

Does practice make an Olympian? Not by itself

July 28 2016, by Brooke Macnamara

We've all heard that "practice makes perfect," or at least that "perfect practice makes perfect." Is this true?

Some would unequivocally say "yes." In 1993, psychologist K. Anders Ericsson and colleagues proposed the [deliberate practice view](#), which suggests that high-quality practice – deliberate practice – largely explains performance differences across people.

In other words, the theory holds that if "Person A" is an expert and "Person B" is mediocre, then the large difference in their performance levels is attributed to a similarly large difference in how much each has practiced. The primary evidence provided for this claim was that the "best" student violinists in the 1993 Ericsson et al. study had, on average, accumulated 10,000 hours of deliberate practice, which was more than the averages of the lower-skilled groups.

This research was the precursor to the 10,000-hours rule coined by writer [Malcolm Gladwell](#) in 2008. The 10,000-hours rule – that it takes 10,000 hours of deliberate practice to become an expert – is a widespread idea discussed in many pop psychology and self-help books.

The notion that we can become anything we set our minds to with hard work and determination is one many people embrace. People can make major life decisions based on this idea, from how to raise one's children, to whether or not to quit one's job in pursuit of becoming a [PGA-level golfer](#).

As the Olympics get underway in Rio, we might well wonder if we – or our children – could have been on a field of our dreams had we practiced until we were nearly perfect. As a psychologist and researcher who studies expertise, I have data from studies that suggest that practice is no guarantee of proficiency.

This is important not only as the Olympics get underway but also as school sports begin a new year. Is the goal for your child to have fun? Learn new techniques? Socialize? Or, is it so your kid can practice hard and receive the best training in order to become the next Tiger Woods or Serena Williams? If the goal is the latter, you may want to reconsider.

The relationship between practice and sports performance

My colleagues and I recently published a [meta-analysis](#) – an examination of effects across all relevant studies previously conducted on a topic. Our meta-analysis synthesized findings from studies conducted on deliberate practice and [sports performance](#). We found that deliberate practice accounted for an average of only 18 percent of [sports performance](#) variance.

That is, when comparing higher skilled athletes in a sport to less skilled athletes in the same sport, practice explained only a minority of the differences in their performances. Higher-skilled athletes had also started their sport at about the same age as their less skilled counterparts.

While 18 percent is nothing to scoff at, it is a far cry from the idea that deliberate practice – training with the goal of improving – largely accounts for variance in performance across athletes. It is also a far cry from the notion that an expert will emerge at the end of 10,000 hours of practice. Furthermore, it runs counter to the idea that starting earlier is

better.

We also found the amount of explained performance differences by deliberate practice did not change significantly when considering different types of sports or athletes.

For example, deliberate practice explained similar amounts whether it was a ball sport or a nonball sport, or whether it was a [team sport or an individual sport](#). The amount of explained performance variance was also similar when examining youth athletes and adult athletes.

One of the few significant factors to affect the outcome was [skill level](#). When examining only elite athletes – those competing at the national, international and world championship or Olympic levels – the effect of [deliberate practice](#) was reduced to a scant one percent of the variance in performance. This result suggests that practice is necessary to reach a high level of performance, but that it does not distinguish the good from the great.

For example, the average professional tennis player and Serena Williams have probably practiced similar amounts and continue to train hard. Practice was an important factor for both these players in reaching the elite professional level. However, Serena Williams – the current dominant number one – is a much better tennis player than the average professional tennis player. At the elite level, differences in performance do not correspond to differences in amount of practice.

If not just practice, what else matters?

[Other factors](#) that are likely to play a part include propensity to injury; personality traits like confidence; cognitive abilities that affect how quickly one processes or responds to information; and genes that affect physical traits such as height, percentage of fast/slow twitch muscles,

maximum blood oxygenation level and how well a person's body responds to physical training.

Sports performance is complex. Identifying whether your child is on a road headed toward the Olympics or a road headed toward recreational enjoyment may not be easy. However, the evidence is clear that practice alone does not define the path.

This does not mean that parents, coaches and others who work with young athletes should discourage their charges from practicing. People should be able to make well-informed decisions about their time, effort and money. If people believe that practice is the only important factor for expertise and have the goal of making their child a master athlete, they may be setting themselves – and their children – up for disappointment. If other kids keep performing better than their child, parents and their children may feel like failures and think, "I must not have tried enough. I must have given up too easily."

Instead, with evidence-based knowledge, parents can make decisions about which activities to pursue based on their children's abilities, traits, enjoyment and interest. If other kids keep performing better, it is an opportunity to assess whether the resources are worth the benefits to the athlete or whether something else might be more fulfilling.

In other words, if children are focused on only one activity in pursuit of becoming the best, they might miss out on [finding the activities that better match their unique contributions](#). That is, they might not have a chance to discover or have time to pursue the area or areas where they could really excel.

If activities are pursued based on abilities, traits, enjoyment and interest, there is a better chance of effort translating to excellence. Knowledge of current scientific evidence – as opposed to only appealing notions from

self-help and pop-psychology books – improves your ability to make decisions that lead to your children's best chances of success and lifelong satisfaction.

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