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## 400 Percent

Forcing children into sport-specific training can be detrimental. Jeff Martin explains.

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By Jeff Martin

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Joan Edelman

A 400 percent increase—that's huge.

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If we were talking about your deadlift, that would be spectacular. Instead, according to a February 28 episode of [Today](#), we're talking about a 400 percent increase in anterior cruciate ligament (ACL) injuries in children.

The rise is largely due to children's lack of general physical conditioning and the increasing trend toward early sport specialization (2,10), according to the [American Academy of Pediatrics](#) (AAP) and the organization [Stop Sports Injuries](#).

What does this kind of knee injury mean long term for a child? Devastation.

A recent retrospective study involving 205 men who had ruptured their ACLs playing soccer showed that 78 percent had developed signs of osteoarthritis in the injured knee 14 years later, compared with only 4 percent in the uninjured knee. Similar statistics were found for female soccer players 12 years after the injury (4).

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**Career-ending elbow and shoulder injuries are on the rise. Concussions as well. Career-ending injuries at age 12?**

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It isn't just knee injuries, though. Career-ending elbow and shoulder injuries are on the rise. Concussions as well. Career-ending injuries at age 12? How could this happen? Little League rules determine how many pitches are safe for kids, right (7)? Well, they don't take into account warming up in the bullpen or a pitcher stepping into another position that requires throwing hard, do they? A sport-specialized baseball kid might be throwing year round. This sports specialization is inappropriate and detrimental to long-term sports development and general physical development of the child (2), according to the AAP.

**Too Much too Soon**

For the purpose of this article, the why and how of this predicament are not necessary to understand. What we need to understand is our kids are being asked to start sports training at a very young age. In the 1970s, young boys commonly started Little League at age 8 or 9. Today,

kids are starting sports training as young as 3 or 4 and being asked to specialize in a sport at age 8. In 2010, Little League changed its rules, allowing 4-year-olds to play tee ball (9). Year-round training in a single sport, two to three times a week for two hours a pop, and games and tournaments on the weekend—let's examine why this is problematic for the development of our kids.

In the 1960s and 1970s, when kids began playing organized sports at 8 or 9, elementary schools offered physical education, or P.E. Kids not only learned the rudimentary skills to play a variety of sports from a trained teacher/coach, but they were also introduced to gymnastics and calisthenics; they learned to run and climb and throw things.



DanellMarks

*At age 3 or 4, many children are encouraged to specialize in a sport rather than build general physical fitness.*

In those days, after-school time was spent on some field or court, playing pickup ball with friends—long afternoons learning to catch, throw, shoot and run with your friends on broken asphalt, choppy fields or rocky lots. Games outlined by adults in P.E. were played with rules that kept the game moving and accommodated or enhanced the acquisition of skills that then wrapped back into the games played at school.

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**Kids no longer gather in a back lot to play ball after school. Now they're too busy being shuttled off to their two-hour soccer practice.**

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Today, P.E. in elementary schools is largely abandoned—only 36 percent of our kids get daily P.E. Most get less than two short sessions a week of P.E. Kids no longer learn gymnastics skills, throwing or running in their P.E. classes. In fact, only 27 percent of a P.E. class is devoted to actual motor activity (8), according to [PE4Life](#). Kids no longer gather in a back lot to play ball after school. Now they're too busy being shuttled off to their two-hour soccer practice.



Joan Edelman

**What are our kids giving up by specializing in one sport so early on in their lives?**

The AAP says this situation is bad for our kids (2). Overuse injuries are on the rise. As noted above, catastrophic injuries have increased at an alarming rate. In our practice at CrossFit Kids HQ, we see kids who are monster athletes in their chosen sport but are simply unable to squat or lift something correctly. They might be sport savants, but we know most savants give up something for that ability. Most savants are incapable of negotiating the world on their own; think *Rain Man*. What have our sport savants given up? The ability to move well in any functional capacity outside of their chosen sport.

Let's be clear, we want all kids to participate in many different sports. But if we want our kids to be healthy and reach their full athletic capacity, they must be fit. As CrossFitters, this idea is almost primal for us. It's in our bones. In early 2001, Coach Greg Glassman wrote "World-Class Fitness in 100 Words":

"Eat meat and vegetables, nuts and seeds, some fruit, little starch and no sugar. Keep intake to levels that will support exercise but not body fat. Practice and train major lifts: Deadlift, clean, squat, presses, clean and jerk, and snatch. Similarly, master the basics of gymnastics: pull-ups, dips, rope climb, push-ups, sit-ups, presses to handstands, pirouettes, flips, splits, and holds. Bike, run, swim, row, etc., hard and fast. Five or six days per week, mix these elements in as many combinations and patterns as creativity will allow. Routine is the enemy. Keep workouts short and intense. Regularly learn and play new sports" (5).

Being fit is being functional, capable and injury-free. Early on, Glassman understood that routine is not our friend. Being fit involves building a base of fitness and pursuing many different sports. This idea is fundamental to us as CrossFitters, and it is critical to the development and long-term health of our children.

Does biasing fitness over sport work? Let's look at an adult case first.

J is a 40-year-old Ph.D. who enjoys playing basketball and volleyball. In the past few years, he found his jump height had decreased; he was not able to dunk a basketball or hit with the same power on the volleyball court. After pursuing many avenues to increase his jump, he turned to a CrossFit trainer. The CrossFit trainer did not prescribe any specific jump training. Instead, he fed him a regular diet of couplets and triplets sprinkled with heavy squats and deadlifts. J soon found he could dunk the ball and was crushing it at the net in volleyball.

At other end of the age spectrum is 10-year-old E, who has been CrossFitting since he was 7. He is, for all intents and purposes, sport-specialized in baseball. He is a small kid and probably will remain relatively small throughout his life, which puts him at a disadvantage given that bigger athletes get a better look from higher-level coaches. To address this disadvantage (and because he demonstrated good movement and the ability to focus), he matriculated into the Teen/Advanced class just prior to turning 9. The next baseball season, with only CrossFit Kids distinguishing his preparation from that of other players and no extra sport-specific training—and still one of the smallest (and youngest) kids—he was the hardest-throwing pitcher in the league.

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**There is no question that CrossFit Kids wants children playing sports of all kinds, but we also want our kids to be fit. All athletics start there.**

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### The Theoretical Hierarchy of Development

“A theoretical hierarchy exists for the development of an athlete. It starts with nutrition and moves to metabolic conditioning, gymnastics, weightlifting and finally sport. This hierarchy largely reflects foundational dependence, skill and, to some degree, time ordering of development. The logical flow is from molecular foundations, cardiovascular sufficiency, body control, external object control, and ultimately mastery and application. This model has greatest utility in analyzing athletes’ shortcomings or difficulties. We don’t deliberately order these components, but nature will. If you have a deficiency at any level of the pyramid, the components above will suffer” (5).

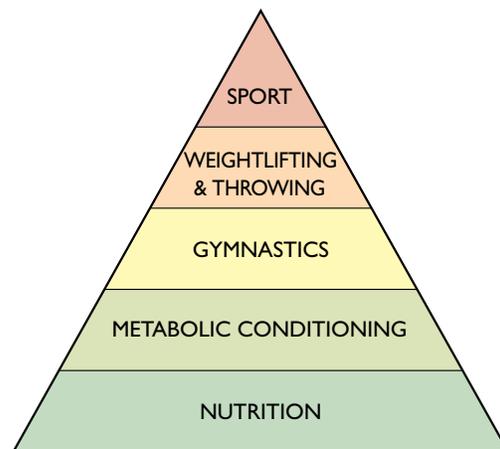
To make the pyramid easier to understand for our kids, we replace metabolic conditioning, gymnastics, and weightlifting and throwing with a single word: CrossFit. That leaves sport at the pinnacle where it belongs: the ultimate expression of our fitness. But only so long as its foundation is solid.

Well, folks, in the U.S. we’ve turned this hierarchy on its head to the detriment, even peril, of our children. There is no question that CrossFit Kids wants children playing sports of all kinds, but we also want our kids to be fit. All athletics start there. The problem with the current situation in U.S. youth sports is that by pursuing sport dominance at the expense of fitness, we find not only that our kids are not fit but, ironically, that they also never develop the full expression of their athletic ability.

How can they? The components for full expression are simply not there or are at best muted.

Is it true that a deficiency at one level of the hierarchy will affect the levels above? Let’s look at an example.

T walked into a CrossFit affiliate in his junior year of high school having jumped 6 feet 5 inches at the state meet. At 6 foot 2 and 155 lb., T had a back squat of 135 lb. and a rickety 185-lb. deadlift. He faded fast on any and all met-cons. It was clear he was under-strong and deconditioned even though he had attained competency in his chosen sport. With his CrossFit trainer, he developed a plan to address the components in which he was weak. A year later, T was a leader in his CrossFit Kids class. Regularly in the top group in the met-cons, he returned to his track team with a 285-lb. back squat and a 365-lb. deadlift. Ten pounds heavier, T met his best jump height on his first attempt that year and went on to jump 7 feet and win the high-school state high-jump (6). T attributes the jump to the strength he developed over the year.



***The four elements below sport are its foundation and the key to exceptional results.***

It's clear that if we follow the theoretical hierarchy, that if we simply allow ordering of the components by nature, we set our kids up to have the best chance of success in sport. Not only that, but we also have the best chance of protecting them from the catastrophic injuries discussed at the beginning of this article. Why are knee injuries on the rise? Is it because kids don't know how to land correctly when they jump? Perhaps. But more likely, it's that even when properly taught to land, kids are not strong enough to land in the proper position. It is our belief that short-circuiting the natural hierarchy of development will not lead to better athletes but rather injury and muted athletic development overall.

B was a top-level swimmer in her high-school CIF division. When she walked through the door, B presented abnormal spine curvature seen in many swimmers, as well as strongly internally rotated shoulders. She came to us with a labrum tear in her shoulder. The tear occurred when B, a long-distance freestyle swimmer, had been asked to fill in as a backstroker. B had surgery on her shoulder and proceeded to do one-arm CrossFit with us. One year later, she was back in the water—and setting PRs. In fact, she was setting records in events she had been stagnant in for years.

When C started with CrossFit Kids, she was small and under-strong. She also had been born with hip dysplasia. The dysplasia presented itself strongly when she squatted; her leg would flop dramatically inward. Over time, she became strong enough to keep her knees where they belonged when squatting. Despite remaining small for her age, she became a star athlete in several sports. Never

training to run long distance, C won a district-wide cross-country race three years in a row. She made all the all-star teams in the sports she played.

At 11, C made the travel team in her chosen sport. The practice schedule was so demanding that she had to give up coming to CrossFit Kids. On the rare occasional break between seasons, C rejoined our classes. We noted a slow decline in her fitness, in particular her metabolic fitness and strength. Eventually, the leg flop and inability to hold her femurs in the proper position when squatting returned, becoming more pronounced as the time away from CrossFit Kids lengthened. Even though her time practicing in her given sport had increased astronomically, C was not as fit as she had been. At 14, C took a bad step and tore her ACL.

Interestingly, in our practice we have found a correlation between proper squatting and proper landing. Indeed, none of the kids who actively take part in our classes at CrossFit Kids HQ has had a knee injury even though many play sports such as soccer, in which the incidence of knee injuries is extremely high.

Both the AAP and Stop Sports Injuries recommend kids not specialize in a sport until reaching their early teens (2,10)—that they be exposed to many different sports and, most importantly, that they be involved with a well-rounded fitness program to strengthen them and prepare them for the rigors of sport specialization.

What does that sound like? It sounds like CrossFit, or, more specifically, CrossFit Kids.

### Forging the Future by Changing the Present

What can we do to help kids?

First, we can recognize that kids are not missing anything if they don't start playing sports when they are 3 and 4 years old. Sport psychologists say kids are not even developed enough to understand positional play until around age 7 or 8 (3). Early immersion simply is not necessary for most sports and does not work for most of our children. Signing our kids up to learn the rudiments of a sport from a "coach" who is a volunteer parent and likely has absolutely no training in what is and is not age appropriate for the kids he or she is working with is not going to prepare children to be future stars in their sport of choice. In fact, research shows that team sport participation in the U.S. declines beginning at the age of 11 due to burnout and/or injuries (3,11).



Danell Marks

**Early immersion does not impact later performance in sports, so let kids explore a wide range of athletic interests.**

We can use the time we gain here to expose our children to CrossFit Kids, a program that, by design, understands the developmental needs of children and follows the theoretical hierarchy of development. We can make our children well-rounded athletes and provide a fitness base that will protect them in the coming years.

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**Playing while injured is not smart. Kids do not build character this way, and they can exacerbate injuries.**

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When we do start our kids in sport, we can expose them to many different sports. Traditionally in the U.S., we expose our kids to only four or five sports: football, basketball, baseball, soccer and hockey. How about letting our kids

try lacrosse, rugby, golf, field hockey or fencing? There is a world of athletics out there for them to investigate and pursue.

We can campaign against year-round training in a single sport for young children. It is unproductive and against the recommendation of the AAP.

Playing while injured is not smart. Kids do not build character this way, and they can exacerbate injuries in this manner. We can support coaches who do not play kids injured and ask that those who knowingly do be reprimanded or released.

We can insist that coaches are background checked and have had at least some training in what is and is not developmentally appropriate for the children under their care.

When our children are involved with a sport, as parents we can insist the practices are short in duration and developmentally appropriate for our kids. We can make sure our kids have time to continue to pursue general fitness as an adjunct to their specific sport training.



Joan Edelman

*After a season of basketball, why not have your kid try gymnastics or fencing?*

Above all else, we can be good role models for our children. Live well, pursue fitness and talk to them about why it is important to be fit first before entering sports. This we must do. The current youth sports system in America is our pet creation, and we need to take ownership of its fruit, whether that be the next athlete-entertainer prodigy or a 400 percent increase in injuries to our children.

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Alfira Tellez-Hernandez/CrossFit Brand X

## About the Author

Jeff Martin owns and operates *CrossFit Brand X* with his wife Mikki Lee Martin, and they founded *CrossFit Kids* together. Jeff is Director of Youth Training for *CrossFit Headquarters* and holds the distinction of being one of a handful of instructors in the world to have been accorded the title of *CrossFit Coach*. His kids are surprised each morning that he can dress and feed himself.