The Influence of the Youth Sport Environment and Activities on Personal Development, Continued Participation, and Elite Performance

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Canada
1. Potential outcomes of youth sport
2. Environment of youth sport
   - The birthplace effect
   - Environment and potential outcomes of youth sport
3. Activities of youth sport
   - The deliberate practice framework
   - The developmental model of sport participation
   - Activities and potential outcomes of youth sport
4. Conclusion
Potential Outcomes of Youth Sport: 3 P’s

1. Performance:
   - Develop motor skills for future elite athletes and recreational adult sport participants.

2. Participation:
   - Improve physical health and continued participation.

3. Personal Development:
   - Contribute to positive youth development and developmental assets such as discipline, self-control, leadership, cooperation.

Côté & Fraser-Thomas, 2007
Objective

- Are there common building blocks of youth sport programs that promote Performance, continued Participation, and Personal development?
Context of Sport

Environment
The larger institutions

Coaches, Teachers

Children in sport

Parents, peers

Sport organizations, Sport systems City infrastructure…

Activities

Environment
Environment: The Birthplace Effect

- The city size where athletes gain their formative experiences may potentially have a significant influence on how athletes will first be exposed to sports, their Performance, Participation, and Personal development

(Côté, MacDonald, Baker, & Abernethy, 2006)
## Big Cities

1. Optimal facility resources (arenas, golf courses, fields).
2. Specialized coaching
3. Formal sport settings (practices, games).
4. Adult supervision required
5. Sport is played with individuals with similar ages, sizes, and abilities.
6. Push towards year-long participation in one sport.

## Smaller Cities

1. Facilities may not be optimal.
2. Casual coaching.
3. Formal and informal sport settings.
4. Not always required.
5. Variability in players’ ages, sizes, and abilities.
6. Seasonal sports more common
The Birthplace Effect

- Do a greater proportion of elite athletes come from urban or rural settings?
- Are there differences between sports and gender?
- Are there differences between countries who offer the same elite sport?
Methods

- Participants
  - Total: 4397 professional athletes
    - Hockey: 549 Canadian Males, 151 American Male
    - Baseball: 907 American Males
    - Basketball: 436 American Males
    - Golf: 197 Americans Males; 112 American Females
    - American Football: 1969 American Males
    - Soccer: 76 American Females

(Côté, MacDonald, Baker, & Abernethy, 2006; MacDonald, King, Côté & Abernethy, in press)
### U.S. Ice Hockey (n=151)

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A Birthplace Effect
Why?
Physical Environment of Smaller Cities

1. Sport facilities are convenient and accessible but not necessarily optimal.
2. Opportunities for deliberate play (i.e. pick up games).
3. Variability in players’ ages, sizes, and abilities.
4. Adult supervision not always required.
5. Seasonal sports more common instead of year-round training in one sport.
Psycho-social Environment of Smaller Cities: Features of Positive Developmental Settings
(U.S National Research Council, 2002)

1. Physical and psychological safety
2. Appropriate structure
3. Supportive relationships
4. Opportunities to belong
5. Positive social norms
6. Support for efficacy and mattering
7. Opportunities for skill building
8. Integration of family, school, and community efforts
Birthplace and Developmental Assets Study

- 196 swimmers
  - 115 from cities of population of over 500,000
  - 81 from cities of population of under 500,000
  - Developmental assets questionnaire

(Fraser-Thomas, 2006)
Birthplace and Developmental Assets Study

- 58-item questionnaire (Search Institute, 2004)
- Assesses adolescents’ developmental assets
  1. Support
  2. Empowerment
  3. Boundaries/Expectations
  4. Constructive Time Use
  5. Learning Commitment
  6. Positive Values
  7. Social Competencies
  8. Positive Identity
- Rate statements from rarely (0) to always (3)

(Fraser-Thomas, 2006)
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<th>Large Cities</th>
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*p < .05

(Fraser-Thomas, 2006)
Environment of Youth Sport that Lead to Performance, Participation, and Personal Development: 8 Setting Features

1. Physical and psychological safety
2. Appropriate structure
3. Supportive relationships
4. Opportunities to belong
5. Positive social norms
6. Support for efficacy and mattering
7. Opportunities for skill building
8. Integration of family, school, and community efforts
Developmental Activities

The larger institutions:

Coaches, Teachers

Children in sport

Parents, Peers

Sport organizations,
Sport systems
City sizes…
Developmental Activities

- The deliberate practice framework
  (Ericsson, 2003; Ericsson, Krampe, & Tesch-Römer, 1993)

- The developmental model of sport participation
  (Côté, 1999; Côté & Hay, 2002)
The Deliberate Practice Framework
Level of expertise attained is a direct result of the number of hours spent in deliberate practice.

Deliberate practice:

- Is the most relevant activity for improving performance.
- Is NOT the most enjoyable activity that one could engage in.
- Requires a high level of physical and mental effort.
- Requires optimal resources.

Promote early specialization in one sport for elite performance.

(Ericsson, 2003; Ericsson, Krampe, & Tesch-Römer, 1993)
Deliberate Practice in Sport

- Previous research on sport expertise has generally supported the deliberate practice framework (e.g., Starkes, et al., 1996; Hodges & Starkes, 1996; Hodge & Deakin, 1998; Helsen, et al., 1998; Helsen, et al., 2000)
What the Deliberate Practice Research on Athletes Does NOT Tell Us

- The cost associated with a high amount of deliberate practice at a young age.

- What type of activities and environment are necessary to achieve expertise in the early years.

- What other conditions support the development of continued participation in sport.
The Developmental Model of Sport Participation
Stages of Sport Participation

Based on in-depth interviews with athletes and their families, the following stages were developed (Côté, 1999; Côté & Hay, 2002; Côté, Baker, & Abernethy, 2003)

- **Sampling Years** (age 6 - 12)
- **Specializing Years** (age 13 - 15)
- **Investment Years** (age 16 and up)
- **Recreational Years** (age 13 and up)
I had different activities in my life at that time (referring to the ages 6 – 12). I was still playing squash and still playing footy and doing other stuff as well. I had no idea I would focus on basketball at that stage. Between 12 and 16… basketball was my main sport, I had cancelled out the other sports. But I wasn’t 100% focused on basketball at that time. I still had my school and other stuff but it was definitely my number one sport. Pretty much basketball was everything from 16 on. It was pretty much all that I was concentrating on. 

(Australian National Team Basketball)
Deliberate Play During the Sampling Years  
(Soberlak & Côté, 2003)

I would be at school all day and then want to hang out with my buddies. What were we going to do? We loved hockey, so why not hang out with your buddies and play at the same time. I never went out to play street hockey to polish my skills or whatever, we just played to play. We'd never go out and set pylons up and practice because we wanted to get better. We'd just go out and have fun. (Professional Ice Hockey Player)
Sampling Years
- High amount of deliberate play
- Low amount of deliberate practice
- Involvement in several sports

Investment Years
- High amount of deliberate practice
- Low amount of deliberate play
- Focus on one sport

Specializing Years
- Deliberate play and practice balanced
- Reduce Involvement in several sports

Recreational Years
- High amount of deliberate play
- Low amount of deliberate practice
- Involvement in several sports

Early specialization and investment
- High amount of deliberate practice
- Low amount of deliberate play
- Focus on one sport

Entry into sport
Assessing Pathways Towards Different Outcomes: Retrospective Structured Interview Procedure

- Structured interview procedure assessed developmental activities that may have facilitated continued participation and elite performance.
- Detailed tracing of the life histories of selected athletes.

(Côté, Ericsson, & Beamer, 2005)
Potential Outcomes of Youth Sport: 3 P’s

1. Performance:
   - Develop motor skills for future elite athletes and recreational adult sport participants.

2. Participation:
   - Improve physical health and continued participation.

3. Personal Development:
   - Contribute to positive youth development and developmental assets such as discipline, self-control, leadership, cooperation.

Côté & Fraser-Thomas, 2007
Sampling Years
- High amount of deliberate play
- Low amount of deliberate practice
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Investment Years
- High amount of deliberate practice
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- Focus on one sport

Specializing Years
- Deliberate play and practice balanced
- Reduce Involvement in several sports

Early specialization and investment
- High amount of deliberate practice
- Low amount of deliberate play
- Focus on one sport

Recreational Years
- High amount of deliberate play
- Low amount of deliberate practice
- Involvement in several sports

Entry into sport
- Ages 6 to 17
Team Sports Study
(Baker, Côté, & Abernethy, 2003)

- 15 expert team sport athletes
- 13 non-expert team sport athletes
Number of Activities by Age

- **non-experts**
- **experts**

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Activities</th>
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<td>15</td>
<td>7</td>
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<tr>
<td>16</td>
<td>6</td>
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<tr>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
</tr>
</tbody>
</table>
Hours of Sport-Specific Training

- **Expert**
- **Non-expert**

![Graph showing Hours of Sport-Specific Training over years of involvement](image-url)
Ice Hockey Study
(Soberlak & Côté, 2003)

- Four 20 year old NHL hockey players.
Number of Activities by Age

# of Activities

Age

6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Accumulated Hours by Age

- deliberate play
- other sports
- deliberate practice
Deliberate Practice Studies

- Deliberate practice studies show that sport specific training differences between elite and non-elite do NOT occur until approximately:
  - age 18 in wrestling (Hodges & Starkes, 1996),
  - age 13 in soccer (Helsen et al., 1998),
  - age 15 in field hockey (Helsen et al., 1998),
  - age 20 in triathlon (Baker et al., 2005).
What about gymnastics?
Rhythmic Gymnastics Study
(Law, Côté, & Ericsson, 2007)

- 6 Olympic Medallists (2nd in the world)
- 6 International Gymnasts (17th in the world)
Number of Activities by Age

- Olympic Medallist
- International Level

Age vs Number of Activities
Hours Spent in Training

- International
- Olympic

![Graph showing hours spent in training across different age stages.](image-url)
Fun

- Olympic gymnasts (M = 36%) reported significantly less fun than International gymnasts in their last year of participation (M = 63%).
Olympic gymnasts (M = 57%) rated their health significantly lower than International gymnasts throughout their career (M = 82%).
Sampling Years
High amount of deliberate play
Low amount of deliberate practice
Involvement in several sports

Investment Years
High amount of deliberate practice
Low amount of deliberate play
Focus on one sport

Specializing Years
Deliberate play and practice balanced
Reduce Involvement in several sports

Recreational Years
High amount of deliberate play
Low amount of deliberate practice

Entry into sport

Performance
Reduced fun
Reduced health

Early specialization
and investment

High amount of deliberate practice
Low amount of deliberate play
Focus on one sport
Potential Outcomes of Youth Sport: 3 P’s

1. Performance:
   - Develop motor skills for future elite athletes and recreational adult sport participants.

2. Participation:
   - Improve physical health and continued participation.

3. Personal Development:
   - Contribute to positive youth development and developmental assets such as discipline, self-control, leadership, cooperation.

Côté & Fraser-Thomas, 2007
Recreational Participation Study
(Robertson-Wilson, Baker, Derbyshire, & Côté, 2003)

- Examine the physical activity patterns of 9 active and 9 inactive female adults.
- Determine retrospectively the relationship between activity involvement during childhood, adolescence, and adulthood.
Physically Active vs Inactive Females

![Graph showing the comparison between physically active and inactive females in terms of the number of activities by age.](image)
Physically Active vs Inactive Females

Hours per Year

Age

Active
Inactive
Physically Active and Inactive Females

- No significant differences between active or inactive females for hours of involvement in music, club, or artistic activities throughout development.
Drop-Out Study
(Wall & Côté, 2007)

- 8 highly involved ice hockey players
- 4 drop-outs from high involvement in ice hockey
- Longitudinal data from age 6 to age 13
Drop-Out Study

- Drop out group started off-ice training at a significantly younger age (11.7) when compared to the engaged group (age 13.8).
- Drop out had significantly higher amount of involvement in off-ice training activities from age 6 to 13.

Wall & Côté, 2007
Engage and Drop-out Swimmers

- 25 engage competitive swimmers
- 25 competitive swimmers that recently dropped out
- Both groups were matched in terms of their swimming performances and demographic variables.

Fraser-Thomas & Côté, in press
Training and Activity Variables: Significant Differences Between Groups

<table>
<thead>
<tr>
<th></th>
<th>Dropout</th>
<th>Engaged</th>
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</thead>
<tbody>
<tr>
<td>Began Dry Land Training*</td>
<td>11.4</td>
<td>13.0</td>
</tr>
<tr>
<td>Had First Training Camp*</td>
<td>11.8</td>
<td>13.7</td>
</tr>
<tr>
<td>Unstructured Swimming Hrs/Yr *</td>
<td>32.2</td>
<td>86.0</td>
</tr>
<tr>
<td>Number of Activities / Year*</td>
<td>4.2</td>
<td>5.5</td>
</tr>
</tbody>
</table>

*p < .05
Early specialization leads to more youth sport dropout/burnout (Carlson, 1988; Gould, Tuffey, Udry, & Loehr, 1996).
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- Low amount of deliberate practice
- Involvement in several sports

Investment Years
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- Low amount of deliberate play
- Focus on one sport

Specializing Years
- Deliberate play and practice balanced
- Reduce Involvement in several sports

Recreational Years
- High amount of deliberate play
- Low amount of deliberate practice

Early specialization and investment
- High amount of deliberate practice
- Low amount of deliberate play
- Focus on one sport

Dropout
- Performance
- Reduced fun
- Reduced health
- Dropout

Entry into sport
Potential Outcomes of Youth Sport: 3 P’s

1. Participation:
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Côté & Fraser-Thomas, 2007
Swimmers Study
Fraser-Thomas, Côté, & Deakin, 2006

- Do the developmental assets of adolescent competitive swimming dropouts differ from those of their engaged peers?
Participants

- 107 engaged athletes (show pattern of early sampling)
- 89 dropouts (show pattern of early specialization)
  - Withdrawal before the end of high school
  - Withdrawal within last two years
- Minimum 10 hours/week training
- Age 12-19
Developmental Assets Profile

- 58-item questionnaire (Search Institute, 2004)
- Assesses adolescents’ developmental assets
  1. Support
  2. Empowerment
  3. Boundaries/Expectations
  4. Constructive Time Use
  5. Learning Commitment
  6. Positive Values
  7. Social Competencies
  8. Positive Identity

- Rate statements from rarely (0) to always (3)
## Results

<table>
<thead>
<tr>
<th></th>
<th>Dropout</th>
<th>Engaged</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>22.5 (4.2)</td>
<td>25.1 (4.1)</td>
<td>.000*</td>
</tr>
<tr>
<td>Empowerment</td>
<td>24.0 (3.9)</td>
<td>25.3 (3.8)</td>
<td>.023*</td>
</tr>
<tr>
<td>Boundaries/Expectations</td>
<td>23.2 (3.9)</td>
<td>24.7 (4.3)</td>
<td>.011*</td>
</tr>
<tr>
<td>Constructive Time Use</td>
<td>18.3 (6.1)</td>
<td>19.8 (5.2)</td>
<td>.075</td>
</tr>
<tr>
<td>Learning Commitment</td>
<td>23.1 (4.7)</td>
<td>23.6 (4.7)</td>
<td>.482</td>
</tr>
<tr>
<td>Positive Values</td>
<td>21.7 (4.1)</td>
<td>22.7 (3.8)</td>
<td>.087</td>
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<tr>
<td>Social Competencies</td>
<td>22.9 (3.7)</td>
<td>24.1 (3.8)</td>
<td>.024*</td>
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<tr>
<td>Positive Identity</td>
<td>20.9 (5.3)</td>
<td>22.9 (4.4)</td>
<td>.003*</td>
</tr>
</tbody>
</table>

* significant at $p < .05$
Leadership Development Study (Wright & Côté, 2003)

- Six leader-athletes with high academic achievement.
- In-depth qualitative interviews to explore developmental activities and the role that peers, coaches, and parents played within these activities.
Features that Maximize Leadership, Academic Achievement, and Participation in Sport

1. Opportunities to experiment with various sports and make an independent decision about participation.
2. Exposure to fun, non-threatening, but challenging sporting environments.
3. Mature and supportive rapport with adults (parents, coaches) and older peers.
4. Opportunities for building skills and tactical knowledge.
5. Opportunities to be exposed to values of work ethics.
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- Low amount of deliberate practice
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- High amount of deliberate practice
- Low amount of deliberate play
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Entry into sport
- 17
- 16
- 15
- 14
- 13
- 12
- 11
- 10
- 9
- 8
- 7
- 6
Conclusion
Sampling Years
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8 features of positive development settings
Environment and Activities of Youth Sport

- Environment centered on children’s needs instead of performance outcomes (i.e. 8 setting features of the US National Research Council, 2002).
- Encourage and support multi-sports involvement.
- Avoid year-round training in one sport.
Focus on intrinsically motivating behaviors (deliberate play) instead of externally controlled activities (deliberate practice).

Adults act as “resource people” who can restructure the play and practice environment (avoid imposing a rigid structure).

Advocate the use of “game sense teaching” (Bunker & Thorpe, 1985).
Thank You