

No pain no gain: The consequences of early specialization on young athletes

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A large number of today's professional athletes have engaged in early specialization with the main purpose of achieving success in their sport careers. This article defines early specialization and reviews the physical, psychological and social consequences of such a path for young athletes. Finally, it exposes some limitations of the current studies on this matter and offers some suggestions for future research and for the improvement of children's sports development

Early specialization, sampling, consequences, sports, deliberate practice, deliberate play, elite performance

Introduction

It is the concern of many athletes to reach elite levels of performance in some kind of sport. In order to do so, they can go through one of two different trajectories, according to the Developmental Model of Sports Participation (see Table 1; Côté, Horton, MacDonald & Wilkes, 2009): (1) they can go through some sampling years (where they can try many sports and the focus is on deliberate play), then some specializing years (where practice and play is balanced) and finally they can invest in only one sport, (2) or they can invest from the very beginning in one sport, focusing on deliberate practice. Aside from elite performance, these two paths can lead to very different outcomes, in terms of the mental and physical health as well as the social life of the athletes. These outcomes may not always be positive and therefore this is a topic that should be researched more – the health of athletes should be, but not always is, a priority of the coaches and also the parents, leading to bad consequences that could otherwise be avoided. In this article, I intend to approach the early specialization path, included in the model previously mentioned, and its consequences to the athletes, concluding with some alternatives and suggestions to protect their health.

<p><i>1. Probable outcomes</i></p> <ul style="list-style-type: none"> • Recreational participation • Enhanced physical health • Enhanced psychosocial dev. 	<p><i>2. Probable outcomes</i></p> <ul style="list-style-type: none"> • Elite performance • Enhanced physical health • Enhanced enjoyment of the sport 	<p><i>3. Probable outcomes</i></p> <ul style="list-style-type: none"> • Elite performance • Reduced physical health • Reduced enjoyment
<p>Recreational years</p> <p><i>Activities</i></p> <ul style="list-style-type: none"> • High amount of deliberate play • Low amount of deliberate practice • Activities that focus on fitness and health 	<p>Investment years</p> <p><i>Activities</i></p> <ul style="list-style-type: none"> • High amount of deliberate play • Low amount of deliberate practice • Focus on one sport 	<p>Early specialization</p> <p><i>Activities</i></p> <ul style="list-style-type: none"> • High amount of deliberate practice • Low amount of deliberate play • Focus on one sport
	<p>Specializing years</p> <p><i>Activities</i></p> <ul style="list-style-type: none"> • Deliberate play and practice balanced • Reduced involvement in several sports 	
<p><i>1. Recreational participation through sampling</i></p>	<p>Sampling years</p> <p><i>Activities</i></p> <ul style="list-style-type: none"> • High amount of deliberate play • Low amount of deliberate practice • Involvement in several sports <p><i>2. Elite performance through sampling</i></p>	<p><i>3. Elite performance through early specialization</i></p>
<p>Entry into sport</p>		

Table 1. Developmental Model of Sports Participation (Côté, Horton, MacDonald & Wilkes, 2009)

What is early specialization?

Specialization is defined by Jayanthi, Pinkham, Dugas, Patrick and Labella (2012) as “intense, year-round training in a single sport with the exclusion of other sports”. Therefore,

the path of early specialization is characterized by, first and foremost, focus on only one sport, such that, from a young age, the child only learns and plays one kind of sport. This learning process involves a high amount of deliberate practice and a low amount of deliberate play. Deliberate practice consists of practice activities that the individual engages in to improve their skills (Ericsson, 1993). They require effort and they are not inherently enjoyable, for the motivation comes from the knowledge that there will be an improvement in the performance. On the other hand, deliberate play is defined by Côté and colleagues (2009) as “activities in which children participate because they are inherently enjoyable but could nonetheless contribute to the development of expertise”, such as playing football on the school ground. Baker, Cobley and Fraser-Thomas (2009) add other factors as relevant for early specialization, mainly early start age in sport (between 6 and 12 years old) and early involvement in competitive sport. In fact, supporters of the early specialization path agree that athletes in training should begin to specialize as early as possible, “because the earlier one starts adhering to a strict training regime, the quicker one will attain their desired level of skill” (Baker, Cobley and Fraser-Thomas, 2009). Additionally, it is argued that some skills and movements can only be mastered before the body physiologically matures (e.g. ballet dancers’ ability to turn out their feet is best developed through practice overload between the ages of 8 and 10 years old due to calcification of the bones; Ericsson, 2003) and it is necessary to practice for 10 years or 10 000 hours in order to reach expert performance (Ericsson, 1993), which increases the urgency for an early start in the specialization of a certain sport.

Research shows that both coaches and parents believe that there is a need for early specialization in order to reach elite performance (Malina, 2010). This is in line with Wiersma’s (2000) account of preliminary evidence that shows that those that commit earlier attain significantly better performance levels than those who commit later. Additionally, the author states that there has been a significant increase in athletes who engage in early specialization, despite the negative consequences that have been found to be associated with this path, leading many sports federations to advocate the eradication of this practice. In line with this, other findings show that performance at a certain age in childhood does not predict performance at a later age (Hedstrom & Gould, 2004).

Consequences of Early Specialization

Early specialization has been linked to many consequences at a physical, psychological, and social level. At a physical level, specialization is mostly associated with overuse injuries – these result from repeated microtrauma in a tendon, muscle, or bone associated with chronic repetition of specific sport activities (Malina, 2010). It has also been found that cumulative match (or competition) exposure also increases the risk of medical withdrawals. Still, the risk of injury needs to consider the age, competitive level, growth rate and pubertal maturation stage of the athletes (Jayanthi, Pinkham, Dugas, Patrick & Labella, 2012). Furthermore, it has been proposed that early specialization may affect the growth and maturation of the young athletes, especially in gymnastics and ballet, but the evidence is equivocal at best, given that later maturation may be due to the specialization or to the fact that people which will suffer late maturation are more common on those sports (Baker, Cobley & Fraser-Thomas, 2009). Law, Côté and Ericsson (2007) also report a link between early specialization and self-reported overall reduced health, based on a longitudinal study with Olympic-level and international-level rhythmic gymnasts. Motor skill development can also be impaired, according to Wiersma (2000), because the athletes develop a very specific set of skills which inhibits them from participating in alternate activities upon their retirement and compromises their long-term health. Finally, Malina (2010) refers that dietary manipulation is a serious issue in some sports, especially those who value the aesthetic of it, such as gymnastics and ballet. He stated that athletes, spontaneously or encouraged by their coaches, but always because of the pressure to have a certain type of body, may impose dietary restrictions on themselves eventually leading to eating disorders.

At a psychological level, specialization seems to have intense effects on the self-esteem and self-perception of children due to the excessive volume, repetition, and pressure that so frequently accompany specialized training (Wiersma, 2000). As such, the pressure makes them feel like failures when they do not meet their own or their parents' or coaches' expectations, leading to decreased enjoyment of the sport, disappointment in themselves, perceptions of poor abilities and vulnerability in front of team-mates. All this can make them drop out of the sport in extreme cases (Baker, Cobley & Fraser-Thomas, 2009). Other times, this intense pressure increases anxiety associated with the sport to unbearable levels, leading to burnout (Wiersma, 2000). Many times, the pressure is placed by parents, who may

experience a “reverse-dependency trap” which means their own self-worth is dependent on the child’s success. This creates unrealistic expectations on the child who experiences, thus, elevated competitive anxiety, decreased enjoyment, low enthusiasm and self-determination, and guilt about costs of participation (Wiersma, 2000). Côté and colleagues (2009) also mention that early specializers may have fewer opportunities to develop life skills, prosocial behavior, and a healthy identity. According to the authors, life skills (intrapersonal and interpersonal skills) are learnt in sport programs such that those who only attend one sport program don’t develop those skills that much. Prosocial behavior is also learnt in social environments in which children are exposed to multiple sets of norms, but participating in only one activity leads them to learn only one set of norms. Finally, they argue that early specialization may promote the development of a foreclosure identity, which results from poor exploration of roles and accepting the roles imposed by others, such that participation in only one sport limits the exploration of other sports and possibilities for the child.

Finally, there is the social sphere. The high number of hours of training may lead the athlete to isolate themselves from their peers, creating fewer social relationships, and hindering their social growth as well as making them miss social opportunities. Moreover, it can also make the athletes less able to combat competitive stress through social support, enjoy the sport less, and be more attracted to other activities which allow interaction with friends. It is also possible that the athletes will define their self-concept on the values, beliefs and attitudes of their team, which creates a restricted identity that is detrimental to them if they ever need to leave the team (Wiersma, 2000). This is related to another consequence mentioned by Malina (2010), mainly overdependence that may result from over-regulation of the athletes’ life by their parents or coaches. Furthermore, Baker and colleagues (2009) refer that early specializers also have reported rivalry, a sacrificed lifestyle and lack of free time as consequences of their sports development path.

Limitations and Recommendations

From this review, we could almost conclude that early specialization has no positive consequences, not even in relation to performance achievement, given that evidence is contradictory in this matter. However, many negative consequences in the physical, psychological and social level have been found, as I have mentioned. But is specialization as

bad as it seems to be to athletes?

This is very hard to believe, especially if you consider that athletes have been found to be characterized by the ability to cope with and control anxiety, self-confidence, resiliency, sport intelligence, the ability to focus and block out distractions, competitiveness, hard work ethic, the ability to set and achieve goals, coachability, optimism and adaptive perfectionism (Hedstrom & Gould, 2004). As such, it seems there's a lack of research on more positive consequences of early specialization that are not related to the performance itself like the development of the previously mentioned skills. Research on the risk factors associated with a bigger tendency to suffer with this path are also lacking, as well as on protective factors that shield the athletes from these consequences, such as social support. A starting point would be to understand the role of coaches and parents in this process better, especially how they can help the athletes go through all those years of training in a healthy way. Research shows that these figures and also the community, the sport environment personnel and the sport process can be very important in shaping the psychological development of athletes (Hedstrom & Gould, 2004).

A number of other limitations of studies that deal with the consequences of early specialization can also be mentioned. For example, there is a lack of longitudinal studies that allow the establishment of the direction of the relations found between this path and the consequences mentioned. It should also be mentioned that most of those studies were done in the 70's and 80's so there is now a need to update them (Baker et al., 2009).

This is to say that specialization should not be discarded, only that it should be discussed how early it should start and if it really is necessary to exclude the practice of other sports especially in the beginning of children's sports development path. Côté and colleagues (2009) suggest that some negative consequences of early specialization could be avoided if it is started later on, giving the children some years to sample many sports and engage in deliberate play. According to them, "children who are afforded the chance to participate in multiple activities will be less likely to drop out and will also gain the psychosocial benefits associated with sampling". Jayanthi and colleagues (2013) agree with this affirmation, stating that, although specialization is necessary to reach elite performance, it should be delayed until late adolescence to optimise success and minimise the risk of injury and psychological stress. Baker and colleagues (2009) add that early diversification is most beneficial at the beginning

of children's involvement in sports because performance improves as general capabilities also improve. When they are attained, the training becomes more specific and so deliberate practice becomes more appropriate. It is also important to provide parents and coaches with information about the advantages and disadvantages of this path alongside with recommendations that will help them avoid the consequences I described earlier (Hedstrom & Gould, 2004). The most important thing is, though, to consider the needs and desires of the young athletes and incorporate them in their training, so that their psychological, social and physical development is not hindered or compromised by the choice of engaging in early specialization (Wiersma, 2000).

Conclusion

In an interview and photoshoot for the NYC Dance Project, Devon Teuscher (2016), a soloist for American Ballet Theatre said "My mother used to tell me to keep working at it as long as it is fun. If it stops being fun, then you don't have to do it anymore. I think it is so important to recognize and remember the joy in dance." This summarizes perfectly all that has been stated in this article. It is important to understand exactly what will happen to children who decide to specialize early in a sport, in order to protect them from all the negative consequences. We want our athletes to be healthy and accomplished, not only in terms of their success but the feeling that comes after it. All in all, we want them to be happy, and that is why more research is needed.

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