritizing and sustaining involvement in a range of meaningful and personally challenging activities, as an integral part of one's lifestyle.

Core Principles

Five core principles underlie the definition in this Statement.

Physical literacy:

- is an inclusive concept accessible to all
- represents a unique journey for each individual
- can be cultivated and enjoyed through a range of experiences in different environments and contexts
- needs to be valued and nurtured throughout life
- contributes to the development of the whole person.

Competence
Confidence
Motivation
Participation

Movement Skills are the **building blocks** of Physical Literacy

.

Preparing for ALL Movements on the Field of Play

- Motor control proficiency (ability to move well) improves with repetitions performed with knowledge of results (practice)
- We purposefully practice numerous soccer specific skills that are performance related (kicks, headers, dribbling) but we often leave the other "obligatory" skills (cutting, collision avoidance, stumble recovery, etc) to *chance* development

Movement Vocabulary

Comprehension Confidence Motivation

Awareness Selection Sequencing Modification

Motor Competence Symmetry

Environments (Physical and Social)

Free Play

Movement Creativity

Physical Literacy

Participation

Activity

Fitness

Durability

Quality Physical Literacy Experiences

- Increase awareness (kinesthetic and spatial)
- Increase competence in movement skills
- Increase competence in sequence movement skills
- Increase competence in modifying skills for circumstances
- Increase the repertoire of movement skills
- Decreased asymmetry from right to left
- Increase competence in decision making in movement skill selection
- Increase confidence
- Increase motivation
- Decrease social inhibition
- Increase comprehension of movement terms
- Lead to increased participation leading to increased fitness and performance
- Lead to increased participation leading to improved mental and physical health

- PLUS if you deliver PL you can achieve fitness

MOVEMENT PREPARATION BASICS

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Movement Preparation

- Designed to be implemented in relatively small active space from gym to outdoor field
- Designed to use readily accessible materials (cones and ladders)
- Designed to be developmentally progressive to maximize personal excellence and performance excellence
- Ages from 7 & up, components down to 5 years old

Entry Level Implementation

- At younger ages (5-9) and entry level situations, we always implement MP in a fun, social, and semi-structured manner
- We start with selected components of the entire MP each session, and add in components progressively over time
  - Children and adults love to master new skills when presented in this manner
  - Of course, at any age, fun and challenge are key components to successful training

Movement Preparation Components

- Dynamics
  - Basically a dynamic warm-up
- Accelerations
  - Improve speed and acceleration from both feet
- Cutting
  - Enhance cutting proficiency and symmetry
- Ladders
  - Enhance footwork proficiency and symmetry
- Core
  - Provide a dynamically stable core for lower and upper limb movements

ALL components contribute to sport related fitness development

EQUIPMENT AND RESOURCES

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EQUIPMENT & RESOURCES

- Equipment
  - 32 to 40 cones (compressible)
  - 1 to 2 full ladders which can break down in half

- Resources
  - Movement Preparation *Interactive* PDF (iPDF)
  - Movement Preparation web materials

FIELD SETUP

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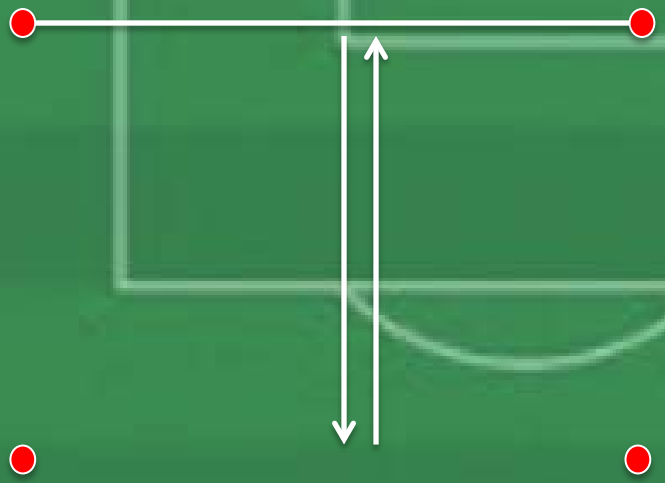
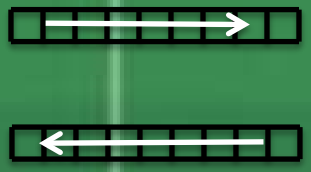
Dynamics & Accelerations

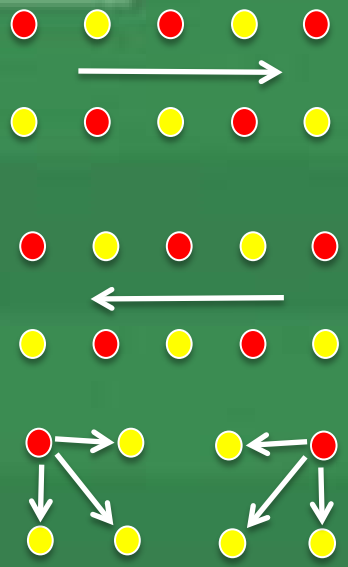


Ladders



Core

Cutting



Equipment

32 cones
1-2 full length ladders

MP Interactive PDF

Short video

Color Coded Levels 1,2,3

Basic progression info for each component

Each Component title is a link to an annotated PPT file (cues, why, etc.)

Links to PDFs:
Coach's Handbook
Athlete Info
Parent Info
Physicalliteracy.ca

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Movement Preparation iPDF "Portable Instruction Manual"

- MP iPDF shows the three MP progression levels with pictures and videos
- MP iPDF can print as a tabloid poster
- MP iPDF is platform independent but needs cellular or wireless connection
- MP iPDF has links to
  - Coach's Handbook, Athlete Info, & Parent Info
    - Are iPDFs as well
  - Annotated PPT of each MP component
    - Dynamics, Accelerations, Cutting, Ladders and Core
    - Provides Cueing and Rationale for each element

MP: Performance Core

MOVEMENT PREPARATION COMPONENTS

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Movement Preparation Components

- Dynamics
- Accelerations
- Cutting
- Ladders
- Core

BASIC PROGRESSION

Don’t start with the entire movement preparation, especially at younger ages.

- Intro with dynamics
- Intro with core

Then add a MP component each session

DYNAMICS

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Dynamics Elements

- mini skip
- butt kicks
- side shuffle right
- side shuffle left
- grapevine
- backward mini steps
- fast backward run
- moderate skip for height
- high knees continuous
- jumps
- right to left hops
- knee hug and lunge

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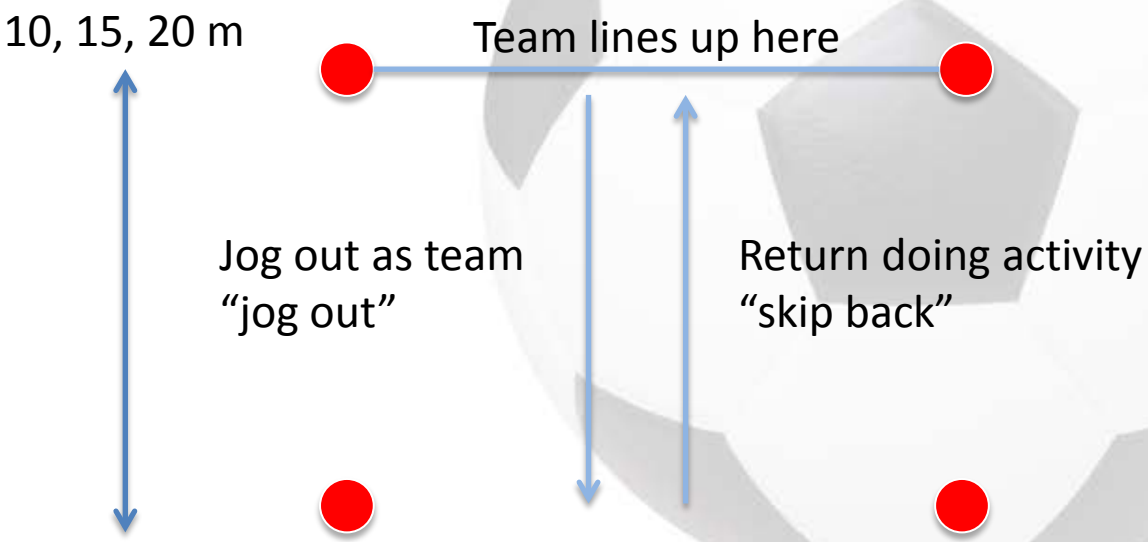
Dynamics

- Key Objectives
  - To develop motor competence in forward and backward footwork
  - To develop dynamic balance
  - To develop spatial awareness
  - To develop lower body strength and power
  - To develop aerobic fitness

Line Dynamics



1. mini skip
2. butt kicks
3. side shuffle right
4. side shuffle left
5. grapevine
6. backward mini steps
7. fast backward run
8. moderate skip for height
9. high knees continuous
10. jumps
11. right to left hops
12. knee hug and lunge

Level 1 – 8 activities, total distance 8x2x10 = 160 m
Level 2 – 9 activities, total distance 9x2x15 = 270 m
Level 3 – 9 activities, total distance 9x2x20 = 360 m

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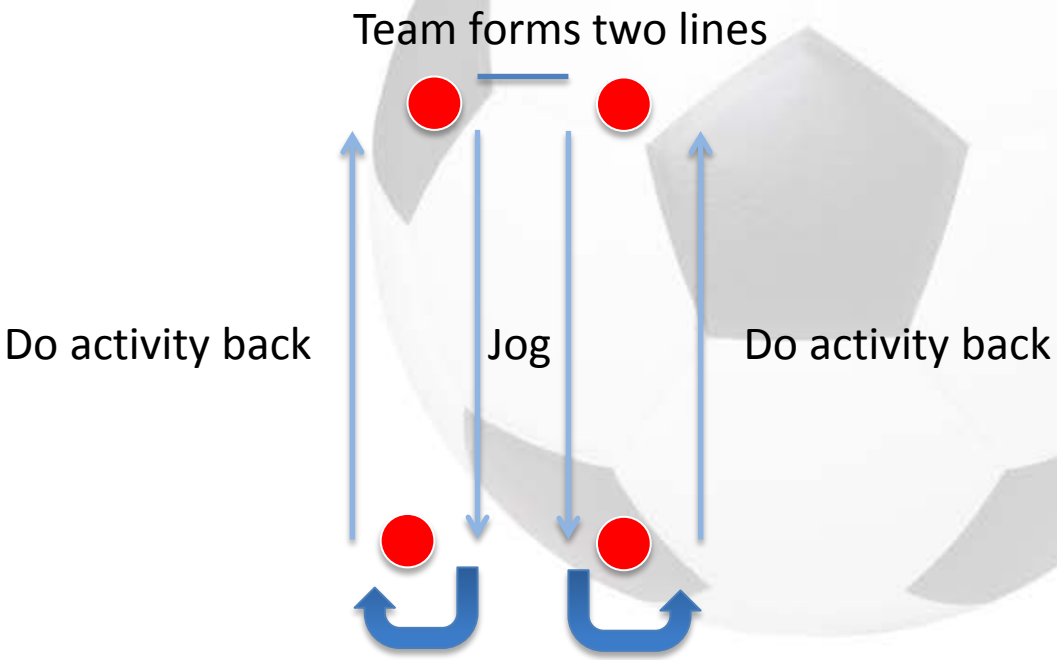
Circular Dynamics



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ACCELERATIONS

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Accelerations

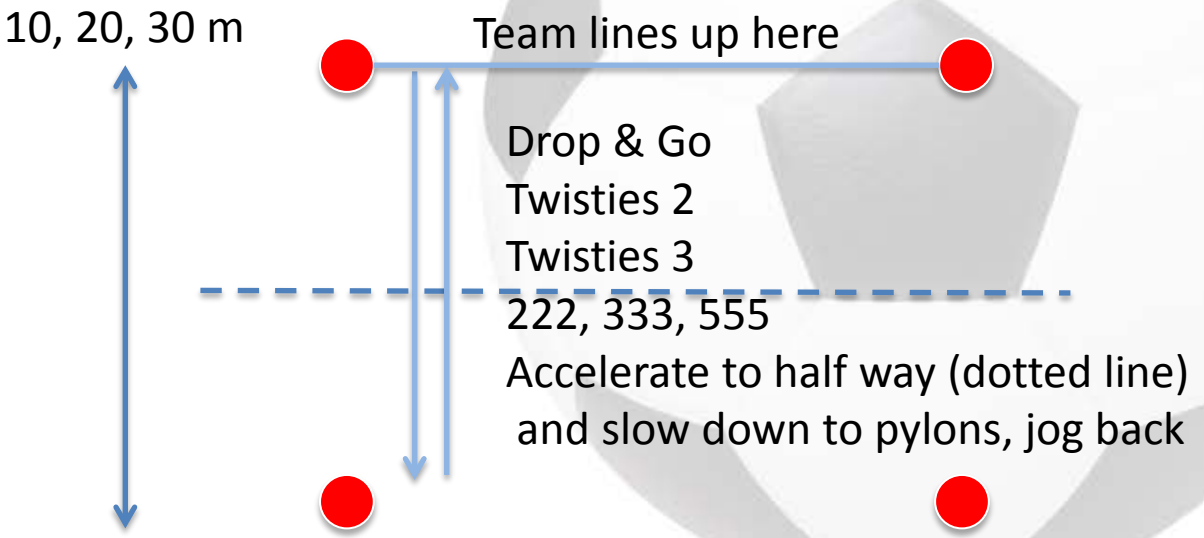
Elements

- Drop and Go
- Twisties 2
- Twisties 3
- 222, 333, 555

Accelerations

- Key Objectives
  - To develop sprint performance through improved acceleration and top speed
  - Develop running form
  - Develop lower body power
  - Develop ability to start from right or left stance
  - Develop the ability to start from an unstable position
  - Develop short term energy systems

Accelerations



Drop and Go
Unbalanced start
Twisties 2
Start of one foot back
Twisties 3
Start of the other foot back
2,2,2 | 3,3,3 | 5,5,5
Fitness and start from unbalanced position

Level 1 – 10 m by **2 reps** of each task, 8 sprints total, 80 m

Level 2 – 20 m by **3 reps** of each task, 12 sprints total, 240 m

Level 3 – 30 m by **4 reps** of each task, 16 sprints total, 480 m

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LADDERS

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Ladders

Elements

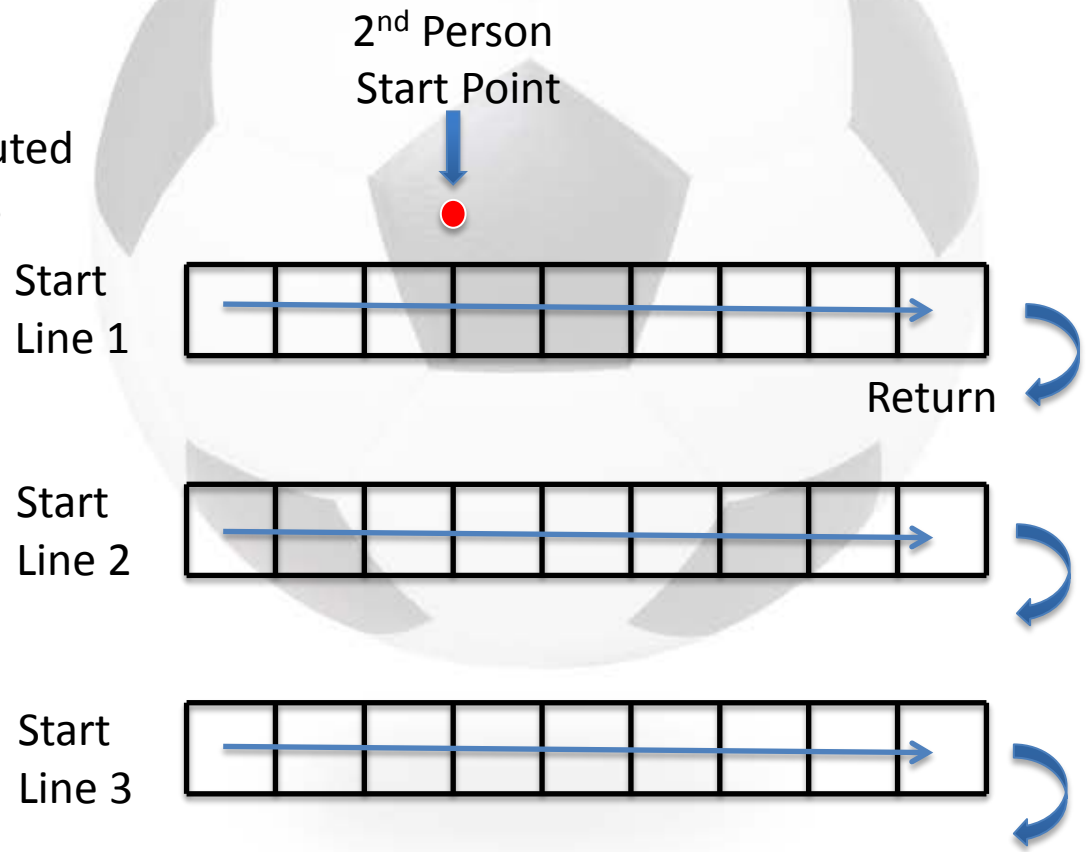
- in-in-out-out
- icky shuffle
- scissors right
- scissors left
- rapid through
- high knees
- cross outs
- twisties
- out 3 jump 2
- out 5 jump 3
- continuous jumps
- backward in-in-out-out

Ladders

- Key Objectives
  - To develop motor competence in footwork
  - To develop dynamic balance
  - To develop spatial awareness
  - To develop movement sequences
  - To develop lower body strength and power

Ladders

Team equally distributed between ladders



CUTTING

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Cutting

- Weave right
- Weave left
- Box left
- Box right

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Cutting Objectives

- Develop motor competence in change of direction from R to L, L to R for forward, diagonal and backward directions
- Reduce asymmetry in movement proficiency
  - Higher level of performance
  - Lower injury risk

CUTTING- WEAVES

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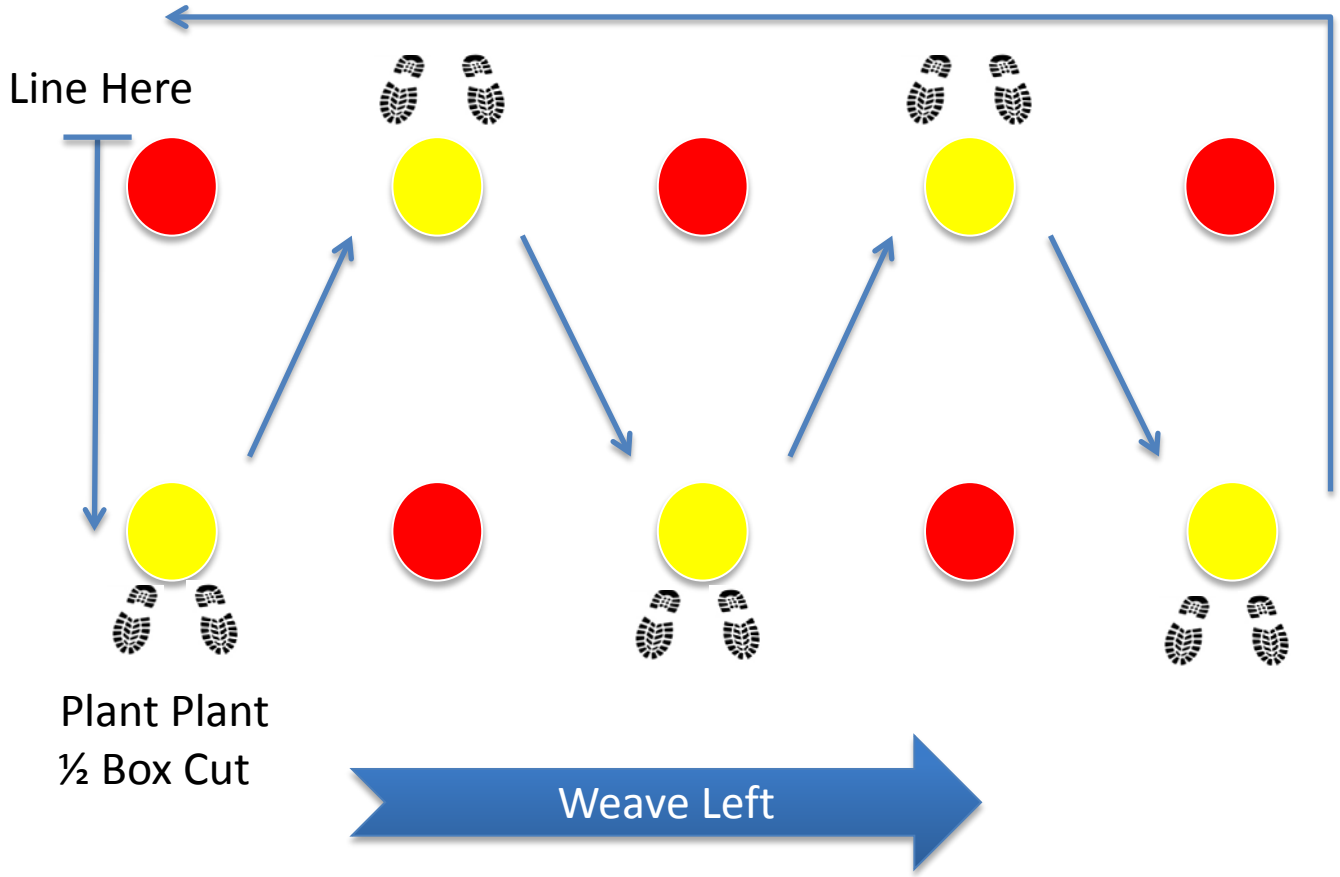
Weave



Speed Progression
50%
60%
70%
80%
90%
100%

Pressure Progression

Contact Progression

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Basic Progression

- Start at slow to medium speed
  - Not unrealistically slow
- Stand just back from first pylon and use “Plant Plant“ verbal cueing
- When shown, ask them not to “stutter step in” as it telegraphs change of direction
- As they become automatic at that speed (forward to backward and backward to forward) then progress speed

Progression Parameters

- Speed
  - Slow/medium to performance speed
- Directions
  - All change of direction maneuvers ideally (drills do not cover all)
  - Single leg landing partially covered
  - Adaptation of drills
- Pressure
  - No pressure to encroaching “no contact” presence
- Contact and Avoidance
  - Contact, push-off, and avoiding contact
- Surface Progressions
  - Gym floor, grass, artificial, sand
- Footwear Progressions
  - Runners to cleats
- Competition or Rivalry
  - In a mini-weave drill add a side by side cutting course

Progression

- Speed progression
  - slow/medium to medium to faster to performance speed
- Pressure progression
  - Starting with you standing at pylon (medium pace)
  - Advance to pylon “encroach slightly into space”
  - Have them become automatic with the near collision and footwork will change

Progression

- Surface progression
  - Cutting on each type of surface requires different neuro-mechanically characteristics
  - Being able to cut on a gym floor does not adequately prepare for fluid and controlled movement on artificial turf or grass
- Footwear progression
  - It takes many repetitions to learn to cut in runners, and an adequate number of repetitions should be performed on the artificial or grass surface with cleats

Progression

- Contact Progression
  - Add a hand to hand contact to cut
  - Add a hand to hand push off
  - Add a shoulder check
  - Add a gentle push

Learning Moments

- Stutter step
- Control
  - Fluid and automatic decelerating plant controlling speed entering plant
  - Fluid weight transfer to opposite foot
  - Fluid and definitive acceleration in opposite direction
- Difference in cut from L to R and R to L
- Difference in ability to shift forward to back versus backward to forward
- How presence of another impacts movement quality

CUTTING – BOX

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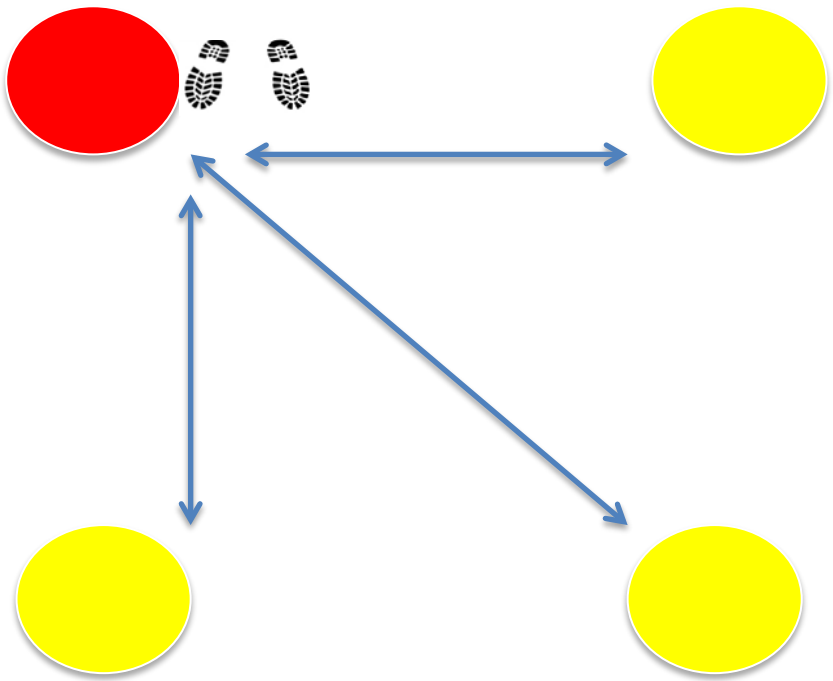
Box Right

Start



Touch EVERY Pylon

1. Forward and Back
2. Diagonal and Back
3. Side and Back

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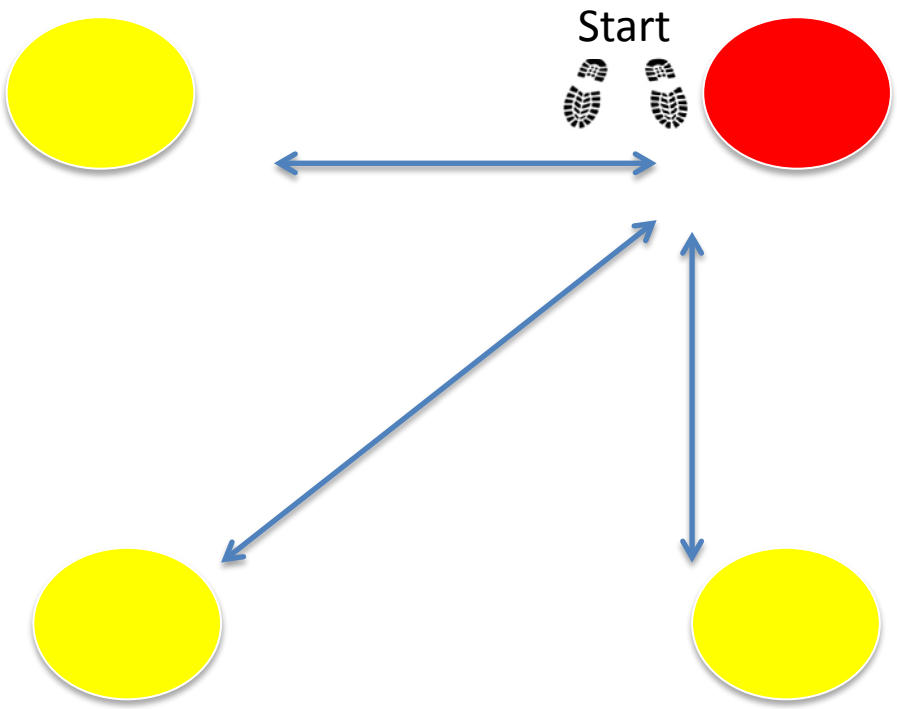
Box Left

Touch EVERY Pylon

1. Forward and Back
2. Diagonal and Back
3. Side and Back



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CORE

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Core

- plank
- up-up-down-down
- pointer right and left
- superman right and left
- side plank right
- side plank left
- side plank roll over
- side plank roller over heel to sky
- bent knee V sit "sky centre side"
- table top
- table top russians

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Core Objectives

- Traditional Core
  - Develop strength of muscles
  - Develop endurance of muscles
- PL Enriched CORE
  - Develop multi-planar stability (must control movement in all directions)
  - Develop multi-segmental stability
    - Stability does not mean static, dynamic stability is VERY NB
  - Develop perturbation management for expected and unexpected circumstances
  - Develop distal segment load control (control limb motion)
  - Develop inter-segmental buffering (use interposed joints to buffer load)

CORE

- Can be performed in two lines or a circle
- Typically a designated player or parent or coach lead the session
- The lead cues each component and sets duration

On Field

- Demo each component of MP
  - Dynamics, Accelerations, Ladders, Cutting, Core
- Create groups of 4 and have each group run through each of the components
- Wrap up with Q&A.