Physical Fitness for Developing Players (12-16 years)

Diarmaid Marsden

2009 Ulster GAA Coaching & Games Development Conference

Saturday 24th January
Glenavon House Hotel
By the end of this session the coach will be able to:

- Identify the components of physical fitness and their importance in gaelic games
- Recognise the Train to Train stage (u16s) of the Long Term Player Pathway and how the focus is on player development
- Implement practical ways to build fitness into games and skill development for u12, u14 and u16s
Physical Fitness for Developing Players

• We will examine some definitions of Physical fitness?

• Developing Players – We have to look at the overall development of the player so that he/she is ready to take the next step up to minor and senior teams.

• Role of Coach
  Creating GOOD Habits for future years
  Players need to be led at this stage of their playing careers
Physical Fitness

What do we mean by Physical Fitness???

“The ability of the whole body, including the muscles, skeleton, heart and all other parts to work efficiently at all times” (Carbon and Lindsey)

Physical Fitness in sport is....... 
“The ability to perform the underlying techniques and to respond quickly to the signs / sounds experienced during the game. It will require a combination of stamina, strength, speed, skill and flexibility”

Reasons…run at varying speeds, jump to catch, strength on the ball and off the ball, to be free from injury.
Physical Fitness
Physical Fitness

Components of Physical Fitness

• 1. Cardiovascular Fitness (Stamina)
• 2. Muscular Strength
• 3. Muscular Endurance
• 4. Flexibility
• 5. Motor Fitness – Speed, Power, Agility etc....
Physical Fitness

- FITT Principle
  - F – Frequency …… How Often
  - I – Intensity ……… How demanding
  - T – Time …………… How Long
  - T – Type …………… Activity

Overload appropriately with adequate recovery will result in improved performance.

Overtraining with inadequate recovery will result in decreased performance.

Burnout
• **Cardiovascular Fitness (Aerobic Exercise)** is the “Ability of the heart, lungs and circulatory system to deliver oxygen to working muscles”

• **Heart Rate (beats per minute)**
  - Resting Heart Rate (bpm)
  - Max Heart Rate $220 - \text{age}$
    - or $208 - (0.7 \times \text{age})$
    - or 20metre shuttle run (most accurate)

Training zone is 75-90% Max Heart Rate

Typical 16 year old has max heart rate of 196.8bpm. To effectively improve cardiovascular fitness players Heart Rate training zone should be 147 – 177bpm (75%-90% maxHR)
Physical Fitness

• How can we relate this to training sessions?

• Sessions and activities should be designed to get players into this training zone. It sounds scientific and technical but this can be recreated through drills and games. You don’t have to run lads around a field to get them in the zone.

• Heart Rate will increase in proportion to the intensity of the activity
High intensity of small sided games can be used by coaches to develop fitness levels.

- 3V3 elicits a HR response above 90% of max.
- 6v6 shows the intensity is reduced to under 90% of max.
- 12v12 shows the intensity is reduced to under 70% of max.
Physical Fitness

STAMINA

- We can develop players' stamina/cardiovascular fitness by incorporating small sided conditioned games and high intensity ball drills into our training sessions.

12-16 years is ideal age to build an aerobic base.
Example of on pitch stamina circuit

Stamina GAA Circuit - 30 minutes, .1 minute for switching between activities. Group A in corners and Group B in the game. Group A rotates every 3 min, Group B in middle for 15 min - then switches with Group A.

2 V 2 Blocking Drill (3min)
8 V 8 Small sided game (15 min)
2 V 2 Kick Passing & Follow Ball (3min)
2 V 2 Agility work Ladders and Hurdles (3min)
2 V 2 Hand Passing Activity (3min)
**Physical Fitness**

- **Flexibility**
  
  “Maximum range of movement possible around a joint or a series of joints”

**How can we improve flexibility?**

- **Dynamic** – Sport specific movements to stretch muscles
- **Static** - Active and Passive
- Muscles should be warmed up before stretch e.g. after mobilising and pulse raising activities

- **Benefits** - reduce likelihood of stiffness, muscle soreness and injury.

**STRETCHING**

**Focus on technique**
Muscles of the body

- Neck Muscles
- Deltoid
- Face Muscles
- Chest Muscles
- Back Muscles
- Extensors of wrists and fingers
- Groin Muscles

Questions?
Muscles of the body
Static Stretches

- Calf
- Hamstring
- Hip flexor
- Quad
- Groin
- Gluteal muscles
- Lower Back
- Lower back
- Triceps
- Shoulder
- Chest
Physical Fitness

• **Muscular Strength and Endurance**
  
  • **Strength** – ability of a muscle or muscle group to exert max force against a resistance during a single exertion
  
  • **Endurance** – Ability of muscle or muscle group to make repeated contractions against a resistance without tiring
Circuit Training

- Press ups
- Fistpassing
- Step ups
- Back extension
- Tricep Dips
- Sit ups
- Lunges
- Med Ball Throw
- Ladders
- High Catch
- Shuttle Run
- Skipping
<table>
<thead>
<tr>
<th>Long Term Player Development - MALE</th>
<th>Fundamentals</th>
<th>Learn To Train</th>
<th>Training to Train</th>
<th>Train to Compete</th>
<th>Train to Win</th>
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<tbody>
<tr>
<td>DEVELOPMENT Yrs.</td>
<td>6 7 8 9 10 11 12</td>
<td>13 14 15 16</td>
<td>17 18 19 20</td>
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<tr>
<td>Stamina</td>
<td>M ♦ ♦ ♦ ♦</td>
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<tr>
<td>Aerobic Base</td>
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<tr>
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<td>M ♦ ♦ ♦ ♦ ♦</td>
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<td>Endurance</td>
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<td>Strength</td>
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<td>Endurance</td>
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<tr>
<td>Maximum</td>
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<td>♦ ♦ ♦ ♦</td>
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<td>Strength</td>
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<td>Speed</td>
<td>M ♦ ♦ ♦ ♦ ♦</td>
<td>♦ 1</td>
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<td>♦ 2</td>
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<tr>
<td>(Power)</td>
<td>♦ ♦ ♦ ♦ ♦ ♦</td>
<td>♦ ♦</td>
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<tr>
<td>Speed</td>
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<td>♦ 1</td>
<td>♦ 1</td>
<td>♦ 2</td>
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<td>(efforts less than 5 secs)</td>
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<td>♦ ♦</td>
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<td>♦ ♦</td>
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<tr>
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<td>♦ 1</td>
<td>♦ 1</td>
<td>♦ 2</td>
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<tr>
<td>♦ 1 or ♦ 2</td>
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</table>

- Not a Priority
- Should be Avoided
- Moderation
- Optimal Training Age:
  - ♦ 1 or ♦ 2
- As Needed
Physical Fitness activities for 12 year olds

- **Do**
  1. Stamina
  2. Strength Endurance
  3. Speed
  4. Flexibility

- **Don’t**
  1. Speed Endurance
  2. Weight training
  3. Power training

This is not to replace skill development but to compliment it.
Suitable for u14 players

- **Do**
  1. Stamina
  2. Strength Endurance
  3. Speed
  4. Flexibility

- **Don’t**
  1. Speed Endurance
  2. Weight Training
  3. Power Training

<table>
<thead>
<tr>
<th>PHV (Growth Spurt)</th>
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<tbody>
<tr>
<td>Girls 11-13yrs</td>
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<tr>
<td>Boys 12-14yrs</td>
</tr>
</tbody>
</table>

Window of opportunity to “build the engine” and develop stamina.
Suitable for u16 players

**Do**
1. Stamina
2. Strength Endurance
3. Speed Endurance
4. Speed
5. Flexibility
6. Intro to Weight lifting techniques

**Don’t**
1. Power Training (moderation)
Teaching Lifting Technique

Strength Development for Young Athletes (13 – 16yrs)

1. Prime Movers
2. Get Set Position
3. Range of Movement
4. Key Joint Alignment
5. Control and Breathing

Coach Technique with young people
Use the bar only or
Use a brush shaft
Apply no weight initially
Work on Form and Technique
What is core stability?

Core Strength and Stability provides the body with the central control that allows the player to generate power by maximising the efficiency of your muscular effort.

It is the ability of the trunk to support the effort and forces from your legs and arms, so that muscles and joints can perform in their safest, strongest and most effective position.

Technique, technique, technique!!
Balance to kick
Measurement of Physical Fitness

- Can we measure it?
- How do we measure components of physical fitness?
- Why do we measure fitness levels?
- SHOULD we be measuring fitness levels of 12-16 year olds? (Primary school project)
<table>
<thead>
<tr>
<th>Player</th>
<th>County</th>
<th>Position</th>
<th>Arm</th>
<th>Leg</th>
<th>Standing Height (cm)</th>
<th>Sitting (cm)</th>
<th>Mass (kg)</th>
<th>RT (cm)</th>
<th>LT (cm)</th>
<th>VJ (m)</th>
<th>Med-Ball (m)</th>
<th>5m (secs)</th>
<th>10m (secs)</th>
<th>20m (secs)</th>
<th>SAR (cm)</th>
<th>Level</th>
<th>Shuttle (cm)</th>
<th>MaxHR (bpm)</th>
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<tbody>
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<td>HB</td>
<td>R</td>
<td>R</td>
<td>173.4</td>
<td>92.0</td>
<td>72.7</td>
<td>37.4</td>
<td>36.4</td>
<td>53</td>
<td>4.6</td>
<td>1.20</td>
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<td>9.52</td>
<td>14</td>
<td>12</td>
<td>5</td>
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<td>2</td>
<td>Cavan</td>
<td>FB</td>
<td>L</td>
<td>R</td>
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<td>68.7</td>
<td>49.6</td>
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<td>10</td>
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<td>HB</td>
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<td>R</td>
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<td>10.07</td>
<td>11</td>
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</table>

**Average**
- Height (cm): 177.6
- Sitting (cm): 92.9
- Mass (kg): 69.0
- RT (cm): 43.5
- LT (cm): 42.9
- VJ (m): 54
- Med-Ball (m): 4.5
- 5m (secs): 1.14
- 10m (secs): 1.90
- 20m (secs): 3.20
- SAR (cm): 9.77
- Level: 9
- Shuttle (cm): 12
- MaxHR (bpm): 200

**Minimum**
- Height (cm): 163.0
- Sitting (cm): 84.7
- Mass (kg): 53.0
- RT (cm): 28.4
- LT (cm): 27.9
- VJ (m): 36
- Med-Ball (m): 3.7
- 5m (secs): 0.99
- 10m (secs): 1.66
- 20m (secs): 2.81
- SAR (cm): 8.52
- Level: 9
- Shuttle (cm): 3
- MaxHR (bpm): 179

**Maximum**
- Height (cm): 187.2
- Sitting (cm): 189.7
- Mass (kg): 83.1
- RT (cm): 56.2
- LT (cm): 57.5
- VJ (m): 70
- Med-Ball (m): 5.7
- 5m (secs): 1.32
- 10m (secs): 2.14
- 20m (secs): 3.52
- SAR (cm): 10.46
- Level: 15
- Shuttle (cm): 1
- MaxHR (bpm): 215
Fitness with the football/sliotar

Typical Kick or Hand Pass Drill
Fitness with the football/sliotar

Match Running
Hand Pass Drill
Fitness with the football/sliotar

Diagonal Kick pass drill
• Tactical
• Physical
• Skill focussed
Fitness with the football/sliotar

1 v 1 or 2 v 2
(Heart rate in the training zone)
Fitness with the football/sliotar

GAME
“Who Attacks Defends”
Fitness with the football/sliotar

GAME
“Circle Score”
The Journey that is Sport

The whole point of sport is not the winning but the journey itself.
It is what you learn on that journey.
It is about the people you meet.
The challenges you encounter.
It is about discipline and control.
It’s about respect for others.
It’s about the buzz of success.
It’s about coping with defeat.
It’s about the building of character.
It’s about being yourself and about enjoying sport for sports sake.
By the end of this session the coach will be able to:

- Identify the components of physical fitness and their importance in gaelic games
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- Implement practical ways to build fitness into games and skill development for u12, u14 and u16’s.
Physical Fitness for 12-16year olds

Questions????