The Complex Nature of Sports Specialization: It Can and Should Be Personal

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As an educator of athletic trainers and health care professionals for more than 20 years, I’ve worked hard to keep up with the latest evidence to develop capable, evidence-informed clinicians for professional practice in sports medicine. As a clinician with more than 30 years of experience, I’ve seen firsthand the effects that chronic physical stress can have on the mind and the body. As a volunteer coach and athletic trainer for my sons’ teams for more than 20 years, I have confronted numerous issues related to athlete performance, health, well-being, injury, and development by coaches and parents alike—including the potential pitfalls or benefits of sports specialization.

Through all of that, I’ve also been dumbfounded by things I’ve witnessed on behalf of parents or coaches in the interest of individual and team “success,” including a profound hesitancy to intentionally program meaningful “down time” for young athletes from training and organized sport for fear of “being left behind.” In my experience, there are far too many parents exposing their young athletes to potentially deleterious pressure and constraints on their physical and mental health in pursuit of a college scholarship. In my collective observations, there are far too many coaches who continue to emphasize short-term winning over long-term goals, player safety and health, and individual development. Sports specialization has indeed become an issue, and is certainly a phenomenon to investigate with a keen eye on its many facets.

My family was thrust into the sports specialization experiment as my youngest son’s talent, passion, and interest materialized in a sport that sits at the center of the sports specialization debate. Suddenly two sports medicine profession–based parents became part of the experiment, in real time. Around the age of 6 years, my son displayed above average athleticism, an uncanny natural technical acumen, and a nuanced tactical understanding for the game of soccer that was advanced for his age. Combined with a growing passion for and interest in becoming excellent, the double-edged sword known as “potential” reared its head, forcing my family to address the sports specialization challenge head on. From that moment, my physical therapist and athletic trainer wife and I were interjected into the heart of the issue with one of our most cherished patient-athletes as the direct subject—our youngest son. Our professional and personal worlds had organically collided, and our son’s future well-being and life trajectory depended on our ability...
to construct and follow a wise strategy that prioritized equally his well-being, happiness, and intentions.

The issue of early sports specialization is complex and evolving for sports medicine professionals, sports scientists, youth coaches, and parents alike. The issue has garnered increased attention, and important questions surrounding the correct age to specialize, the economic aspects of doing so, and the injury and performance implications of exclusively playing one sport from a young age to maximize an athlete’s potential career path are being addressed. According to the 2009 International Society for Sports Psychology position statement,1 “Support for an early specialization pathway is based on the assumption that early specialization and deliberate practice in one sport is superior to deliberate play and involvement in various sporting activities during childhood for promoting elite performance in adults.” The American Orthopaedic Society for Sports Medicine 2015 consensus statement on early sports specialization defines it according to three primary criteria: (1) intensive training or competition in organized sports for more than 8 months per year, (2) participating in one sport to the exclusion of participation in others, and (3) involving prepubertal aged children (prior to 12 years).2 In laymen’s terms, early sports specialization in today’s American culture is all about “keeping up with the Joneses,” chiefly by attempting to maximize a young athlete’s potential by securing a return on a family’s considerable investment in the form of full or partial college scholarships or long-term professional success.

Given the reported and potentially life-altering negative consequences (both physical and mental) of specializing in one sport at an early, prepubertal age, it certainly deserves attention and scrutiny from all involved professionals. However, I modestly propose that there currently seems to be more negative attention placed on sports specialization’s potentially deleterious consequences than the evidence may merit. The current conversation seems to be focusing more on the “don’t do it” side of things and the evidence for “not letting anyone specialize in one sport.” Perhaps this approach to the issue is a bit premature, given what we know and don’t know about the many complex facets of the issue. As a clinician-scientist, I fully appreciate and respect the perceived and reported risks and current evidence available, but I often wonder if it’s really the case that all youth sports specialization is bad? Are there no proper ways to specialize in a sport for those talented and motivated to excel?

It has been reported that suburban athletes with higher socioeconomic status are more prone to early specialization than their rural, lower socioeconomic status counterparts and that young female athletes are more likely to specialize early than males.3 Certain types of overuse injuries are more common in athletes playing one sport versus sampling more than one.4 Young athletes chasing college scholarships now play or train more than their predecessors, exposing them to higher injury rates.5 Specialized athletes who train/play one sport more hours per week than their chronological age are more likely to sustain chronic overuse injuries in the lower extremities.2,6 According to the 2016 National Collegiate Athletic Association (NCAA) report,7 “many NCAA athletes wish they had spent more time sampling other sports when they were young.” However, the same report revealed that only 26% to 43% of all male and only 13% to 28% of all female NCAA athletes (Divisions I to III) reported a desire to have not specialized in their college sport.7 Looking at this evidence from the “other side” informs us that most male (57% to 74%) and female (72% to 87%) athletes were pleased that they had specialized prior to playing college/university sport.

Lionel Messi, Venus Williams, Tiger Woods, Michael Phelps, and thousands of other athletes are living examples of attaining elite and expert success following deliberate and early specialization. It is likely that they had their share of ups and downs along the way—physically, mentally, socially, and perhaps in other personal ways—but in the end they and their families made the sacrifices to follow their dreams of becoming the best at their craft. On a different level, I’m sure there are many athletic trainers who have worked with athletes who have succeeded with their chosen sport and accomplished much, despite their sports specialization history. Like most things in life, it doesn’t appear to be an all-or-none phenomenon. Likewise, sports medicine clinicians assuredly know athletes who put all of their eggs into one basket, only to come up short, suffer undue injury or psychological burnout, and perhaps regret their decision to specialize in one sport at too young an age. But are there not thousands of highly successful individuals who have similar stories from the worlds of music, dance, or theater, as well?

It has been widely and regularly reported that only approximately 2% of high school athletes will play NCAA sports, and that only approx-
imately 1% will proceed to professional careers, so it’s clear that most children specializing in sports are not going to achieve their ultimate goals. It is also scientifically plausible that a greater volume of physical activity can predispose any athlete, but in particular a young athlete, to greater injury risk or rate, early burnout, or other health-related issues. I’m not dismissing those legitimate concerns and I’m not a blind proponent for unabashed sports specialization for all children no matter the cost, but perhaps it’s not all gloom and doom for a certain, small percentage of athletes who do have the talent, wiring, drive, and resources to excel at one sport from an early age. Equally as important, perhaps there’s a proper way to “get it right” for athletes who desire such a path?

Let’s not forget that patient values are one-third of Sackett’s evidence-based practice Venn diagram. If a patient’s values include becoming an Olympic swimmer and playing the one sport she truly loves, if she doesn’t enjoy other sports, has no interest in something else, or has real potential for expertise in a particular sport, then shouldn’t the evidence-based clinician respect those values? Sports medicine professionals are thus obligated to investigate how those athletes might best succeed with patient values as a major part of the evidence-based practice equation. Sports medicine professionals must also appreciate that there are many cases of athletes who specialize early and do reach the pinnacle of their respective sports in healthy and meaningful ways, without regrets. From a research perspective, we should thus wonder “how did they do that?” or “what particular recipe worked for them” so we can better prescribe a plan.

Arguably, there is a “right way” and a “wrong way” to specialize in sports, art, language acquisition, and music, and I would propose that we still have much to learn about the many complex interconnections involved in sport specialization to understand the bigger picture. For example, many are familiar with the widely reported and often misquoted “10,000 hour rule” reported by Ericsson et al. in 1993 for the acquisition of expertise (certainly, far too many coaches and parents are fond of citing this simplified “rule”), but many don’t realize that the actual range of hours needed to reach expert level is extremely broad (from 832 to 24,284), and that deliberate practice is required to excel at a given skill or activity. When it comes to mastery and expertise, there are far too many variables in play to reduce to “more practice.” Factors such as the quality and consistency of instruction, individual starting age, the time of day, intrinsic motivation, sleep and energy levels, and even what days of the week are used to practice have all been reported to factor into the equation. As with other complex systems, context matters and thus should be appreciated as part of the critical narratives being used to frame the conversation.

There are potentially significant risks to youth athletes who undertake early specialization in the “wrong” way, but perhaps there are also positive outcomes if done with caution, guided by available evidence, and tempered with common sense. Let’s be more specific and intentional with the language employed; currently it seems as though “early sports specialization” and “sports specialization” have become the same thing. Let’s add to the investigative efforts realistic assessments of athletic potential and talent, and let’s examine other factors surrounding injury and performance, such as nutrition, rest, training versus playing ratios, types of training, coaching, psychological profiles, and who knows how many other variables that contribute to such long-term outcomes. We already know that American soccer practices tend to invert the practice-to-competition ratios when compared to elite European academies, an imbalance that has our most competitive athletes playing far too many games in shorter time frames. Let’s focus on deliberate practice, and not just more practice (measured by “time”), by educating coaches and parents about the research on the development of expertise. In my view, there is a discernable “more is better culture” in many facets of our sports practices, where time is conflated with achievement. Let’s build a more complete picture of the issue before we preemptively dismiss the idea that “all specialization is bad” or that it promises a dark and unhealthy future for those who dream of stardom and athletic fulfillment. For the record, I’m not unique with this insight. Despite their global caution regarding the potential pitfalls of early sports specialization, the 2016 American Orthopaedic Society for Sports Medicine Consensus Statement includes no less than 28 specific short- and long-term research questions that require investigation before a more informed picture can be painted.

The reality is that there are thousands of Christian Pulics on our athletic fields, dreaming of leading their country and teams to greatness, of fame and fortune. There are athletes and families who do specialize correctly and prioritize their val-
ues with one sport in mind. Despite increased public and medical attention, I would argue this is NOT a
new phenomenon. Athletes have been specializing for decades, we just haven’t been paying attention until
now. For example, two of my son’s Division I teammates clearly specialized in soccer at a very young age, as
did my son; both recently completed 4 years of competitive Division I soccer at a challenging academic
university, and both happily play professional soccer as of this writing. Both are healthy and thriving,
living out their childhood dreams of “playing at the next level.” Neither has sustained any long-term, life-
altering injuries, and neither regrets his decision to specialize in soccer well over a decade ago.

My wife and I did our best as clinicians, educators, and parents to balance the many issues involved so
that our son could achieve his goals of playing Division I soccer and receiving a great education while en-
suring our collective goals of fun, well roundedness, and avoiding undue injury or disability. Although he
played a lot of soccer from the age of 8 forward, we did not allow him to specialize before age 13. We encour-
aged him to take up other sports on multiple occasions (basketball, baseball, and track for one season
each in middle school), we worked on core stability and muscle balance issues, we recognized and managed
any injuries sustained along the way, we prioritized education and life balance, we monitored his motivation,
time, energy, and mood, and we programmed regular breaks from soccer three times each year, despite team
and coaching pressures. However, the reality is that he specialized in soccer, he was focused on one sport,
and he essentially played that sport “year round.” In the end, the choices he made and efforts put forth result-
ed in 4 years of Division I soccer, a great education, travel and cultural experiences unavailable in our rural
location, and a large set of diverse and lifelong friends—all part of the fabric of who he is today. It wasn’t
always easy and it’s not for everyone, but it was a meaningful experiment and our collective journey has deeply
informed the work I do today as an athletic training educator-scholar.

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