Kelvin Giles
Keynote Presentation
Physical literacy in the 21st century.

The Quest for Physical Literacy
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ASCA 2012

Fundamental Sports Skills
(Running, Jumping, Throwing, Catching, Kicking, Hitting, etc)
Well resourced historically – Modified games rules, skills, drills, tactical elements – predominate coach education / resources.

Fundamental Movement Skills
Our greatest weakness.
The unique relationship between Strength, Balance, Coordination and Stability along the entire kinetic chain.

“Function before sports-specific skill, force, speed and endurance”

WHAT?

Fundamental Movement Skills +
Fundamental Sports Skills =
Physical Literacy

The neuro-muscular process that puts the body parts in the right position, at the right time, all the time so it can efficiently:
Produce, Reduce and Stabilise all the forces required for:

Sitting, standing, walking, jogging, running, bending, twisting, lifting, carrying
Running, jumping, throwing, kicking, catching and striking.
Physical literacy can be described as the ability and motivation to capitalise on our movement potential to make a significant contribution to the quality of life.

At exactly the right time
In exactly the right direction
With just the right amount of force

The individual is perceptive in ‘reading’ all aspects of the physical environment, anticipating movement needs or possibilities and responding appropriately to these, with intelligence and imagination.

As one part of the body accelerates, another slows
As one part of the body stabilises, another must move.
As one part may Flex, another may rotate.

For every sport specific posture or action the body has to:

Stable
Flexible
Stable
Flexible
Stable
Flexible

Produce Force
Reduce Force
Stabilise Force
Multi-Joint
Multi-Plane
Multi-Directional

All in microseconds based upon an integration of all the senses, all the neural feedback and all the neural signals...

...all the time.
A highly tuned, healthy, responsive, adaptable neuro-muscular system

WHY?

Movement efficiency
Cardio-respiratory efficiency
Quality nutrition
Consistent
Permanent

The quest for community well-being?

Health and well-being is a basic entitlement for all children

If the trend of sedentary living continues....
...she may have a shorter life-expectancy than her parents.

‘A tsunami of obesity and muscular-skeletal / metabolic syndrome threatens to engulf the NHS.’
Physical inactivity contributes to the deaths of over 13,000 Australians and results in more than $1.5 billion in direct healthcare costs each year. One in four kids is overweight or obese. If we can increase activity amongst our children, there will be immediate health benefits. Auditor-General’s Report to Parliament, 13 June 2012

The quest for high performance success?

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Is it a simple matter of repeating the last 4-year cycle?  
...or  
Should we question our assumptions?

Anything new that we need to consider?

Current generations are displaying reduced fitness and movement literacy qualities

Winners reach their latest destination and then immediately look up to the new horizon.

The cyclic process has started for Rio, 2016

34 training cycles remaining!

‘Generation iY is unhealthy, overwhelmed, over-connected, over-protected and over-served’  
Tim Elmore, 2010

The 2028 Olympians are in our Elementary Schools right now!

What else do we know?
Integral to Health and Physical Education is the acquisition of movement skills...

......that enable students to confidently and competently participate in a range of physical activities.

Movement is a powerful medium for learning through which students can develop and practise a range of personal, social and cognitive skills.

Fundamental movement skills (FMS) provide the foundation for all athletic maturity and are seen as the building blocks from which sports-specific skills are developed.

Youth Sports Trust

If young athletes fail to develop fundamental skills (i.e. Motor literacy before becoming involved in sports specific) – future attainment will be limited.

Payne & Isaacs, 1995; Oakley, Booth & Patterson, 2001

Moreover, integrative neuromuscular training is more likely to have long-lasting effects if qualified professionals focus on the process of developing fundamental motor skills rather than the product of enhanced sports performance.

Myer et al, 2011

Investment in a broad range of movements requires adjustments to be made in motor control and motor creativity which encourages adaptability.

(Baker, 2003)

Integrative neuromuscular training utilized to enrich the motor learning environment in early youth also may initiate adaptation and help children with low motor competence “catch up” with their peers in these measures.

Cooper & Zbrok, 1990; Kendz, 2006; Ragovich et al 2000; Rauter, 20

The establishment of a fundamental movement competence cannot be overemphasised...

...as it allows children to pass through a ‘proficiency barrier’ when attempting to develop the simple activities of early childhood to the more complex activities of later years.

Jess, 2004

Activity and Learning
“Physical activity has been linked to reductions in overweight status, reduction in health risks associated with obesity, improved cognitive functioning, and potentially improved academic outcomes.” Rae Pica

One Canadian study showed academic scores went up when a third of the school day was devoted to physical education.

*Schools with fitter children achieve better numeracy and literacy results.*

Telford et al, 2012

A study of third-grade children participating in dance activities improved their reading skills by 13 percent over six months, while their peers, who were sedentary, showed a decrease of two percent.

Also, there appears to be some data that indicates engaging in learning right after exercising, stimulates the retention of new brain cells created during exercise.
There are approximately 270,000 nine-year-olds in Australia.

We need to turn one in every 650 of these into Olympians

2028 Olympic Team

One in every 10 primary Schools need to produce an Olympian

Poor parenting leaves half of children unprepared for school.

It’s alarming to see the proportion of children with immature motor skills.

48% of Primary School first years still had ‘baby’ motor skills.

35% of fourth years displayed ‘baby’ motor skills.

88% of seven and eight year olds still had motor problems.

Blythe, 2011

“Less than 40 per cent of year four students have mastered fundamental movement skills”

One out of 6 children under the age of 14 can’t swim.

One in 10 can’t ride a bike.

33% never owned a bike; 79% owned a games console.

One in 4 have never run more than 400m.

mounting evidence shows children as young as 5 years are not sufficiently active on a regular basis to develop and maintain health (Armstrong, McManus, Wellsman, & Kirby, 1996; Poest, Williams, Witt, & Atwood, 1989; Sallis, Patterson, McKenzie, & Nader, 1988).

Children with low movement competence usually exhibit low physical activity levels (Bouffard,Watkinson, Thompson, Dunn, & Romanow, 1996; Butcher & Eaton, 1989).

Children cite low skill level as a major barrier to participation in sport (Booth, Macaskill, McLellan, Phongsavan, Okely, Patterson, Wright, Rauman, & Baur, 1997; Ulrich, 1987).

...noted that children with low motor competence tended to be vigorously active less often. Bouffard et al, 1996; Anderson, Clarke, & Smith, 2000).

On the other hand, children who are confident about their movement ability actively seek out movement experiences in an assured manner and develop positive expectations about their future participation in games and sports.


In the 1998 group 5% could not hold their weight when hanging from a bar.

In 2008 this had doubled to 10%.

In same period – arm strength fell by 26% Grip strength by 7%

Sit Ups by 27%
A ‘Competitive Games based Curriculum’ sees a concentration on sports-specific postures and actions.

...unmindful of the need for a ‘movement vocabulary’ to actually do them efficiently and consistently.

Australia’s Milo State of Play report has revealed that lack of time, too much homework and the attraction of electronic devices are killing off children’s play time.

The study, the first of its kind to investigate play habits of Australian children aged eight and 12 years old, reveals nearly half (45%) are not playing every day.

Just under one in ten 5 year olds are obese; rising to 1/5th of all 11 year olds.

...clear evidence of enlarged hearts, high BP, raised cholesterol in the 5 – 15 age group.

BMJ, September 2012

What can we do?

The ‘mechanical’ (movement) bit

Get them **mechanically efficient**...

... then get them **mechanically consistent**

... then get them **mechanically resilient**

The **Physical Competence** to do the Technical stuff...

The **Technical Competence** to do the tactical stuff...

The **Mechanical and Physiological conditioning** to improve.

Research shows that young people spend an average of:

- 1.7 hours online per day
- 1.5 hours playing games / consoles per day
- 2.7 hours watching TV per day

Dunford, 2010

Data on physical activity among children in England found that 30% of boys and 40% girls between 2 – 11 years....

....were not achieving at least 60 minutes of **moderate intensity** of physical activity each day, the recommended minimum (Department of Health, 2007).
**FOUNDATION MOVEMENTS**

**Want to Run, Hop, Skip, Jump, Gallop?**

What basic movement tools do you need to do these?

- Squat (one and two legs)
- Lunge
- Brace

**Reactive Agility**

...want to change direction or jump?

Must be able to brake or stop

...want to brake or stop?

Must be able to Squat (Double & Single Leg), Lunge and Brace

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Training Age – 7 years
State Squad

**Their ranking does not automatically guarantee that the foundations are set.**

...in fact, ‘quick-fixing’, ‘fast-tracking’ and an inappropriate focus on sports-specific actions and postures can create exactly the opposite.

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...oops!
Seriously......

Do you really want to load those movements?

Or solely and continuously expose them to sports specific situations?

At a glance all may look well...

Simply repeating a skill without this physical competence may not only slow skill acquisition down but may see the development of unwanted compensatory movements as the body struggles to find the physical answers to the task.

It takes great core-strength to do this . . .

. . . but if you think you will create great core-strength by doing this, you might destroy body parts before you make the team.

Tennis – "We don’t need all this athletic stuff – she will improve physically by spending time on the court”

Seriously......

Do you really want to load this movement?

A practical illustration....

With the ball; with the ball; with the ball.....

SSG

Significant expert-novice differences...demonstrated in pattern recognition, decision making, dual-task performance and anticipation....

....all clearly required for elite performance and therefore required to be part of all training models.
The Role of Small Sided Games in Injury Prevention

One third of injuries resulting in lost training time were sustained in traditional training activities e.g. running conditioning without the ball.
Gabbett and Godbalt 2010

BUT......

Is the sole use of 4 x 2min 4v4 SSG module....
Appropriate for someone who is mechanically challenged?

Appropriate for the ‘growing’ player?

The sum of all these parts are:

- A relatively rapid gain in height.
- A relatively rapid gain in weight.
- A re-apportioning of that weight to different body areas.
- An increase in lever arms (legs and arm length).

Growth of the long bones can seem rapid
Can outstrip the growth of muscles and connective tissue
Can cause a period of temporary inflexibility

Greater strength is required to stabilise these longer limbs – this takes time
The body can often ‘tighten-up’ to counter the loss of function (stability during motion)
Previously gained technique can appear ‘different’ or ‘unreliable’

Do you know if they are efficient moving in all planes / directions / joint sequences?
Do you care?

Small-sided games ↔ Appropriate Mechanical Load Training

Specific all-round Structural Strength, Stability, Flexibility during motion

General all-round Structural Strength, Stability, Flexibility during motion

Physical Competence – Functional Efficiency
Are all coaches aware of **HOW** to develop movement efficiency / consistency and resilience?

...or do they simply know and deliver technical and tactical elements?

**OBSTACLES:**

Physical Education has been forced to accept second-class status in our school systems.

PE grades and evaluations do not count as heavily as other course offerings....

.... and therefore, are not taken as seriously by Governments, students or parents.

**Who?**

It is one of the first subjects to be sacrificed

**The Schools**

Physical Education is the *only* experience our schools offer with the potential to....

.... immediately and continually *improve* the *quality* and *increase* the *quantity* of every student’s life.
By the way........

It must be PHYSICAL

Improve the quality of their life first....... 

....then worry about winning games

We are not very good at teaching the games; not very good at teaching the kids values and good attitude; not very good at teaching decision-making and most certainly impossibly hopeless at teaching fundamental movements.

Summary at PE Convention, Scotland, 2002

Reports to Parents

"Timmy participates enthusiastically during PE and makes good tactical decisions in games."

"Jimmy got a ‘B’ in Hockey"

Tracking /Reporting

Physical Education Report

Name:____________________  Class:____________________

1 – Physical Competence

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2 – Cardio-Respiratory

Beep Test

Group Results Sept 09 – Primary School – 9 years of Age

Just as we assess and develop numeracy and literacy....

Should we consider assessing and developing Movement efficiency & Cardio-respiratory efficiency?

...from the moment it currently all starts to go wrong

Primary School, Birmingham 2011
Secondary School Entry Screening - Australia

Norwegian Premier League U/15 Squad

Club Structure
National Development Strategies

Football League Club
U12 Physical Competence Group Averages Feb 2010

Physical Competence Section – 14.5 Years Male Rugby National Squad

Physical Competence Screening
What the coaches expected

What they got...

Why is this?

...maybe that Coach Education centres on Technical and Tactical development and little on Athletic Development?

...maybe because the content of Coach Education was written for a completely different generation?
Family, Schools, Clubs, National Strategies

Are the answer

BUT.....

Is the current process working?

Question Assumptions

- **Content** of Teacher Education
- **Priority** within National PE Curriculum
- **Content** of Coach Education
- **Priority** of Athletic Development within coaching sessions and National development strategies

Initiatives

Re-defining ‘**Fundamental Movements**’ may assist in creating a more appropriate journey.

A measurable national commitment to improving the mechanical and cardio-respiratory health of the community.

The intervention of ‘Movement Breaks’

**The 5in5**

An Example Primary School PE Lesson

- General Movement (Warm-up)
- Locomotor Skills
- **1st**
- Non-Locomotor Skills
- **3rd**
- Manipulative Skills
- **5th**
- General Movement (Warm Down)

Thus, developing effective interventions to promote physical activity in children is crucial.

...strong evidence from this review shows that current physical activity interventions have little effect on the overall activity of children. Metcalf et al, 2012

....with disappointing improvements in the time spent in moderate to vigorous intensity activities (about four minutes a day). Hanser & Fisher, 2012

Be brave....be committed
Stop being ‘warm & fuzzy’
Get the right people making the right decisions.

What can you do?

Adjust the content of coach education to include the journey to Athletic Development

Adjust the content of PE Teacher / Classroom Teacher Education from ‘science’ to ‘movement’.

...reduction of the limitations carried forward to adulthood and High Performance sport
Using time effectively in the training session

What are you willing to change to accommodate the need for all-round athleticism (Physical Competence)?

What are you willing to give up in your current process to give time to this major generational limitation?

Somewhere along the continuum someone must ask.........

What have we missed?

Thank you for listening.
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