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## **Title**

Review of Junior Sport Framework – Draft Briefing Paper: Opportunities and Pathways from Beginners to Elite to Ensure Optimum and Lifelong Involvement

## **Declaration**

This draft briefing paper has been prepared in accordance with UniQuest's Quality Management System, which is compliant with AS/NZS ISO 9000:2000.

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# Junior Sport Framework

## Opportunities and Pathways from Beginners to Elite to Ensure Optimum and Lifelong Involvement

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### 1. WHAT WE KNOW

The concept of pathways to ensure optimal development in sport is based on the assumption that different learning and motivational demands are important at different ages and levels of involvement (e.g. recreational or competitive) of sport participants. This article focuses on the activities that are likely to change throughout development as a participant moves through different pathways of sport involvement.

The application of an early specialization approach may be effective for the development of talent in sports with a large base of participants (such as soccer in England, baseball and basketball in the United States, or ice hockey in Canada); however, it excludes a large number of children from opportunities for developing into elite level athletes and reduces the pool of potential elite athletes from an early age (Fraser-Thomas & Côté, 2009).

### 2. WHAT WORKS

It is well supported that reaching a high level of performance in sport cannot be achieved without an investment of several years in specific training activities and specialization in one sport. It is also well known, however, that intense training activities and specialization during childhood lead to more dropout, burnout, and injuries. The evidence shows that long-term involvement in sport at a recreational or competitive level is based on an introduction to sport during childhood that includes participation in different sporting activities and involvement in youth-led play activities (e.g., deliberate play). The motivational and learning qualities of child-led activities, such as deliberate play, in a sampling environment (instead of early specialization) offer unique contributions to a child's long-term involvement in sport. The interdependent nature of different types of play and practice activities in children's sport results in a complex learning environment that ultimately promotes long-term development and commitment to sport.

### **3. WHAT DOESN'T WORK**

There are serious limitations to an approach to long-term development in sport that is based on early selection of talent, early specialization, short-term success, and only adult-driven activities during childhood. Nevertheless, a lack of specialization and gradual investment in intense training during adolescence will limit someone's capacity to attain a high level of performance in sport.

### **4. WHAT WE DON'T KNOW**

Although we have a good understanding of the type of activities that are most appropriate to emphasize at different stages of a participant's involvement in sport, we have limited knowledge of the mechanisms that these activities have on learning and motivation. Most of the knowledge on development in sport has been accumulated through retrospective and cross-sectional studies; there is a need for longitudinal studies. We have little understanding of the interactive nature of all the variables (e.g. personal, social, environmental) that connect throughout development to optimize performance and participation in sport. The changing role of social agents (e.g. parents, coaches, peers) at different stages of a participants' involvement in sport are not well understood. Finally, the transfer of skills from one sport to another has been supported anecdotally, but the processes that need to be put in place to facilitate transfer are not yet known.

## 5. INTRODUCTION

A number of athlete development models that integrate the concepts of personal development, psychosocial transitions, practice/play and early specialization/sampling have been proposed to highlight key phases in the development of young athletes in sport (Bruner, Erickson, McFadden, & Côté, 2009; Bruner, Erickson, Wilson, & Côté, 2010). The identification of developmental pathways and critical periods of transitions are vital to gaining an understanding of the issues that are pertinent to children and youth as they move through their sport experience.

The purpose of this paper is to first review five different research-based models that account for the different pathways available to youth in sport. Second, a sixth model, termed the Developmental Model of Sport Participation, will be described in more detail, which serves as an example of a framework that considers the multi-dimensional nature of development and all phases of maturation for children and youth in sport. An integration of this literature will then be discussed in terms of applied models. Finally, seven guiding principles stated in terms of postulates will be presented as features of various stages of participation in youth sport.

## 6. MODELS OF DEVELOPMENT IN SPORT

One of the earliest models of expertise development emerged from Bloom's (1985) examination of experts and their families in different domains of achievement including sport. Bloom inferred a general pattern of expert development from childhood to adulthood, which became the foundation of sport specific developmental pathways. Bloom proposed three stages of development towards expertise: (1) the initiation, (2) the development, and (3) the perfection stages. When applied to sport, this pattern of involvement suggests that athletes must negotiate a series of challenges and demands at different stages of participation in sport in order to successfully transition to and achieve a high-level of performance.

Salmela (1994), Stambulova (1994), and Wylleman and Lavallee (2004) built upon the work of Bloom (1985) to provide sport specific models that conceptualized the pathway to athletic excellence. Salmela (1994) and Wylleman and Lavallee (2004) identified normative transitions, which occur between the stages of initiation, development, perfection, and discontinuation. The model put forth by Stambulova (1994) suggests that an athletic career is characterized by five stages: (1) the preparatory stage, (2) the beginning of specialization, (3) intensive training in chosen sport, (4) the culmination stage, and (5) the final stage, followed by discontinuation. While all three models were designed to characterize the different stages of athlete development, Stambulova's (1994) and Wylleman and Lavallee's (2004) models were constructed to depict key transitions in an athlete's career. Furthermore, Wylleman and Lavallee's (2004) developmental model integrated athlete development with three other levels of development: (1) psychological, (2) psychosocial, and (3) academic-vocational.

Along the same line, Abbott and Collins (2004) suggested a developmental model that places supplemental emphasis on understanding the influence of psychosocial behaviours in facilitating successful transitions along the pathway to elite performance. This model highlights the progression from initial involvement to expert performer through four stages (sampling, specializing, investment, and maintenance), and focuses on the development and application of mental skills, such as goal setting, imagery, planning and organization, and performance evaluation and attribution.

Côté, Murphy-Mills, and Abernethy (2012) recently suggested that although these five models provide a wealth of insightful information regarding athlete development, they also have limitations that restrict their application. First, these five models provide few guidelines that can be used to enhance our understanding of athlete development. For instance, although many of the models suggest that athlete development is a pathway comprised of several stages, there

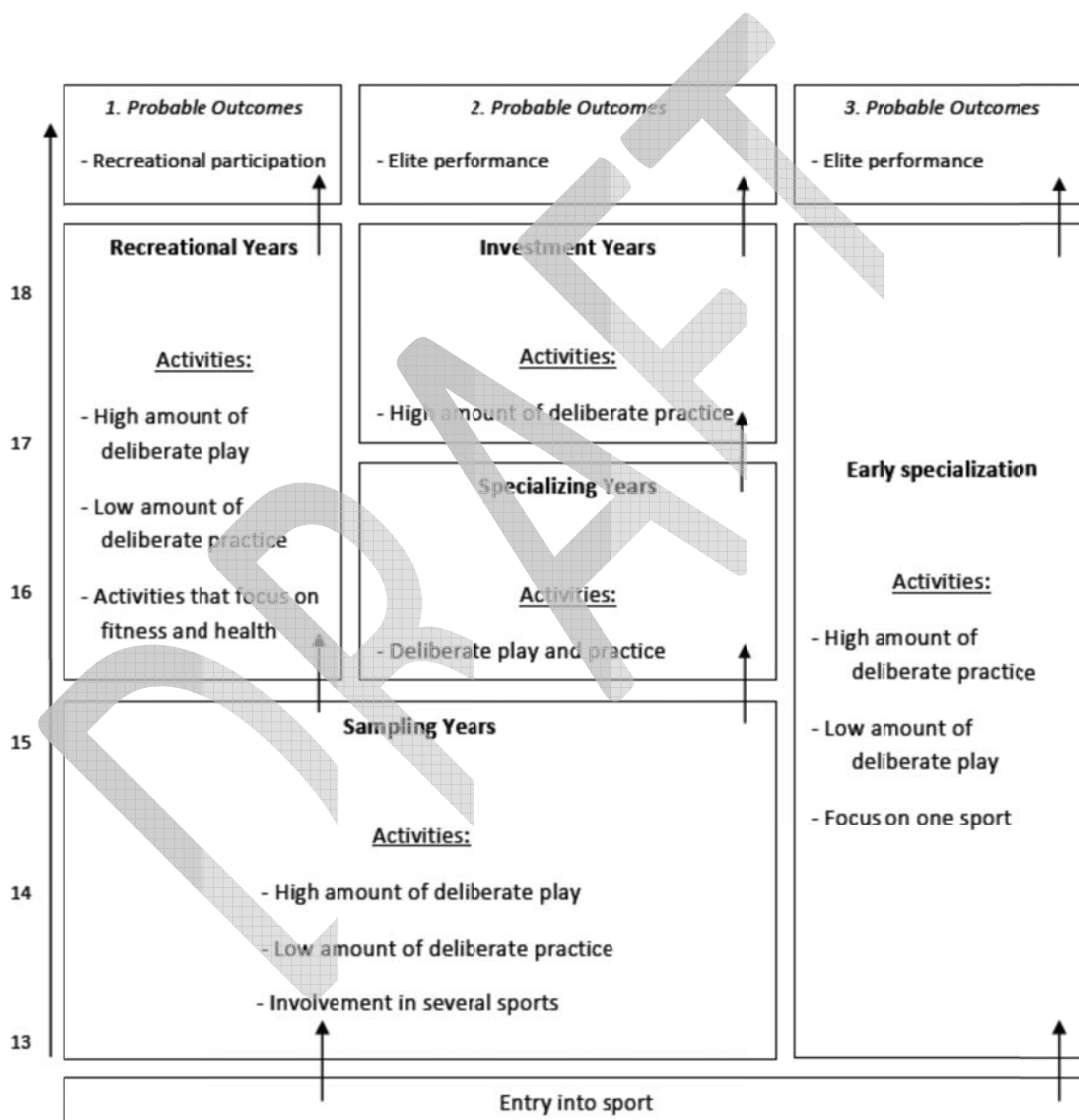
is a lack of information relating to the activities that characterize each of these stages. Second, several of the models encompass variables that are difficult to test empirically. Abbott and Collins (2004), for example, contend that athlete development is shaped by the development and application of critical behaviours and mental skills. However, it is unclear how the development of these behaviours and skills can be effectively assessed and implemented. Third, these models are comprised of qualitative stages that are difficult to define objectively. For instance, while Stambulova (1994) suggests that athletic careers are characterized by five stages, it is unclear what indicators could be employed to track athletes' transitions between these stages. As a result, the applicability of these models for sport policy is limited and offers limited guidelines for the design of youth sport programs.

One framework that has attempted to address the limitations of existing athletes' development models is the Developmental Model of Sport Participation (DMSP; Côté, 1999; Côté, Baker, & Abernethy, 2007). Recent citation analysis studies (Bruner et al., 2009; Bruner et al., 2010) have found the DMSP to be the most prominent conceptualization of athletes' development within the sport literature. It is a conceptual framework that integrates the developing person in its environment with objective processes and outcomes.



## 7. THE DEVELOPMENT MODEL OF SPORT PARTICIPATION

As illustrated in Figure 1, the DMSP has three sport participation trajectories: (1) recreational participation through early sampling and deliberate play, (2) elite performance through early sampling and deliberate play, and (3) elite performance through early specialization and deliberate practice. The different stages within and between a trajectory are based on changes in the amount of involvement in different sports (specialization vs. sampling) and the type of activity that dominate a specific sport (deliberate play vs. deliberate practice).



**Figure 1. The Developmental Model of Sport Participation.**

Adapted from "Practice and play in the development of sport expertise," by J. Côté, J. Baker and B. Abernethy, 2007, In R. Eklund & G. Tenenbaum (Eds.), *Handbook of sport psychology*, (3<sup>rd</sup> edition, pp. 184-202). Hoboken, NJ: Wiley. Copyright 2007 by Wiley.

## 7.1 Sampling

The underpinning principle of sampling different sport programs during childhood is to provide equipment, space, playing and training opportunities for a large number of children across various sports as a mechanism to select the best athletes from among a large pool of motivated adolescents (Côté, Lidor, & Hackfort, 2009). The most important aspects for providing a sampling environment during childhood sport is to attract children to sport and motivate them to stay involved so that they can intentionally chose a recreational or elite pathway at approximately age 13 (Côté et al.). This approach to talent development in sport is consistent with a developmental perspective that considers talent as an entity that is inherently multi-dimensional, difficult to assess during childhood, and requires input from various levels of personal and social variables over a long period of time for its realization.

## 7.2 Specialising

An early specialization approach to talent development is based on the assumption that earlier and increased training during childhood will provide a performance advantage to children by allowing them to be chosen for “select” teams and will eventually increase their chances to climb to the top in adult sports. Although organized youth sport has the potential to promote performance in young people’s development, it is also an important activity to enhance youth health and personal development (Côté & Fraser-Thomas, 2007). An early specialization approach to talent development mainly focuses on the short-term performance outcomes of a selected number of youth. Considering the unreliable nature of predicting talent from performance measures in youth sport (Régner, Salmela, & Russell, 1993), it is important that youth-sport programs focus also on the health and personal development of all youth in sport. The application of an early specialization approach may be effective for the development of talent in sports with a large base of participants (such as soccer in England, baseball and basketball in the United States, or ice hockey in Canada); however, it excludes a large number of children from opportunities for developing into elite level athletes and reduces the pool of potential elite athletes from an early age (Fraser-Thomas & Côté, 2009). Early specialization sport programs largely downplay the psychosocial (i.e., dropout, burnout, and lack of enjoyment) and physical (i.e., injuries) costs associated with an increased amount of training during childhood.

### 7.3 Deliberate Play

In recognizing that athletes tend to first experience sport through fun and playful games, Côté (1999) suggested the term “deliberate play” to characterize this form of sporting activity. It involves early developmental physical activities that are intrinsically motivating, provide immediate gratification, and are specifically designed to maximize enjoyment. Deliberate play activities, such as playing basketball in a driveway with peers, are regulated by rules adapted from standardized sport rules. These activities are set up and monitored by the children, or by an adult involved in the activity. Furthermore, it is a form of physical activity that differs from:

- (a) the physical play activities of infancy and early childhood (Pellegrini & Smith, 1998);
- (b) the specific pedagogical games/play designed to improve performance (Griffin & Butler, 2005; Launder, 2001);
- (c) the “structured practice” activities typical of organized sport; and
- (d) deliberate practice activities (Ericsson, Krampe, & Tesch-Römer, 1993).

### 7.4 Deliberate Practice

In a comprehensive review of studies of learning and skill acquisition, Ericsson and colleagues (1993) concluded that the most effective learning occurs through involvement in a highly structured activity defined as deliberate practice. According to Ericsson et al. (1993), engagement in deliberate practice requires effort, generates no immediate rewards, and is motivated by the goal of improving performance rather than its inherent enjoyment. Ericsson et al. demonstrated that expert performance in music was the product of extensive deliberate practice, rather than being the result of innate ability. They suggested that to achieve expert performance, deliberate practice has to be sustained over a period of at least 10 years.

The different stages within a trajectory of the DMSP are based on changes in the type and amount of involvement in sport, deliberate play, and deliberate practice. Two of these trajectories, recreational participation and elite performance through early sampling, have the same foundation from ages 6 to 12. After the sampling years, young athletes can either choose to stay involved in sport at a recreational level (recreational years, age 13+), or embark on a pathway that focuses primarily on performance (specializing years, age 13-15; investment years, age 16+). These two trajectories have different outcomes in terms of

performance, but are likely to lead to similar psychosocial and physical health benefits. A third possible trajectory consists of elite performance through early specialization. Although this trajectory leads to elite performance, it has also been shown to result in a reduction in both physical health (i.e., overuse injuries) and enjoyment (Law, Côté, & Ericsson, 2007).

The trajectories of sport participants that have achieved different outcomes will be reviewed next. The outcomes that will be reviewed include: (1) elite performance, (2) dropout, (3) recreational participation, and (4) personal development. Please consult the following book chapters for an extensive discussion of the studies that support the outcomes associated with a specific pathway of development in sport (Côté & Abernethy, 2012; Côté, Erickson, & Abernethy, in press; Côté, Murphy-Mills, & Abernethy, 2012).

## 7.5 Elite Performance

Two distinct pathways have been shown to lead to elite performance: (1) elite performance through early sampling, and (2) elite performance through early specialization.

**Elite performance through early sampling.** During the sampling years (age 6-12), athletes participate in a variety of sports and are involved in a high amount of deliberate play activities. The DMSP suggests that specialization begins around age 13, after the sampling years. The specializing years (age 13-15) are seen as a transitional stage to the investment years (age 16+). During the specializing years, youth engage in fewer activities (which include both deliberate play and deliberate practice), while during the investment years, youth commit to only one activity, and engage primarily in deliberate practice. Furthermore, athletes who follow this trajectory tend to experience positive physical and psychosocial outcomes (e.g., physical health and sport enjoyment).

**Elite performance through early specialization.** In sports where peak performance is often achieved before or during puberty (e.g., female gymnastics), early specialization is often necessary to reach elite performance. Although some studies of sport in these very specific contexts support an early specialization pathway as a suitable trajectory towards elite performance, there are physical (e.g., injuries) and psychosocial (e.g., burnout) costs associated with early specialization.

## **7.6 Dropout**

While the positive relationship between training and elite performance is consistent in sport research, training studies of dropout athletes indicate a strong relationship between indicators of early specialization (e.g., starting age of competition and training intensity) and dropout. It is clear that dropout rates of children's sport programs that focus on high amounts of deliberate practice and early selection of talented athletes are higher than children's sport programs that focus on deliberate play and sampling.

## **7.7 Recreational Participation**

The recreational years (age 13+) are usually seen as an extension of the sampling years, with the primary goals being enjoyment and health. Activities during the recreational years can involve deliberate play and deliberate practice, with sport programs being flexible enough to adapt to individual interests and ages. The physical and psychosocial benefits of recreational participation in sport, such as enhanced health, personal development, and increased enjoyment are the primary objectives of the recreational years.

## **7.8 Personal Development**

There is a growing body of literature in positive youth development that recognizes the importance of sports as pro-social activities that can contribute to youth's positive life trajectories and civil societies. Youth sport programs provide a platform for positive youth development, and if structured appropriately, they can have direct positive effects on youth's present and future development and productivity. Overall, the underlying assumption of the DMSP regarding the important role of adults, deliberate play, and early sampling are important building blocks of young athletes' physical, cognitive, and emotional development.

## 8. INTEGRATION OF THE LITERATURE AND APPLIED MODELS

The research on athletes' development has led some authors to integrate this literature and propose models that are useful to policy makers for the design of large-scale talent development programs. Two examples of these models are Balyi's Long-Term-Athlete-Development model and Gulbin and colleagues' FTEM framework and its associated 3D-AD conceptual model of expertise development. For instance, the FTEM and 3D-AD integrate the interplay of the athlete and the environment and include a vast array of variables that are known to impact talent development in sport. The FTEM framework also integrates three different outcomes of sport – active lifestyle, sport participation, and sport excellence. In addition, the FTEM framework suggests flexible and adaptable guidelines that permit possible movement between trajectories highlighting talent transfer as an important mechanism of talent development programs. The strength of the FTEM and other applied models of athlete development in sport is that they emerged from large-scale talent development initiatives such as the Australian Institute of Sport. The limitations of such models, however, are their capacity to generate hypotheses about talent development that could be tested in well-designed studies.

## 9. CONCLUSION

The models of athlete development reviewed in this paper highlight that the achievement of expertise in sport is not the result of a particular physical, psychological, or sociological factor – rather, it is the long-term integration of various factors that leads to expertise development. This paper provides a description of different trajectories, activities, and outcomes that result from sport and presents the DMSP as an example of a developmental model that has testable tenets and postulates. More practical models of long-term athlete development such as the FTEM also underscore important elements of talent development, such as the concept of transfer, that are important to consider by stakeholders and developers of talent development programs. Accordingly, before embarking in a specific type of activity and training, athletes, parents, and coaches should weigh the potential health, psychological, sociological, and motor benefits and risks associated with a specific pathway of talent development in sport.

## 10. ADVICE TO ASC

Following the analysis of the relationships between different sport outcomes and developmental pathways in sport, Côté and colleagues (2009) formulated a series of seven postulates associated with the different pathways and outcomes of the DMSP. These postulates highlight the efficiency of sport programs to develop adult elite performance, continued participation, and personal development based on early sampling (postulates 1, 2, and 3), deliberate play (postulates 4 and 5), and key transitions throughout development (postulates 6 and 7). The DMSP and its postulates integrate the various outcomes of sport - performance, participation, and personal development - by focusing on key proximal processes (deliberate play, deliberate practice, and early sampling) and the environment in which the processes are occurring (role of coaches, peers, and parents).

**Postulate 1:** Early diversification (sampling) does not hinder elite sport participation in sports where peak performance is reached after maturation.

**Postulate 2:** Early diversification (sampling) is linked to a longer sport career and has positive implications for long-term sport involvement.

**Postulate 3:** Early diversification (sampling) allows participation in a range of contexts that most favourably affects positive youth development.

**Postulate 4:** High amounts of deliberate play during the sampling years build a solid foundation of intrinsic motivation through involvement in activities that are enjoyable and promote intrinsic regulation.

**Postulate 5:** A high amount of deliberate play during the sampling years establishes a range of motor and cognitive experiences that children can ultimately bring to their principal sport of interest.

**Postulate 6:** Around the end of primary school (about age 13), children should have the opportunity to choose to either specialize in their favorite sport or continue in sport at a recreational level.

**Postulate 7:** Late adolescents (around age 16) have developed the physical, cognitive, social, emotional, and motor skills needed to invest their effort into highly specialized training in one sport.

Postulates 1, 2, and 3 of the DMSP state the benefits of early sampling as it relates to performance, participation, and personal development in sport, while postulate 4 and 5 suggest that deliberate play activities in children's sport are important for sustaining enjoyment and motivation and developing highly skilled and creative athletes. The evidence is clear that all future expert athletes must adopt a program of training after adolescence that is sport-



specific and based on the principle of deliberate practice (Postulates 6 and 7). Nevertheless, coaches and parents should consider the consequences of high levels of sport-specific training during childhood as these experiences may have a profound influence on subsequent involvement in sport and consequently restrict the available pool of talent available.

DRAFT

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