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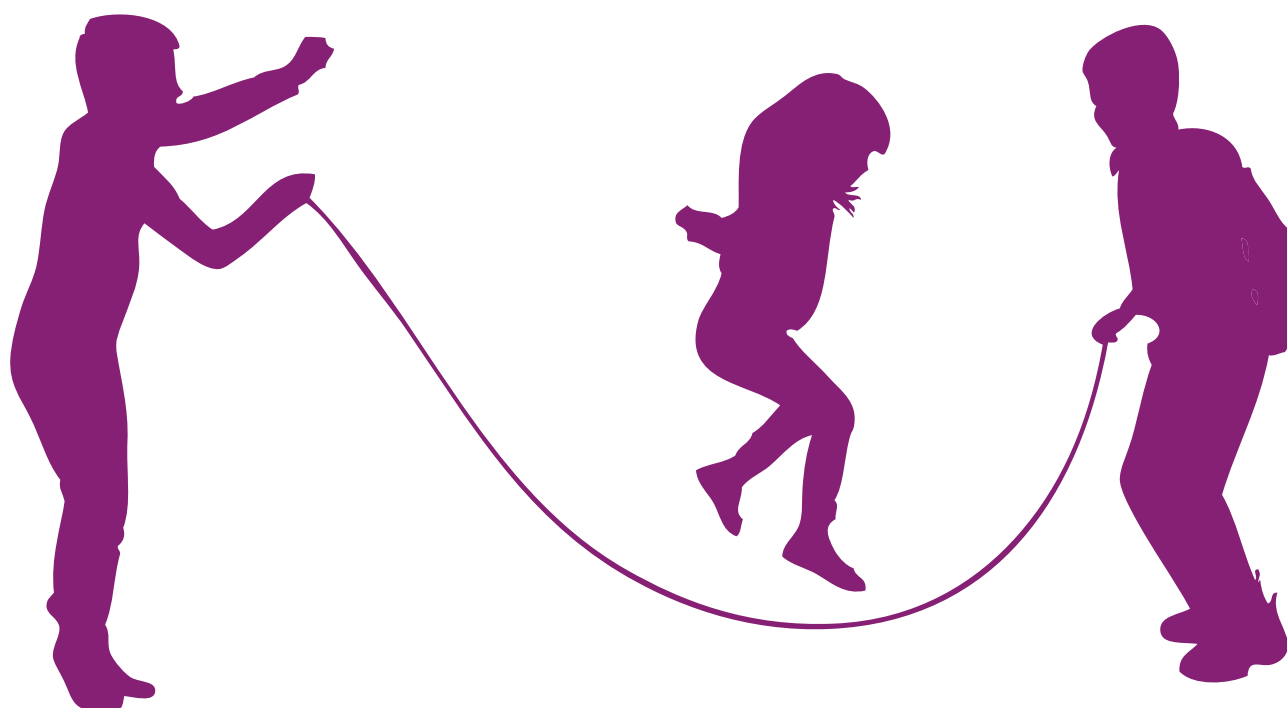


COACHING IRELAND
OILIÚINT ÉIREANN

Coaching Ireland
Coaching Children Workshop Series:

DEVELOPING PHYSICAL LITERACY
THROUGH SPORT -
COACHING CHILDREN TO MOVE

Factsheet 3



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COACHING CHILDREN SERIES: WORKSHOP 3

INTRODUCTION

This factsheet aims to provide the coach with the building blocks to support the development of safe and efficient movement by children. It will facilitate you with ideas on how to engage in activities that target the development of children's FUNdamentals of Movement and FUNdamental Movement Skills. In addition, it is aimed to assist the development of your coaching skills by considering the guiding principles for the observation of children's movement skills and helping you to pinpoint where you can assist children to improve their movement ability.

PHYSICAL LITERACY FOR CHILDREN

Just like reading and writing, children have to learn how to move!

The Multi-Skills Jigsaw

Multi-skills describe the building blocks which allow children to become confident and competent movers as well as games/sports players. Movement skills that children have developed through a multi- skills approach will underpin the development of sport specific skills and tactics. This will foster children's transition through the early stages of the LISPA framework, providing children with the skills required to stay involved in sport and physical activity for life. The following three types of skills have been used to define what multi-skills are:

- FUNdamentals of Movement (FoM): referred to as the building blocks of safe and efficient movement. They include Balance, Coordination, Agility and Speed.
- FUNdamental Movement Skills (FMS): these are combinations of the FoM which produce a specific movement pattern (i.e. a kick, a throw, a jump, a spin).
- FUNdamental Game Skills (FGS): the generic skills involved in solving the recurrent tactical challenges that are common to most games/sports (i.e. use of space, tracking



Figure 1 – The Multi-Skills Jigsaw (Lara-Bercial, Hetherington and Hendrie, 2015). FoM, FMS and FGS are the foundation on which to build Sport Specific Technical and Tactical Skills (SSTTS).

Benefits of Multi-Skills Approach

- Fosters all-round development of the child
- Facilitates skill acquisition later in life
- Supports transitions to other sports or within sport
- Prevents injuries and burn-out

The Holy Grail Safe & Efficient Movement

Safe movement is movement where the joints and muscles of the body are able to withstand the forces produced by the movement. Efficient movement is movement where the joints and muscles of the body produce an action or force with the lowest level of energy expenditure possible. Appropriate angles and ranges of movement, and the ability to create and dissipate force are paramount to this.

Balance, Coordination, Agility and Speed are the fundamental building blocks which allow movement to be safe and efficient.

These are sometimes referred as the ABCs of Movement or Physical Literacy. We prefer to refer to them as the BCAs as this respects the order in which they develop in children.

BALANCE:

It is defined as a state in which the body remains reasonably steady and stable. It is the foundation of safe and efficient movement. A large part of non-acute injuries in teens and adults can be traced back to a balance deficiency and hence why elite athletes spend a lot of time building their balance and core strength. There are four fundamental principles of balance we need to be aware of:

1) Centre of Gravity: This is the point where our body weight concentrates in a given position. For the body to be stable in that position, the centre of gravity needs to be supported. As a rule of thumb, a lower centre of gravity provides more stability because it takes longer to be taken out of a stable base. The centre of gravity is dynamic and shifts with our movement (it moves around in all directions as we change positions).

2) Base of Support: This is the area defined by whichever points of contact we have with the floor. Again, because of the relationship between the centre of gravity and the base of support, as a rule of thumb, the wider the base, the more stable the body. Because the centre of gravity moves around, the base of support must adapt to ensure it is always supported.

3) Counterbalance: A lot of the time athletic movement is about moving from one balanced position to another very quickly (i.e. for instance running, reaching, dodging). Because of the dynamic nature of these movements, the base of support is regularly compromised (i.e. changes rapidly and most of the time has only one point of contact with the floor and therefore is fairly narrow). Our body uses counterbalances to stay balanced. A counterbalance is extending a body part (a leg or an arm, or even your buttocks!) in the opposite direction to where the rest of the body is travelling to redistribute the centre of gravity and avoid sending it outside the base of support.

4) Core Strength (Stable around joints): Despite all our efforts to keep the centre of gravity inside the base and to redistribute it using counterbalances, the nature of our movement is such that at times, it will go outside the base of support. Having a strong core (not just the muscles stabilising the pelvic area and the spine, but all those that stabilise each of the body's joints) is fundamental to remaining balanced and to safe and efficient movement. A strong core can rein in forces to avoid displacing the centre of gravity too far beyond the base and most importantly, it helps dissipate forces at the joints avoiding unnecessary movement that can be the cause of both acute and chronic injuries.

COORDINATION:

It can be defined as the balanced and skilful movement of the body and its parts at the same time to produce a certain action (catching something, running in a straight line), or to generate a force (jumping, throwing). Coordination can be internal (for example touching your nose) or external (kicking a football). There are few things we need to know about how coordination develops to maximise the support we give children in this area:

1) Mental Organisation: It all starts with our brain and the connection between neurons. For a certain movement pattern to be produced, the connection between the neurons responsible for that pattern has to be established first and then strengthened through practice. This is called building the neural pathway and there is no way around it. If the pathway does not exist, the movement cannot happen fluidly.

2) Proximity: children develop motor control of those areas closer to the brain before those areas that are further away from the brain. For instance arms before legs.

3) Centrality: children develop motor control of those areas closer to the body midline earlier than those away from it. For example, children can hold up their head before they can grab anything.

4) Gross vs Fine Control: children develop gross motor control (big muscles) quicker than fine motor control (smaller muscles). For instance, a child is able to generate force before accuracy.

5) Kinematic or Kinetic Chain: taking into account all of the above, the quality of movement is directly related to the quality of what is called the kinematic or kinetic chain, the chain of movement. That is, how 'in sync or in time' the various body parts involved in an action are. The final output is going to be the sum of all the various joints and muscles involved. If they are out of sync, the movement or the force generated will be sub-optimal.

AGILITY & SPEED:

This is the control of the body and its parts in a dynamic environment. It is the ability to move quickly and efficiently whilst maintaining stability. To do this, children must be able to safely and efficiently do the following:

- Start and stop
- Change direction
- Change speed: from slow to quick and vice versa
- Change level: from high to low and vice versa.

Be the one that helps children to build the building blocks of their movement ability.



OVER TO YOU:

You will find an activity bank on the following three pages.

Following that identify the activities through which you provide opportunities to develop the BCAs in your sessions?

Can you think of activities within your sport that focus on developing the BCAs of Movement?

BCAS ACTIVITY BANK

1. Compass (Balance)

In 2s, children make a small diamond with 4 different colour cones. One child stands in the middle of the diamond while the other calls North, South, etc. or colours. If we want to compromise balance more and work on counterbalances, have the child stand on one leg. The child calling the actions can also call a sequence instead of just one. We can also include a ball and have them pass and catch after every action.

2. Top Gear (Agility)

Children move around the playing area weaving in and out of each other. We assign a movement type to each 'gear' so when we call that gear they have to replicate that action. Some examples:

A. 1 = walking; 2 = jogging; 3 = jog backwards; 4 = quick; 5 = sprint

B. 1 = walk; 2 = one foot hop; 3 = bunny hop; 4 = sidestep; 5 = long strides

3. Hi5-Low5 (Agility)

Children jog around and high 5 each other. Then low 5 each other. Then alternately, you can ask them to move in different ways or get them to achieve a set number and run it like a competition.

4. Mirrors (Balance and Coordination)

Children work in twos. One is the lead and the other the mirror:

- The lead makes different shapes: pike, straddle, stork, etc.
- The lead moves in different ways (like follow the leader but stationary).

5. Wall Throw (Coordination)

Children have a tennis ball each or between two and bounce it off the wall in different ways trying to catch the rebound.

6. Throw/Kick and Fetch (Coordination and Agility)

Individually or in partners, children throw/kick in different ways and fetch their own ball or their partners.

7. Beat the goalie (Coordination)

In twos or threes, children make a goal with two cones and throw a set number of times trying to score goals.

8. Run of Doom (Coordination and Agility/Speed)

Children form two teams. One team makes a channel and has a softball each. The other kids run through the channel trying not to get hit by the softballs.

9. Rob the Bank (Balance, Coordination & Agility/Speed)

Children split in 2-3-4 teams. Each team has a base (the bank). The aim is to run around stealing from the other teams' banks and bringing it back to your own bank. After the minute is up you count the number of items in each bank. Option of adding a police man who freezes people up onto a one point balance until a team mate goes under their arms.

10. Shark Attack (Balance, Coordination & Agility/Speed)

Make a large square with cones. All the children bar 1 or 2 jog/dribble a ball inside the square and are small fish. The other two kids are the sharks and they swim (jog) around the square. When the coach says SHARK ATTACK!, the sharks go in and start eating (tagging) the fish. When a fish gets eaten they have to hold a compromised balanced position. It keeps going until there is no fish left. Have new sharks and start again.

11. Zombie Night

(Balance, Coordination & Agility/Speed)

Similar to Shark Attack, but the two zombies start in the middle of the square lying down until the coach says IT'S NIGHT TIME!!!

12. Simon Says (Balance & Coordination)

Coach (or a child) gives out instructions as in the Simon says game.

13. Animal Balance

(Dynamic Balance and Coordination)

Coach shouts the name of an animal and the children move around imitating that animal (lion, elephant, giraffe, rabbit, etc.).

14. Balance Battles

(Dynamic Balance and Coordination)

In twos, children stand at either side of a line/cone and the coach's command:

- Push back to back to get over the line
- Pull each other over the line
- Push sideways (shoulder on) to get over the line
- Push forward with palm of hands

15. Feed the Monkeys (Coordination)

Children make two teams and monkey cage with cones (a channel 10-20 feet wide). One team is the monkeys. The other team has one half at either side of the monkey enclosure or one forth on each of the 4 sides (depending on numbers). They try to get bananas (balls) from one side to the other of the monkey enclosure without the monkeys eating them. Coach can condition the throws (underarm, roll, overarm, bounce...).

16. Pothole Dodge (Dynamic Balance & Agility)

Put lots of cones, hurdles, hoops on the floor. These are the potholes. Children have to jump over the potholes. You can choose a different way of jumping/landing over different potholes.

17. Touch Boxing (Dynamic Balance and Coordination)

In twos, children play to touch each other's knees, shoulders, backs.

18. Bench-Ball (Coordination and Agility/Speed)

Playing 3v3. In each team there is a target player and 3 field players. A goal is scored when the target player catches the ball. Normally the target player stands on a bench to avoid defenders being able to hog the goal.

19. Lost and found (Agility/Speed)

In pairs, they number themselves 1 and 2. When coach says 1, 1 chases two and vice versa.

20. 2v2 wheel barrow goal/bear walk goal (Dynamic Balance, Coordination and Agility/Speed)

2 teams of 4. Play handball while doing the wheel/barrow or the bear walk.

21. Dodge Ball and Spanish Dodge Ball (Coordination and Agility/Speed)

In Spanish dodge-ball, one team is the middle and the other one is split in two halves at each end. The outside team is the only one throwing.

22. Team Tag

(Coordination and Agility/Speed)

2 teams in a relatively small space. One team has a ball and is trying to tag the other team with it. The team with the ball can't run so they have to tag people through passing.

23. Home Ball (Coordination and Agility)

Teams of 5. One child is IT and tries to tag the others. He can only tag children who are not holding the ball. The other kids have to make sure they pass the ball to the person being chased. It can also be played so IT tags can only tag the person carrying the ball making for quick decision making.

24. The Circle of Life (Balance and Agility)

In groups of 4-5. One child is the Lion. The other 3-4 form a circle holding hands and one of them is the rabbit. The lion has to try to tag the rabbit running around the circle. The group spins around trying to keep the lion away from the rabbit.

LET'S GET REAL TASK – MY OWN ACTIVITY BANK

The plan here is for you to develop your own bank of activities to support the development of the FoM. Try to start with 3 activities for each main theme. Please keep adding more activities as you go along.

	ACTIVITY NAME & DESCRIPTION	KEY PRINCIPLES WORKED ON?
Balance	Activity 1 Activity 2 Activity 3	
Coordination	Activity 1 Activity 2 Activity 3	
Agility & Speed	Activity 1 Activity 2 Activity 3	

FUNDAMENTAL MOVEMENT SKILLS

When the FoM combine, they produce a number of FMS. One classification of this is Stability, Object Control and Locomotion Skills. (see examples of same below).

STABILITY: High mainly on Balance

- Axial movements (bending, spinning, rolling, twisting, pivoting, reaching, swinging, etc.)
- Static Balances (maintain balance while the centre of gravity is stationary; stand on reduced area, tip toes, one foot, all fours, three point positions, etc.)
- Dynamic Balances (different types of walks which involve maintaining balance while the Centre of Gravity shifts)

OBJECT CONTROL: High on Coordination and Balance

- Throwing/Passing (underarm/overarm/overhead/single-two handed)
- Catching (close/away from body; high/low/single-two handed)
- Kicking (stationary/moving object)
- Striking (with hand/head/implement; stationary/moving object)
- Dribbling (with hand/foot/implement)

LOCOMOTION: High on Balance, Coordination and Agility & Speed

- Running (forward/backwards/sideways; sprint; start/stop; change of pace/direction; pushing off one foot)
- Dodging
- Jumping (for distance/height/off a height; one-two foot take-off/landing)
- Hopping (multi-directionally/both feet)
- Galloping/Skipping.

TIP

Part of our job as children's coaches is to ensure that all the children we coach are exposed to as many of these types of movements as possible to provide them with as wide a 'vocabulary of movement' as feasible. As we have previously seen, the level of competence a child has with FoM and FMS is a very strong predictor of their enjoyment of sport and physical activity, their lifelong involvement and eventually their performance standard. It is important to remember at this point that throughout all of this, as coaches, we will also be aiming to develop the personal and social side of each child we coach encapsulated in the Cs Model as described in Workshop 1.

Given the importance of this movement foundation, it is paramount that we are able to spot deficiencies and that we can use a number of tools to support appropriate movement patterns.

Observing, Analysing & Improving Children's Movement

The process below (Lara-Bercial, 2012) suggests a number of steps that we, as coaches, can follow in order to maximise the chances of having a positive impact on the movement patterns of the children we coach:

1. Know: It is important that we have a clear picture in our mind of what it is that we want to develop, what it looks like in the real world and how we are going to go about developing it. Based on this knowledge, we can then prepare our sessions and activities accordingly. It is also helpful to be aware of some of the developmental stages (see SPEC Model, workshop 2), milestones and common pitfalls most children will go through or struggle with at some point. Below there is a suggested list of areas to keep an eye on:

2. Watch: Once the children are engaged in an activity, it is important that we spend time watching and observing how they do before we try to give them further information or move on to something else.

3. Evaluate: Having watched them we can then assess their current level of performance against their previous efforts and the ideal (see point 1), know the main areas for improvement and the intervention we think may have the biggest impact.

4. Act: Strategies to support movement development: Once we have watched and evaluated, we can then decide on a course of action. In the main, we could:

- Do nothing: This is a form of action. By doing nothing, we assume that the issue will resolve itself. This may be the case in many occasions.
- Set up non-directive activities that will support the child to solve the issue independently.
- Paint a Picture: get children to concentrate on the overall action and/or outcome by describing graphically what they need to see/do rather than providing traditional technical instruction (i.e. load your arm instead of bring your arm back in a throw; use the springs on your legs instead of bend your knees, etc.).
- Get them to try alternatively with both sides to aid transfer of movement from their dominant side to their non-dominant one. This is called 'mirroring'.
- Pinpoint a specific part of the skill you want them to focus on. One at a time. Pick the one you think will have the biggest impact on outcome or the one that may trigger a 'domino effect' on other parts of the movement (for instance, when coaching children to throw, getting them to step back with the leg that is on the same side as their dominant hand will normally get them to extend their arm backwards and get the shoulder and knee rotation).

- We could also break the skill down into individual components and work on them independently. We just need to be mindful that the more we work on things independently, the harder it will be to put them together again.
- Finally we could take 2 or 3 components of the skill and chain them; that is isolate them from the rest and work on sequencing them appropriately (i.e. triple extension on a jump).

5. Reflect: At this point we think about the results of our intervention and draw conclusions for the next activity or future sessions.

6. Repeat: While coaching, we have a responsibility to run through this process constantly to ensure that we can support the children we coach.

TIP

To help and guide you through some of these processes, we have developed Observation and Tracking Tools for you. These can be found in your first “Let’s get Real Task” on page 13. Use these to make your processes more systematic.

LET’S GET REAL TASK 1 – FUNDAMENTALS OF MOVEMENT SKILLS OBSERVATION SHEET

Name:

Venue:

Date:

FMS being assessed:	Comments:
Starting Position	
Base of support	
Centre of gravity	
Counterbalances	
Core Strength	
Kinematic Chain (position, movement and timing)	
Feet/Ankle	
Hips	
Trunk	
Head	
Shoulders	
Elbows	
Hands/Wrists	
Finishing Position	
Base of support	
Centre of gravity	
Counterbalances	
Core Strength	

LET'S GET REAL TASK 2 – FUNDAMENTALS OF MOVEMENT OBSERVATION & TRACKING TOOL

FUNDamentals of Movement Competence Analysis. You can use this observation and tracking tool for a particular movement you are trying to assess (i.e. a throw) or to assess overall movement competence.

Child's Name:	Practical Movement:	
Date of Birth:		
Balance	Observation 1	Observation 2
Centre of Gravity - Height - Relation to base		
Base of Support - Width - Direction - Relation to CoG		
Core Strength - Core stability - Joint stability (wobble?)		
Counterbalances - Yes/No - Amplitude (are they big enough?) - Timing (early/late)		
Coordination		
Motor Control - Control of big muscle groups - Control of small muscle groups		
Kinematic Chain - Complete or anything missing? - Timing/Sync?		
Agility & Speed		
Start & Stop - On balance: base/arms/CoG - Quickly		
Change of Direction - Appropriate footwork/base - Body level - Smooth & Quick		
Change of Plane and Level - Appropriate footwork/base - Smooth & Quick		

LET'S GET REAL TASK 3 – FUNDAMENTALS OF MOVEMENT REFLECTION ON AN ACTION

Reflect on the activities you currently use for the development of BCAs. Are there additional activities you could do?

Balance	How well do I cater for these areas? (give examples)	What additional activities could I do?
Centre of Gravity - Height - Relation to base		
Base of Support - Width - Direction - Relation to CoG		
Core Strength - Core stability - Joint stability (wobble?)		
Counterbalances - Yes/No - Amplitude (are they big enough?) - Timing (early/late)		
Coordination		
Motor Control - Control of big muscle groups - Control of small muscle groups		
Kinematic Chain - Complete or anything missing? - Timing/Sync?		
Agility & Speed		
Start & Stop - On balance: base/arms/CoG - Quickly		
Change of Direction - Appropriate footwork/base - Body level - Smooth & Quick		
Change of Plane and Level - Appropriate footwork/base - Smooth & Quick		

MY CHILD-PROOF FOM, FMS AND OBSERVATION & ANALYSIS CHECKLIST

Theme / Item				I will start	I will continue	I will stop
In my coaching I provide opportunities to develop the FoM						
In my coaching I regularly observe and evaluate children's movement skills						
In my coaching I plan and deliver specific interventions to improve FoM and FMs						

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