



## **Developing an Athlete for the Long Term: It's more than a Game!**

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In the United States, it is estimated that 60 million children and adolescence (age 5-18) play organized sports each year at a cost of over \$7 billion and growing. <sup>(1)</sup> Travel-team parents spend an average of \$2,266 annually on their child's sports participation, and at the elite levels some families spend more than \$20,000 per year. <sup>(2)</sup> Many of the parents and coaches of these young athletes approach sports with a “Peak by Friday” mentality, expecting instant results in their child’s performance. The parents and coaches expect the young athlete to perform at a high level without having committed to the countless hours of training needed for that high level of proficiency.

It has been suggested that to reach the highest level of competition it may take 8-to-12 years of focused training for a talented athlete to reach the apex of their sport. This is also known as the 10,000 hour rule. <sup>(3)</sup> The exact number of hours is up for debate, however, regardless of the individuals God given skill there is a significant amount of time, hard work and dedication that is required to reach the highest levels of a given sport or activity. Despite the consistent evidence for the value of dedication, hard work and deliberate practice to reach elite level status, there is very little evidence for the necessity of deliberate practice during childhood. Research studies comparing elite and non-elite level athletes in a variety of sports have found that training differences did not occur until 13 years of age. <sup>(3,4)</sup>

There are specific sports such as; gymnastics, figure skating, dance, and diving that require early specialization due to peak competitive levels occurring prior to full skeletal maturity. In sports that elite level performance is reached as an adult, there is no evidence to support that early specialization is needed. There is nothing wrong with specialized training in a sport at an early age; however, it is important for the parent to recognize balance between intensive sports participation, specialization and other childhood commitments such as friends, school, play, and other extracurricular activities.

It is believed that the over-emphasis on immediate results, early specialization and the excess amount of competitions or games impedes the young athlete’s development of fundamental physical literacy (competence in a wide variety of physical activities in multiple environments that benefits healthy development) and sport specific skill. <sup>(6)</sup> The demanding need for instant results puts a significant amount of pressure on the developing child. It is unrealistic for coaches and parents to expect young people to be able to move and make plays like adults. These developing children simply do not have the movement based skill, strength, and coordination to move their bodies like the highly trained elite level athletes. This lack of proper expectation in coaching, training and athletic development leads to an inordinate number of kids quitting sports before they even have finished developed physically, mentally, and emotionally.

Thus, by age 13, 70% of kids stop playing sports all together <sup>(7)</sup> Early specialization before the age of 13 years is associated with increased burnout and dropout rates. In a survey of 10,000 youth and adolescence nation-wide, it was found that kids stop playing sports because; they’re not having fun, too

much time required, too much pressure, too much emphasis on winning, developing bad habits due to too much competition, the coach played favorites, not enough playing time, afraid to make mistakes, and they needed more time to study. <sup>(8)</sup>

Most of the coaches in youth sports are volunteers with little or no training. Youth sports organizations are thankful to have volunteers; however, of the 2-4 million youth coaches only 20% have received any type of training in effective motivational coaching techniques, and just 1 in 3 have been trained in skills and tactics in the primary sport they coach. <sup>(9)</sup> Not to mention the fact that most coaches have little experience in exercise that is developmental and or relative to the sport they are coaching. The lack of properly trained coaches often leads to an excessive number of competitions or games and an emphasis on sports-specific skills only with little emphasis on developing physical literacy. The ABC'S (agility, balance and coordination, and strength) of youth physical development our fundamental and an essential foundation for long term athleticism. It is much easier to play a game than to develop a strong fundamental practice that meets the needs of the child's physical and sports specific skill development. In turn, this lack of physical preparation may lead to incomplete athletic development leading to the epidemic of sports injuries caused by inadequate training and or overuse.

Physical literacy in children is often negatively affected by parents who have their child specializing in a given sport at too early an age. The criteria for early sports specialization is; a pre-pubertal (seventh grade or roughly age 13 years) child, participating in year-round specific sport training (greater than 8 months per year), choosing a single main sport, and/or quitting all other sports to focus on 1 sport. <sup>(10)</sup> For example, a young baseball player whose parents at a young age decide that this is "their sport". That child plays year-round with the coaches focusing only on baseball specific skills. If that young athlete does not participate in other forms of sport or exercise they potentially miss critical windows of physical development in agility, balance, coordination and strength. Missing developmental milestones from either inactivity or early specialization in a sport can result in; overall low strength levels, incorrect landing mechanics, aberrant change-of-direction techniques, ligamentous laxity, muscle tightness, nonsymmetrical muscle development, an over-reliance on a particular limb or movement, overuse injuries, burnout and dropping out of all of sports. <sup>(10, 11)</sup>

Consequently, the child does not develop as an athlete first, potentially leading to the epidemic of sports related injuries seen in orthopedic and sports physical therapy clinics today. Knee ACL injuries in our soccer players and shoulder or elbow injuries in our baseball players are typical examples. In a study of athletes who met the criteria for early specialization it was found that the athlete had a 2.25 times greater chance of sustaining a serious overuse injury than an unspecialized young athlete. <sup>(12)</sup>

In studies looking at elite level athletes most report playing multiple sports as a youth. For example, 88% of Olympians reported participating in more than 1 sport as a child. In addition, 97% of professional athletes believed being a multisport youth athlete was beneficial to their success in becoming elite in their sport. <sup>(13)</sup>

Research by numerous national governing bodies including, the United States Olympic Committee, and many other sports organizations have proven that early specialization in a sport actually prevents an athlete from reaching their full athletic potential and may lead to an inordinate amount of youth and adolescent injuries. The goal is to develop as an athlete first, playing many sports as a youth before specializing in the late teens when growth plates have closed. <sup>(14)</sup>

The United States Olympic Committee created The American Development Model in 2014 to help

young Americans realize their full athletic potential and utilize sports as a path toward an active and healthy lifestyle. The committee describes 5 stages of athlete development for optimization of the experience physically, mentally and emotionally. <sup>(13)</sup> Stage 1, Discover and Play (age 0-12) ; Stage 2 Develop and Challenge (age 10-16); Stage 3 Train and Compete (age 13-19); Stage 4 Participate and Succeed (Age 15 +); Stage 5 Excel for High Performance (for life). <sup>(13)</sup>

In stage 1 (age 0-12) the child gets involved with sports at a young age. Programs should accommodate the athlete to participate in multiple sports. Coaches are encouraged to allow the child to discover and explore the sport in a fun, enjoyable way. The coaches' main goal should be to inspire the child to enjoy sports through early positive experiences. In this phase physical literacy is developed through a wide variety of sports experiences, free play (unrestricted movement or activity created and led by children) and general exercise. The child begins to develop psychological and social factors in; interpersonal skill, team work, and communication. Emphasis is on skill development and sports education versus a large number of games. Seventy percent of the time in the sport should be spent on training and practice while only thirty percent on games or competitions. <sup>(14)</sup> This is a stark contrast in what we see in America today with many youth recreational and travel sports organizations having the reverse, 70% games to 30% practice.

In stage 3 (age 13-19), training and competition are increased to meet the athlete's interests, goals and sports development needs. Games and competitions become more important in the development process. Technical, tactical, physical, and psycho-social development becomes increasingly more important for the athlete at this time as they realize the hard work and dedication that it takes to excel. Sport-specific training increases, however, multi-sport play can continue to be used in order to cross-train for complete athletic development. The emphasis continues to be on practice and skill development over completions and games. <sup>(12)</sup> A 60% training to 40% competition ratio (includes competition and competition-specific training) is recommended through most of this stage. <sup>(15)</sup>

In stage 4 (Age 15 +), the athlete reaches high school and there is a cross road to either play sports at a high performance competitive level or to continue to play for the fun, physical health, and social aspects. Growth spurts, experience, hard work and dedication to training can play a significant role in the athlete sports career choice. Still at this stage, fun and socialization are key elements to the athletes desire to continue to play sports. <sup>(14)</sup>

In stage 5 (for life), there is the emphasis that we all need sports to establish physical activity to maintain a healthy lifestyle. Throughout life many of the previous athletes will give back as coaches, officials, and mentors for their children and other young athletes. For the select few elite athletes a college or professional career could be had in this stage. <sup>(14)</sup>

For parents that have their child specialize in a single sport or if they participate in more hours per week than their age in intense training, regardless of their age, they should take special precautions to assure that the child is developing appropriately physically, mentally and emotionally. The parents should monitor the child for signs of burnout, overuse injury, and or potential negative performance outcomes due to overtraining. The evidence strongly indicates that all youth athletes should be involved in a periodized strength and conditioning program (described latter in Train 2 Play writings) to help the athlete develop appropriate physical literacy in the core areas of strength, balance, coordination, agility, speed and power. This type of training will help the athlete to prepare for the demands of competitive sport participation. <sup>(12)</sup>

## Recommendations for avoiding burnout and overuse injury in youth sports:

- Avoid overscheduling and excessive time commitments.
- Talk to the child regarding their desires, wishes and goals regarding their sports.
- Emphasize skill development and fun.
- Emphasize a lifelong passion for physical activity and sports.

## But what about my child's college scholarship and professional career?

As mentioned above, youth sports is “big money” with many of the organizations praying on the parents and young athletes dreams of college scholarships and professional careers. There is nothing wrong with the aspiration to play in college or professionally, however, it must be kept in perspective. The chance of a young athlete having a college or professional athletic career in a given sport is minuscule at best. Of the 60 million kids playing youth sports, 1 in 4 youth stars becomes a stand out in high school. Only 2 to 5 percent of high school athletes go on to play college sports. The odds are even much smaller to play professionally. The odds of a high school baseball player making it to the; MLB is 1 in 4,000, high school football players making the NFL is 1 in 6,000, and a high school basketball player making the NBA is 1 in 10,000. <sup>(16)</sup>

2016 Estimated Probability of Competing in College Athletics

Men	High School (HS) Participation	NCAA Participation	Overall % HS to NCAA	% HS to NCAA Division I	% HS to NCAA Division II	% HS to NCAA Division III
Baseball	486,567	34,198	7.0%	2.1%	2.2%	2.7%
Basketball	541,479	18,697	3.5%	1.0%	1.0%	1.4%
Football	1,083,617	72,788	6.7%	2.6%	1.8%	2.4%
Soccer	432,569	24,477	5.7%	1.3%	1.5%	2.8%
Golf	148,823	8,654	5.8%	2.0%	1.7%	2.1%
Lacrosse	108,450	13,165	12.1%	2.9%	2.2%	7.1%
Ice Hockey	35,875	4,071	11.3%	4.6%	0.5%	6.3%
Tennis	157,240	8,211	5.2%	1.7%	1.1%	2.4%
Track	578,632	28,177	4.9%	1.9%	1.2%	1.7%
Swimming	137,087	9,715	7.1%	2.8%	1.1%	3.2%
Women						
Basketball	429,504	16,589	3.9%	1.2%	1.1%	1.6%
Field Hockey	60,549	5,894	9.7%	2.9%	1.2%	5.7%
Soccer	375,681	26,995	7.2%	2.4%	1.9%	2.9%
Golf	72,582	5,221	7.2%	3.0%	2.1%	2.1%
Lacrosse	84,785	10,994	13.0%	3.7%	2.5%	6.7%
Ice Hockey	9,418	2,175	23.1%	9.0%	1.1%	13.1%
Tennis	182,876	8,960	4.9%	1.6%	1.1%	2.2%
Track	478,726	28,797	6.0%	2.7%	1.5%	1.8%
Swimming	166,838	12,428	3.9%	1.2%	1.2%	1.6%

Adapted from : <http://www.ncaa.org/about/resources/research/estimated-probability-competing-professional-athletics>

	NCAA Participants	Approximate # Draft Eligible	# Draft Picks	#NCAA Drafted	% NCAA to Major Pro	% NCAA to Total Pro
Football	72,788	16,175	356	256	1.6%	1.9%
Mens Basketball	18,697	4,155	60	46	1.1%	12.2%
Womens Basketball	16,589	3,686	36	36	0.9%	4.7%
Baseball	34,198	7,600	1,215	738	9.7%	-
Ice Hockey	4,071	905	210	60	6.6%	-
Mens Soccer	24,447	5,439	75	75	1.4%	-

Adapted from : <http://www.ncaa.org/about/resources/research/estimated-probability-competing-professional-athletics>

Despite the limited odds of having a high school, college or even pro sports career, participation in sports and exercise is associated with a range of documented physical, emotional, social, educational, and other benefits that can last a life time.

## How important is it for young people to participate in exercise and sports?

When children don't exercise and or play sports they have impaired physical literacy and improper movement pattern development which often leads to a diminished interest in any type of physical activity and free-play. Free-play or pick-up games and activities, promote innovation and high levels of fitness. Free-play was common place in previous generations but is now being replaced with screens and electronic devices (mobile phones, computers, video games, TV) or adult organized sports. More than 1 in 3 parents say it is a challenge to make sure their children get enough exercise each week. <sup>(17)</sup> Devoid of sports, exercise and free-play, by age 9 physical activity rates begin to drop sharply in those individuals who are not physically active. By age 15, moderate-to-vigorous physical activity declines by 75%, with less than 40 minutes per weekday and 30 minutes per weekend. Among youth 6-17 years of age, 1 in 5 report having no physical activity at all. <sup>(15)</sup> A sedentary lifestyle can then follow. It is well documented that sedentary living causes such health problems as; obesity, diabetes, high blood pressure, cardiovascular disease, and other chronic diseases that evolve to form a lifelong problem starting in childhood. In recent years, the childhood obesity rate has nearly tripled. The percentage of children ages 6-11 who are classified as obese increased from 7% in 1980 to 17.5% in 2014; among children ages 12 to 19, that figure grew from 5% to 20.5%. One in three children today is obese or overweight. <sup>(18)</sup> If all 12.7 million U.S. youth with obesity became obese adults, the societal costs over their lifetimes may exceed \$1.1 trillion in health care and other related costs. <sup>(20)</sup>

Early sports participation and formal exercise can be a countermeasure to a sedentary lifestyle which is clearly prevalent and dangerous. Regular physical activity and exercise benefits children in many ways, including; building and maintaining healthy bones, strengthening muscles, improving cardiovascular fitness, controlling body weight, preventing or delaying the development of high blood pressure and other diseases (cardiovascular disease, diabetes, and some cancers). For example, a comprehensive study found that leisure-time physical activity and exercise is associated with reduced risk of 13 different types

of cancer, including breast, colon, liver and leukemia <sup>(22)</sup>

## **Exercise and Sports...More than Physical Health**

Sports participation and exercise has been shown to lead to enhanced concentration, improved grades and higher standardized test scores. It can help in personal development such as; improving self-esteem, increasing confidence, establishing proper goal-setting, and enhanced leadership skills. <sup>(23)</sup>

Playing sports is often thought of as a metaphor for life creating opportunity to learn life lessons in a nurturing environment. Learning commitment, dedication, hard work along with how to deal with winning, losing and failure are basic tenants found in sports. With that, high school athletes are more likely than non-athletes to attend college and get degrees. <sup>(23,24)</sup> In the work place, a survey of 400 female corporate executives found that 94% played a sport and that 61% say that the lessons learned from the sport contributed to their career success. <sup>(24)</sup>

Beyond the psychosocial and health benefits of exercise is the financial savings to our global economy. An active lifestyle could save nearly \$68 billion annually in medical costs and lost productivity globally with the USA saving up to \$28 billion. Thirty minutes of exercise just five times per week could save more than \$2,500 per person in health care related savings. <sup>(26)</sup>

Ultimately, youth sports participation and exercise should be fun and inspiring leading to a life-long passion for physical activity and fitness. Adolescents who play sports are eight times as likely to be active at age 24. <sup>(26)</sup> Three-in-four (77%) of adults aged 30+ who play sports today played sports as school-aged children. Only 3% of all adults who play sports currently did not play when they were young. <sup>(27)</sup>

The “Train 2 Play Sports” writings are scientifically based to help coaches, teachers, parents and trainers teach proper physical literacy and improve athleticism through basic movement patterns progressing to advanced exercise and training techniques. First the young athlete develops their “relative maximum strength” (maximum strength specific to efficient body movements). Once the child or adolescent has their base of “relative max strength” developed, exercises can be progressed to improve balance, coordination, agility, power, explosiveness, and acceleration-deceleration change-of-direction. The ultimate goal is to develop an athlete “first” who has the foundation to acquire any sport specific skill.

The development of the young athlete’s physical body in a scientific way will lead to improved sports performance, allowing the athlete to optimally express their God given genetics and skill. The Train 2 Play approach potentially makes the athlete less susceptible to injury. Ultimately this training program will hopefully create a lifelong passion for exercise and movement to maintain health and prevent disease.

In future Train 2 Play writings I will address the research to answer the questions related to youth and adolescent training. Is exercise safe for young people? How can exercise and training prevent injury? How to exercise and train to enhance sports performance? What exercises are best? How do I improve strength, coordination, speed, agility, power, quickness? This and much more...

The coach, parent, teacher, trainer, health care provider should be able to read these materials and apply the concepts, principles, and training to improve their child or adolescent’s athleticism in a safe effective way.

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