



Strategies

A Journal for Physical and Sport Educators

ISSN: 0892-4562 (Print) 2168-3778 (Online) Journal homepage: www.tandfonline.com/journals/ustr20

In Pursuit of Excellence: Utilizing Deliberate Practice and Other Types of Practice to Positively Impact Performance in Sport

Graeme J. Connolly

To cite this article: Graeme J. Connolly (2025) In Pursuit of Excellence: Utilizing Deliberate Practice and Other Types of Practice to Positively Impact Performance in Sport, *Strategies*, 38:6, 3-9, DOI: [10.1080/08924562.2025.2545766](https://doi.org/10.1080/08924562.2025.2545766)

To link to this article: <https://doi.org/10.1080/08924562.2025.2545766>



Published online: 17 Oct 2025.



Submit your article to this journal [↗](#)



Article views: 32



View related articles [↗](#)



View Crossmark data [↗](#)

In Pursuit of Excellence:

Utilizing Deliberate Practice and Other Types of Practice to Positively Impact Performance in Sport

By Graeme J. Connolly

Athletes and coaches have a vested interest in understanding what types of skills are trainable and ways to improve these skills. Indeed, the concept of deliberate practice proposed by Ericsson et al. (1993) has become fundamental to this understanding. Ericsson et al.'s (1993) original research, titled "The Role of Deliberate Practice in the Acquisition of Expert Performance," examined the "conditions for optimal learning and improvement of performance" (p. 367) with students who attended an internationally renowned music academy. Since then, researchers have applied Ericsson et al.'s (1993) initial findings to

understand better how athletes acquire superior skills (Eccles, 2020; Ford et al., 2015) as well as to specifically address the different conditions for training typically available to athletes in contrast to other performers (Starkes et al., 1996). This sports-related research can be useful to athletes, and especially coaches, who can benefit greatly from learning more about deliberate practice (as well as other types of practice) and how it can be employed effectively.

This article will provide a user-friendly guide to deliberate practice and other types of practice for practitioners. First, it will provide a definition of deliberate practice and

© iStockphoto/SDI Productions



Deliberate practice has qualities that set this type of practice apart from other types of practice, such as merely doing multiple repetitions of a given task, as in a customary practice drill.

Table 1. Criteria for (Original) Deliberate Practice

A. Individualized Design of Effective Practice
Teacher (i.e., coach) conducts individualized diagnosis
Student (i.e., athlete) is given explicit instructions about the best method
B. Active Responses to a Task
Explicit goal for performance
Immediate formative feedback
Repetition of same or similar task
C. Individualized Assessment of Skill and Design of Future Practice
Teacher (i.e., coach) monitors improvement and use of more complex and challenging tasks
Teacher (i.e., coach) organizes sequence of appropriate training tasks

briefly outline the key characteristics. Second, it will provide a brief overview of the research underpinning deliberate practice (and other types of practice) primarily through the lens of sports and improved athletic performance. Third, some key principles of applying deliberate practice and other types of practice will be outlined. Finally, in the concluding section, some common pitfalls to avoid in understanding and applying deliberate practice will be shared.

Deliberate Practice: Definition and Key Characteristics

Deliberate practice has qualities that set this type of practice apart from other types of practice, such as merely doing multiple repetitions of a given task, as in a customary practice drill (Ericsson et al., 1993, 2016). Specifically, deliberate practice is goal-driven, involves individualized expert feedback and guidance using established training techniques on how to improve, and requires full attention and effort in an attempt to move beyond one’s current level of performance (Eccles et al., 2022). The original criteria for deliberate practice are summarized in Table 1 and are informed by more recent content from Ericsson (2020).

With respect to sport and athletic performance, Starkes et al. (1996) generalized the concept of deliberate practice by using two different domains, namely figure skating and wrestling. Starkes et al. reasoned that “deliberate practice is not play, not paid work, not watching the skill being performed, not inherently enjoyable, requires effort and attention from the learner, and often involves activities selected by the coach or teacher to facilitate learning” (p. 82). Deliberate practice may be distinguished from another important type of practice referred to as deliberate play. Deliberate play is less structured and allows for variability with equipment, players, and venues (Côté et al., 2009). It provides a sense of intrinsic

motivation and delivers an enjoyable environment in which to participate (Huber, 2013). Deliberate play is an important antecedent for eventually engaging in deliberate practice. During the early years, young athletes engage in high quantities of deliberate play and low quantities of deliberate practice (Côté & Hayes, 2002). As athletes continue in their sporting activities, they engage in increasingly more deliberate practice.

As outlined by Huber (2013), the sport-related research on deliberate practice has identified numerous key characteristics that can inform best practices and underpins the subsequent guidance for application discussed later in this article. A selected list of these key characteristics of deliberate practice can be found in Table 2.

Research Behind Deliberate Practice in Sport

Ericsson et al. (1993) proposed that an individual’s level of performance is a direct result of their accrued engagement in deliberate practice over time. Also, they proposed that in any domain, experts have accumulated thousands of hours of deliberate practice over many years, and more hours than less-skilled performers. Indeed, reviews of studies of the practice history of expert athletes constantly reveal that expert athletes have amassed thousands of hours of deliberate practice in their sport, and more hours than their novice counterparts (e.g., Eccles, 2020).

As referenced by Ericsson (2020),

[O]ne of the challenges of applying the concept and definition of deliberate practice to sports is that very few sports have until recently had sufficient resources to financially support full-time coaches and trainers so that they can work with athletes on a one-on-one basis so they can individualize the training of each athlete in a manner similar to that of the training of instrumental musicians. (p. 173)

Table 2. Key Characteristics of Deliberate Practice

Characteristic	Benefits
Established knowledge base	Athletes develop a deep and diverse knowledge base about their sport and how to elevate performance.
Specific goals	Every phase of practice has purpose and meaning for athletes and contributes to improved performance.
Highly relevant	Those activities that are most closely aligned with actual competition are most valued by athletes.
Elevated level of effort	Effort levels are illustrated and continually monitored to ensure optimal training for athletes.
Elevated level of concentration	Focus and attentiveness are honed so athletes can sustain a high level of mental concentration.
Highly structured	Athletes are engaged in well-managed and efficient practices with no time wasted.
Prompt, informative feedback	Immediate and informative feedback on skill performance/corrections are necessary for athletes.
Time and energy	Significant investment of time and energy are required by the athlete (and other stakeholders) to attain improved performance.
Working closely with a coach	Strong working relationship with a highly knowledgeable coach can have a significant impact on an athlete's performance.

Despite the challenges in applying the original criteria for deliberate practice in sports, there are other types of practice that meet several, but not all, criteria for deliberate practice and may therefore offer some additional positive outcomes and applications for coaches and athletes. One type of practice was named *purposeful practice* by Ericsson and Pool (2016, p. 97). It resembles goal-directed practice without a coach who guides the selection of practice goals and recommends validated methods of practice. This type of practice is quite common with athletes in individual sports where they get immediate feedback, and can perform the tasks repeatedly, until a new goal has been attained. Ericsson and Pool (2016, p. 97) also suggested the name *naïve practice* that refers to practice that primarily involves engaging in a particular activity, such as running for more time to improve running performance and playing more games in soccer to improve game play. Several studies have examined the differential and potentially beneficial effects of engaging in purposeful practice versus naïve practice in sports (Duffy, 2004; Hodges et al., 2004; Huttermann et al., 2014; Ward et al., 2007).

In a study of amateur and professional dart players, Duffy et al. (2004) were able to compile data on objective performance (single dart average). They found that the number of accumulated hours of solitary practice was significantly correlated with dart averages ($r=0.5$), whereas the number of accumulated hours spent playing in competitions was not. Similarly, in a study of recreational and collegiate bowlers, Harris (2008) found that the average bowling score correlated with the number of accumulated hours of solitary practice $r(30) = 0.82$, which was significantly higher than the correlation with accumulated hours of bowling for fun.

Hodges et al. (2004) were able to directly relate the amount of sport-specific training, active leisure, and fitness training to performance in triathletes and swimmers with

different levels of objective performance. They found that the amount of sport-specific training accounted for 38% to 63% of the variance in performance for triathletes and swimmers for longer distances, whereas the engagement in active leisure and fitness activities did not.

Another type of practice where individual differences in the accumulated duration of these activities have also been found to be correlated significantly with higher attained performance is *coach-led practice* with teams. In a traditional team sport context, most of the practice time with a coach involves training in groups. Huttermann et al. (2014) differentiated between coach-led group practice (i.e., structured practice) and individual exercise directed toward particular skills, which they referred to as “deliberate practice” (p. 27). The latter type of practice is more accurately described as purposeful practice. When Huttermann et al. (2014) analyzed the allocation of time during practice sessions, they found that more skilled teams spent a greater proportion of time on purposeful practice (i.e., deliberate practice) than less skilled teams. Similarly, Ward et al. (2007) found that national-level youth soccer players have accumulated more coach-led practice than amateur soccer players of the same age. Therefore, it seems reasonable that engaging in more coach-led practice should prepare athletes for improving their performance more than spending the same amount of time in naïve practice.

These reviewed studies demonstrate that the effect of the accumulated duration of specific types of practice (i.e., purposeful and coach-led team practice) has been found to be more related to performance than the accumulated duration of many other types of practice (i.e., naïve practice). Furthermore, the activities that have higher correlations with attained performance meet more of the criteria for deliberate practice (see Table 1), such as individual lessons with coaches to guide purposeful practice. Further evidence for the importance of considering types of practice activities



was provided by Ericsson and Harwell (2019), who reported a significantly higher amount of variance in performance that could be attributed to individual differences in practice than MacNamara et al.'s (2014) original analysis.

Key Principles for Applying Deliberate Practice in Sport

As a coach, you should familiarize yourself with the most important characteristics of deliberate and/or purposeful practice (revisit [Table 2](#) for a more extensive list) to help create a more productive training environment and positively impact your athletes' performance. By making a concerted effort to implement at least some of these key characteristics, you can improve the quality of your practices and make better use of the time available to facilitate more productive practices. Therefore, ask yourself these questions about your athletes and your training program: Are you developing a knowledge base about the sport? Are you utilizing an appropriate level of intensity? Are you demanding an appropriate level of mental concentration? Are you working closely with your athletes and fostering a supportive environment?

You can assist athletes in developing a deep and diverse knowledge base about their sport and how to elevate their performance in a multitude of ways. This can start with the

periodic dissemination of pertinent information that will resonate with your athletes. For example, you can devote some time before or after practice to watch a short video, listen to a brief podcast, or present an educational mini-lecture. More specifically, a brief informational session on “fueling athletes” could address the knowledge gap that is commonplace in today’s athletic contexts. In addition, you can distribute a weekly handout with specific information on some important aspects of the sport. Similarly, you can save copies of articles you like and share them electronically or post them in your team locker room. Moreover, once or twice a season, you can invite a guest coach to work with your athletes or organize an expert panel to address hot topics and current trends and issues in the sport. Finally, you can direct your athletes to credible online resources and encourage them to become more intelligent consumers of relevant and applicable sports performance-related content, especially when using electronic devices.


One of the significant challenges for coaches is to determine an appropriate level of intensity for practice sessions to manage the somewhat delicate balance between fatigue and performance. Athletes certainly experience fatigue after particularly intense training sessions, but they can typically recover within a few days of these strenuous bouts. When practice is sustained at an unrelenting pace and without

appropriate recovery for months, some athletes develop overtraining syndrome (Halson & Jeukendrup, 2004), which is often associated with negative feelings and lowered performance. Therefore, athletes wanting to progressively develop their physical (and mental) capabilities will benefit from the coach's guidance regarding the specific intensities of practice activities employed as well as a reasonable weekly distribution of training that minimizes the risk of overtraining.

Similarly, it is important for you to expose athletes to the appropriate level of intensity required to positively impact their performance. Often athletes need to hear it, see it, or experience it to appreciate fully the amount of effort and work required to get better. For example, invite a more accomplished athlete to talk to the team about effort level or share a podcast or video clip of a well-known and respected athlete that would resonate with your group. Also, take your athletes to view higher-level teams and athletes practice and train. Organize a visit to a college, semiprofessional, or professional practice facility to observe their practices and hear from some of the players and coaches during your visit. This can certainly be an eye-opening and inspirational experience for many athletes, especially those who are younger and competing at the high school and travel/club level. Such opportunities can help to clearly illustrate, as well as solidify, the appropriate level of intensity and effort needed to train harder and smarter.

There are some domains of sport where the intensity of physical effort is not as critical to elevating performance, yet the willingness and ability to sustain a high level of mental concentration emerges as a limiting factor. In essence, concentration is a skill that needs to be developed and honed by coaches so athletes can learn to regulate it and maintain it for critical periods of time. Thus, it is important to acknowledge that engaging in purposeful and deliberate practice requires full concentration. Indeed, Ericsson et al. (1993) found that musicians only engaged in it for around an hour without taking a break and limited the time in deliberate practice to four to five hours each day. This study and succeeding reviews (Ericsson, 2018) have found that the maximal daily time of concentration was constrained by the age and skill level of the performers in a wide range of domains. As a coach, you can expect beginning athletes to be limited to around 15 to 20 minutes of full concentration, whereas athletes with many more years of daily training only gradually reach the hypothetical four- to five-hour daily limit. Therefore, your practice activities and training regimens will need to be adjusted accordingly to accommodate the variability in athletes' age, experience, and mental concentration capabilities.

Purposeful and deliberate practice also requires a substantial commitment of time and energy by the athlete and coach. Consequently, as a coach, you need to help support your athletes and work on developing a strong coach-athlete relationship. Sloane (1985) noted the important role a support group can play in helping aspiring athletes train purposefully and deliberately. It takes numerous stakeholders to nurture and support a devoted and focused athlete. Of primary importance are parents and significant others. These



Purposeful and deliberate practice also requires a substantial commitment of time and energy by the athlete and coach.

caregivers must find time and energy to support an athlete in many ways, including providing transportation to and from practice and competitions, making meals, and reorganizing their schedules to be present at athletic activities and events. Other support members include coaches, athletic trainers, teachers, and peers. These individuals are necessary to encourage athletes to remain engaged and committed to purposeful and deliberate practice. This is especially true for coaches who often spend the most “quality” time engaged in deliberate practice-related activities with these developing athletes.

This close relationship between athletes and coaches is one of the most important factors for athlete success. Indeed, Starkes et al. (1996) found that high-level wrestlers and ice skaters rated working closely with their coach as the second most important aspect of deliberate practice (with only on-ice training and mat work being rated higher). As outlined by Huber (2013), “[F]rom a humanistic perspective, developing a close relationship is possible when emphasizing genuineness, open communication, honesty, and trust. These humanistic qualities create an atmosphere that invites your athletes to connect with you and work with you on a deeper and more meaningful level” (p. 243). Thus, establishing a strong coach-athlete relationship is critical for productive practices and ultimately improving athletic performance.

Common Pitfalls to Avoid in Understanding and Applying Deliberate Practice

Eccles et al. (2022) recently delineated some common pitfalls to avoid when utilizing deliberate practice to positively impact performance in sport. The first is “thinking that deliberate practice is simply practice” (p. 23). It is not! In order for practice sessions to be effective, they need to be goal-led, directed by expert feedback and guidance, and generally in line with the definition and characteristics of deliberate practice. The second is “thinking that deliberate practice is about out-practicing or out-working others” (p. 24). As alluded to previously, deliberate practice requires total application and focus, and thus is demanding and challenging. However, there are limits to deliberate practice that need to be adhered to, so that athletes can recover mentally and physically. So, as a coach,



you need to avoid the social pressures to out-practice and out-work others and be acutely aware of your athletes' need for comparatively restful activities as well. The last is "avoiding attempts to improve a skill just because you cannot fully apply all of the principles of deliberate practice to that skill" (p. 24). Some careful research can invariably yield information that can inform training for skills that may not have established techniques or when expert coach feedback is expensive or in short supply. For example, an Internet video uploaded by an enthusiastic hobbyist can provide valuable informal knowledge to complement what you already know; also, you could upload videos of an athlete's performance to obtain feedback from forums of more experienced and knowledgeable athletes or coaches. This is customary in track and field, golf, and rock-climbing contexts.

Conclusion

The implementation of these ideas and concepts can help coaches to train their athletes more purposefully and deliberately. Let the principles and characteristics of deliberate practice (and other types of practice) be your guide for shaping practice activities, the training environment, athlete behaviors, and coaching traits. Use this blueprint to chart a path toward positively impacting your athletes' performance over time.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

References

- Côté, J., & Hayes, J. (2002). Children's involvement in sport: A developmental prospective. In J.M. Silva & D. Stevens (Eds.), *Psychological foundations* (2nd ed., pp. 484–502). Merrill.
- Côté, J., Lidor, R., & Hackfort, D. (2009). ISSP position stand: To sample or to specialize? Seven postulates about youth sport activities that lead to continued participation and elite performance. *International Journal of Sport and Exercise Psychology*, 7(1), 7–17. <https://doi.org/10.1080/1612197X.2009.9671889>
- Duffy, L. J., Baluch, B., & Ericsson, K. A. (2004). Dart performance as a function of facets of practice amongst professional and amateur men and women players. *International Journal of Sport Psychology*, 35, 232–245.
- Eccles, D. W. (2020). Expertise: The state of the art. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of sport psychology* (4th ed., pp. 465–486). Wiley.
- Eccles, D. W., Leone, E. J., & Williams, A. M. (2022). Deliberate practice: What is it and how can i use it? *Journal of Sport Psychology in Action*, 13(1), 16–26. <https://doi.org/10.1080/21520704.2020.1850577>
- Ericsson, K. A. (2016). Summing up hours of any type of practice versus identifying optimal practice activities: Comments on Macnamara, Moreau, and Hambrick (2016). *Perspectives on Psychological*

Science, 11(3), 351–354. <https://doi.org/10.1177/1745691616635600>

- Ericsson, K. A. (2018). The differential influence of experience, practice, and deliberate practice on the development of superior individual performance of experts. In K. A. Ericsson, R. R. Hoffman, A. Kozbelt, & A. M. Williams (Eds.), *Cambridge handbook of expertise and expert performance*. (2nd Revised ed., pp. 745–769). Cambridge University Press.
- Ericsson, K. A. (2020). Towards a science of the acquisition of expert performance in sports: Clarifying the differences between deliberate practice and other types of practice. *Journal of Sports Sciences*, 38(2), 159–176. <https://doi.org/10.1080/02640414.2019.1688618>
- Ericsson, K. A., & Harwell, K. (2019). Deliberate practice and proposed limits on the effects of practice on the acquisition of expert performance: Why the original definition matters and recommendations for future research. *Frontiers in Psychology*, 10, 2396. <https://doi.org/10.3389/fpsyg.2019.02396>
- Ericsson, K. A., & Pool, R. (2016). *Peak: Secrets from the new science of expertise*. Eamon Dolan Books/Houghton Mifflin & Harcourt.
- Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406. <https://doi.org/10.1037/0033-295X.100.3.363>
- Ford, P. R., Coughlan, E. K., Hodges, N. J., & Williams, A. M. (2015). Deliberate practice in sport. In J. Baker & D. Farrow (Eds.), *Routledge handbook of sport expertise* (pp. 347–362). Routledge.
- Halson, S. L., & Jeukendrup, A. E. (2004). Does overtraining exist? An analysis of overreaching and overtraining research. *Sports Medicine (Auckland, N.Z.)*, 34(14), 967–981. <https://doi.org/10.2165/00007256-200434140-00003>
- Harris, K. R. (2008). Deliberate practice, mental representations, and skilled performance in bowling (Doctoral dissertation). Florida

State University. Electronic Theses, Treatises and Dissertations, Diginole Commons. (Paper No. 4245).

- Hodges, N. J., Kerr, T., Starkes, J. L., Weir, P., & Nananidou, A. (2004). Predicting performance from deliberate practice hours for triathletes and swimmers: What, when and where is practice important? *Journal of Experimental Psychology. Applied*, 10(4), 219–237. <https://doi.org/10.1037/1076-898X.10.4.219>
- Huber, J. J. (2013). *Applying educational psychology in coaching athletes*. Human Kinetics.
- Hüttermann, S., Memmert, D., & Baker, J. (2014). Understanding the microstructure of practice: Training differences between various age classes, expertise levels and sports. *Talent Development and Excellence*, 6, 17–29.
- Macnamara, B. N., Hambrick, D. Z., & Oswald, F. L. (2014). Deliberate practice and performance in music, games, sports, education, and professions: A meta-analysis. *Psychological Science*, 25(8), 1608–1618. <https://doi.org/10.1177/0956797614535810>
- Starkes, J. L., Deakin, J. M., Allard, F., Hodges, N. J., & Hayes, A. (1996). Deliberate practice in sports. What is it anyway? In K. A. Ericsson (Ed.), *The road to excellence: The acquisition of expert performance in the arts and sciences, sports and games* (pp. 81–106). Erlbaum.
- Ward, P., Hodges, N. J., Starkes, J. L., & Williams, A. M. (2007). The road to excellence: Deliberate practice and the development of expertise. *High Ability Studies* 18, 119–153. <https://doi.org/10.1080/13598130701709715>

Graeme J. Connolly (gconnolly@augusta.edu) is an associate professor and graduate program director in the Department of Kinesiology at Augusta University in Augusta, GA.

SHAPE America Health and Physical Education Resources



Read excerpts, view the table of contents, request a review copy, and more at [US.HumanKinetics.com](https://www.us.humankinetics.com).



HUMAN KINETICS

[US.HumanKinetics.com](https://www.us.humankinetics.com)