

IS IT TIME TO THINK AGAIN ABOUT EARLY SPECIALISATION IN SPORT?

– *Written by Richard Bailey, Germany*

There is mounting evidence that sports participation benefits children and young people^{1,2}. These benefits include improved physical health, enhanced self-esteem and self-efficacy, more effective life and social skills and better grades at school. There is concern however that children and young people do not always experience sports participation positively. There seems to be a fundamental shift of emphasis from a dominant conception of sport as playful, fun-orientated activities, primarily led by the children themselves, towards highly structured training programmes and competitions organised by adults³.

The idea of early specialisation and intensive training in one sport from an early age has become increasingly common. The

attraction for children and their parents seem obvious. The pursuit of early elite sporting success, athletic scholarships and professional contracts as well as the social prestige and financial security that come with them can be compelling. The tales of athletes who succeed first in sports and then in life have become the stuff of Hollywood movies. Add to this the perception that foreign competitors are training harder, more intensively and from an earlier age, and the tendency towards the early specialisation is hardly surprising⁴.

THE RISE OF EARLY SPECIALISATION

It is popularly believed that the early specialisation model of sports training came from Eastern Europe in the 1950s to 1980s

hidden behind the 'Iron Curtain'. In fact, it was a relatively rare phenomenon there, but the high-profile successes of young performers in gymnastics, swimming and figure skating created an illusion of wide-scale, systematic training from an early age. The majority of coaches in most sports in the Eastern Bloc tended to encourage young players to experience a range of activities and to only specialise after puberty. Nevertheless, the remarkable achievements of some young performers on the world stage left a legacy — both positive and negative — on the character and scope of sports training⁵.

Early specialisation in sport is typically characterised by a combination of intensive, year-round training in a specific sport,



Image: Illustration.

excluding other activities, from an early age^{4,6}. Table 1 lists some of the most common characteristics of early specialisation.

Specialisation is no longer limited to sports where a small, prepubescent figure is preferred. The maxim ‘start them young’ has become increasingly common in other sports, leading some critics to describe the practice as trying to produce ‘baby champions’³. Children have been recruited to intensive training programmes in soccer from as young as 6 years old. Coaches allow swimmers as young as 8 years old to train all year-round for between 5 to 9 hours a week, covering on average 14 km per week. By the age of 14, this increases to 23 km per week – equivalent to running 257 km a week. Some swimming clubs accept children on their training programmes from five years of age, while elite coaches have been known to refuse to work with swimmers who have not joined an elite pathway by the age of eleven. Meanwhile, there are skating competitions for 3-year-olds in some countries and structured training programmes in the sport for 5-year-olds^{3,7,8}.

The list of champions who began their sporting careers in early childhood reinforces the intuitive appeal of early specialisation, from the perspective of recent success, despite the fact that this is often at the cost of a healthy, well-balanced childhood. Tiger Woods was famously introduced to golf before his second birthday. Tennis’ Martina Hingis entered her first tournament when she was 4, while

the Olympic gold medalist Sarah Hughes began serious skating at the age of three. According to her autobiography, the only way Michelle Kwan was able to fit in the time demands of both skating and school was to wake up at 4.30am every morning and begin training at 5.00am, before going to her classes⁹. The list could go on, but the point is that these athletes are just among the best known of a growing number of pre-

TABLE 1

1. *High-volume, intensity and duration of practice.*
2. *Beginning at an early age, usually during elementary school.*
3. *Focusing on one specific activity, to the exclusion of others.*
4. *Often (but not always) initiated by adults.*
5. *With the goal of elite success.*

Table 1: Characteristics of early specialisation in sports.

adolescent children around the world who are beginning serious sporting careers at an early age¹⁰.

What is less clear is whether this approach is necessary for sporting success, and whether it is in the best interest of the children themselves.

THE LOGIC OF STARTING THEM YOUNG

“Give me a child until he is 7 and I will give you the man.” – Jesuit motto.

It is not difficult to understand the appeal to sports professionals of recruiting young children to elite sports pathways. The motto of the Jesuits, captures an important principle of human development: the early years lay a foundation for all that follows. Values, attitudes, beliefs and habits are all moulded during this time. It is during this phase that the mindset of a future champion starts to be shaped.

And then there is practice. There is no doubt that practice is a vital ingredient of sporting success. The development of skilled performance, in particular, has been associated with frequent and sustained practice. This has led many to conclude that the athlete with an earlier start has the greatest chance of success. In fact, many coaches believe that if serious involvement in sports is not established during the elementary school phase, the would-be athlete will not be able to catch up the delay in skill development; negatively influencing chances of future success.

The contemporary discussion of practice and its role in the development of high-level performance has been influenced by the seminal work of the Swedish psychologist K. Anders Ericsson. He hypothesised that the acquisition of expert performance in a wide range of domains (including sports, chess and the arts) was the result of a minimum of 10 years, or 10,000 hours, of practice. More specifically, Ericsson and his colleagues argued that a particular sort of practice was necessary, which they called ‘deliberate practice’. This form of practice is characterised by full concentration, a lack of inherent enjoyment in the activity and done under the instruction of a coach or teacher¹¹.

It is often forgotten that Ericsson’s 10,000 hours concept came from a study of violinists and was only later imported into sports science. He found that expert musicians began playing around five years of age and had started to differ in the amount of practice invested by age 8. By the time they had reached 20 years of age, the elite performers had reached a total of 10,000 hours, while the good players had accrued just 8000 hours and the merely competent players just 4000 hours.

This theory has been subsequently supported in some sports contexts, although some researchers have questioned certain fundamental details; it has not consistently been shown that very intensive training is key to the achievement at an elite level in every sport¹²⁻¹³. While some studies (not

surprisingly focusing on activities such as gymnastics where elite levels are often reached before full maturation) have found successful patterns of early intensive training, research into other sports has found that players often begin serious training later as adolescents. In addition, elite competitors were more likely to have started competing later, played more sports and were even selected for talent development programmes at an older age compared to those who ended up competing at lower levels¹⁴. Similarly, the need for specialisation during the elementary school phase has also been questioned. Contrary to the presumption of early specialisation, some studies have found that success in most sports tends to be associated with diversification during the early stages of participation. It has been suggested that this initial diversification, followed by later specialisation, gives players the opportunity to develop a range of physical, cognitive, psychological and social skills that act as a foundation for sustained engagement in sports. It also tends to be more enjoyable and motivating^{13,15}.

Ericsson’s concept of deliberate practice continues to be widely debated among researchers. Unusually for an academic theory, it has also broken into mainstream discourse, and a number of popular science books have used this research to proclaim (with varying degrees of excitement) that talent is made and not born and is the

Multiple studies have suggested that early specialisation leads to reduced movement skill development due to focusing on a narrow range of skills from one sport at the expense of a broad and balanced foundation



Image: Illustration.

result of extended, intensive practice^{16,17}. The most popular of these has been Malcolm Gladwell's 'Outliers' interpreting Ericsson's research to conclude that there was a '10,000 hours rule'¹⁸. Listing a range of extraordinarily high-performing people, including Bill Gates to the Beatles, Gladwell claimed that 10,000 hours represents a magical threshold that was a necessary basis for outstanding performance in any endeavour.

It is probably fair to say that no serious scientist agrees with the literal presentation of Gladwell's 'rule'. Ericsson, himself, has stressed that the best musicians in his early study accumulated an average and not a total of 10,000 hours, and that it is easy to find activities for which much less time than 10,000 hours of practice is required¹⁹. A particularly good example of this point has been provided by Australian researchers, who reported that a cohort of female skeleton bobsleigh progressed from novice to Olympian in just 14 months²⁰. Presumably, some of the Championships attempted by Fordyce and Dirs²¹ in their comic pursuit

of sporting success — shin kicking, coal humping, wife-carrying — required even less serious training?

More fundamental problems have been identified with the early specialisation approach. Talent development is inherently exclusionary and any process that begins during childhood faces countless potential psychological, social and economic barriers, not to mention sheer bad luck²². Data from many countries conclude that the chances of progressing from early selection to later elite performance are extremely small. There is no current method for reliably predicting sports performance even a few years later in childhood, let alone in adulthood²³. In the USA only between 0.2 and 0.5% of high school athletes will progress to professional levels²⁴. In Russia, only 0.14% of athletes training at the ultra-competitive sports schools make it to the elite level. In Germany 0.3% of those identified as talented at the youngest level in their sport became ranked in the top 10 at international level, while 1.7% of those attending elite sports schools won a medal in an international championship⁴.

Whether or not early specialisation is necessary for creating future sports champions, many have expressed doubts that this practice is an appropriate approach for the other 98% of young athletes who will never reach top-level performance.

RISKS OF EARLY SPECIALISATION

Critics of early specialisation and other forms of intensive training during childhood have raised a number of concerns, including accusations of physical and psychological abuse²⁵. While most people would reject such behaviour outright, there is no doubt that some coaches continue to use draconian measures in the name of sporting success. This was starkly revealed by a Chinese coach justifying the physical abuse of his young athletes:

"I would scold them all, speak to them when they were lazy or disobedient. But I only did it for their own good. If we are not prepared to suffer bitterness...how can China catch up with world levels in track and field?"²⁶

More general concerns have been expressed; a number of researchers have speculated that the limited range of skills practiced as a result of early specialisation can inhibit overall motor skill development. Interestingly, some of the most damning evidence in this regard comes from the former Eastern Bloc. Although early specialisation was found to be associated with the early rapid improvements in skilled performance, athletes also reached their peak earlier, performed less consistently in competitions and quit sooner than those whose training programmes were more diverse or delayed^{27,4}. Multiple studies have suggested that early specialisation leads to reduced movement skill development due to focusing on a narrow range of skills from one sport at the expense of a broad and balanced foundation²⁷.

Others have suggested that early specialisation is associated with a number of problems linked to inhibited psychological and social development. While childhood and youth sport can be excellent contexts for the development of friendships and new social networks, the exclusionary and intensive nature of early specialisation can stifle such developments and lead to social isolation²⁷. Other potential risks associated

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with early specialisation include joint imbalance and extreme stress on the knee and connective tissues, increasing the risk of injury, some bone diseases and painful conditions like Osgood-Schatter disease. Position statements from a number of specialist organisations have identified a greater risk of overuse injuries and burnout following early specialisation^{28,29}.

Probably the most concerning potential consequence of early specialisation is denying some children the enjoyment and pleasure of playing sports for their own sake. An important element of Ericsson's theory is the fact that deliberate practice is not inherently enjoyable. This is problematic, fun is a defining characteristic associated with sustained engagement with sport³⁰.

The case for early specialisation rests primarily on two related presumptions: athletes who focus on one sport from an early age and those who train the longest have the greatest chance of ultimate success. In light of the evidence of the potential risks of intensive training during childhood, the issue confronting sports professionals seems to be how best to balance the practical need for early specialisation with the ethical demand to protect children. It is not surprising that this is a common topic of conversation among coaches and sports administrators. There are reasons to question whether such a balance needs to be struck at all and whether early specialisation is truly necessary.

An intriguing study from Denmark raises some fundamental questions about these issues³¹. The research was based on interviews with elite (those who reached a top 10 ranking in world or Olympic competitions) and near-elite (who were in national elite programmes) athletes in 'CGS Sports' events (those measured in centimetres, grams and seconds). It focused on the relative merits of early specialisation compared with 'early diversification', in which children's early experiences are characterised by participation in a range of sports, as well as more play-like practices. The authors of the study report that the members of the near-elite cohort tended to start their sporting careers earlier than those in the elite group and that such differences persisted up to the age of 18. However, by 20 years of age, the elite athletes had amassed considerably more practice than the near-elite peers.

The Danish researchers draw a number of conclusions from their data, some of which have been questioned by other scientists³². However, one conclusion seems unarguable:

“the assumption that late specialisation can lead to a delay in athletic development that cannot be made up at a later stage cannot be supported. The current results clearly indicate that career planning with less training at early ages and specialisation later seems more beneficial for young athletes in CGS sports”³¹.

In CGS sports, at least, the evidence suggests that there is no delay in development resulting from early diversification that cannot be made up through later specialisation and intensive training.

CONCLUSION

There is no single, simple pathway leading to success in sport. Advocates of early specialisation cite the successes of Tiger Woods, Andre Agassi and a host of gymnasts, swimmers and ice dancers. Early dedication is perhaps necessary in some sports. However it is also the case that for most sports there are counter examples to pause and reflect upon. Indeed, some of the greatest athletes of recent times have not specialised early. The outstanding Ironman triathlete Chrissie Wellington was in her late 20s when she entered her first competition³³. Olympic boxing gold medallist Katie Taylor did not begin boxing until she was 12 and also played Gaelic Football and soccer to high levels³⁴. And the South African cricketer AB de Villiers, rated as the best batsmen in the world, also excelled in golf, rugby union, badminton, swimming, track and field and tennis³⁵.

There is reason to question the intuitive appeal of early specialisation as a prerequisite for a successful sports career. Add to this the possible risks to the child's physical, psychological and social well-being resulting from intensive early training. Sports professionals would be well-advised to think carefully before promoting an overly generalised strategy of early specialisation.

References

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