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## How Sports Champions Develop May Not Be How You Think

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What makes a champion? Two popular theories, one from psychology and one from sports science, have emerged offering countering claims. According to the deliberate practice view, athletes who specialize early and engage in maximal amounts of coach-led practice will prevail. In contrast, according to the deliberate play view, athletes who play multiple sports for fun at young ages will prevail.

Which is correct? To an extent, the answer depends on the age of the athletes: When examining youth athletes, meta-analyses reveal results aligned with the deliberate practice view: Compared with their national-class counterparts, international-class athletes specialized earlier and had accumulated more coach-led practice in their main sport. However, when examining adult athletes, the pattern is the opposite: Compared with their national-class counterparts, world-class athletes specialized later and had accumulated more coach-led practice in other sports, but less overall practice in their main sport.

These results tell us that the oft-regaled tales of Tiger Woods and Serena Williams starting at a young age and focusing on their sport to become great champions are the exception, not the rule. In fact, these tales are often false: Both Tiger Woods and Serena Williams played multiple sports before specializing in their main sport.

Nonetheless, several questions often emerge after hearing these findings. Did the results differ by type of sport played? They did not. Were world-class athletes simply more talented athletes, better at multiple sports?

World-class athletes reached sports-specific milestones later than their national-class counterparts, indicating they were not outperforming the competition when they were younger. Does the deliberate play view explain these differences? Amount of peer-led play had little on performance at any age or level of competition.

These results align with other, more recent meta-analyses indicating that the top junior athletes do not become the top adult athletes (and that the top adult athletes were not top junior athletes). Junior performance explains less than 2% of the variance in performance as an adult. At the oldest junior age category, only 1 out of 4 international-level performers reach the international stage as adults. At one age category younger, the number drops to 1 out of 11. One age category younger, 1 out of 17. This suggests that talent identification based on a young athlete's current performance is misguided.

Why is youth performance such a poor predictor of later performance? Along with dropout due to burnout, injury, or other reasons, various predictors may develop at different times and speeds across individuals, such as biological maturation. My plenary partner, Craig Harrison, will continue this discussion, addressing various physiological issues in the context of developing sports champions.

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