Participant and Performer Development in Youth Football: The Need for Bio-Psycho-Social Support

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Coach Decision Making Model (Abraham et al., 2010)

Understanding of Culture & Context:
Policies, Pathways, Resources, NGB, Player/Athlete/Participant/Other Expectations & Constraints

Understanding of Self: Personal Beliefs, Values & Behaviours

WHO are you coaching?
Using bio-psycho-social theories and concepts as thinking tools to understand your players needs and wants

What are you coaching?
Using technical, tactical and psycho-motor theories and concepts as thinking tools to build your sport specific performance model

How are we coaching?
Using skill acquisition theories and concepts as thinking tools to optimize learning and development opportunities

PLAN
DO
REVIEW

A Framework For Coach Decision Making (Adapted from Abraham, Muir & Morgan, 2010)
Athlete Development Models (Tinning et al., 1993)

Figure 3.1: The pyramid model of sports development (adapted from Tinning, Kirk and Evans, 1993)
Athlete Development Models (Cote, 1999)

1. Probable Outcomes
   - Recreational participation
   - Enhanced physical health
   - Enhanced enjoyment

2. Probable Outcomes
   - Elite performance
   - Enhanced physical health
   - Enhanced enjoyment of the sport

3. Probable Outcomes
   - Elite performance
   - Reduced physical health
   - Reduced enjoyment

Recreation Years

Investment Years

Specializing Years

Early Specialization

Sampling Years

Entry into Sport
### Athlete Development Models (Bayli & Hamilton, 2004)

#### Table 1. Adaptation to Training and Optimal Trainability (Bayli and Way 2002)

<table>
<thead>
<tr>
<th>Chronological Age</th>
<th>under 5</th>
<th>6</th>
<th>7</th>
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<th>11</th>
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<th>21</th>
<th>22</th>
<th>23</th>
<th>24+</th>
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<tbody>
<tr>
<td>General Training Age +/-</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>6</td>
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<td>20</td>
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<tr>
<td>Specific Training Age +/-</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Biological Age +/-</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</table>

**Individual Tempo**
- Development varies with each athlete’s capabilities and maturation.

**Diagnosis**
- Determines individual’s strengths and weaknesses.

**The 5 S’s**
- Stamina, strength, speed, skill, and suppleness.

#### Windows of Optimal Trainability (Critical periods of accelerated adaptation)

- **Onset of Peak Height Velocity and Related Trainability**
- **Diagnosis of the Five S’s of Training and Performance**
  - Physical Literacy
    - Peak Speed (Velocity 1)
    - Peak Motor Coordination (Velocity Skills)
  - Physical Literacy
    - (ABC’s + RIT + KGB’s + CK’s)
  - Peak Speed
    - Velocity 2
  - Peak Strength
    - Velocity 1 & 2
  - Peak Aerobic Velocity
  - Growth Spurt

**Maturation Level (Biological Age)**
- 17 | 18 | 19 | 20 | 21 | 22+ |
- Physical Literacy
  - Speed 1
  - Skills
- Strength
- Speed 2
- Aerobic
- POY—Growth Spurt

**Based on sport science and normative data**
- Based on testing and monitoring
- **Speed 1**
  - Quickness and agility less than 5 seconds
- **Speed 2**
  - Alactic—power and capacity up to 20 seconds
  - Moving scales for aerobic and strength training (biological age)

No arrow indicates chronological age.

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*ABC’s = Agility Balance Coordination Speed + RIT = Run Jump Throw + KGB’s = Kinesthesia Gailing Bouancy Striking with object + CK’s = Catching Kicking Striking with body*
FTEM Athlete Development Pathway (Gulbin et al., 2013)
Dilemmas in Research & Practice

• Models only offer a partial or sub-set perspective of participant and performer development
• Models lack Sport Specificity
• ‘Breadth’ and ‘Depth’ of knowledge for large number of characteristics across all stages of development is limited
• Application of models within practice is questionable
• BUT should we expect anything else?

• Symposium Aim – Showcase research on Participant and Performer Development in Youth Football including...
  • Systems development (from a holistic perspective), and...
  • Specific Biological, Psychological and Social projects
Bio-Psycho-Social Analysis
Bio-Psycho-Social Ontology
Coaching As Professional Judgement and Decision Making

<table>
<thead>
<tr>
<th>Theoretical View</th>
<th>Summarised Description of What Happens</th>
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</thead>
<tbody>
<tr>
<td>Common Perception</td>
<td>Plan/Review</td>
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<tr>
<td></td>
<td>Do</td>
</tr>
<tr>
<td>Decision Modes (Yates &amp; Tschirhart, 2006)</td>
<td>Analytic (Formalistic or Substantive)</td>
</tr>
</tbody>
</table>

(Abraham, Collins & Collins, in Preparation)
Order of Play

• Player development systems as a context for bio-psycho-social development (J. North)

• Biological
  • Maturation & physical characteristics in male youth football players (Kevin Till)
  • Maturation & physical characteristics in female youth players (Stacey Emmonds)

• Psychological
  • Developmental psychology in the youth footballer (Andrew Abraham)

• Social
  • Athletic Identity (and the environment) in elite youth football (Tom Mitchell)

• Practical implications and future research directions

• Q&A
Player development systems as a context for bio-psycho-social development

Dr J. North
Carnegie School of Sport
Leeds Beckett University
<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>England</td>
<td>18 coaching and player development experts in the FA, Premier League, Championship</td>
</tr>
<tr>
<td>2014</td>
<td>Belgium, England, France, Germany, Italy, the Netherlands, Spain</td>
<td>41 coaching and player development experts from the football associations and tier 1 clubs</td>
</tr>
<tr>
<td>2016</td>
<td>Indonesia, South Korea, Denmark and Spain</td>
<td>9 coaching and player development experts from badminton associations notably performance directors, head coaches, sports science</td>
</tr>
</tbody>
</table>

**2 sports**  
**12 country systems**  
**58 experts**
Effective learning environments

System is coherent and enjoys stakeholder buy-in

System embedded in socio-cultural context and resources

Clear vision, culture, priorities, planning and resource

Effective workforce

Appropriate training infrastructure

Clear performance model

Clear development model

Appropriate training infrastructure
Effective learning environments

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System embedded in socio-cultural context and resources
Performance model

- Existing research, and our evidence, points to player performance being a composite of five characteristics/competencies
  - Physical/physiological (P)
  - Psychological (P)
  - Social/lifestyle (S)
  - Movement/technique (T)
  - Tactical (T)
  - PPSTT!
<table>
<thead>
<tr>
<th>ELITE</th>
<th>Physical/Physiological</th>
<th>Psychological</th>
<th>Social/lifestyle</th>
<th>Movement/technical</th>
<th>Tactical</th>
</tr>
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<tbody>
<tr>
<td>What the elite level game is like:</td>
<td>Has a high level of physical intensity but also intermittent very high levels of physical intensity – sprints, jumps, physical contact, and sudden direction shifts  At the same time the game expects high levels of physical fitness and endurance – players typically run in excess of 10 km in a game</td>
<td>Is psychologically intense, highly pressurised and competitive during practice, competition, and outside the game  This requires a number of highly developed psychological characteristics both in learning and development and performing at the highest levels</td>
<td>Involves high levels of personal scrutiny of performance and conduct of players from the media, public, etc.  Players are judged as members of a community, a club, a team, dressing room and are expected to contribute to their image and abide by their rules  There are high levels of expectation around player conduct and lifestyle management</td>
<td>Although players have varying movement/technical profiles at the elite level – depending on their strengths, position, etc. – there is a consensus growing around particular technical characteristics and competencies  Without exception, the research revealed the need for highly movement literate/technically skilled players</td>
<td>There is no one performance model for elite level football – with teams winning international trophies using a variety of approaches and formations  However, the game currently appears to be moving towards a possession or counter-attacking based approach with the ball played through the thirds in phase, and/or moved quickly and accurately in counter-attack  This requires players to have excellent game understanding and to be able to make quick and effective decisions</td>
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<tr>
<td>Elite players will typically have high levels of the following characteristics and competencies:</td>
<td>Speed/explosive speed  Strength  Power  Hypertrophy  Aerobic fitness/endurance  Muscular endurance  Flexibility</td>
<td>Psychological characteristics that benefit the individual  Ambition - a desire to become a great player  Motivation - especially intrinsic motivation, love of the game  Effort and commitment - engagement, investment, work ethic, determination to succeed  Awareness - high level of awareness of self in all contexts; realistic performance evaluation; strengths and weaknesses and acts accordingly  Attentiveness and focus  Vision - knowing what it takes to succeed, goal setting; planning, effective and appropriate imagery use  Discipline - dedication, taking responsibility, sacrifice, self-control, concentration, distraction control, delaying gratification</td>
<td>Social characteristics that benefit the individual  Supportive parents (informational, emotional and practical)  Supportive important others - partner, friends, team-mates, coaches, club officials, broader social connections  Access/exposure to player development resources - facilities, coaching  Social characteristics that benefit the club/team  Team spirit and cohesion  Team work  Collective responsibility  Community understanding and integration  Lifestyle characteristics and competencies  Appropriate education  Appropriate social choices</td>
<td>Fundamentals of movement  Agility  Balance  Coordination  Fundamental movement skills  Stability  Object control  Locomotion skills - mobility  Fundamental sport skills and sport-specific skills  Ball control - receiving and controlling the ball as and when it arrives with an assured, varied and secure touch, using all parts of the body; keeping possession of the ball while running, turning, stopping  Ball mastery and manipulation - tricks, ability to spin, float and drive the ball  Running with ball/dribbling  Passing/crossing – releasing the ball accurately and instantly over a</td>
<td>Game understanding - for example, understanding the professional game such as the different requirements for playing in the Champions League, Premier League and Championship  Strategy  Game intelligence/reading the game/same sense e.g. movement off the ball  Team/unit understanding and organisation  Recognising opportunities to attack - disrupting stable systems  Recognising defensive threats  Game control and manipulation - players who can influence the tempo and shape of the game  Positioning  Knowing about ball actions  Knowing about others’ actions  Acting in change situations</td>
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Performance model

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  - Psychological (P)
  - Social/lifestyle (S)
  - Movement/technique (T)
  - Tactical (T)
  - PPSTT!

- These ‘ideal’ characteristics/competencies are guides:
  - There will be different emphasis between cultures (countries) and individuals
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<td><strong>Focus and concentration - dedication, taking responsibility, sacrifice, self-control</strong></td>
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<td><strong>Fighting mindset; distraction control, maintaining gratification</strong></td>
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<td><strong>Appropriate education and learning experiences</strong></td>
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<td><strong>Appropriate socialization experiences</strong></td>
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<td><strong>Lifestyle characteristics and competencies</strong></td>
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<td>**Fundamentals of movement and game understanding - for example, possessing and understanding the professional debut/selections for playing in the Premier League, Premier League 2, and Championship</td>
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<td><strong>Game intelligent; reading the game/game sense</strong> e.g. movement off the ball</td>
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<td><strong>Team/unit understanding and organisation</strong></td>
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Effective learning environments

- System is coherent and enjoys stakeholder buy-in
- System embedded in socio-cultural context and resources
- Clear vision, culture, priorities, planning and resource
- Effective workforce
- Clear performance model
- Appropriate training infrastructure
- Clear development model
Development model

• If we know our elite performance exhibit high level PPSTT characteristics/competencies, then we need to develop them!
• The days of physical and technical development only are over (more or less)!
• All effective systems attend to holistic PPSTT characteristics/competencies (whether this is delivered on the ground is a different matter!)
• But in different ways...
**Physical**

- Ball or cushion? Directional, height of pass, feet or space?
- Pass, move, pass, pass...
- Body shape: Make play predictable.
- Shooting - be confident, have a go!
- Turning - sharp, dynamic, name space.
- Dictate the pace of the game, play at our pace.
- Yes - play to your strengths.

**Psychological**

- Decision making - space
- No shooting - are you ready?
- If yes - shoot in?
- If no - move the ball.
- Relax! Take your time, play your game.

**Units** - play as a team, defense/midfield

- Communicate - let them know where you are
- Celebrate - if you do something
- Celebrate +
Development model

• If we know our elite performance exhibit high level PPSTT characteristics/competencies, then we need to develop them!

• The days of physical and technical development only are over (more or less)!

• All effective systems attend to holistic PPSTT characteristics/competencies (where this is delivered on the ground is a different matter)

• Also, and finally, for current purposes, aged/staged
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Physical/physiological</th>
<th>Psychological</th>
<th>Social/lifestyle</th>
<th>Technical</th>
<th>Tactical</th>
</tr>
</thead>
</table>
| 17-21 years | Developmental focus  
Physical development with strength and condition specialist  
Key activities  
Activities to build strength, speeds, power, flexibility etc. | Developmental focus  
Continue to develop key psychological characteristics - motivation, commitment, discipline, resilience, confidence, desire to learn and improve; work on refinement of high level professional characteristics - awareness and concentration, coping with pressure and stress, competitive behaviours and appetite for winning, never giving up  
Key activities  
Continue to build players key psychological attitudes and skills in and out of sessions | Developmental focus  
Help players manage transition to first team football, working on higher level social characteristics - place and humility, respect etc.; reinforce importance of appropriate lifestyle characteristics and choices - nutrition, hydration, rest and social behaviour  
Key activities  
Position specific skills | Developmental focus  
Maintaining and refining technical skills; work on position specific skills  
Key activities  
Position specific skills | Developmental focus  
Develop detailed understanding and awareness of game, tactics, team organisation; understanding difference between different levels of competition, increasing overall speed of play; providing opportunities for young players to play at senior/first team level  
Key activities  
Advance game understanding and tactics, and playing opportunities |
| 12-16 years | Developmental focus  
Sensitivity to changes associated with sexual maturity; there are differing opinions about the introduction of physical development work in this age band; some advocate a specialist programme, others suggest physical development should be done through normal game related training activities  
Key activities  
Physical development through games | Developmental focus  
Getting to know players and building relationships; emphasising personal responsibility, motivation, discipline and focus; establishing a practice ethic; sessions in the learning/challenge zone, emphasising calculated risks and creativity  
Key activities  
Continue to build players' key psychological attitudes and skills in and out of sessions | Developmental focus  
Helping players through difficult life changes; work with and develop players ideas about friendship/peer group encouraging mutual support, respect and humility; develop a culture of hard work; develop good nutritional and life-style habits; manage parent expectations; working with educationalists  
Key activities  
Helping players through a difficult period | Developmental focus  
Manage technical inconsistencies associated with sexual change; skill development under pressure; greater emphasis on passing and retention; advanced technical skills; exposure to position specific work though players not 'locked in'; work with skills coaches; continue to encourage engagement in other sports  
Key activities  
Problem solving games, move towards 11-a-side, some unopposed development | Developmental focus  
Prioritise game understanding and awareness; awareness of roles in and out of possession; overall decision-making; manage transition to 11-a-side  
Key activities  
Problem solving games such as 3v2; use competitive matches as development opportunities |
<table>
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<td><strong>8-11 years</strong></td>
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<td>Developmental focus</td>
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</tr>
<tr>
<td>No specific physical focus other than engaging youngsters in games of a slightly longer duration</td>
<td>Same as 5-7 years but encouraging youngsters’ self-regulation e.g. showing up on time, encouraging players to take responsibility for their own learning, coaching focused more on individual players, using consultation to shape sessions, use questioning more, encourage risk taking and creativity</td>
<td>Same as 5-7 years but focus more on evolving peer/team mate relations, and managing parents with regard to selection and competition.</td>
<td>Same as 5-7 years but refine movement skills, and greater focus on technical ball skills particular ball retention and passing, using both feet, encourage engagement in other sports. Key skill development age.</td>
<td>Work on decision-making - when to pass, when to dribble, when to share, when to keep, consider off the ball movement, and reading and anticipating play, introduce and manage competition, more detailed rules later in this age group</td>
</tr>
<tr>
<td>Key activities</td>
<td>Developmental focus</td>
<td>Key activities</td>
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<tr>
<td>Physical development through games</td>
<td>Developmental focus</td>
<td>Building players psychological attitudes and skills, experimentation through games</td>
<td>Developmental focus</td>
<td>Problem solving games, small sided games, some unopposed development (but keep fun)</td>
</tr>
<tr>
<td><strong>5-7 years</strong></td>
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<td>No specific physical focus other than engaging youngsters in games</td>
<td>Getting to know the youngster, being a ‘fun friend’, making the youngster feel safe, secure and happy, establish clear behavioural boundaries, prioritising fun and enjoyment in sessions, plan structured sessions but with variety (change every 10-15 minutes), simple language, with low levels of instruction, very positive/encouraging approach</td>
<td>Work with club, other coaches and parents to define a clear philosophy, expectations and manage problems.</td>
<td>Prioritise movement development such as agility, balance and coordination, introduce ball work notably dribbling and shooting with players having many touches, encourage engagement in other sports</td>
<td>Develop a basic understanding of the game - team, directions of attack, simple rules</td>
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<td>Key activities</td>
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<td>Physical development through games</td>
<td>Developmental focus</td>
<td>Talking to parents</td>
<td>Developmental focus</td>
<td>Small sided games with some very basic tactical ideas such as passing and space (though these are not a priority compared to movement and ball skills)</td>
</tr>
<tr>
<td></td>
<td>Developmental focus</td>
<td>Fun varied games</td>
<td>Developmental focus</td>
<td>Fun games with movement focus, small sided games 2v2, 3v3, some unopposed development (but keep fun)</td>
</tr>
</tbody>
</table>


Maturation & Physical Characteristics of Male Youth Football Players

Dr Kevin Till

@KTConditioning
IOC Consensus on Youth Athletic Development

“Sports participation with appropriate physical development decreases the risk of sports related injuries, and enhances the likelihood of achieving and sustaining an enjoyable, high level of performance

Muscular fitness and effective movement skills serve as the foundation for achieving optimal and sustainable long-term athletic performance; Therefore, an emphasis on developing muscular strength, power, speed and agility of young athletes with appropriate age-related interventions is ESSENTIAL!!!”

Physical Qualities

- Muscular Strength & Power
- Endurance Capacity
- Agility (Change of Direction)
- Linear Speed
- Movement & Flexibility
- Anthro & Body Comp

Clear performance model
Physical Development

5-7 years
- Developmental focus: No specific physical focus other than engaging youngsters in games
- Key activities: Physical development through games

8-11 years
- Developmental focus: No specific physical focus other than engaging youngsters in games of a slightly longer duration
- Key activities: Physical development through games

12-16 years
- Developmental focus: Sensitivity to changes associated with sexual maturity; there are differing opinions about the introduction of physical development work in this age band; some advocate a specialist programme, others suggest physical development should be done through normal game related training activities
- Key activities: Physical development through games

17-21 years
- Developmental focus: Physical development with strength and condition specialist
- Key activities: Activities to build strength, speeds, power, flexibility etc.
Maturation

The **TIMING** and **TEMPO** of progress towards the mature adult state

Comparison of Late, Average and Early Maturers of the same Chronological Age
Maturation – Age at PHV

- Deceleration
- Acceleration
- Peak height velocity
- Termination of growth
Age vs Maturation in Youth Soccer

Morris et al. (unpublished)
What does this mean for Youth Football?

Chronological Annual Age Grouping + Individual variation in biological maturity + Relationship between maturation and performance = Players may be (dis)advantaged within selection opportunities and have different developmental needs
Anthropometric, Speed & Endurance Characteristics


<table>
<thead>
<tr>
<th></th>
<th>U9 (n = 67)</th>
<th>U10 (n = 94)</th>
<th>U11 (n = 168)</th>
<th>U12 (n = 172)</th>
<th>U13 (n = 211)</th>
<th>U14 (n = 195)</th>
<th>U15 (n = 151)</th>
<th>U16 (n = 123)</th>
<th>U18 (n = 321)</th>
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<tbody>
<tr>
<td>Age (y)</td>
<td>8.87 ± 0.34</td>
<td>9.83 ± 0.38</td>
<td>10.88 ± 0.31</td>
<td>11.95 ± 0.35</td>
<td>12.95 ± 0.31</td>
<td>13.84 ± 0.32</td>
<td>14.84 ± 0.30</td>
<td>15.73 ± 0.33</td>
<td>17.61 ± 0.45</td>
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<tr>
<td>Height (cm)</td>
<td>132.0 ± 4.9</td>
<td>136.9 ± 5.2</td>
<td>141.4 ± 7.2</td>
<td>147.3 ± 7.5</td>
<td>155.5 ± 9.1</td>
<td>161.0 ± 8.4</td>
<td>169.6 ± 7.5</td>
<td>174.1 ± 8.1</td>
<td>178.1 ± 7.9</td>
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<tr>
<td>(118.0–141.0)</td>
<td>(119.5–148.3)</td>
<td>(126.0–161.6)</td>
<td>(129.2–175.0)</td>
<td>(133.5–177.6)</td>
<td>(139.0–183.4)</td>
<td>(151.9–191.6)</td>
<td>(149.0–193.0)</td>
<td>(157.1–197.4)</td>
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</tr>
<tr>
<td>Body Mass (kg)</td>
<td>29.4 ± 3.2</td>
<td>33.2 ± 3.9</td>
<td>36.8 ± 5.7</td>
<td>40.7 ± 6.4</td>
<td>46.6 ± 8.0</td>
<td>51.8 ± 7.8</td>
<td>61.0 ± 7.6</td>
<td>66.7 ± 8.6</td>
<td>72.5 ± 8.6</td>
</tr>
<tr>
<td>(22.5–38.4)</td>
<td>(26.1–46.7)</td>
<td>(27.1–56.6)</td>
<td>(28.0–68.2)</td>
<td>(30.1–69.6)</td>
<td>(34.7–74.9)</td>
<td>(42.7–85.4)</td>
<td>(44.6–86.6)</td>
<td>(55.0–88.5)</td>
<td></td>
</tr>
<tr>
<td>10m Speed (s)</td>
<td>2.19 ± 0.07</td>
<td>2.13 ± 0.06</td>
<td>2.06 ± 0.09</td>
<td>2.00 ± 0.11</td>
<td>1.99 ± 0.10</td>
<td>1.90 ± 0.10</td>
<td>1.84 ± 0.03</td>
<td>1.82 ± 0.07</td>
<td>1.79 ± 0.05</td>
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<tr>
<td>(2.04–2.36)</td>
<td>(1.96–2.31)</td>
<td>(1.90–2.27)</td>
<td>(1.85–2.26)</td>
<td>(1.76–2.26)</td>
<td>(1.67–2.18)</td>
<td>(1.65–1.99)</td>
<td>(1.66–1.97)</td>
<td>(1.65–1.92)</td>
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<tr>
<td>20m Speed (s)</td>
<td>3.85 ± 0.16</td>
<td>3.66 ± 0.11</td>
<td>3.64 ± 0.14</td>
<td>3.51 ± 0.13</td>
<td>3.43 ± 0.18</td>
<td>3.28 ± 0.09</td>
<td>3.15 ± 0.17</td>
<td>3.09 ± 0.08</td>
<td>3.03 ± 0.12</td>
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<tr>
<td>(3.26–4.23)</td>
<td>(3.20–4.11)</td>
<td>(3.18–4.00)</td>
<td>(3.00–3.96)</td>
<td>(2.99–3.87)</td>
<td>(2.91–3.47)</td>
<td>(2.90–3.32)</td>
<td>(2.82–3.29)</td>
<td>(2.78–3.21)</td>
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</tr>
<tr>
<td>YYE12 (n)</td>
<td>13 ± 3</td>
<td>13 ± 4</td>
<td>19 ± 4</td>
<td>21 ± 6</td>
<td>24 ± 6</td>
<td>(7–21)</td>
<td>(7–23)</td>
<td>(8–27)</td>
<td>(9–30)</td>
</tr>
</tbody>
</table>
Anthropometric, Speed & Endurance Characteristics: Influence on Pro Contract?

But What About Strength?

Performance Pyramid (Abraham et al., 2015)

Fundamental Movement Skills
- Stability (e.g. Balance, BW squat, Landing Technique)
- Locomotion (e.g. Running, Jumping Technique)
- Mobility (required range of motion for sport)
Strength
Related to all other physical characteristics

Fundamental Movement Skills
- Stability (e.g. Balance, BW squat, Landing Technique)
- Locomotion (e.g. Running, Jumping Technique)
- Mobility (required range of motion for sport)
Performance Pyramid (Abraham et al., 2015)

**Improved Sport Participation & Performance**

**Strength**
- Related to all other physical characteristics

**Fundamental Movement Skills**
- Stability (e.g. Balance, BW squat, Landing Technique)
- Locomotion (e.g. Running, Jumping Technique)
- Mobility (required range of motion for sport)

**Performance Pyramid**
Strength in Youth Football

Influence of Age and Maturation on Strength, Speed and Power in Youth Soccer

Assessed 293 Youth Soccer Players aged 12-18 years from 4 academies

Strength Assessment = Isometric Mid Thigh Pull
- Peak Force
- Relative Peak Force (considering body mass)

\[ R^2 = 0.6808 \]
Strength (Peak Force) vs. Maturation

Relative Strength vs. Age

R² = 0.0877

Relative Strength vs. Maturation

\[ R^2 = 0.0785 \]

## Predictors of Speed, Agility & Power

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>20m Sprint</td>
<td>1. Age</td>
</tr>
<tr>
<td></td>
<td>2. Height</td>
</tr>
<tr>
<td></td>
<td>3. Relative Strength</td>
</tr>
<tr>
<td>Agility 505 L</td>
<td>1. Years from PHV</td>
</tr>
<tr>
<td></td>
<td>2. Relative Strength</td>
</tr>
<tr>
<td>Agility 505 R</td>
<td>1. Age</td>
</tr>
<tr>
<td></td>
<td>2. Relative Strength</td>
</tr>
<tr>
<td></td>
<td>3. Height</td>
</tr>
<tr>
<td>Vertical Jump</td>
<td>1. Age</td>
</tr>
<tr>
<td></td>
<td>2. Relative Strength</td>
</tr>
</tbody>
</table>

- Speed, agility and power performance in by factors related to age, maturation and relative strength qualities
- Practitioners should understand the impact of growth and maturation upon physical performance
- Young soccer players should undertake strength training interventions, especially when large body mass increases are likely, to develop relative strength

Conclusions

- Physical characteristics are important aspects for football performance
  = Clear Performance Model
- Large variations in maturation status of youth players, which impacts upon physical performance
- Physical performance in young ages should not be used for Talent ID but should be implemented for long-term development
- Strength is important – especially Relative Strength! Implement resistance training interventions with youth players
THE INFLUENCE OF AGE AND MATURATION ON THE PHYSICAL CHARACTERISTICS OF YOUTH FEMALE SOCCER PLAYERS

Dr Stacey Emmonds

@ S_Emmonds
"One of the big challenges in the women's game is just developing athleticism," Campbell told BBC Sport.

"It is not technical and tactical - [in those aspects] they are probably as good as anybody in the world.

"But that athleticism that you see in the American players or the Germans is a very different type of athleticism, power and agility. We have got a long way to go."
The purpose of this study was to determine the importance of physical qualities for speed and change of direction (CoD) ability in female soccer players. Data were collected on 10 female soccer players who were part of a professional English Women’s Super League team. Player assessments included anthropometric (stature and body mass), body composition (dual-energy X-ray absorptiometry), speed (10m, 30m sprint), CoD ability (505 agility), aerobic (Yo-Yo Intermittent Recovery Test), lower-body strength (bilateral knee extensions) and power (countermovement jump [CMJ], squat jump [SJ], 30cm drop jump [DJ]) measures. The relationships between the variables were evaluated using eigenvector analysis and Pearson correlation analysis. Multiple linear regression revealed that the performance variables (10 and 20m speed, mean 505, and CoD deficit mean) can be predicted with almost 100% accuracy.
"One of the big challenges in the women's game is just developing athleticism," Campbell told BBC Sport.

"It is not technical and tactical - [in those aspects] they are probably as good as anybody in the world.

"But that athleticism that you see in the American players or the Germans is a very different type of athleticism, power and agility. We have got a long way to go.

"We need to build it in much earlier. We can't suddenly do that. We need to be working with players much earlier on."
Physical Characteristics of Elite Female Soccer Players

- 3 Tier 1 Regional Talent Centre’s (RTC’s)

- **157 Players**
  - U16; n = 46, U14; n = 43, U12; n = 28, U10; n = 30

- **Testing Battery:**
  - Anthropometry (height, body mass)
  - Strength (Isometric mid-thigh pull)
  - Lower body power (CMJ)
  - Change of direction (505 left and right)
  - YoYo Intermittent recovery level 1 (YYIRL1)

- Speed (10 and 30m)
- Aerobic capacity (YYIRL1)
# Physical characteristics of youth female soccer players

<table>
<thead>
<tr>
<th></th>
<th>U10 (n=30)</th>
<th>U12 (n=38)</th>
<th>U14 (n=43)</th>
<th>U16 (n=46)</th>
<th>U10-U12</th>
<th>U12-U14</th>
<th>U14-U16</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (y)</strong></td>
<td>9.25 ± 0.58</td>
<td>11.41 ± 0.98</td>
<td>13.22 ± 0.65</td>
<td>15.05 ± 0.64</td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Very Likely ↑</strong></td>
</tr>
<tr>
<td><strong>Height (cm)</strong></td>
<td>134.7 ± 8.1</td>
<td>147.2 ± 8.5</td>
<td>159.2 ± 7.4</td>
<td>163.9 ± 6.2</td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Very Likely ↑</strong></td>
</tr>
<tr>
<td><strong>Body Mass (kg)</strong></td>
<td>29.7 ± 5.1</td>
<td>37.6 ± 8.0</td>
<td>50.1 ± 7.6</td>
<td>56.8 ± 7.2</td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Very Likely ↑</strong></td>
</tr>
<tr>
<td><strong>Peak Force (N)</strong></td>
<td>819 ± 135</td>
<td>1019 ± 193</td>
<td>1337 ± 234</td>
<td>1511 ± 196</td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Most Likely ↑</strong></td>
</tr>
<tr>
<td><strong>Relative Peak Force</strong></td>
<td>26.9 ± 4.2</td>
<td>26.1 ± 2.5</td>
<td>26.5 ± 4.2</td>
<td>26.7 ± 2.5</td>
<td><strong>Possibly Trivial</strong></td>
<td><strong>Possibly Trivial</strong></td>
<td><strong>Most Likely Trivial</strong></td>
</tr>
<tr>
<td>(N·s⁻¹·kg⁻¹)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CMJ (cm)</strong></td>
<td>23.5 ± 2.5</td>
<td>27.3 ± 4.3</td>
<td>29.1 ± 4.4</td>
<td>31.4 ± 6.4</td>
<td><strong>Very Likely ↑</strong></td>
<td><strong>Likely ↑</strong></td>
<td><strong>Very Likely ↑</strong></td>
</tr>
<tr>
<td><strong>YYIRL1 (m)</strong></td>
<td>635 ± 241</td>
<td>886 ± 334</td>
<td>959 ± 399</td>
<td></td>
<td><strong>Most Likely ↑</strong></td>
<td><strong>Possibly ↑</strong></td>
<td></td>
</tr>
<tr>
<td><strong>505 CoD Dominant (s)</strong></td>
<td>2.78 ± 0.15</td>
<td>2.71 ± 0.16</td>
<td>2.60 ± 0.10</td>
<td>2.54 ± 0.12</td>
<td><strong>Very Likely ↓</strong></td>
<td><strong>Likely ↓</strong></td>
<td><strong>Most Likely ↓</strong></td>
</tr>
<tr>
<td>**505 CoD Non-Dominant (s)</td>
<td>2.82 ± 0.11</td>
<td>2.73 ± 0.15</td>
<td>2.66 ± 0.13</td>
<td>2.53 ± 0.09</td>
<td><strong>Very Likely ↓</strong></td>
<td><strong>Likely ↓</strong></td>
<td><strong>Very Likely ↓</strong></td>
</tr>
<tr>
<td><strong>10m Speed (s)</strong></td>
<td>2.24 ± 0.13</td>
<td>2.10 ± 0.16</td>
<td>2.06 ± 0.13</td>
<td>1.96 ± 0.14</td>
<td><strong>Most Likely ↓</strong></td>
<td><strong>Possibly ↓</strong></td>
<td><strong>Very Likely ↓</strong></td>
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<tr>
<td><strong>30m Speed (s)</strong></td>
<td>5.75 ± 0.31</td>
<td>5.19 ± 0.33</td>
<td>5.01 ± 0.28</td>
<td>4.81 ± 0.24</td>
<td><strong>Most Likely ↓</strong></td>
<td><strong>Possibly ↓</strong></td>
<td><strong>Very Likely ↓</strong></td>
</tr>
</tbody>
</table>

Emmonds et al. (unpublished) Physical characteristics of youth female soccer players
The influence of growth and maturation

FOR A FAIR SELECTION EVERYBODY HAS TO TAKE THE SAME EXAM: PLEASE CLimb THAT TREE
Emmonds et al. (2017). The influence age and maturation of the maximum and explosive strength qualities of elite youth female soccer players. Medicine and science in football

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>9.16 ± 0.61</th>
<th>10.70 ± 0.62</th>
<th>11.87 ± 0.31</th>
<th>12.83 ± 0.67</th>
<th>14.01 ± 0.65</th>
<th>15.19 ± 0.67</th>
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<tbody>
<tr>
<td>Height (cm)</td>
<td>131.9 ± 6.3</td>
<td>142.4 ± 4.4</td>
<td>151.1 ± 4.5</td>
<td>157.4 ± 4.8</td>
<td>162.2 ± 4.4</td>
<td>165.8 ± 6.9</td>
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<tr>
<td>Sitting Height (cm)</td>
<td>67.3 ± 3.2</td>
<td>70.9 ± 2.9</td>
<td>74.8 ± 2.8</td>
<td>78.7 ± 2.9</td>
<td>82.2 ± 2.6</td>
<td>84.4 ± 3.9</td>
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<td>Leg Length (cm)</td>
<td>64.6 ± 4.4</td>
<td>71.5 ± 3.6</td>
<td>76.4 ± 3.5</td>
<td>78.8 ± 2.8</td>
<td>80.0 ± 3.8</td>
<td>81.4 ± 4.1</td>
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<td>Body Mass (kg)</td>
<td>28.3 ± 4.5</td>
<td>33.4 ± 3.8</td>
<td>40.5 ± 4.9</td>
<td>49.0 ± 5.0</td>
<td>54.9 ± 5.1</td>
<td>57.5 ± 7.5</td>
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<tr>
<td>Peak Force (N)</td>
<td>729 ± 105</td>
<td>880 ± 112</td>
<td>1093 ± 171</td>
<td>1206 ± 223</td>
<td>1391 ± 196</td>
<td>1523 ± 207</td>
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<tr>
<td>Relative Peak Force (N·Kg⁻¹)</td>
<td>26.16 ± 4.22</td>
<td>26.44 ± 2.89</td>
<td>27.13 ± 4.24</td>
<td>24.62 ± 3.70</td>
<td>25.36 ± 2.73</td>
<td>26.68 ± 3.66</td>
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<td>CMJ (cm)</td>
<td>23.46 ± 4.86</td>
<td>25.96 ± 4.44</td>
<td>28.64 ± 3.84</td>
<td>29.61 ± 3.52</td>
<td>28.63 ± 3.87</td>
<td>33.42 ± 4.33</td>
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<td>10 m Sprint (s)</td>
<td>2.22 ± 0.13</td>
<td>2.21 ± 0.17</td>
<td>2.00 ± 0.12</td>
<td>2.08 ± 0.16</td>
<td>1.99 ± 0.14</td>
<td>1.98 ± 0.15</td>
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<tr>
<td>30 m Sprint (s)</td>
<td>5.75 ± 0.34</td>
<td>5.40 ± 0.64</td>
<td>5.09 ± 0.21</td>
<td>4.98 ± 0.47</td>
<td>4.90 ± 0.26</td>
<td>4.81 ± 0.27</td>
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<tr>
<td>505 CoD Dominant (s)</td>
<td>2.99 ± 0.39</td>
<td>2.73 ± 0.19</td>
<td>2.69 ± 0.15</td>
<td>2.69 ± 0.20</td>
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<td>505 CoD N-Dominant (s)</td>
<td>3.03 ± 0.41</td>
<td>3.76 ± 0.19</td>
<td>2.71 ± 0.12</td>
<td>2.71 ± 0.17</td>
<td>2.64 ± 0.16</td>
<td>2.53 ± 0.08</td>
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<tr>
<td>YYIRL (m)</td>
<td>668 ± 284</td>
<td>716 ± 234</td>
<td>897 ± 404</td>
<td>888 ± 288</td>
<td>952 ± 320</td>
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</table>
Influence of maturation on the physical characteristics of players

<table>
<thead>
<tr>
<th>Maturity Offset Groups (YPHV) comparisons</th>
<th>-2.5 vs. -1.5</th>
<th>-1.5 vs. -0.5</th>
<th>-0.5 vs. 0.5</th>
<th>0.5 vs. 1.5</th>
<th>1.5 vs. 2.5</th>
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<tbody>
<tr>
<td>Age (y)</td>
<td>Most Likely</td>
<td>Very Likely</td>
<td>Most Likely</td>
<td>Most Likely</td>
<td>Most Likely</td>
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<tr>
<td>(-2.50 ± 0.62)</td>
<td>(-2.39 ± 0.65)</td>
<td>(-1.84 ± 0.64)</td>
<td>(-1.79 ± 0.54)</td>
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<tr>
<td>Height (cm)</td>
<td>Most Likely</td>
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<td>Most Likely</td>
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<tr>
<td>(-1.92 ± 0.56)</td>
<td>(-1.96 ± 0.60)</td>
<td>(-1.36 ± 0.59)</td>
<td>(-1.04 ± 0.49)</td>
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<td>Sitting Height (cm)</td>
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<tr>
<td>(-1.17 ± 0.50)</td>
<td>(-1.35 ± 0.55)</td>
<td>(-1.36 ± 0.59)</td>
<td>(-1.29 ± 0.50)</td>
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<td>Leg Length (cm)</td>
<td>Most Likely</td>
<td>Very Likely</td>
<td>Likely</td>
<td>Possibly</td>
<td>Possibly</td>
</tr>
<tr>
<td>(-1.71 ± 0.54)</td>
<td>(-1.37 ± 0.55)</td>
<td>(-0.77 ± 0.55)</td>
<td>(-0.37 ± 0.46)</td>
<td>(-0.34 ± 0.43)</td>
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<tr>
<td>Body Mass (kg)</td>
<td>Most Likely</td>
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<td>Most Likely</td>
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<td>Likely</td>
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<tr>
<td>(-1.23 ± 0.50)</td>
<td>(-1.61 ± 0.57)</td>
<td>(-1.71 ± 0.62)</td>
<td>(-1.17 ± 0.50)</td>
<td>(-0.41 ± 0.43)</td>
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<td>Very Likely</td>
<td>Very Likely</td>
</tr>
<tr>
<td>(-1.39 ± 0.51)</td>
<td>(-1.47 ± 0.56)</td>
<td>(-0.57 ± 0.55)</td>
<td>(-0.88 ± 0.48)</td>
<td>(-0.66 ± 0.44)</td>
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<tr>
<td>Relative Peak Force (N·kg⁻¹)</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Likely</td>
<td>Unclear</td>
<td>Possibly</td>
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<tr>
<td>(-0.08 ± 0.46)</td>
<td>(-0.19 ± 0.50)</td>
<td>(0.63 ± 0.55)</td>
<td>(-0.23 ± 0.46)</td>
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<tr>
<td>CMJ (cm)</td>
<td>Likely</td>
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<td>Possibly</td>
<td>Most Likely</td>
</tr>
<tr>
<td>(-0.54 ± 0.47)</td>
<td>(-0.65 ± 0.51)</td>
<td>(-0.26 ± 0.54)</td>
<td>(0.26 ± 0.46)</td>
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<td>10 m Sprint (s)</td>
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<tr>
<td>(0.07 ± 0.46)</td>
<td>(1.43 ± 0.56)</td>
<td>(-0.57 ± 0.54)</td>
<td>(0.60 ± 0.47)</td>
<td>(0.07 ± 0.43)</td>
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<tr>
<td>30 m Sprint (s)</td>
<td>Very Likely</td>
<td>Likely</td>
<td>Possibly</td>
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<tr>
<td>(0.68 ± 0.47)</td>
<td>(0.65 ± 0.51)</td>
<td>(0.30 ± 0.54)</td>
<td>(0.21 ± 0.46)</td>
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<td>505 CoD Dominant (s)</td>
<td>Likely</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Possibly</td>
<td>Likely</td>
</tr>
<tr>
<td>(0.85 ± 0.48)</td>
<td>(0.23 ± 0.50)</td>
<td>(0.00 ± 0.53)</td>
<td>(0.45 ± 0.47)</td>
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<td>505 CoD N-Dominant (s)</td>
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<td>Possibly</td>
<td>Unclear</td>
<td>Possibly Trivial</td>
<td>Very Likely</td>
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<td>(0.84 ± 0.48)</td>
<td>(0.31 ± 0.50)</td>
<td>(0.00 ± 0.53)</td>
<td>(0.42 ± 0.47)</td>
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<td>YYIRL (m)</td>
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<td>Unclear</td>
<td>Unclear</td>
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<td>(-0.18 ± 0.50)</td>
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<td>(0.03 ± 0.46)</td>
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Physical characteristics of youth female soccer players

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<tr>
<th>Percentile</th>
<th>-2.5</th>
<th>-1.5</th>
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<td></td>
<td></td>
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<tr>
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<td>&lt;2.02</td>
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<td>2.00</td>
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<td>1.79</td>
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<td>2.19</td>
<td>2.04</td>
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<td>2.44</td>
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<td>2.29</td>
<td>2.24</td>
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<td>5.11</td>
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<td>5.36</td>
<td>5.42</td>
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<td>5.05</td>
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<tr>
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<td>28.3</td>
<td>30.20</td>
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<tr>
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<tr>
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<table>
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<tr>
<th>Percentile</th>
<th>-2.5</th>
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<th>0.5</th>
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<th>2.5</th>
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<td>COD (s)</td>
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<td>2.54</td>
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<td>2.73</td>
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<td>2.83</td>
<td>2.71</td>
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<td>Relative Strength (N.Kg-1)</td>
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<td></td>
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<td>32.84</td>
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<tr>
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<td>28.21</td>
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<td>27.53</td>
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<td>27.10</td>
<td>26.22</td>
<td>23.21</td>
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<td>23.08</td>
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<td>23.66</td>
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<td>YYIRL1 (m)</td>
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<tr>
<td>Excellent</td>
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<td>956</td>
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<td>1228</td>
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<td>1464</td>
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<tr>
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<td>Average</td>
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<td>740</td>
<td>720</td>
<td>840</td>
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<td>590</td>
<td>728</td>
<td>728</td>
<td>800</td>
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<td>352</td>
<td>440</td>
<td>480</td>
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## Youth vs. Senior Characteristics

<table>
<thead>
<tr>
<th>Fitness Characteristics</th>
<th>Senior (WSL 1) Emmonds et al. (2017)</th>
<th>U16</th>
<th>2.5 YPHV</th>
<th>Difference between senior and youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>10m Speed (s)</td>
<td>1.87 ± 0.06</td>
<td>1.96 ± 0.14</td>
<td>1.98 ± 0.15</td>
<td>0.09-0.11s</td>
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<tr>
<td>30m Speed (s)</td>
<td>4.52 ± 0.10</td>
<td>4.81 ± 0.24</td>
<td>4.81 ± 0.27</td>
<td>0.29s</td>
</tr>
<tr>
<td>CMJ (cm)</td>
<td>34.9 ± 4.4</td>
<td>31.4 ± 6.4</td>
<td>33.4 ± 4.2</td>
<td>1.5 - 3.5cm</td>
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<tr>
<td>505-Dom (s)</td>
<td>2.53 ± 0.09</td>
<td>2.54 ± 0.12</td>
<td>2.54 ± 0.11</td>
<td>0.01s</td>
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<tr>
<td>505-N.Dom (s)</td>
<td>2.52 ± 0.09</td>
<td>2.53 ± 0.10</td>
<td>2.53 ± 0.08</td>
<td>0.01s</td>
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<tr>
<td>YYIRL1 (m)</td>
<td>1680 ± 260</td>
<td>959 ± 399</td>
<td>952 ± 320</td>
<td>721 – 728m</td>
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</tbody>
</table>

Emmonds et al. (2017) Importance of physical qualities for speed and change of direction in elite senior female soccer players. Journal of Strength and Conditioning Research
How do we bridge the gap from youth to senior soccer?
## Relationship between speed, change of direction ability and lower body power in youth female soccer players: Allometric scaling

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predictors</th>
<th>$\beta$</th>
<th>$R^2$</th>
<th>$P$</th>
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<tbody>
<tr>
<td><strong>10m Speed (s)</strong></td>
<td>30m.kg</td>
<td>1.226</td>
<td>0.870</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>505 Dom.kg</td>
<td>-0.210</td>
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<tr>
<td></td>
<td><strong>CMJ.kg</strong></td>
<td>-0.211</td>
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<tr>
<td></td>
<td>YPHV</td>
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<tr>
<td><strong>30m Sprint (s)</strong></td>
<td>10m.kg</td>
<td>0.635</td>
<td>0.996</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td><strong>CMJ.kg</strong></td>
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<tr>
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<td>YPHV</td>
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<tr>
<td></td>
<td>505 Dom.kg</td>
<td>-0.129</td>
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<tr>
<td><strong>CoD Dominant (s)</strong></td>
<td>YPHV</td>
<td>0.559</td>
<td>0.449</td>
<td>&lt;0.001</td>
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<td></td>
<td><strong>PF.kg</strong></td>
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<tr>
<td><strong>CoD N-Dominant (s)</strong></td>
<td>YPHV</td>
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<tr>
<td><strong>CMJ (cm)</strong></td>
<td>YPHV</td>
<td>0.582</td>
<td>0.401</td>
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<td></td>
<td><strong>PF.kg</strong></td>
<td>0.268</td>
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Emmonds et al. (Unpublished data)
Developing Appropriate Physical Development Models

Developing Appropriate Physical Development Models

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<tr>
<th>Activity</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
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<tbody>
<tr>
<td>Squat BL</td>
<td>Assisted squat</td>
<td>BW squat</td>
<td>Overhead squat</td>
<td>Overhead squat 10% BW</td>
<td>Overhead squat 25% BW</td>
<td>Snatch 25% BW</td>
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<tr>
<td>Squat UL</td>
<td>—</td>
<td>—</td>
<td>Assisted single leg squat</td>
<td>Single leg squat</td>
<td>Advanced single leg squat</td>
<td>Single arm single leg KB snatch</td>
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<tr>
<td>Lunge (forward)</td>
<td>From floor to stand</td>
<td>Forward lunge</td>
<td>A-stand forward lunge</td>
<td>Lunge walk + rotations (forward/backward)</td>
<td>Lunge matrix + perturbations</td>
<td>Lunge in context/CHAOS</td>
</tr>
<tr>
<td>Lunge (lateral)</td>
<td>Side lunge half depth</td>
<td>Side lunge to A-stand</td>
<td>Side lunge A-stand full</td>
<td>With ball throw</td>
<td>Lateral speed to lunge deceleration</td>
<td>Lunge in context/CHAOS</td>
</tr>
<tr>
<td>Bear crawl</td>
<td>Quadruped arm leg</td>
<td>Static bear crawl</td>
<td>Forward 5 m</td>
<td>Backward 5 m</td>
<td>Grid (forward/backward/side)</td>
<td>In CHAOS</td>
</tr>
<tr>
<td>Upper-body push pull</td>
<td>Trunk stability push-up (knees) and lying pull—bridge</td>
<td>Lying pull and trunk stability push-up</td>
<td>Wide grip chin ×1 (band assisted)</td>
<td>Wide grip chin ×1</td>
<td>Chins full ×5</td>
<td>Chins ×5 + 10% BW</td>
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<tr>
<td>Jump land (BL)</td>
<td>BL drop and stick 15 cm</td>
<td>BL drop and stick 30 cm</td>
<td>Drop jump 30-cm box</td>
<td>Tuck jump ×3</td>
<td>Tuck jump ×10</td>
<td>Quality control and error correction in CHAOS</td>
</tr>
<tr>
<td>Jump land (UL)</td>
<td>—</td>
<td>—</td>
<td>UL stride and stick 100% height</td>
<td>UL stride and stick 100% height + 90° rotation</td>
<td>Drop/cross step—double stride then stick</td>
<td>Error correction under a variety of perturbations</td>
</tr>
</tbody>
</table>

These can be assessed using the scale in Figure 1 but also include elements of other assessment tools such as the drop (23) and tuck jump assessments (40).

BL = bilateral; BW = body weight; UL = unilateral; CHAOS = chaotic environments; KB = kettlebell.

Summary

• Growth and maturation influences the physical characteristics of youth female players.

• Relative strength does not increase with maturation: need to develop this, particularly post-PHV where female experience large increase in body mass and likely fat mass.

• Unclear changes were observed in aerobic capacity after PHV: need to actively develop the aerobic system in players post-PHV.

• Relative strength is a predictor of speed and change of direction.
• Ability in youth female soccer players.
Future Research Direction

• Longitudinal tracking of physical characteristics
• Match characteristics
• Training Loads
• Training Interventions
Considering the Role of Psychology Within a TD Social Setting

Dr Andrew Abraham (@AndrewAbraham11)
Dr Tom Mitchell (@tom_mitch3)
Sport Coaching Group, Leeds Beckett University
Bio-Psycho-Social Ontology
Real world understanding
## Transitions

(Adapted from Wylleman, Alfermann & Lavallee, 2004)

<table>
<thead>
<tr>
<th>Athletic Level</th>
<th>0 - 4</th>
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<th>15 - 19</th>
<th>20 - 24</th>
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<td>Development</td>
<td>Mastery</td>
<td>Discontinuation</td>
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<td>Pre-puberty</td>
<td>Early Adolescence</td>
<td>Mid and Late Adolescence</td>
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<td>Steady Growth</td>
<td>Puberty Spurt</td>
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<td>Psychosocial Level</td>
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<td>Peers - Coach - Parents</td>
<td>Partner - Coach</td>
<td>Family - Coach</td>
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<td>Secondary/Further</td>
<td>Further/Higher Education</td>
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<td>Academy Stage and Registration Period</td>
<td>Foundation Phase. U5 - U11</td>
<td>Youth Development Phase. U12 - U16</td>
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<td>1 Year Registration Potential for release</td>
<td>2 Year Registration Potential for release</td>
<td>Professional Contract Potential for release</td>
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<tr>
<td>Game Size</td>
<td>4 v 4 - 9 v 9</td>
<td>(9 v 9 at u12 if both clubs agree) 11 v 11</td>
<td>11 v 11</td>
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Senior Professional
## Coaching As Professional Judgement and Decision Making

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<th>Summarised Description of What Happens</th>
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<td>Common Perception</td>
<td>Plan/Review</td>
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<tr>
<td></td>
<td>Do</td>
</tr>
<tr>
<td>Decision Modes (Yates &amp; Tschirhart, 2006)</td>
<td>Analytic (Formalistic or Substantive)</td>
</tr>
<tr>
<td></td>
<td>Rule Based (Formalistic or Substantive)</td>
</tr>
<tr>
<td></td>
<td>Automatic/Intuitive</td>
</tr>
</tbody>
</table>

(Abraham, Collins & Collins, in preparation)
The Who What How in Context Principle

Who
are we ‘Teaching’?
Understanding of Athlete
[Needs & Wants]

What
are we ‘teaching’?
Understanding of Sport
[Skill and knowledge demands of the Sport]

How
are we ‘teaching’?
Understanding of Learning Environment (Pedagogy)
[Practice structure & coaching behaviour]

Culture, Policies, Pathways, Resources, NGB, Expectations, Constraints, Resources

Coaching Process:
Plan
Deliver
Review

Broad Ideas Of Practice
Design and Content. Broad ideas of Coach Instruction, Explanation, Q&A, Assessment, Feedback

(Adapted from Abraham, Collins, Morgan, Muir, 2009)
What thinking tools exist for coaches?

PYD:
- Confidence,
- Competence,
- Character,
- Connection,
- Caring

(Lerner, 2005)
The Who What How in Context Principle

Who are we ‘Teaching’?
Understanding of Athlete
[Needs & Wants]

What are we ‘teaching’?
Understanding of Sport
[Skill and knowledge demands of the Sport]

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[Practice structure & coaching behaviour]

Coaching Process:
Plan
Deliver
Review

Broad Ideas of Practice
Design and Content. Broad ideas of Coach Instruction, Explanation, Q&A, Assessment, Feedback

Broad Ideas of Coach
Centred Curriculum, Technical, Tactical, Cognitive
Social, Metacognitive, And Self Regulatary Skills

Culture, Policies, Pathways, Resources, NGB, Expectations, Constraints, Resources

(Adapted from Abraham, Collins, Morgan, Muir, 2009)
Is Psychology Content...

• Descriptive and diagnostic?
  • I need to know my players?
    • So what questions should he or she ask?

• Prescriptive and circularised?
  • My players should be able to..
    • Therefore they need...

• Are we being thoughtful enough about what coaches need?
What Could Be Known and Why?

Psychology ($\Psi$) is fundamentally interested in behaviour through:
- Development and growth
- Learning
- Health
- Performance

All are important to people operating in football but to differing levels at different times dependent on context.

Educators educating educators places great emphasis on the need to practice what they preach.
Who: \( \Psi \) To Understand The Player In TD Setting
What Could Be Known...

<table>
<thead>
<tr>
<th>Player As Healthy Growing Individual</th>
<th>Player As Learner &amp; Trainer</th>
<th>Player As Team Member, Performer &amp; Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>Self Regulation</td>
<td>Self Regulation</td>
</tr>
<tr>
<td>Personality</td>
<td>Metacognition</td>
<td>Excellence Behaviours</td>
</tr>
<tr>
<td>Motivation</td>
<td>Excellence Behaviours</td>
<td>Dealing With Pressure</td>
</tr>
<tr>
<td>Developmental ( \Psi )</td>
<td>Growth Mindset</td>
<td>Personality</td>
</tr>
<tr>
<td>Morality/Character</td>
<td>Motivation</td>
<td>Motivation</td>
</tr>
<tr>
<td>Coping/Thriving</td>
<td>Personality</td>
<td>Group Dynamics</td>
</tr>
<tr>
<td></td>
<td>Development Psych</td>
<td>Perception &amp; DM</td>
</tr>
</tbody>
</table>
Area of Curiosity

• How well prepared are the FA in supporting coaches in the U11 – U13s age groups?
• Period of change and transitions
• Was this period of change sufficiently well accounted for in support and delivery?
Broad Aim

• To assess whether more could be done to support coaches for the U11-U13 age groups through individualised support and CPD, particularly as provided by the FAYCD group.
Theoretical background

• Coaching as PJDM
  • How well prepared are coaches to make judgements of creating better players
    • Knowledge and Understanding of the Player (Who)
    • Knowledge and Understanding of the Sport and Curriculum (What)
    • Knowledge and Understanding of Pedagogy (How)
    • Knowledge and Understanding of The Context (Where)
    • Knowledge and Understanding of Self
    • Knowledge and Understanding of The Process and Practice of Coaching

• Expertise
  • Context specific vs Adaptive
  • Focus was on context specific (U11-U13)
Methods

• 8 Clubs
  • 3 x Category 1
  • 3 x Category 2
  • 2 x Category 3

• Interviews with
  • Senior staff
  • Age group coaches
Transitions

• Largest single point of data

• Recognition of the fact that numerous transitions are occurring; school, team size, expectation, bio-psycho-social, different coach, time in academy (including shift to day release).

• The greatest focus in this recognition was around the move from U11 – U12 (aligned with primary to secondary school) and the significant extra physical (bio) demands of moving from 9v9 to 11v11 team size

• “Then, obviously going into the Youth Phase, it’s that transition from small-sided games to slightly bigger sided games. I do think at times that can be difficult. For a player to go from Under 11 to Under 12 I think is a very important year, because they go from Primary School to Secondary School; they go from 7-a-sde, to 8-a-side, to 9-a-side, to 11-a-side in 12 months, which in some aspects can be good, but in other aspects, it can be difficult for certain players.”

• Managing the transition. How clubs try to prepare players for transitions such as spending time with the new coach before the end of the year, playing some players up an age group, playing some larger sized games (i.e. 11v11).
Transitions

• Transition as a challenge. The transition point marked a challenge for individual players that may be important in their development.

• Uncertainty about transitions. How to best manage the transition from 9v9 to 11v11 game size. This is explicitly stated by some coaches but is also implicit in the nature of differing opinions between teams.

• “The biggest challenge the kids have at that age is being able to meet the athletic requirements, you know, if they can’t get around the field, and we often see boys that are decent in the small sided games because there isn’t far to run and they can make an impact, bust as soon as you stretch the pitch out, then they can’t cover the distances; they fall away very quickly, even though technically they may be very good”

• Some data is available to suggest that players have been able to employ and maybe develop some level of psycho behavioural skills through differing challenges.

• “A bit more homework, because you have lots of different lessons. Instead of, in Primary, you’d do like, for one hour or a couple of hours you do maths then English then pretty much the same thing every day. But then when you go to Secondary School, you do a lot of different subjects... When you get set homework, you’ve got to do it straight away... I have certain days where I do my homework, because sometimes I have football, and sometimes I have free days”
Who

• There is strong recognition of the players being engaged in a social process both within and out with club. Recognising the role of coaches and parents in the academy process.

• “That’s the biggest thing that I’ve taken from, sort of, the Youth Awards is, who is the child? You know, how do they tick? Knowing a little bit about their social background I think tells you an awful lot I think that’s a massive - I think our role is getting even bigger with that as well, I think it’s getting even bigger. And if we can support them, obviously I think that’s a positive for the boy. Maybe hard work for us, because it’s not easy, you know”

• Least supported theme psychologically developing player.

• “A little bit of child psychology would be good, the people who I’ve spoken to about that, not on courses, has provided huge value to me to develop and understand. Understanding is huge. Like, we’ve all been kids, but we’ve all been kids while we’ve been kids. We haven’t been kids while we’ve been adults, so we don’t understand what it’s like being a kid”

• Despite not being supported as much as other areas, recognition that efforts have been made by the FA

• “I think the courses at the moment, I went on the Advanced Youth, it starts to go far deeper into the social, psychological side of it really, which I think is the massive side of things. Before a coaching course, it’s always been technical, tactical, primarily tactical with the A Licenses and the B Licenses. But the Advanced Youth now is actually starting to go right into, because we’re both doing the 12-16 one, a teenage mind. I think you’ve got to do the research on what makes up a teenage mind to be a good coach for them ages. I think the technical, tactical, is probably at the back behind the social and the psychological side”
Aha!

We need a psychology intervention!!
But....

Typically, If We Add Something In Something Needs To Be Taken Out

There Is A Need To Be Clear About What Coaches Need and Want

Cognitive Task Analysis – Knowledge To Match To The Role
<table>
<thead>
<tr>
<th>Psycho - Social</th>
<th>Middle Childhood</th>
<th>Early Adolescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Development, Knowledge of Self/Identity</strong></td>
<td>Early development of capacity to plan and use this as a method to reflect, evaluate progress and re-plan.</td>
<td>Capacity to reflect on self improves and to deal with more complicated problems.</td>
</tr>
<tr>
<td></td>
<td>Development of an understanding of how learning works. Improve capacity to retrieve information. <strong>There can be a connection between hard work/practice and improvement</strong></td>
<td>Children become more aware of what and who they like and don’t like based on compatibility with own views and values. A better understanding of their self. <strong>Key time in identity formation. Requires broad range of opportunities to engage in identity formation. Avoid identity foreclosure being ‘forced’ upon them.</strong></td>
</tr>
<tr>
<td></td>
<td>Initial (often unrealistic) optimism regarding capacity to deal with challenges and problems begins to become more realistic. This can be aligned with reductions in self-confidence especially as progress is made into adolescence.</td>
<td>Despite increased capacity to self regulate, <strong>self regulation development often lags behind willingness to risk take and monitor consequences of risks</strong></td>
</tr>
<tr>
<td><strong>Emotional and Motivational Development</strong></td>
<td>Increase opportunity for autonomy over behaviour. But also increased chance for tension as to how that autonomy is applied</td>
<td>Increasing need to experiment away from parents. Potential for gaining a greater sense of confidence</td>
</tr>
<tr>
<td></td>
<td>As children mature and become aware of their skills they also become more aware of failures without the skill to deal with this leading to frustration</td>
<td>Confidence can be fragile as failure can be interpreted as predicting future failure. Easy to enter downward spiral. Frustration continues to be a response to failure.</td>
</tr>
<tr>
<td></td>
<td>Opportunity for competition and social comparison increases increasing opportunity to experience pros and cons of these processes.</td>
<td>Despite not always displaying desired behaviour children at this age still have a strong need for relatedness and belonging in formal educational settings. Children who never get a sense of relating to teachers are more likely to display inappropriate behaviour.</td>
</tr>
<tr>
<td><strong>Social Role and Influence</strong></td>
<td>Increased time spent with peers. <strong>Opportunity to engage in group dynamics and create relationships, understanding of ‘we’</strong>.</td>
<td>More time spent unsupervised on their own or with peers.</td>
</tr>
<tr>
<td></td>
<td>Despite capacity become fixed about ability. Social support from adults (teachers, parent etc.) can create belief in capacity to grow, reduce frustration, and maintain high expectations</td>
<td>Adolescent “<strong>Individuals are not likely to do very well, or to be very motivated, if they are in social environments that do not fit their psychological needs.”</strong> (p.37)</td>
</tr>
<tr>
<td></td>
<td>High potential for being a period of strong relationships with adults as both find each other interesting.</td>
<td>Distancing away from parents increases willingness to engage with other non familial adults who are perceived as being worthy of engaging with, i.e. offer share or engage in something meaningful to the child.</td>
</tr>
<tr>
<td>Eccles (1999) and Steinberg (2005)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
[Athletic] Identity in Elite Youth football

Dr. Tom Mitchell
Social Perspectives

sociology

noun
the study of the development, structure, and functioning of human society.

context

noun
the circumstances that form the setting for an event, statement, or idea, and in terms of which it can be fully understood.

social

adjective
1. relating to society or its organization.
   "Alcoholism is recognized as a major social problem."
synonyms: communal, community, community-based, collective, group, general, popular, civil, civic, public, societal. More
2. needing companionship and therefore best suited to living in communities.
   "we are social beings as well as individuals."

"the proposals need to be considered in the context of new European directives"
synonyms: circumstances, conditions, surroundings, factors, state of affairs. More

the parts of something written or spoken that immediately precede and follow a word or passage and clarify its meaning.
"skilled readers use context to construct meaning from words as they are read"
Figure 1. Potential predictors of talent in soccer (source: Williams & Reilly, 2000).

Holt and Mitchell, 2006
<table>
<thead>
<tr>
<th>Athletic Level</th>
<th>Academy (16-19s) Development</th>
<th>Post Academy Developing Mastery</th>
<th>First Team Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Level</td>
<td>Adolescence</td>
<td>Social insecurity and comparison</td>
<td>(young) Adulthood. Limelight stardom</td>
</tr>
<tr>
<td>Psycho-social level</td>
<td>Peers, parents, coach, Ed &amp; Welfare</td>
<td>Partner New coach(es) Family</td>
<td>Manager New coach(es)</td>
</tr>
<tr>
<td>Environmental and cultural level</td>
<td>Process orientated Nurturing Caring Empathetic</td>
<td>Uncompetitive Lonely Isolated Uncertain Stagnant</td>
<td>Outcome orientated Ruthless Masculine macho Heightened competition Team</td>
</tr>
<tr>
<td>Nature of support</td>
<td>Highly supportive</td>
<td>Bereft of social support</td>
<td>(Typically) crisis management, sophist</td>
</tr>
</tbody>
</table>

Adapted from Richardson, Relvas and Littlewood, 2012, p.149
What do we know about socio-cultural aspects [context] within football?

...peculiar and unique institutions which stamp a certain character on young men as they pass from adolescence to early adulthood. (Gearing, 1999).

Football environments have been characterised as; domineering, authoritarian, hyper-masculine, ruthless and insecure. (Parker, 2001).


Ambiguous context (Gibson & Groom, 2017)
Real world understanding
What do [sport] psychologists say about developing psychosocially ‘healthy’ individuals?

• Self identity is a key driver for human motivation (Maslow, 1950)

• Self awareness is a central facet for successful transition in elite youth soccer (Mills, et al., 2012)

• A strong, flexible, clear sense of self may be most suitable for young players to meet their potential (Balague, 1999; Nesti & Littlewood, 2011).
What thinking tools exist for coaches?
Practitioners perspectives on psychosocial characteristics and their development

What psychosocial characteristics do you think give players the best chance of progressing?

What do you perceive contributes to the development of such characteristics?

Mitchell, Nesti, Ronkainian, Richardson and Littlewood (under review)
Methods – Semi Structured Interviews

Eighteen (N = 18) youth development practitioners from ten (N = 10) English professional football clubs. (n = 1 PL, n=4 CH, n=3 L1, n=2 L2).

Of the 18 practitioners there were 8 Heads of youth (n = 8), 6 Youth team coaches (n = 6), two Heads of Education and Welfare (n = 2), one Education and Welfare officer (n = 1) and 1 Centre of Excellence Physiotherapist (n = 1).

All full time, mean experience of 16 years in the setting.

Data from the interviews were transcribed verbatim and a hierarchical thematic analysis was employed to develop common themes from the data moving from description to analysing meaning. (Braun & Clarke, 2006)

Mitchell, Nesti, Ronkainian, Richardson and Littlewood (under review)
What do coaches want from players from a psychosocial perspective?

<table>
<thead>
<tr>
<th>Raw-data themes (frequency)</th>
<th>Lower-order themes</th>
<th>Higher-order themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-awareness (14)</strong></td>
<td></td>
<td><strong>Character</strong></td>
</tr>
<tr>
<td><strong>Dedication (12)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Toughness (14)</td>
<td></td>
<td><strong>The Person</strong></td>
</tr>
<tr>
<td>Stable and Humble (13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take personal responsibility (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be the best at everything (4)</td>
<td></td>
<td><strong>Attitude</strong></td>
</tr>
<tr>
<td>Have own agenda (10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingly meet organisational rules (4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mitchell, Nesti, Ronkainian, Richardson and Littlewood (under review)*
Self-Awareness (14)
The one thing that really does define a player at 19 or 20 is really their character.... if they haven’t got that, then they’ll fail, it’s just my opinion you know, you’ve got to have that resilience to be able to react to criticism in a positive manner to react to disappointment to take on board that there might be people that you are ahead who are gonna go past and come through you because they are developing. How do you handle being dropped? How do you handle not playing as well as you should do?

The ones that are more calculated and work things out are the ones who have got a better chance you know that put it into perspective and that’s a big thing as well for kids cos sometimes [in a football club] the littlest things are like the end of world.

Presence (6)
..[FORMER SCHOLAR] had fire in his belly, everyone knew when he was training with us and even when he went to train with the first team the session went up a level. Just by one person

Stable and Humble (13)
...we’ve just had one of the lads who’s just scored the winner for the under 19s ... you know, he’s got a bit of cockiness [arrogance] about him but then when he came into the classroom yesterday and we had a bit of banter about it he was trying to change the subject. The best players have that.

Own Agenda (10)
...a kid who wants to go and do some extra training, but all the rest of the lads are going to go, oh, goody two shoes, and all this sort of stuff. Well you’ve got to say, ‘Sod that’.

Mitchell, Nesti, Ronkainian, Richardson and Littlewood (under review)
• Self awareness – (e.g. Erikson, 1968).

• Responsibility – (e.g. Hellison, 2011)

• [conforming] Dedication – (e.g. Holt & Mitchell, 2006)
What contributes to the development of such characteristics?

<table>
<thead>
<tr>
<th>Raw-data themes (frequency)</th>
<th>Lower-order themes</th>
<th>Higher-order themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority (19)</td>
<td>Promoting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professionalism</td>
<td></td>
</tr>
<tr>
<td>Additional Responsibilities (Jobs) (8)</td>
<td></td>
<td>Internal Environment</td>
</tr>
<tr>
<td>Developing People (17)</td>
<td>Promoting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Psychosocial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>development</td>
<td></td>
</tr>
<tr>
<td>Employ a Sport Psychologist (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Influence (11)</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>Characteristics are pre-determined (11)</td>
<td>→</td>
<td>External Environment</td>
</tr>
<tr>
<td>Society (2)</td>
<td>→</td>
<td></td>
</tr>
</tbody>
</table>
**Authority (19)**

He does promote rules that encourage behaviour. With the discipline you’ve got the shaving. He has a three strike system...... basically if you don’t shave, one of the lads didn’t shave yesterday so he’s got a strike and if you get three strikes you don’t play the game on Saturday.

I’ve worked with as coaches have worked with and always seen excellence in their working lives, you know ‘cross that ball in from the left hand side’ bang yep brilliant again again again. Sometimes you cross that ball in from the left hand side and it might not be what your working on you might be working on something in the middle. So they’ll say ‘he’s not good enough you do it’. You can’t generalise but quite often they’ve not got patience or understanding that these kids aren’t of that level yet.

**Additional Responsibilities (8)**

We’ve got lads whose job it is to blow footballs up and that to make sure they’re at the right pressure cos the first team go crackers if they’re not you know, are the bibs washed are they clean if the first team wanna put em on. It’s a massive responsibility within our football club.

Have they got the discipline to clean their boots, to clean the footballs. If they’ve got that they’ve got the discipline to track runners or mark somebody from a set play.
Developing People (17)
Teach em good values and there’s an education programme there which allows em to go get a load of qualifications and to make em better human beings.

I’ll go through their reflections with them and just say to them look defensive heading you’ve put excellent, I think that you’re poor and that’s an area we need to work on in your game so what you’re gonna do is do that every morning, 10-15 minutes get a partner, get out there and work on that.

Parental Influence (11)
We see players who’ve got really good standards, really good values. You know, really focused, really professional, really disciplined; you meet the parents and it’s no surprise that they’ve got those values.
Synthesis

Some developmental activities contradict the traditional definitions of training which include words such as ‘systematic’ and ‘purposeful’ (Buckley & Caple, 2000).

Notion of ‘craft idiocy’ that is described as becoming a slave to and of ones skills at the expense of wider social experiences such as husband, father or son. (Marx, 1955)

Football coaches within women's soccer acknowledge they don't have the skills or training for facilitate such development. (Gledhill & Harwood, 2015).

Parental involvement in tennis related to both parent and child having shared and communicated goals. (Holt & Knight, 2015)

All the effort that I’ve put in that way it can’t have hurt to say he’s got a good attitude. (Y2 Scholar reflecting on release)
Implications

• Potential for Identity foreclosure (Petitpas, 1978) – too early a commitment to a role without sufficient exploration – ‘I am footballer but I also am 13 years old’

• Docile bodies (Foucault, 1977) - obedient bodies who do what they are told (seen in runners, Denison, 2007).

• Silencing (Manely, Roderick & Parker, 2016).

• Hidden Curriculum (Cushion & Jones, 2014).

• Conformity (Parker, 2001).

• Potential for an overly strong Athletic Identity.
Implications of a strong AI

Positive implications; Performance (Horton & Mack, 2000), Increased motivation (Brewer, Van Raatle & Linder, 1993).


AI in youth team footballers is unknown despite heavy investment in youth development.
### Summary of these findings

- Coaches know what the ideal players look like and can describe them in great detail (e.g., Holt & Dunn, 2004; Holt & Mitchell, 2006; Mills et al., 2012).
- Coaches have developed some practices in a bid to develop the ideal players through the social environment.
- Such practices are not often theoretically driven and may conflict with desired outcomes.
- Traditional notions of Power and Dominance (Davies, 1965; Parker, 2000; Roderick, 2006; Manley, Roderick & Parker, 2016)

### Table 1  Developmentally Appropriate Coaching Considerations

<table>
<thead>
<tr>
<th>Development</th>
<th>Mid-Childhood (6–11 years)</th>
<th>Early Adolescence (10–14 years)</th>
<th>Mid-Adolescence (15–17 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Help athletes gain confidence and experience with basic sport/motor skills</td>
<td>Help athletes gain perspective on pubertal/body changes (e.g., how they are necessary for physical development)</td>
<td>Encourage athletes to develop an increased understanding of their bodies (e.g., nutrition, physiology, mind/body connection)</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Use concrete examples; help athletes learn the differences between luck, skill, and effort; promote a sport environment that encourages and reinforces effort and fun; encourage athletes to try new challenges; help athletes problem-solve within sport</td>
<td>Help athletes evaluate their progress based on their own past performances rather than comparisons to others; encourage athletes to express their thoughts about competition and struggles with performing; help athletes focus on the task at hand rather than comparisons to others; help athletes regulate their thoughts during practice and competition</td>
<td>Use abstract or open-ended examples and questions (e.g., “what went well?”) to promote more advanced problem solving; help athletes learn ways to evaluate and respond to feedback (e.g., past performances, coach feedback); encourage athletes to develop personalized strategies (e.g., cue words, breathing patterns, routines) to manage thoughts before, during, and after competition</td>
</tr>
<tr>
<td>Emotional</td>
<td>Help athletes learn to cope with winning and losing; encourage athletes to focus on competing in the present moment rather than worrying about success or failure; teach athletes that mistakes are learning opportunities</td>
<td>Help athletes understand how sport situations, positive and negative, can produce strong emotions; encourage athletes to verbalize and learn how to manage their emotions using specific strategies in practice and competition</td>
<td>Encourage athletes to express their complex feelings and concerns related to competition (e.g., fear of facing a specific opponent or losing); Help athletes manage emotions by focusing on what’s within their control; be available for one-on-one conversations or group discussions to discuss specific strategies for coping with these emotions</td>
</tr>
<tr>
<td>Social</td>
<td>Help athletes learn to cooperate and positively interact with their teammates and opponents</td>
<td>Help athletes positively interact with and respect coaches and other adults (e.g., officials)</td>
<td>Help athletes learn how to approach and make fair decisions in sport situations (e.g., being honest to officials, opponents, and teammates)</td>
</tr>
</tbody>
</table>
Case study / Action Research

League 1, Cat 3

Acad

• Definition of the player
  – Mixture of 5C's / my own PhD research / Coach perspectives (8 Pillars).

• Design of a research informed curriculum to support FDP, YDP, and PDP and First team players, parents and staff.

• Quarterly Parent engagements

• Monthly / Quarterly player workshops

• Coach development workshops – down to session plans

• Self reflection and self evaluation a key focus

*Click to title*
Key Messages for effective B-P-S

Integrating Positive Development / Personal Development is challenging in elite youth football contexts.

There are some tools out there to support coaches / clubs.

Monitor the effectiveness of strategies.
References


Hellison, D .(2011). *Teaching Personal and Social Responsibility Through Sport*. Chamgaing IL; Human Kinetics

References


Practical Implications

• Complexity depends on Context (Participant to Performer)

• Player Performance affected by Stage of development (i.e., Physical / Cognitive Maturity)

• Performance ≠ Potential
Practical Implications

• Have flexibility within performance goals – understand the individual

• Variability exists within groups (i.e., adolescent development)

• Develop effective monitoring and evaluation tool to inform individual goals

1. Clear PPSTT Performance Model

2. PPSTT Individual Goals
Practical Implications

- Driven by Performance & Individual Goals
- Supported by appropriate workforce and resources
- Balance Planning & increase connections between PPSTT

1. Clear PPSTT Performance Model
2. PPSTT Individual Goals
3. Develop PPSTT Development Model
Practical Implications

- Holistic player evaluations and reviews (evidenced by monitoring tool)

- Re-consider performance model, individual goals and development model
Practical Implications

1. Clear PPSTT Performance Model
2. PPSTT Individual Goals
3. Develop PPSTT Development Model
4. Monitor, Evaluate & Review progress towards Goals

Realities of Participant & Performer Development

How do we know we’re right?

- Holistic player evaluations and reviews (evidenced by monitoring tool)
- Re-consider performance model, individual goals and development model
Thank You

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