



ENHANCING EMOTIONAL SELF-REGULATION AND
INTERPERSONAL SYNCHRONY
IN THE TRAINING OF YOUNG ATHLETES

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ABSTRACT

This paper examines the development of emotional self-regulation and interpersonal synchrony in the training of young athletes. Adolescence is a period in which competitive sport simultaneously creates opportunities for mastery, social belonging, stress exposure, public evaluation, and identity development. The ability to regulate emotions under pressure therefore becomes inseparable from the interpersonal environment in which training occurs. In this paper, interpersonal synchrony is understood as the flexible coordination of attention, communication, emotional signals, and task-related behavior between athletes, teammates, and coaches. The analysis integrates contemporary evidence on emotion regulation, peer norms, coach-athlete relationships, psychological safety, motivational climate, and team coordination. On the basis of this literature, a six-component developmental framework and an eight-week training model are proposed. The model combines emotional awareness, cognitive reappraisal, brief recovery routines, supportive feedback, peer-based coordination tasks, shared performance cues, and structured reflection. Four practical tables summarize the conceptual components, recent evidence, intervention sequence, and assessment indicators. The central argument is that emotional self-regulation should not be treated only as an individual skill: in youth sport it is learned, reinforced, and sometimes disrupted through social interaction. Training environments that combine autonomy-supportive coaching, psychologically safe communication,



constructive peer norms, and coordinated team routines are more likely to promote stable engagement, adaptive coping, and long-term athlete development.

Keywords: young athletes, emotion regulation, interpersonal synchrony, coach-athlete relationship, psychological safety, motivational climate, team cohesion, cognitive reappraisal.

INTRODUCTION

The preparation of young athletes has traditionally been organized around physical conditioning, technical skill, tactical knowledge, and competitive experience. These dimensions remain essential, yet contemporary sport psychology increasingly demonstrates that training quality also depends on how athletes interpret pressure, regulate emotion, communicate with significant others, and coordinate their behavior in rapidly changing situations. For adolescents, these psychological and interpersonal processes are especially important because the sport environment often becomes one of the major social contexts in which competence, status, belonging, and self-evaluation are negotiated.

Emotion regulation refers to the processes through which individuals influence which emotions they experience, when they experience them, and how these emotions are expressed or used. In sport, regulation is required before, during, and after demanding actions: an athlete may need to reduce excessive anxiety before a start, maintain functional activation during a decisive episode, reinterpret a mistake, or recover from disappointment without carrying it into the next task. Effective regulation does not mean suppressing all negative emotion. Anger, fear, frustration, and disappointment can contain useful information; the key issue is whether the athlete can respond to these emotions in a way that supports rather than disrupts performance and development.

Recent research also emphasizes that young athletes do not learn emotional responses in isolation. Kim, Tamminen, and Cai (2025), studying 169 competitive youth athletes with a mean age of 15.5 years, found that athletes' habitual use of cognitive reappraisal was associated with their perceptions of teammates' use of reappraisal. This finding is important because it places emotion regulation within the social ecology of the team: what peers repeatedly model may become part of what an adolescent considers normal and available under pressure. The implication for coaching is clear. A training program that teaches only individual coping techniques but ignores team norms may leave one of the strongest developmental channels untouched.

The same logic applies to coach-athlete interaction. Jowett's (2025) review of 25 years of coach-athlete relationship research summarizes a large body of evidence showing that relationship quality provides a context in which goals, needs, learning, and well-being are negotiated. Psychological safety research in sport further indicates that supportive coaching and high-quality relationships can help create an environment where athletes are more willing to communicate, disclose difficulties, ask questions, and learn from errors (Şenel et al., 2024). Thus, the regulation of emotion and the coordination of behavior should be studied together rather than as separate topics.

The purpose of this paper is to conceptualize emotional self-regulation and interpersonal synchrony as complementary targets in youth sport training, summarize mechanisms supported by contemporary research, and propose a practical model that can be incorporated into regular training without replacing sport-specific work. The paper is theoretical and practice-oriented; it does not present invented experimental data. Numerical findings reported below are taken from published studies and are clearly identified as such.

CONCEPTUAL FRAMEWORK

Interpersonal synchrony in this paper does not imply that all athletes should feel or behave identically. A psychologically healthy team needs individual differences, independent judgment, and role diversity. Synchrony instead refers to functional alignment: athletes notice relevant cues at similar times, understand shared task demands, regulate disruptive reactions, communicate efficiently, and adapt their actions to one another. This form of alignment may occur at emotional, attentional, communicative, and behavioral levels.

Table 1. Core components of emotional self-regulation and interpersonal synchrony in youth sport

Component	Psychological meaning	Typical training expression	Developmental value
Emotional awareness	Recognizing activation, anxiety, frustration, confidence, and recovery needs.	Athletes briefly identify their state before and after demanding drills.	Improves self-monitoring and early regulation.
Cognitive reappraisal	Changing the interpretation of a stressful event without denying it.	A mistake is reframed as information for the next action rather than proof of inability.	Supports adaptive coping and persistence.

Component	Psychological meaning	Typical training expression	Developmental value
Attentional reset	Returning attention from the previous error to the current performance cue.	Breathing plus a short cue such as “next action” after a failed attempt.	Reduces carry-over effects of mistakes.
Psychological safety	Perceiving that questions, uncertainty, and errors can be discussed without humiliation.	Athletes ask for clarification and report overload or difficulty.	Encourages learning and honest communication.
Interpersonal synchrony	Coordinating attention, timing, signals, and behavior with teammates and coaches.	Shared cues, partner drills, synchronized tactical routines.	Strengthens cooperation and situational adaptation.
Constructive peer norms	Shared expectations that make adaptive regulation and support socially acceptable.	Teammates model calm reappraisal and task-focused communication.	Turns self-regulation into a team culture rather than an individual exception.



Table 1 shows that emotional regulation and interpersonal coordination should be trained as an integrated system. Emotional awareness without a practical reset strategy may increase self-focus but not improve behavior. A team routine without psychological safety may become mechanical and fragile under stress. In contrast, when athletes can identify their state, reinterpret pressure, return attention to the task, and rely on predictable communication from others, the probability of adaptive coordination increases.

SOCIAL MECHANISMS OF EMOTION REGULATION

The social transmission of emotion regulation is particularly relevant in adolescence. Young athletes observe how influential teammates react to mistakes, selection decisions, officiating, physical fatigue, and competitive pressure. They also learn which expressions are rewarded, mocked, ignored, or interpreted as signs of weakness. Over time, these repeated interactions create descriptive norms (what people usually do) and injunctive norms (what the group appears to approve). Kim et al. (2025) found evidence that perceived teammate use of cognitive reappraisal was related to athletes' own reappraisal, whereas corresponding coach norms were not associated in the same way. The result should not be interpreted as evidence that coaches are unimportant; rather, it suggests that the visible behavior of peers may be especially powerful in shaping everyday regulation habits.

Coaches influence the broader architecture of these norms. They decide how mistakes are discussed, which behaviors receive attention, whether athletes may express uncertainty, and whether the training climate emphasizes learning or constant social comparison. A meta-analysis by Gu and Cheng (2026), based on 177 studies and 334 independent effect sizes, reported a moderate overall association between motivational climate and youth outcomes ($r = .31$). The association was strongest for motivation and cognition ($r = .42$), smaller for behavioral engagement ($r = .26$), and weaker for performance and



health outcomes ($r = .19$). This hierarchical pattern is useful for practice: the social climate is likely to influence performance indirectly, first changing how athletes think, feel, and engage.

A 2026 scoping review by Chung and colleagues identified 54 studies on peer motivational climate in youth sport and physical activity. Adolescents represented the dominant population, and competitive sport was the most common context. Across the literature, task-involving peer climates characterized by improvement, effort, and support were more consistently linked with adaptive psychosocial outcomes than ego-oriented climates centered on comparison and rivalry. For young athletes, this means that teammates can either support self-regulation by normalizing constructive responses or undermine it by normalizing blame, ridicule, emotional escalation, or withdrawal.

Table 2. Selected recent evidence relevant to the proposed framework

Study	Sample / scope	Key finding	Practical implication
Kim, Tamminen & Cai (2025)	169 competitive youth athletes; M age = 15.5 years	Athletes' cognitive reappraisal was associated with perceived teammate reappraisal.	Peer modeling should be incorporated into emotion-regulation training.
Jowett (2025)	25-year review of coach-athlete relationship research	Relationship quality is a central context for goals, needs, well-being, and	Regulation training should include relational



Study	Sample / scope	Key finding	Practical implication
		performance experiences.	communication, not only individual techniques.
Şenel et al. (2024)	295 team-sport athletes	Supportive/controlling coach behavior and relationship quality predicted psychological safety.	Feedback style shapes whether athletes speak openly and learn from error.
Şenel et al. (2025)	323 national/international judo athletes	Coach-athlete relationship supported well-being through social support and psychological safety pathways.	Interpersonal support can protect psychological functioning in demanding sport settings.
Gu & Cheng (2026)	177 studies; 334 effect sizes	Motivational climate showed $r=.31$ overall; strongest effects on motivation/cognition.	Climate change should be evaluated first through psychological and engagement outcomes.





Study	Sample / scope	Key finding	Practical implication
Chung et al. (2026)	54 studies in youth sport/physical activity	Peer motivational climate is strongly represented in adolescent competitive sport research.	Team norms are a legitimate target for coach-led intervention.

The evidence in Table 2 supports a multi-level model. Self-regulation begins within the athlete but is shaped by relationships and climate. This is why an athlete who uses a breathing strategy successfully in an individual session may still lose regulation in a team environment where mistakes provoke ridicule or where emotional escalation is socially rewarded. Sustainable development requires alignment between individual skills and the norms that surround those skills.

COACH-ATHLETE RELATIONSHIP AND PSYCHOLOGICAL SAFETY

Psychological safety can be described as a perception that interpersonal risk is manageable within a group. In sport, this does not mean low standards, comfort at all times, or the absence of criticism. High-performance training may be demanding and corrective. The critical distinction is whether athletes can admit uncertainty, report a problem, ask for clarification, and make a learning error without expecting humiliation or interpersonal punishment. Such an environment is particularly important for adolescents, who may conceal confusion or excessive stress when status and approval feel threatened.

Şenel et al. (2024) examined 295 team-sport athletes and found that perceived supportive and controlling coach behaviors, together with coach-athlete relationship quality, predicted psychological safety. Relationship



quality also explained part of the association between coaching behaviors and psychological safety. Although the sample included young adults as well as older adolescents rather than only youth athletes, the interpersonal mechanism is highly relevant to developmental coaching: athletes interpret a coach's behavior through the history and quality of the relationship.

The 3+1Cs model of the coach-athlete relationship offers a useful structure. Closeness reflects affective trust and respect; commitment reflects intention to maintain the partnership; complementarity describes cooperative interaction; and co-orientation concerns shared understanding. For emotional self-regulation, these dimensions matter because feedback is not processed only as information. The same sentence may be experienced as useful correction in a trusting relationship or as threat in a relationship characterized by uncertainty and humiliation. Therefore, coaches who want athletes to regulate emotions under pressure must also regulate the interpersonal meaning of their own communication.

Practical feedback can follow a three-step sequence: observation, controllable adjustment, and next-action cue. For example: “Your shoulders tightened before release; lower the shoulders and exhale; focus on the next attempt.” This format separates the athlete's identity from the error, identifies a controllable change, and returns attention to action. In contrast, global judgments such as “you always collapse under pressure” can intensify self-evaluative threat and make regulation more difficult.

AN EIGHT-WEEK INTEGRATED TRAINING MODEL

The proposed model is designed for integration into normal practice. It requires short, repeated micro-interventions rather than long classroom sessions. Each week introduces one central emphasis while previously learned skills remain active. Coaches may adapt terminology, duration, and tasks to the

age and sport, but the progression should move from awareness to individual regulation, then to peer coordination, and finally to pressure simulation.

Table 3. Eight-week model for developing emotional regulation and interpersonal synchrony

Week	Primary focus	Integrated training activity	Approx. time	Expected change
1	Emotional vocabulary and baseline awareness	Pre-training 1–10 activation check plus one-word emotion label.	3–4 min	Athletes detect state changes earlier.
2	Breathing and attentional reset	Practice a 15–20 second reset after controlled errors.	5–7 min	Faster return to the present task.
3	Cognitive reappraisal	Transform common pressure thoughts into controllable task statements.	8–10 min	Reduced catastrophic interpretation of mistakes.

Week	Primary focus	Integrated training activity	Approx. time	Expected change
4	Supportive feedback	Coach uses observation—adjustment—next action; athletes practice partner feedback.	10 min	More precise and less threatening communication.
5	Peer regulation norms	Teams define 3–4 behaviors that represent constructive response to errors.	10–12 min	Adaptive regulation becomes socially visible and supported.
6	Shared performance cues	Pairs/small groups use agreed verbal or visual cues during coordination drills.	15 min	Improved attentional and behavioral alignment.



Week	Primary focus	Integrated training activity	Approx. time	Expected change
7	Pressure synchronization	Score, time, noise, or consequence constraints added while reset and cue routines are maintained.	15–20 min	Skills transfer to competitive stress.
8	Reflection and consolidation	Athletes review triggers, effective strategies, teammate support, and personal action plan.	15–20 min	Greater self-regulated ownership and maintenance.

The model deliberately places peer norms before pressure simulation. If athletes enter high-pressure drills without shared expectations for responding to errors, the drill may strengthen maladaptive habits such as blame, silence, emotional contagion, or avoidance. By first establishing a common behavioral standard - for example, brief acknowledgment, task cue, and immediate return to position - the coach gives the group a synchronized response pattern that can be tested under increasing stress.

The “reset” routine should be simple enough to use during real performance. A practical sequence is: notice - exhale - cue - act. The athlete notices the emotional and bodily reaction, uses a controlled exhalation, says a short task cue internally or aloud, and commits to the next controllable action. The routine should be practiced after deliberately induced minor errors so that it becomes associated with recovery rather than only with discussion. For team sports, a teammate may add a shared cue, allowing individual regulation and interpersonal synchrony to occur together.

Cognitive reappraisal can be taught through sport-specific examples. “Everyone will see that I failed” can become “this attempt gives information about timing.” “We are losing, so the match is gone” can become “the current task is the next possession.” Reappraisal must remain credible; unrealistic positive statements are less useful than interpretations that direct attention toward controllable processes. The goal is not optimism for its own sake but functional meaning-making.

ASSESSMENT AND MONITORING

Because the proposed framework combines intrapersonal and interpersonal processes, evaluation should also be multi-method. A single questionnaire cannot establish whether athletes actually regulate emotion more effectively in demanding training. Self-report measures should be combined with brief state ratings, coach observation, attendance and engagement indicators, and sport-specific performance markers. When possible, baseline and post-program measures should be supplemented by mid-point checks to identify whether change is emerging before the end of the intervention.

Table 4. Recommended indicators for evaluating the developmental process

Domain	Indicator	Possible method	Interpretation
Emotion regulation	Use of reappraisal, suppression, recovery strategies	Validated emotion-regulation scales plus scenario questions	Whether athletes have broader and more adaptive strategy repertoires.
State control	Activation/emotion before and after demanding drills	Brief 1–10 ratings recorded repeatedly	Whether athletes recover more quickly across comparable sessions.
Psychological safety	Willingness to ask, disclose difficulty, and admit error	Questionnaire + short interviews	Whether communication is becoming safer and more open.
Coach-athlete relationship	Closeness, commitment, complementarity, co-orientation	CART-Q or developmentally suitable relational measure	Whether the relational context supports learning and regulation.
Peer synchrony	Quality of task cues, supportive response, coordinated recovery	Structured observation checklist	Whether regulation is visible in interaction, not only self-report.



Domain	Indicator	Possible method	Interpretation
Engagement	Effort, persistence, attendance, attention	Coach records and validated engagement scales	Whether psychological change is translating into training behavior.
Performance process	Sport-specific technical consistency under pressure	Repeated standardized drills	Whether regulation and synchrony help preserve execution quality.

Interpretation should focus on patterns rather than a single “resonance score.” For example, a young athlete may show no immediate improvement in competition results but demonstrate faster emotional recovery, more frequent help-seeking, better training attendance, and improved technical consistency in pressure drills. These are meaningful developmental outcomes and may precede later performance gains. This interpretation is consistent with the hierarchical pattern reported by Gu and Cheng (2026), in which motivational climate was more strongly associated with psychological variables than with distal performance outcomes.

DISCUSSION

The main contribution of the proposed framework is to connect two areas that are often addressed separately: the athlete's regulation of internal emotional states and the team's coordination of interpersonal behavior. In youth sport, these processes are mutually dependent. Athletes learn what emotions mean partly through social feedback; they learn which regulation strategies are

acceptable by observing peers; and they interpret performance pressure through the language and behavior of coaches. Therefore, emotional self-regulation is both a personal competence and a socially organized practice.

This perspective also helps explain why interventions sometimes fail to transfer from quiet practice to competition. A strategy may work in a controlled environment but collapse when the athlete enters a social setting where teammates panic, the coach communicates threat, or the athlete fears ridicule. Transfer requires contextual rehearsal. For that reason, the proposed model progressively increases interpersonal and performance demands while preserving the same short regulation routines and shared cues.

An important caution is that synchrony should not be confused with emotional conformity. A team does not need identical emotional displays, and coaches should not require athletes to perform constant positivity. Some athletes become focused through quietness, others through energetic communication. Functional synchrony means that individual states can differ while behavior remains coordinated around shared goals. Psychological safety is essential because it allows this diversity without weakening team structure.

The framework also distinguishes regulation from suppression. Expressive suppression can sometimes be useful in short competitive episodes, but habitual suppression may prevent communication and recovery if athletes believe that acknowledging difficulty is unacceptable. Reappraisal, attentional control, breathing, acceptance of transient emotion, and task-focused communication provide a broader repertoire. Coaches should therefore teach flexibility: the most adaptive strategy depends on timing, intensity, personal characteristics, and sport context.

Finally, the model supports a developmental rather than purely performance-based philosophy. Youth sport should prepare athletes not only to

execute under pressure but also to understand themselves, cooperate with others, seek support, recover from mistakes, and remain engaged over time. The 2025 study of national and international judo athletes by Şenel and colleagues showed that coach-athlete relationship quality was linked to mental well-being through social support and psychological safety pathways. Although these athletes were not all adolescents, the mechanism illustrates why relational quality should be viewed as part of athlete development rather than an optional “soft” addition to technical coaching.

CONCLUSION

Emotional self-regulation and interpersonal synchrony are closely connected dimensions of effective youth sport training. Young athletes regulate pressure within a social environment that continuously provides models, expectations, feedback, and emotional signals. Contemporary evidence indicates that peer norms are associated with young athletes' use of cognitive reappraisal, coach-athlete relationship quality shapes important developmental experiences, psychological safety is influenced by coaching behavior and relationships, and motivational climate is meaningfully associated with youth psychological and behavioral outcomes.

The practical implication is that emotional regulation should be embedded in ordinary training. Brief state checks, reset routines, credible reappraisal, constructive coach feedback, peer norms, shared performance cues, pressure simulations, and structured reflection can be combined into a progressive eight-week model without displacing sport-specific preparation. Evaluation should include psychological, relational, behavioral, and performance-process indicators rather than relying on competition outcomes alone.

Future empirical research should test this integrated model with adolescent samples across individual and team sports, compare different age groups and coaching styles, and examine whether changes in peer norms and

psychological safety mediate improvements in emotional regulation and training engagement. Longitudinal and experimental designs would be particularly valuable for determining which components produce durable changes and whether interpersonal synchrony contributes to resilience under competitive pressure.

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