Stress, Psychological Factors, and Performance in Adolescent Athletes: A Literature Review of Internal & External Factors

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Abstract

This literature review examines how internal psychological factors and external influences affect the way adolescent athletes respond to stress and how those responses relate to athletic performance. The review focuses on athletes ages 12–25 and brings together research on perceived control, self-efficacy, attention, motivation, personality, stress appraisal, coping, resilience, social support, and physical recovery. Across the research, one of the clearest patterns is that stress does not affect every athlete in the same way. How athletes interpret a stressful situation, the psychological resources they have available, and the environment around them can all influence how they respond. Factors such as confidence, perceived control, resilience, and coping were often associated with more positive responses to pressure, while social support and physical recovery also played important roles. However, the findings also show that improving psychological skills does not always lead to an immediate improvement in objective athletic performance. Differences in age, study design, performance measures, and reliance on self-report also limit how broadly some findings can be applied. Overall, performance under stress appears to depend on the interaction between the stressor, the athlete, and the surrounding environment rather than on any single psychological trait or coping strategy.

Stress, Psychological Factors, and Performance in Adolescent Athletes: A Literature Review of Internal & External Factors

Sports are a major part of adolescence for many young people. In the United States, 55.6% of youth ages 12–17 participated in organized sports in 2020 (Black et al., 2022). Participating in sports can have physical benefits, but it has also been associated with better self-esteem, social interaction, and other psychological and social outcomes in children and adolescents (Eime et al., 2013). However, as sports become more competitive, athletes are placed in situations in which they are expected to perform while dealing with different forms of pressure.

Competition can create stress, but adolescent athletes can also experience stress from coaches and parents, relationships with teammates, injuries, academics, balancing sport with the rest of their lives, and their own expectations for success. Even when two athletes experience similar stressors, their reactions can be completely different. One athlete might become more focused when pressure increases, while another might become anxious, distracted, or less confident. Because of these differences, the amount of stress an athlete experiences by itself cannot fully explain the performance that follows. The bigger question is why some adolescent athletes are able to perform well under stress while others struggle in similar conditions. The goal of this review is to examine how internal and external factors influence adolescent athletes' responses to stress and how those responses relate to athletic performance.

Adolescence is an especially important developmental period because many psychological skills are still developing. Developmental research suggests that adolescence begins with the onset of puberty and ends with the transition to a stable adult role, and this transition can continue into the early twenties (Sawyer et al., 2018). Given this wide range, this review considers athletes ages 12–25, allowing both younger adolescents and emerging adults to be included. Some of the studies used broader samples, so findings from older participants cannot automatically be assumed to apply to a 12- or 13-year-old athlete.

The development of coping skills is another reason adolescence is such an important period. Research synthesizing qualitative work on adolescent athletes shows that stress appraisal and coping are not necessarily fixed traits. They can change depending on the situation, previous experience, social environment, and what athletes have learned from earlier stressors (Tamminen & Holt, 2010). This means that many of the differences between athletes should not be viewed as stable personality traits. Confidence, coping, attention, and even how controllable a situation feels can develop with experience.

The psychosocial factors in this review can generally be divided into internal and external factors. Internal factors include perceived control, self-efficacy, attention, motivation, personality, athletic identity, stress appraisal, coping, resilience, and an umbrella concept of mental toughness. External factors include parenting, coaching, teammates, and the broader performance environment. These categories are not completely separate because outside experiences can change an athlete internally, and internal experiences can impact how an athlete responds to external factors. Overall, the research suggests that performance under stress depends not only on the pressure itself, but on how the athlete interprets it, what psychological resources they have, how they respond, and what type of environment surrounds them.

Internal Factors

Internal factors refer to psychological characteristics and processes within the athlete that can influence how they respond to stress. Some may be relatively stable, while others can change through development, experience, training, and the athlete's environment. This review focuses on perceived control, self-efficacy, attention, motivation, personality, athletic identity, stress appraisal, coping, resilience, and mental toughness. Because the studies reviewed do not directly examine genetics, these factors are treated as shaped by individual differences and experience rather than purely fixed traits.

Previous Experience & Coping Development

The qualitative research reviewed by Tamminen and Holt (2010) describes coping as a developmental process in which reflection and experience can help athletes gain new coping skills. Adolescent athletes may not begin with a complete set of coping skills and then use the same strategies throughout their careers. Instead, previous competitive experiences can contribute to the development of coping by allowing athletes to learn from earlier competitions, injuries, mistakes, conflicts, and other stressful situations. Some athletes reported using certain coping strategies because those strategies had been successful in the past. Tamminen and Holt (2010) also found evidence that older and more experienced athletes may cope more effectively with stressors than younger and less experienced athletes, although they noted that it was unclear whether experience itself was the reason for better coping. Overall, these findings suggest that previous experience can shape how athletes respond to stress over time.

Perceived Control & Self-Efficacy

One psychological factor that may influence how athletes respond to stress is perceived control, or the extent to which they believe their actions can influence a situation. An athlete who believes they can influence a difficult situation may have stronger skills for managing pressure, such as controlling stress, staying focused, and refocusing after setbacks, than an athlete who believes the outcome is mostly outside their control. More specifically, an internal locus of control means that someone generally believes their own actions can influence what happens, while sense of coherence refers to viewing situations as understandable, manageable, and meaningful. Fallby et al. (2006) studied 198 Swedish elite individual athletes using questionnaires measuring locus of control, sense of coherence, and different mental skills. The athletes were about 20–21 years old on average. Athletes who had a more internal locus of control and a stronger sense of coherence scored higher on nine of 12 mental skills, including confidence, stress control, relaxation, focusing, and refocusing. Although Fallby et al. (2006) did not directly measure athletic performance, they summarized previous research linking mental skills such as coping, self-confidence, goal setting, anxiety regulation, and imagery with better performance in elite athletes. This study supports a relationship between feeling in control and having stronger mental skills, but the study was cross-sectional, meaning everything was measured at one point in time. Because of that, it cannot prove that perceived control caused stronger mental skills. It could also be that athletes who already had stronger confidence and coping abilities were more likely to feel in control (Fallby et al., 2006).

While perceived control concerns whether athletes believe they can influence a situation, self-efficacy refers more specifically to their confidence in their ability to handle its demands. Wang et al. (2025) surveyed 603 professional swimmers with an average age of about 18 and examined self-efficacy, character strengths, stress appraisal, and athletic performance level. Greater self-efficacy was positively associated with performance and also helped statistically explain part of the relationship between positive character strengths and performance.

Taken together, research on perceived control and self-efficacy suggests that athletes' beliefs about their ability to influence and manage stressful situations may shape how they interpret and respond to pressure. If an athlete believes both that they have some control over what happens and that they have the ability to respond successfully, they may be less likely to see the situation as overwhelming. The available data suggest that perceived control and self-efficacy seem closely related rather than acting separately.

Attention Ability

Attention becomes especially important once stress starts creating distractions. During competition, athletes may need to ignore crowd noise, expectations, physical discomfort, thoughts about the result, or a mistake that happened only moments earlier. Being able to refocus after something goes wrong may be just as important as staying focused in the first place.

The relationship between control and attention appeared in Fallby et al. (2006), where athletes with stronger internal control and sense of coherence also reported stronger focusing and refocusing skills. Although this does not prove that feeling in control causes better attention, it does show how the two internal factors may work together.

While some research examines how attention relates to other psychological characteristics, other studies have investigated whether attention-related skills can be strengthened through targeted interventions. There is evidence that attention-related abilities can improve through training. Sifi et al. (2026) randomly assigned 30 trained swimmers, averaging approximately 20 years old, to either a 3-week mindfulness intervention or normal swim training. The mindfulness group completed breathing, body-awareness, and attentional-focus exercises. The mindfulness group improved more in several mental-skill areas, including cognitive skills related to controlling distractions and psychosomatic skills such as stress management and relaxation, but they did not show a significant advantage in 400-meter swimming performance compared with the control group. This result is important because it separates psychological improvement from athletic performance. The athletes could become better in areas related to focus and self-regulation without immediately becoming faster swimmers. Cognitive abilities, including attention, are still important for handling stress, but they are only one part of what determines performance.

Motivation & Passion

Motivation can influence how much effort athletes put into improving, but one of the more interesting findings from this research is that the type of motivation matters, not just whether someone is highly motivated.

Vallerand et al. (2008) used a prospective design to examine passion, practice, and performance. Their first study included 184 high-school basketball players with an average age of 16. Athletes completed measures of harmonious and obsessive passion. Harmonious passion describes being strongly involved in a sport while still having a sense of choice and balance. Obsessive passion involves feeling more controlled by the sport or feeling like participation has to happen. Athletes completed measures of passion and deliberate practice before the first game of the tournament, and coaches rated their offensive performance after the game. Deliberate practice means structured and focused practice that is specifically done to improve skills or weaknesses rather than simply participating in normal training. Both harmonious and obsessive passion were associated with greater deliberate practice, which was then associated with better performance. What makes this finding interesting is that obsessive passion was not simply negative.

However, goals connected with each form of passion were different. Harmonious passion was associated with mastery goals (focused on self-improvement rather than outperforming others) and greater well-being, while obsessive passion was also associated with performance-avoidance goals, or goals focused on avoiding poor performance and failure. Those performance-avoidance goals were negatively related to performance.

A second study with 67 synchronized swimmers and water-polo athletes generally supported the same model (Vallerand et al., 2008). For example, athletes with stronger mastery goals reported more deliberate practice 4 months later; higher levels of deliberate practice then predicted higher coach performance ratings 1 month after that. This shows why describing someone as simply “motivated” does not explain everything. Two athletes may both practice constantly, but one may be focused on improving while another is partly motivated by fear of failing. The amount of motivation can look similar from the outside while having different psychological effects.

Personality & Athletic Identity

Some internal factors may be relatively stable. For instance, Type D personality combines negative affectivity, or a tendency to experience negative emotions more often, with social inhibition, or a tendency to hold back around other people.

Borkoles et al. (2018) examined Type D personality in two studies. The first included 482 athletes who reported a recent sport stressor and completed measures of stress and coping. Athletes with Type D personality reported greater stress and greater use of emotion-focused and avoidance coping. The sample averaged about 20 years old but ranged beyond the main age range of this review (16–45), which may make it less directly applicable to younger adolescents.

Their second study included a performance task. Thirty-two participants completed a rugby league circuit while researchers measured confidence, anxiety, coping, and performance. Type D participants had lower pre-performance confidence, used more resignation or withdrawal coping, and performed worse on the task. The behavioral task makes the performance result more direct than a questionnaire, although a controlled circuit with only 32 participants is still different from a real high-pressure competition.

Athletic identity shows how individual factors can also have less obvious effects. Athletic identity refers to how strongly being an athlete is part of someone’s self-concept. It might seem like a stronger athletic identity would automatically create more stress because athletic successes and failures would feel more personal.

However, Walasavage et al. (2023) studied Division II female softball players and found a positive but statistically nonsignificant relationship between athletic identity and perceived stress. Twenty-seven athletes were originally recruited and 23 provided complete data for the correlation. This small sample limits how much can be concluded from the result, but it still shows that identity alone may not be enough to predict how much stress someone experiences.

This is also where the idea of trait versus state becomes useful. Type D personality is closer to a stable trait, while confidence, attention, perceived control, and emotional reactions may change much more between situations and across development. Athletic identity can develop over time as well. Instead of organizing every factor as either completely fixed or completely changeable, it makes more sense to think of them as existing at different levels of stability.

Stress Appraisal

Stress appraisal and coping are closely related, but they are not the same thing. Appraisal involves how the athlete interprets what is happening, while coping refers to what the athlete does to deal with it. Keeping the two separate helps explain the process between experiencing stress and responding to it.

A stressful event does not automatically produce the same psychological reaction in every athlete. Wang et al. (2025) also examined stress appraisal in the same sample of 603 professional swimmers. Athletes self-reported their appraisals using the Athlete Stress Evaluation Scale, which presented eight sport-related scenarios and measured challenge, threat, and injury appraisals. Challenge appraisal was positively associated with athletic performance level, while threat and injury appraisals were negatively associated with performance. Challenge appraisal occurs when someone sees a situation as difficult but believes they have enough resources to deal with it. Threat appraisal occurs when the demands appear greater than the athlete's available resources. This matches the broader adolescent coping research, where appraisal was found to change depending on the athlete and the situation (Tamminen & Holt, 2010).

Emotional states are also connected with performance, although the way those emotions are measured matters. Lane et al. (2010) studied 284 university athletes with an average age of about 21. Athletes were asked to remember their emotions before one performance they considered optimal and another they considered dysfunctional. Pleasant emotions were reported more strongly before remembered optimal performances, while unpleasant emotions were more common before dysfunctional ones. Emotional intelligence was also related to more pleasant emotional states (Lane et al., 2010).

However, this study was retrospective. The athletes already knew whether those performances had gone well or badly when they were asked to remember their emotions. Memory could therefore affect their responses. The study supports a relationship between emotions and performance, but it is less direct than actually measuring emotions during competition.

Coping and Resilience

After an athlete experiences a stressful situation, coping involves the efforts they use to manage it. These can include problem solving, seeking support, changing the way they think about the situation, relaxing, increasing effort, or sometimes avoiding the stressor. Adolescent athletes do not seem to use one strategy in every situation. Instead, coping changes depending on the stressor, the athlete's experience, and what resources they have available (Tamminen & Holt, 2010). Across the studies that Tamminen and Holt reviewed, adolescent athletes changed their coping strategies over time and as the stressors they faced changed. For example, in one study, coping regularly fluctuated across a 31-day period in adolescent golfers. In another study, golfers used varying strategies across different holes as their stressor appraisal changed. This is important because it suggests that coping strategies should not automatically be viewed as effective or ineffective on their own. Instead, the usefulness of a strategy may depend on the situation the athlete is facing.

Resilience is closely connected with coping. It is about how well someone adapts when dealing with difficulty or adversity. Li et al. (2025) surveyed 2,056 athletes, with about 72% of the participants between ages 18 and 22. Competitive pressure was positively related to pre-competition anxiety. Psychological resilience significantly mediated this relationship, meaning that resilience statistically accounted for part of the relationship between competitive

pressure and anxiety. Coping strategy also significantly moderated the relationship between competitive pressure and resilience, meaning that the strength of this relationship differed depending on the coping strategies the athletes used.

The large sample makes the relationships more convincing, but the design was still cross-sectional. The study cannot prove that competitive pressure first changed resilience and then produced anxiety. It also measured pre-competition anxiety rather than athletic performance itself, so it is better evidence for the psychological process leading into competition than for the final performance outcome (Li et al., 2025).

Zhou et al. (2025) looked at emotion regulation in a more realistic competitive setting. The researchers used ecological momentary assessment with 57 shooting athletes, meaning they measured emotions and regulation strategies close to when they were actually happening and correlated them with competition performance. Athletes used engagement strategies, such as reappraisal and problem solving, as well as disengagement strategies, such as avoidance and suppression.

Different strategies had different relationships with performance depending on the demands of the situation and the level of the athlete. Athletes also showed relatively low flexibility in adjusting strategies during competition (Zhou et al., 2025). This suggests that there may not be one coping or emotion-regulation strategy that is best, but that being able to match the strategy to the situation may be more useful (Tamminen & Holt, 2010; Zhou et al., 2025).

Mental Toughness as an Overlapping Resource

Mental toughness is often treated like its own major psychological factor, but it overlaps with many of the factors already discussed. Definitions of mental toughness commonly include qualities such as confidence, persistence, focus, coping, and emotional control (Soundara Pandian et al., 2023). Because of this, treating mental toughness as completely separate can lead to repetition.

Previous empirical research also shows how mental toughness overlaps with several of the psychological factors already discussed. For example, Nicholls et al. (2008, as cited in Soundara Pandian et al., 2023) found that mental toughness was related to several coping measures, optimism, emotional control, life control, and confidence across a sample of 677 athletes. The review also identified psychological-skills training, mindfulness, imagery, relaxation, and coping training as approaches that have been used to develop mental toughness (Soundara Pandian et al., 2023).

More direct evidence comes from Girginer et al. (2026), who randomly assigned 19 adolescent swimmers ages 13–18 to either normal training or 10 weeks of imagery and breathing exercises in addition to their normal training. The intervention improved mental toughness, measured using the 14-item Sports Mental Toughness Questionnaire that assessed confidence, constancy (persistent commitment), and control (staying composed in stressful situations). It also improved cardiac coherence, which the researchers interpreted as better regulation of the autonomic nervous system and greater coordination between physiological and psychological responses. Higher coherence may therefore help athletes regulate stress and maintain better focus during competition. However, both groups improved their 200-meter swimming performance, and the intervention group did not improve significantly more than the control group.

This finding is very similar to the mindfulness study by Sifi et al. (2026). In both cases, psychological measures improved without a clear intervention-specific improvement in objective swimming performance (Girginer et al., 2026; Sifi et al., 2026). Mental toughness may still help

athletes deal with pressure, but it should probably be viewed as a combination of several psychological resources rather than one separate quality that automatically produces better performance.

External Factors

Internal psychological resources develop inside an environment. Parents, coaches, teammates, and the larger conditions surrounding sport can either provide support or create more stress. This makes the external side of the stress response important because the same athlete may react differently depending on who is around them and what kind of situation they are in.

Caregiving

Parenting can affect the psychological resources that adolescent athletes develop. The study by Chen et al. (2025) provides stronger evidence than many of the cross-sectional surveys because the researchers used a three-wave longitudinal design. They followed 587 competitive athletes ages 12–18 and their caregivers across six provinces in China over about 9 months during the 2022–2023 season.

Authoritative parenting, which combines support and responsiveness with clear expectations, was associated with greater satisfaction of athletes' basic psychological needs, which was then connected with greater resilience and performance. In contrast, authoritarian parenting, which involves high demands with less responsiveness, was negatively related to performance through a serial mediation pathway that involved greater frustration of psychological needs and lower resilience. Permissive parenting, which is more responsive but places fewer demands and limits, also had a direct negative relationship with performance (Chen et al., 2025).

Because the researchers collected information at several points, this design gives more information about the order in which the variables were related than a cross-sectional study does. It still does not prove causation as strongly as a controlled experiment, but it strengthens the idea that parents may influence performance indirectly by helping shape the psychological resources athletes develop.

The age differences were also interesting. When the researchers compared age groups, the resilience-related pathway was stronger among athletes ages 15–18 than among those ages 12–14 (Chen et al., 2025). This suggests that the relationship between the environment and psychological resources may differ across stages of adolescence. However, the study did not follow the same athletes from early to late adolescence. A longer longitudinal study would be useful for testing whether these differences develop as athletes get older.

Coaching

Coaches can act as sources of support, instruction, evaluation, and pressure at the same time. Research on adolescent coping has identified coaching behaviors, including too much emphasis on winning, as potential stressors. Positive social relationships with coaches, on the other hand, can help athletes develop coping resources (Tamminen & Holt, 2010).

A limitation of the evidence included in this review is that there are few coach-focused intervention studies. The reviewed studies did not provide much experimental evidence, such as randomized controlled trials in which researchers changed coaching behavior and then measured its effects on athletes' stress or performance.

Because there is little experimental evidence on coaching interventions, there is limited evidence to suggest that one coaching style is best. Coach-focused studies can also be difficult because changing a coach's behavior affects an entire team and not every athlete will respond

in the same way. Still, coaches control feedback, expectations, training, and many parts of the competitive environment, so they remain an important area for future research.

Teammates

Teammates can influence an athlete's emotions in ways that would be missed if emotion regulation were treated as completely individual. Athletes regulate their own emotions, but they can also try to improve or worsen the emotions of people around them.

Tamminen et al. (2016) surveyed 451 athletes from 38 competitive Canadian teams. The athletes averaged 16.3 years old. The researchers measured athletes' attempts to regulate their own emotions and their teammates' emotions along with peer climate, sport enjoyment, and commitment.

Self-worsening emotion-regulation strategies, such as focusing on negative experiences or personal shortcomings and looking for problems in the situation, were associated with lower enjoyment. In contrast, attempts to improve teammates' emotions were associated with greater enjoyment and commitment. The overall emotional and motivational climate of the team mattered as well (Tamminen et al., 2016).

Because the athletes were studied with their real teams during the season, the study reflects an actual sports environment better than a completely controlled laboratory task. However, the study was cross-sectional, and its main outcomes were enjoyment and commitment rather than actual competition performance.

Overall, teammates can be either a resource or another source of pressure. Encouragement and support can help an athlete handle stress, while conflict, comparison, and team expectations may make the same stress harder to manage (Tamminen et al., 2016; Tamminen & Holt, 2010).

Broader Environment & Physical Recovery

The athletic environment also includes factors that are not completely psychological or social. Sport type, competition level, and physical recovery can all influence how well someone performs under stress. Physical recovery is not purely an external factor because it also reflects an athlete's physiological state and perception of rest. However, it is included in this section because it can also be strongly influenced by external conditions such as training load, competition schedules, injuries, and school responsibilities.

Alecu and Onea (2026) followed 56 sprint-trained athletes ages 16–21 across a 5-day period during their season. Each morning, athletes reported how recovered they felt and had their heart rate variability measured. They later completed timed 20-meter sprints. Both higher heart rate variability and greater perceived recovery were associated with faster sprint times.

This study is useful because it combined an athlete's own perception, a physiological measurement, and an objective performance outcome instead of relying on only one questionnaire. It also repeatedly measured athletes over several days. However, 5 days is still a very short period, and sprinting is only one type of athletic performance.

The main point is that psychological readiness does not operate alone. An athlete can have confidence, strong coping abilities, and high motivation but still perform poorly if they are physically under-recovered. Psychological and physical conditions often interact to influence performance rather than affecting it independently. Together, they affect how athletes respond to stress and ultimately their performance.

Discussion

Interaction Between Factors

The clearest pattern across the research is that these factors work together rather than independently. A stressful situation first has to be interpreted. Perceived control, self-efficacy, personality, identity, and previous experience may affect whether the athlete sees it as manageable or threatening. That appraisal can change the emotions the athlete experiences and the coping response they choose. Confidence, attention, resilience, and other psychological resources can help throughout that process, while parents, coaches, teammates, and physical readiness affect the conditions surrounding it. A difficult opponent, major competition, injury, or criticism from a coach could therefore have very different effects depending on the athlete's confidence, previous experience, and perceived control.

Further, the process does not only move in one direction. Successfully handling one stressful competition could increase confidence before the next one. A poor performance could make a similar situation feel more threatening in the future. Supportive relationships could strengthen coping and resilience, while repeated negative experiences could lower perceived control.

Because of this, it is difficult to rank psychological factors from most important to least important. Confidence may affect appraisal, but previous experience can also change confidence. Resilience may affect anxiety, but coping and the social environment can affect resilience. Looking at the interaction between the factors seems more useful than trying to find one factor that explains performance by itself.

Contradictions & Unexpected Findings

Some of the most useful findings are the ones that are not as straightforward to explain. Motivation is a good example. Obsessive passion may sound automatically harmful, but it was still associated with more deliberate practice. The problem was that it was also connected to performance-avoidance goals, which were negatively related to performance (Vallerand et al., 2008). This means obsessive passion can have both useful and harmful pathways rather than being completely negative.

Athletic identity also did not show the expected clear relationship with stress. Walasavage et al. (2023) found a positive relationship, but it was not statistically significant. Since the sample was very small, the study cannot prove that athletic identity is unimportant. It does show that simply identifying strongly as an athlete may not be enough by itself to explain stress.

Coping also does not fit into categories of strategies that are always good or always bad. The effectiveness of coping changes with the stressor, and Zhou et al. (2025) showed that emotion-regulation strategies could have different relationships with performance depending on situational demand. The ability to adjust may matter more than having one preferred strategy.

Probably the most important unexpected finding is that improving psychologically does not automatically mean performing better immediately. Both randomized swimming interventions improved psychological or self-regulation outcomes, but neither produced a statistically significant performance advantage compared with its control group (Girginer et al., 2026; Sifi et al., 2026).

This does not mean the interventions failed. An athlete may become more focused, mentally tough, or better regulated without immediately becoming faster. Those improvements could still help during future high-pressure situations or over a longer period than the studies measured.

The intervention research is important because it shows that at least some of these psychological abilities can change. Imagery, breathing, mindfulness, relaxation, and other psychological-skills approaches have been used to improve attention, mental toughness, and self-regulation (Girginer et al., 2026; Sifi et al., 2026; Soundara Pandian et al., 2023).

This is especially important during adolescence because weaker confidence, focus, or coping skills should not automatically be treated as permanent weaknesses. Athletes can develop psychological resources through training and experience.

At the same time, the intervention evidence is still limited. Girginer et al. (2026) studied only 19 athletes, while Sifi et al. (2026) studied 30 athletes, with the intervention lasting only 3 weeks. Random assignment makes both studies useful for testing whether an intervention actually caused changes, but the small sample sizes limit how confidently the results can be applied to other athletes. Longer studies may also be needed to determine whether psychological improvement eventually transfers into competition performance.

Limitations and Future Directions

One limitation across the literature is the broad range of ages. This review focuses on athletes ages 12–25, but the studies do not all examine the same developmental period. Chen et al. (2025) studied athletes ages 12–18, the sample in Tamminen et al. (2016) had an average age of 16.3, and Girginer et al. (2026) studied swimmers ages 13–18. Other samples were closer to young adulthood, and a few studies used broader age ranges even though their samples were centered near the age group of interest. This makes it difficult to assume that every finding applies equally from early adolescence through young adulthood.

The age differences found by Chen et al. (2025) show why this matters. Athletes ages 15–18 showed different resilience-related relationships than athletes ages 12–14. However, comparing age groups does not fully show how an individual athlete changes as they get older. Future research should follow the same athletes across longer periods of adolescence to examine whether coping, resilience, appraisal, and confidence actually change with age.

Another limitation is study design. Cross-sectional surveys are common in this research. They are useful for identifying relationships between psychological factors, especially characteristics that may be relatively stable, but they cannot determine which variable came first. This affects findings involving perceived control, self-efficacy, resilience, anxiety, and team emotion regulation (Fallby et al., 2006; Li et al., 2025; Tamminen et al., 2016; Wang et al., 2025). Longitudinal studies such as Chen et al. (2025) provide more information about how relationships unfold over time, while randomized studies such as Girginer et al. (2026) and Sifi et al. (2026) are stronger for testing interventions. Real-competition research such as Zhou et al. (2025) is also useful because it studies athletes closer to the situations where stress and performance actually occur. Future research would benefit from using more of these longitudinal, experimental, and real-competition designs.

The way performance is measured also varies across studies. Some use objective outcomes such as swimming times, sprint times, or shooting scores. Vallerand et al. (2008) used coach-rated performance, while Wang et al. (2025) used athlete performance level. Other studies focus on outcomes related to performance instead of performance itself. Li et al. (2025) measured pre-competition anxiety, Tamminen et al. (2016) measured enjoyment and commitment, and Walasavage et al. (2023) measured perceived stress. These outcomes are connected to the overall stress-performance process, but they are not interchangeable. Future research should therefore combine psychological measures with more direct and consistent measures of athletic performance when possible.

Self-report is another limitation because many psychological factors cannot easily be measured without asking the athlete. Stress, confidence, coping, identity, resilience, and emotion are often based on questionnaires. Athletes may remember situations differently or answer in ways that do not completely match what happened. The study by Lane et al. (2010) is especially relevant because participants had to remember emotions from previous successful and unsuccessful performances. Self-report is still important because researchers need to understand how athletes personally experience stress, but future studies could combine questionnaires more often with objective performance, physiological measures, and observations during actual competition. Alecu and Onea (2026) show the benefit of combining perceived recovery, physiology, and timed performance, while Zhou et al. (2025) show why studying athletes around real competition can provide a different view than a general survey.

There are also gaps in the topics that have been studied. Coaches appear to be an important source of both stress and support, but there are relatively few direct coach-focused interventions in the research used here. Future studies could test whether changes in communication, feedback, expectations, or responses to mistakes affect how athletes appraise and cope with pressure. These studies may be difficult to organize because a coach influences an entire team, but that is also why the question is important.

Psychological factors are also often studied separately even though they overlap. Mental toughness, for example, includes parts of confidence, attention, coping, resilience, and emotion regulation. During an actual competition, an athlete is not experiencing confidence, appraisal, coping, social support, and recovery one at a time. These factors can all interact at once. Future research should therefore examine several factors in the same athletes throughout stressful situations to better reflect what performance under pressure actually looks like. Distress tolerance was also originally considered for inclusion in this review, but the selected research did not directly measure it enough to make strong conclusions about its effect, making it another area that could be examined more directly in future research.

Conclusion

The research reviewed here suggests that stress does not have one predictable effect on adolescent athletic performance. Internal factors such as perceived control, self-efficacy, attention, motivation, personality, stress appraisal, coping, and resilience affect how athletes understand and respond to pressure. External factors such as parents, coaches, teammates, and the broader performance environment can then make those internal resources easier or harder to use, while physical recovery can also influence how athletes respond and perform.

The methods behind the findings are also important. Large surveys can show patterns across many athletes but usually cannot prove causation. Longitudinal research can better examine changes across time, randomized interventions can test whether psychological skills can actually be developed, and studies carried out around real competition may better represent the environment where athletes actually perform.

Most importantly, there does not seem to be one psychological factor that determines whether an athlete will perform well under stress. Confidence can affect how pressure is interpreted, but confidence itself can develop through experience. Coping can help manage stress, but the usefulness of a coping strategy depends on the situation. Social support can strengthen resilience, while the same social environment can sometimes create pressure. Psychological skills can also improve without causing an immediate improvement in objective performance.

Because of this, the difference between athletes who perform well under stress and those who struggle is probably not one specific trait. Performance appears to depend on how the athlete, the stressor, and the environment interact at that moment. Understanding how those factors develop and work together across ages 12–25 may provide a better explanation of performance under stress than looking for one psychological quality that every successful athlete needs.

Even for adolescents who do not continue playing sports into adulthood, the skills they practice through sport may still be useful beyond competition. Learning to handle pressure, respond to setbacks, stay confident, and cope with stress may carry into school, work, relationships, and other challenging situations. Because sports are such a large part of adolescence for many young people, understanding how these psychological skills develop matters beyond athletic performance alone. Helping athletes learn to manage stress effectively may therefore benefit them not only in competition, but also in other aspects of their lives, whether or not they continue playing sports.

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