Moving Well-Being Well

Getting Ireland’s Children Moving

Stephen Behan - PhD Candidate
Supervisors: Dr. Johann Issartel, Dr. Sarahjane Belton & Prof. Noel O’Connor
THE STORY SO FAR

2016
Overview of the existing facts

2017
Outlining why the research is necessary

2017
Large scale evaluation to get a snapshot of Irish children’s physical literacy

2018
Pilot intervention to address deficiencies identified in Phase 1

2018/19
Exploratory trial

2019
Next phase for MWBW

Background
Rationale
Phase 1
Phase 2
Phase 3
Future Direction
“Ireland to be the most obese nation in Europe by 2030”
World Health Organisation

“One in four children overweight or obese”
Growing up in Ireland Report
Lots of initiatives to promote physical activity.....

It's not working
School of Health and Human Performance - Dublin City University

Coaching background

Worked for the GAA
Ireland's National Sports
HURLING: THE FASTEST GAME ON GRASS
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What motivates children to be physically active?

- Motivation & Confidence
- Knowledge & Understanding
- Physical Competence
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”
Fundamental Movement Skills

The foundational movements needed to progress to the more specialised and complex skills used in play, games and specific sports
A lack of national research in Ireland

Need Irish context

Rationale
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Phase 1 - Data Collection

2,148 children assessed
12 counties across all four provinces
44 schools
100 classes from Junior Infants to 6th Class
10,000+ kilometres travelled
Phase 1 - Data Collection

What we measured:

- FMS Proficiency
- Perceived FMS Competence
- Height, Weight (BMI) and Waist Circumference
- Strength – Grip and Plank
- Flexibility
- VO2 Max
- Physical activity – Self reported, parent reported and pedometers (sample)
- Motivation
- Self Efficacy
- Knowledge and understanding*
- Wellbeing
- Body Image
- Neurocognitive assessment
- Teacher questionnaire
- Parents questionnaire

All validated instruments for measurement
### Phase 1 - Data Collection

**How we measured:**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arms move in opposition to legs, elbows bent</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Brief period where both feet are off the surface</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Narrow foot placement landing on heels or toes (not flat footed)</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Non-support leg bent about 90 degrees so foot is close to their buttocks</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Score:** 6

**Candidate No. = 050_01_01_02**
FMS Skills Mastery or Near Mastery

- Run: 75.3%
- Catch: 73.5%
- Hop: 68.4%
- Slide: 67%
- Stationary Dribble: 52.2%
- Kick: 49.8%
- Skip: 48.6%
- Horizontal Jump: 47%
- Balance: 41.8%
- Underhand Roll: 37.7%
- Vertical Jump: 34%
- Two Handed Strike: 30.5%
- One Handed Strike: 28.6%
- Gallop: 19.8%
- Overhand Throw: 16%
OVERALL FMS SCORE ACROSS AGE
INCLUDING PERCENTAGE CHANGE AND SIGNIFICANCE

<table>
<thead>
<tr>
<th>Age</th>
<th>FMS Score</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>67.2</td>
<td>10.5%***</td>
</tr>
<tr>
<td>6</td>
<td>74.2</td>
<td>5.1%*</td>
</tr>
<tr>
<td>7</td>
<td>78.0</td>
<td>9.1%***</td>
</tr>
<tr>
<td>8</td>
<td>85.1</td>
<td>5.6%***</td>
</tr>
<tr>
<td>9</td>
<td>89.8</td>
<td>6.2%***</td>
</tr>
<tr>
<td>10</td>
<td>95.4</td>
<td>1.9%</td>
</tr>
<tr>
<td>11</td>
<td>97.2</td>
<td>-0.8%</td>
</tr>
<tr>
<td>12</td>
<td>96.4</td>
<td></td>
</tr>
</tbody>
</table>
Phase 1 – FMS Results

Overall FMS Score
Comparisons across Gender and Age

Age

Male
Female
Phase 1 – FMS Results

Locomotor Skills Comparisons across Gender and Age

- Male
- Female

Age

5  6  7  8  9  10  11  12
Phase 1 – FMS Results

Balance Skills
Comparisons across Gender and Age

Age

Male
Female

5 6 7 8 9 10 11 12
Phase 1 – FMS Results

Object Control Skills
Comparisons across Gender and Age

Age

Male
Female

Phase 1 – FMS Results

Object Control Skills
Comparisons across Gender and Age

Age

Male
Female

Phase 1 – FMS Results

Object Control Skills
Comparisons across Gender and Age

Age

Male
Female
Phase 1 – HRF Results

Health Related Fitness components measured;

Body Composition – BMI and Waist Circumference

Flexibility – Back Saver Sit and Reach

Muscle Strength – Grip Strength

Muscle Endurance – Plank Strength

Cardiovascular Endurance – 20m PACER Test

Does FMS predict Health Related Fitness?
FMS AS A PREDICTOR TO HEALTH RELATED FITNESS COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Composition</td>
<td>-18.9</td>
</tr>
<tr>
<td>Muscle Strength</td>
<td>13.6</td>
</tr>
<tr>
<td>Flexibility</td>
<td>13.7</td>
</tr>
<tr>
<td>Muscle Endurance</td>
<td>34.4</td>
</tr>
<tr>
<td>CVE</td>
<td>39.3</td>
</tr>
</tbody>
</table>
Intrinsic
• We do because we want to
• Internally driven

Identified
• We do because we know we should
• Driven by knowledge

Introjected
• We do because we feel we have to
• Feel guilty otherwise

External
• We do because we have to
• Outside force exerted

Behavioural Regulation In Exercise Questionnaire (BREQ)
QUALITY OF MOTIVATION AS A PREDICTOR OF FMS

- INTRINSIC: Male (0.54), Female (1.08)
- IDENTIFIED: Male (3.5*), Female (1.9)
- INTROJECTED: Male (1.8*), Female (0.22)
- EXTERNAL: Male (-1.8*), Female (-2.4*)

* indicates statistical significance.
Phase 1 – Confidence Results

Measuring Self Efficacy

Physical Activity Self Efficacy Scale (PASES)

Self Report Physical Activity questionnaire
PERCEIVED AND ACTUAL MOTOR COMPETENCE AS MEDIATORS FOR PHYSICAL ACTIVITY

- **Physical Self Efficacy** → **Perceived Motor Competence** (R² = 0.09, 0.31***)
- **Perceived Motor Competence** → **Physical Activity** (R² = 0.10, 0.16***)
- **Actual Motor Competence** → **Physical Activity** (R² = 0.05, 0.23***)
- **Physical Activity** → **Physical Self Efficacy** (Direct effect, R² = 0.08***, Indirect effect, β = 0.07***)
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Phase 2 – Pilot Intervention

- 30 minute FMS based class led by coach
- Teacher repeats the same class
- Coach upskills teacher on the job

- Active learning in classroom
- 5 minutes every day
- Skills and activity complexity gradually increases

- Home activity once a week
- Worksheet to be completed with parent/guardian
- Activity and knowledge components
Pre, Post and Retention Overall FMS Scores

- **Intervention**
  - **PRE**: 72.5
  - **POST**: 91.2
  - **DECREASE 26%**

- **Control**
  - **PRE**: 74
  - **POST**: 73.16
  - **DECREASE 1%**
  - **RETENTION**: 79.51

**DECREASE 5%**

**INCREASE 7%**
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Phase 3 – Exploratory Trial

Currently ongoing

Approx 1000 children receiving the intervention at present through Dublin GAA coaches

CPD for Dublin GAA coaches
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School of Health and Human Performance
The Insight Centre of Data Analytics
Dublin City University