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Corresponding author: gbigor86@gmail.com

## PSYCHOSOCIAL PREDICTORS OF RETURN TO SPORT AFTER SPORTS INJURY: A SYSTEMATIC REVIEW

Igor Grbić<sup>1</sup>, Milena Belić<sup>1</sup>, Hana Sejfović<sup>1</sup>, Adžlan Kurtanović<sup>1</sup>, Denis Demirović<sup>1</sup>

**Abstract:** *Return to sports (RTS) activities after injury represents a complex process in which psychological and psychosocial factors play a significant role. This paper provides a comprehensive evaluation of the characteristics of these predictors and their impact on the course of recovery and the final outcome of RTS after injury. The selection of relevant research literature was performed through electronic databases: PubMed, Scopus, Web of Science, and PsycINFO, while the screening and literature selection process itself followed the established protocols of the PRISMA 2020 declaration. Nineteen original research studies tracking three thousand five hundred seventy athletes were identified. Qualitative synthesis showed that higher levels of negative psychological constructs, primarily fear of reinjury, anxiety, depression, and kinesiophobia, were associated with a longer course and more unfavorable recovery outcomes. Psychological readiness, confidence, self-efficacy, and motivation were recognized as predictors of successful RTS, but also of an increased risk of occurrence of reinjuries. Social support and adaptive coping strategies showed a protective effect through the improvement of psychological readiness and the reduction of emotional distress. RTS represents a multidimensional process that requires an integrated assessment of physical, psychological, and psychosocial factors.*

**Keywords:** sports injuries, return to sport, psychological predictors, psychological readiness, fear of reinjury, kinesiophobia, self-efficacy

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<sup>1</sup> State University of Novi Pazar, Novi Pazar, Serbia

## Introduction

The search for elite performance, and more demanding competitive schedules, compel athletes to make significant sacrifices and to sustain high levels of physical endurance during arduous training sessions and tournaments. These demands may surpass the physiological adaptation capacities of the athlete, diminish focus and raise the risk of reckless movements. Consequently, sports injuries are common and can have serious ramifications for an athlete's health, athletic performance, and future sporting career. The full functional recovery and effective RTS, defined as the resumption of training and competitive activities at the level obtained before injury (Ardern et al., 2016), are among the primary goals of sports injury treatment and rehabilitation. Traditionally, RTS decisions have been mostly driven by the assessment of physical healing and functional performance. Nevertheless, multiple studies have demonstrated that a significant minority of athletes do not return to their preinjury level of sport engagement, despite adequate functional recovery and meeting the criteria for medical clearance. In an updated systematic review, Ardern et al. (2014) found that 81% of athletes returned to some type of sport involvement following anterior cruciate ligament reconstruction (ACLR), 65% returned to their preinjury sport and just 55% returned to competitive sport. Webster and Feller (2019) observed similar results, with 82% of patients returning to some sort of athletic involvement, 63% returning to their preinjury sport, and just 44% returning to competitive activity following ACLR. These return rates differed from functional outcomes, with about 90% of patients achieving normal or near-normal functional performance. The results of these studies clearly indicate that effective RTS depends not only on physical recovery but also on the athlete's psychological readiness. Following these findings, research on the involvement of psychological elements in the RTS process has grown substantially. Psychological readiness has been identified as a key component of athlete recovery in contemporary literature reviews (Longo et al., 2023; Nedder et al., 2025) and not addressing this aspect may have detrimental consequences on RTS results and increase the chance of reinjury.

Mechanisms of sports injuries, principles of operative and non-operative treatment, rehabilitation procedures, and outcome assessment are detailed in professional and scientific literature. However, the significance of predictors of the injured athlete's mental state during the recovery phase is still not fully clarified. Numerous differences present in the type of sport and injuries, the injured segment, the observed study population, as well as the lack of standardized measuring instruments for evaluating the impact of psychological variables on injured athletes, contribute to the heterogeneity of previous findings. From these statements emerges the primary goal of this study – the recognition, clinical analysis, and summarizing of available information about psychological and psychosocial aspects associated with RTS after sports injuries.

## Methods

This section outlines the systematic framework used to identify, select, and analyze the scientific literature regarding psychological outcomes in athletes. It details the precise search

protocols, eligibility criteria, and data synthesis methods applied throughout the entire review process.

## **Study design**

This section outlines the systematic framework used to identify, select, and analyze the scientific literature regarding psychological outcomes in athletes, detailing the precise search protocols, eligibility criteria, and data synthesis methods applied. This comprehensive procedural structure serves to ensure that all selected data are evaluated with the highest level of methodological consistency.

## **Literature search strategy**

Electronic databases: PubMed, Scopus, Web of Science, and PsycINFO were used in our research to find relevant bibliographic sources based on the evaluation of the impact of psychological and psychosocial determinants on the return of injured athletes to training and competitive activities. The search included papers published in English up to March 2026. For each database, subject mapping and keywords combined with and/or operators were used for terms related to return to sport, sports injuries, and psychological factors. The following keywords and their combinations were used: "return to sport", "return to play", "sports injury", "anterior cruciate ligament", "fear of reinjury", "psychological readiness", "confidence", "self-efficacy", "motivation", "social support", "coping", "athletic identity", "resilience", "anxiety", and "depression". These determinants were connected through the application of logical operators AND, as well as OR, while respecting the indexing and search methods within each database. To avoid potential omission of relevant studies, a manual check of the reference lists of the primarily selected papers was also performed.

## **Inclusion criteria**

The selection of papers included in the study was performed based on predefined criteria:

- original scientific papers published in relevant peer-reviewed journals;
- articles published in English;
- studies that included sports injuries with a defined rehabilitation process;
- RTS or return to the previous level of sports participation as a primary or secondary outcome;
- assessment of at least one psychological or psychosocial factor associated with RTS.

## **Exclusion criteria**

The following were excluded from the systematic review:

- review articles, systematic reviews, meta-analyses, and narrative reviews; case reports, conference abstracts, letters to the editor, and commentaries;
- studies that did not assess RTS as an outcome;
- studies conducted in non-athletic populations or studies that did not include sports injuries;
- articles in which psychological or psychosocial factors associated with RTS were not analyzed;

- studies with insufficient data for extraction or studies with overlapping samples.

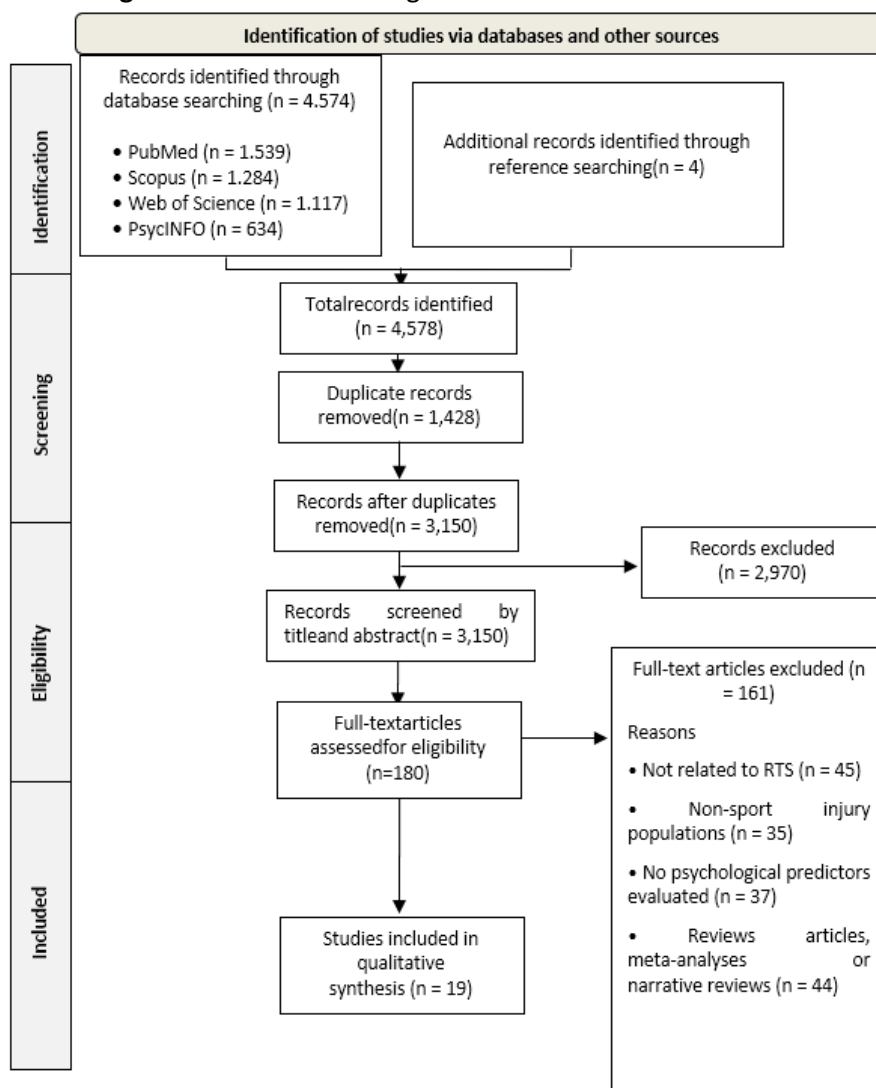
## **Study selection**

The search of electronic databases yielded 4,574 records, and the manual search yielded an additional 4 records, which resulted in a total of 4,578 records. After removing 1,428 duplicate titles, 3,150 unique articles remained, which were subjected to further evaluation. initial evaluation. The analysis of titles and abstracts of these articles, with the application of established parameters during the first screening phase, removed 2,970 records. The evaluation of the remaining 180 publications with the aim of their methodological and conceptual suitability in relation to the subject of this paper was performed by reviewing the full texts. This method of selection led to the additional elimination of another 161 papers with the stating stating of specific reasons for rejection. At the end of the entire procedure, a total of 19 studies were selected that fully satisfied all defined requirements for conducting qualitative processing of the set research subject. The entire process of identification, selection, and final inclusion of articles is graphically documented within the PRISMA 2020 flow diagram (Diagram 1).

## **Data Extraction**

Data extracted and systematized from each included study encompassed the author and year of publication, study design, sample size, type of sports injury, time of assessment, psychological instruments used, investigated psychological and psychosocial predictors, and main findings related to RTS. To measure these psychological predictors, the included studies utilized validated and standardized instruments, specifically targeting psychological readiness (ACL-RSI, I-PRRS, RSSIQ), fear of injury and kinesiphobia (AFAQ, TSK/TSK-11), anxiety and depression (RIAI/RIAI-R, CES-D, STAI), knee self-efficacy (K-SES), motivation, coping mechanisms (Brief-COPE, MCOPE, WCC-R), quality of life (KOOS-QOL), social support networks (PASS-Q, SSQ), and athletic identity (AIMS). The gathered information was subsequently used for qualitative data synthesis and to map out the characteristics of the included studies.

**Figure 1.** PRISMA flow diagram with reasons for exclusion.



## Data Analysis

Due to the impossibility of significant unification of the included studies regarding design, participant characteristics, injuries, instruments, and definitions of RTS, it was not possible to use a meta-analysis, so a qualitative synthesis was applied along with thematic clustering of variables for a better presentation of key factors. For didactic reasons, the identified psychological and psychosocial variables were clustered into distinct thematic categories to provide a higher-quality presentation of the core elements driving RTS success.

## Results

The paper analyzed 19 scientific studies involving 3,570 participants. According to the type of study, 11 prospective cohort studies, 4 cross-sectional studies, 2 retrospective studies, one qualitative study, and one randomized controlled trial were identified. In the structure of injuries, anterior cruciate ligament (ACL) injury overwhelmingly dominated, in 11 studies, while the remaining papers addressed injuries to other parts of the musculoskeletal system. In terms of analyzed psychological factors, fear of injury and kinesiophobia were the subject of the largest number of investigations, a total of 8 studies. Psychological readiness and athlete confidence were analyzed in 7 studies each, while the impact of social support was tracked by the authors of 4 papers. Clinical psychological barriers in the form of anxiety and depression symptoms, the impact of intrinsic motivation on the recovery process, and coping mechanisms were analyzed in 3 studies each. Athletic identity was evaluated in 2 scientific papers. The characteristics of the included studies are presented in Table 1 and Table 2.

Out of a total of 226 Gaelic games players, a significant presence of fear of injury was recorded in 73 of them, with an average AFAQ score of  $22.6 \pm 5.3$  (O'Connor et al., 2021). This fear was significantly more pronounced in athletes with more severe injuries ( $P=0.008$ ,  $r=0.40$ ), with 70% of them expressing psychological unreadiness for RTS. A direct correlation between reinjury anxiety and the RTS timeline was pointed out by Wadey et al. (2014). The highest rate of unachieved RTS (54.2%) in the profile of athletes with intense fear of reinjury, stress, kinesiophobia, anxiety, depression, and the lowest confidence in the knee was recorded by Caumeil et al. (2024). This RTS rate, compared to another profile from the same study with low levels of these negative predictors, was significantly higher ( $P=0.001$ ). In its indirect effect on RTS, an increased level of reinjury anxiety affects the level of ACL-RSI ( $R^2=0.21$ ) Forsdyke et al. (2022). A moderate negative correlation between kinesiophobia and psychological readiness ( $r = -0.305$ ;  $P = 0.02$ ), as the only significant predictor ( $P = 0.002$ ) of a negative impact on RTS, was stated by Ohji et al. (2023).

Athletes who met RTS criteria during testing conducted 9 months after ACLR had higher ACL-RSI scores compared to unready ones (69 versus 51;  $P<0.001$ ) (Faleide et al., 2021). During the next testing of the same group of athletes 24 months after surgery, no injury was registered among the athletes who successfully passed the first test, with statistical significance on the remaining parameters holding at  $p=0.37$ . Pediatric athletes achieved a significantly higher RTS rate 8 months after ACLR (70%) compared to adolescents (39%) and young adults (35%), demonstrating significantly higher overall RTS values ( $P=0.0004$ ) (Thorolfsson et al., 2023). Ueda et al. (2024) showed that athletes with an ACL-RSI score  $\geq 65$  achieved RTS in 90% of cases, compared to 73% of those with lower scores. However, a higher rate of secondary ACL injuries was simultaneously registered in athletes with a higher level of ACL-RSI (17.6% versus 3.4%). Sun et al. (2026) highlighted that cognitive-behavioral physical therapy in patients

**Table 1.** Characteristics of the included studies.

| First author              | Study design                | Population (N)                               | Injury                                           | Time of assessment                              |
|---------------------------|-----------------------------|----------------------------------------------|--------------------------------------------------|-------------------------------------------------|
| Baltassat et al. (2024)   | Retrospective study         | Sports group, N=118; non-sports group, N=158 | Rotator cuff tear                                | Final assessment after surgery                  |
| Bouveau et al. (2022)     | Retrospective cohort study  | Various sports, N=40                         | Chronic lateral ankle instability                | Pre-op; ≥12 months post-op                      |
| Caumeil et al. (2024)     | Prospective cohort study    | Various sports, N=162                        | ACL injury                                       | 3–6 months post-op; 2 years post-op             |
| Ebert et al. (2025)       | Prospective cohort study    | Various sports, N=232                        | ACL injury                                       | 2 years post-op                                 |
| Faleide et al. (2021)     | Prospective cohort study    | Various sports, N=103                        | ACL injury                                       | 9 months post-op; 2 years post-RTS clearance    |
| Flanigan et al. (2021)    | Case series                 | Various sports, N=184                        | Knee injuries                                    | Pre-op; median follow-up of 10.7 months post-op |
| Forsdyke et al. (2022)    | Cross-sectional study       | Soccer players, N=150                        | Sports injuries (≥8 weeks of absence from sport) | Post-RTS (retrospective assessment)             |
| Hilliard et al. (2017)    | Cross-sectional study       | Collegiate athletes, N=80                    | Musculoskeletal sports injuries                  | During rehabilitation                           |
| O'Connor et al. (2021)    | Cohort study                | Gaelic football and hurling athletes, N=226  | Various sports injuries                          | Immediately after injury and at RTS             |
| Ohji et al. (2023)        | Cross-sectional study       | Various sports, N=105                        | ACL injury                                       | One day pre-op                                  |
| Paterno et al. (2019)     | Qualitative study           | Various sports, N=10                         | ACL injury                                       | After rehabilitation and RTS                    |
| Paterno et al. (2022)     | Prospective cohort study    | Various sports, N=163                        | ACL injury                                       | At RTS clearance; 24 months post-RTS            |
| Senorski et al. (2017)    | Registry study              | Various sports, N=157                        | ACL injury                                       | 6–18 months post-op (mean: 10 months)           |
| Sun et al. (2026)         | Randomized controlled trial | Various sports, N=61                         | ACL injury                                       | Pre-op; 6, 12, and 24 weeks post-op             |
| Thorolfsson et al. (2023) | Registry cohort study       | Various sports, N=691                        | ACL injury                                       | 8, 12, 18, and 24 months post-op                |
| Ueda et al. (2024)        | Prospective cohort study    | Amateur / Competitive N=169                  | ACL injury                                       | 3, 6, 12, and 24 months post-op                 |
| Wadey et al. (2014)       | Cross-sectional study       | Various sports, N=335                        | Various sports injuries                          | During rehabilitation and post-RTS              |
| Yang et al. (2014)        | Prospective cohort study    | Collegiate athletes, N=387 (594 injuries)    | Various sports injuries                          | During rehabilitation and at RTS                |

|                        |                    |                                  |            |                                        |
|------------------------|--------------------|----------------------------------|------------|----------------------------------------|
| Zarzycki et al. (2024) | Secondary analysis | Level I/II female athletes, N=39 | ACL injury | Post-rehabilitation; pre-RTS clearance |
|------------------------|--------------------|----------------------------------|------------|----------------------------------------|

**Note:** ACL = anterior cruciate ligament; N = sample size / number of participants; Post-op = postoperative; Pre-op = preoperative; RTS = return to sport. For Yang et al. (2014), N represents the number of tracked athletes, while the total number of recorded injury cases is indicated in parentheses.

after ACLR significantly improves their psychological readiness for RTS, achieving a clinically important difference and a higher level of long-term resilience.

Among athletes with high confidence in the knee following ACLR, a higher probability of meeting RTS criteria was recorded (54.2% versus 17.2%) (Paterno et al., 2022). The same author, in this group of athletes during the 24 months post-RTS, also tracked the occurrence of secondary injuries and determined that confident participants who met all RTS criteria had a 10 times higher probability of sustaining a repeated ACL injury ( $P=0.02$ ). Female athletes who sustained a repeated ACL injury within two years had significantly higher overall ACL-RSI scores ( $P = 0.03$ ) and met RTS criteria earlier ( $P = 0.04$ ) (Zarzycki et al., 2024).

A combination of high confidence and low negative psychological predictors achieved a successful RTS rate of 77.8% (Caumeil et al., 2024). Conversely, a lack of confidence in the knee and fear of reinjury caused 17.4% of athletes to completely give up on sports after ACLR (Ebert et al., 2025).

Based on the measured elevated present and future K-SES values in injured athletes, Senorski et al. (2017) established a critical role of self-efficacy in the process of returning to their physical level before the injury. A positive correlation of the synergy between self-efficacy and psychological readiness with the RTS outcome, through elevated total K-SES values, was also pointed out by Thorolfsson et al. (2023).

Bouveau et al. (2022), tracking athletes with an ankle injury, determined that high preoperative motivation represents one of the strongest predictors of faster and more frequent RTS ( $P=0.001$ ), whereby from the group of highly motivated athletes, 92% of them returned to their preoperative sport compared to 50% of less motivated respondents ( $P=0.007$ ). Highly motivated athletes also achieved a shorter time to RTS (4.5 versus 6 months). Conversely, Ebert et al. (2025) determined that a significant loss of interest in sport was the reason for discontinuing sports participation in 21.7% of cases.

Young injured athletes and their parents highlighted the social support provided by physical therapists and institutional systems during rehabilitation as the most significant predictor of a successful RTS (Paterno et al., 2019). A positive effect of the combined action of social support and psychological readiness on RTS ( $r=0.43$ ;  $P=0.014$ ) was also determined by Forsdyke et al. (2022). At the same time, the indirect negative impact of injury anxiety on this effect was highlighted ( $R^2=0.32$ ) (Forsdyke et al., 2022).

**Table 2.** Psychological predictors and main findings of the included studies.

| First author              | Psych. predictor(s)                                | Main finding                                                                                                                                               |
|---------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baltassat et al. (2024)   | Anxiety, depression                                | A history of anxiety and depressive disorders was associated with slower RTS and a greater likelihood of permanent sport discontinuation.                  |
| Bouveau et al. (2022)     | Motivation                                         | Higher preoperative motivation correlated with higher probability of RTS and a shorter time to RTS.                                                        |
| Caumeil et al. (2024)     | Reinjury anxiety, fear of reinjury, confidence;    | Greater fear, anxiety, and lower confidence led to unsuccessful RTS, while higher confidence increased reinjury risk.                                      |
| Ebert et al. (2025)       | Fear of reinjury, confidence, motivation           | Fear of reinjury and low confidence were major reasons for unsuccessful RTS, whereas loss of interest was the main reason for sport discontinuation.       |
| Faleide et al. (2021)     | Psych. readiness                                   | Elevated ACL-RSI values correlated with RTS to the preinjury sport level, whereas functional tests did not predict RTS.                                    |
| Flanigan et al. (2021)    | Coping; fear of reinjury                           | Positive reframing predicted a higher rate of RTS and diminished movement anxiety, especially among younger competitors.                                   |
| Forsdyke et al. (2022)    | Social support, fear of reinjury, psych. readiness | Greater social support was associated with lower reinjury anxiety and higher psychological readiness for RTS.                                              |
| Hilliard et al. (2017)    | Athletic identity                                  | Higher athletic identity was associated with rehabilitation overadherence, whereas negative affectivity was associated with faster RTS.                    |
| O'Connor et al. (2021)    | Fear of reinjury, psych. readiness                 | Severe injuries led to higher fear avoidance and lower readiness; 47.9% were not psychologically ready for RTS.                                            |
| Ohji et al. (2023)        | Kinesiophobia, athletic identity, psych. readiness | Greater kinesiophobia was associated with lower psychological readiness, whereas athletic identity was not associated with RTS.                            |
| Paterno et al. (2019)     | Motivation, confidence, social support             | Motivation, confidence, and social support were identified as key factors for successful RTS.                                                              |
| Paterno et al. (2022)     | Confidence                                         | Greater confidence correlated with successful completion of RTS criteria, yet simultaneously carried an elevated vulnerability to a secondary ACL rupture. |
| Senorski et al. (2017)    | Self-efficacy, motivation                          | Higher self-efficacy was associated with RTS and higher future physical activity goals.                                                                    |
| Sun et al. (2026)         | Psych. readiness, self-efficacy, Kinesiophobia     | Cognitive behavioral physical therapy improved psychological readiness and self-efficacy but had no effect on kinesiophobia.                               |
| Thorolfsson et al. (2023) | Psych. readiness, self-efficacy                    | Pediatric patients demonstrated greater psychological readiness, higher self-efficacy, and higher RTS rates than older groups.                             |
| Ueda et al. (2024)        | Psych. readiness                                   | Elevated ACL-RSI scores ( $\geq 65$ ) were linked to greater RTS rates, while concurrently introducing a higher probability of a secondary ACL tear.       |

|                           |                                     |                                                                                                                                       |
|---------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Wadey et al.<br>(2014)    | Reinjury anxiety, coping            | Lower reinjury anxiety and greater use of adaptive coping strategies were associated with better psychological RTS outcomes.          |
| Yang et al.<br>(2014)     | Social support, Depression, anxiety | Greater satisfaction with social support was associated with lower symptoms of anxiety and depression at RTS.                         |
| Zarzycki et al.<br>(2024) | Psych. readiness, confidence        | Positive ACL-RSI findings contributed to earlier achievement of RTS criteria, but also to a greater probability of a second ACL tear. |

Note: ACL = anterior cruciate ligament; ACL-RSI = Anterior Cruciate Ligament–Return to Sport after Injury; CBPT = cognitive behavioral physical therapy; Psych. = psychological; RTS = return to sport.

Flanigan et al. (2021) highlighted in their case series study that positive cognitive reframing had a significant impact on a greater likelihood of RTS in athletes younger than 32 years (OR=2.36; P=0.009), greater satisfaction with the rehabilitation outcome in athletes younger than 20 years (OR=6.21; P=0.02), and lower kinesiphobia ( $r=-0.53$ ; P=0.02). A significant mediating role of this predictor between reinjury anxiety and RTS, using multiple mediation models, was also highlighted by Wadey et al. (2014).

In collegiate student-athletes, total AIMS scores were positively associated with rehabilitation adherence ( $r=0.29$ ; P=0.009) (Hilliard et al., 2017). On the same sample, negative affectivity was designated as the only significant predictor of attempts at an accelerated RTS ( $\beta=0.33$ ; P=0.01).

Injured patients with a shoulder injury and present signs of depression and anxiety achieved a  $17 \pm 8.2$  weeks slower RTS and a 2.8 times higher probability of completely giving up on sports (Baltassat et al., 2024). Conversely, athletes satisfied with the social support provided during rehabilitation showed a significantly lower probability of developing depression symptoms (OR=0.13) and anxiety symptoms (OR=0.12) at RTS (Yang et al., 2014).

## Discussion

When summarizing the results of this paper, it is clear that a successful and rapid RTS is not determined solely by physical recovery and a healed injury. On the contrary, this entire process depends heavily on a range of interconnected psychological and social factors.

### Fear of Reinjury and Reinjury Anxiety

The findings of this paper confirm that fear of injury and anxiety of reinjury act as primary psychological barriers to a successful RTS. The significant presence of fear recorded by O'Connor et al. (2021) shows that psychological trauma is extremely active at the moment of testing for RTS. This fear was significantly more pronounced in athletes with more severe injuries, along with a high percentage of expressed psychological unreadiness for RTS. These findings are also confirmed by Shaw et al. (2025), claiming that more severe sports trauma triggers longer-lasting and more intense postoperative fear-avoidance responses during the RTS phase. Wadey et al. (2014) pointed out a direct correlation between reinjury anxiety and RTS timeline, which matches the findings of Meier et al. (2020) that persistent models of fear directly inhibit functional recovery. When these factors remain unresolved, the risk of permanent sport abandonment increases. Ebert et al. (2025) state a high rate of sport

discontinuation due to fear of reinjury and a lack of confidence in the knee, and Caumeil et al. (2024) explain this with intense reinjury anxiety, kinesiophobia, and depression. A strong impact of fear of reinjury on permanent withdrawal from sport is also confirmed by the latest data stated by McPherson et al. (2024), designating postoperative fear as the main non-physical predictor of career termination during RTS approval. The negative correlations that we established in our research in the papers of Forsdyke et al. (2022) and Ohji et al. (2023) are in complete agreement with the classical study by the author Kvist et al. (2005) who identified kinesiophobia as a key barrier for RTS.

### **Psychological Readiness and Confidence**

The evaluation of psychological readiness and confidence in the knee after a surgical procedure indicates a deep gap between injury healing and successful functional recovery on one side, and the mental preparedness of the athlete for a competitive level of sports participation on the other. Faleide et al. (2021) proved that athletes who met RTS criteria earlier compared to unready ones had significantly higher ACL-RSI scores and did not register repeated injuries. This finding that an early high level of psychological readiness is a key predictor of safe RTS was also confirmed by the highly cited meta-analysis published by Ardern et al. (2014), as well as the latest clinical tracking by the author McPherson et al. (2024), proving that objective scores of psychometric scales directly separate successful athletes from those facing chronic delay of RTS. The age aspect and additional modification of these outcomes, in which pediatric athletes achieve a significantly higher RTS rate after ACLR, were confirmed by Thorolfsson et al. (2023). On the other hand, a dangerous clinical trend is observed when subjective confidence overcomes objective neuromuscular recovery. Ueda et al. (2024) established that athletes with a high ACL-RSI score achieve RTS in a high percentage, but simultaneously register a drastically higher rate of secondary ACL tear compared to those with a lower score. This confidence paradox is also confirmed by Paterno et al. (2022), proving that confident participants who pass all functional tests have even a 10 times higher probability of a repeated ACL tear during 24 months, as well as Zarzycki et al. (2024) proving that female athletes who experienced a repeated ACL injury within two years met RTS criteria earlier and had significantly higher overall ACL-RSI scores. These findings provide empirical confirmation for the "unrealistic confidence paradox" described in the literature by Ardern et al. (2014), Grindem et al. (2016), and Grooms et al. (2025), where premature return to competition and an aggressive playing style, caused by a false sense of security, directly lead to repeated injury before the complete return of neuromuscular control. To neutralize this risk, targeted interventions are necessary; Sun et al. (2026) emphasize that cognitive-behavioral physical therapy in patients after ACLR significantly improves their psychological readiness for RTS, through achieving a longer-term higher level of resilience. Finally, achieving a successful profile of a returner to sport requires achieving a combination of high confidence and low negative psychological predictors (Caumeil et al., 2024). Conversely, a lack of confidence in the knee and fear of reinjury in a large number of cases lead to complete abandonment of sport (Ebert et al., 2025).

### **Self-Efficacy and Motivation**

Intrinsic motivation and the self-efficacy of an individual represent key driving factors that directly determine rehabilitation speed and the success rate of RTS. The established elevated values of present and future K-SES (Senorski et al., 2017), as well as the values of total K-SES (Thorolfsson et al., 2023) had a significant impact on the positive correlation of self-efficacy and psychological readiness on one side, and the successful return of athletes to their physical level before injury on the other. These findings directly correspond with the results of a recent study by Meredith et al. (2025) that a high level of postoperative self-efficacy represents a stable cognitive shield that allows an athlete to persevere through demanding phases of functional training, unlike low levels which lead to early dropout. When it comes to motivational indices, high preoperative motivation proved to be one of the strongest predictors of an increased frequency and a significantly shorter period of RTS in patients with an ankle injury (Bouveau et al., 2022). Conversely, a drop in motivation and a change of priorities lead to sports dropout becoming permanent (Ebert et al., 2025). This dichotomy between high motivation and permanent loss of interest fully supports the self-determination theoretical model in sports traumatology, revised by Meredith et al. (2025), which proves that intrinsic motivation acts as the primary psychological engine that ensures high compliance with recovery protocols.

### **Social Support and Coping**

The combined action of the external social environment and internal coping mechanisms significantly helps the transition from functional rehabilitation to full RTS. The statement of injured pediatric athletes and their parents that social support from physical therapists during rehabilitation is the most significant predictor of a successful RTS (Paterno et al., 2019) is in line with the claim of Podlog et al. (2015) that quality interaction with medical staff accelerates cognitive adaptation. However, Forsdyke et al. (2022) also emphasize the indirect negative impact of injury anxiety on the protective link between social support and psychological readiness, with evidence that intense fear can block the athlete's cognitive resources and prevent them from utilizing the available support from the environment. These findings are in line with the work of the authors Nwachukwu et al. (2024), who emphasize that the social isolation of an injured athlete during clinical recovery directly obstructs the restoration of their mental readiness and delays the moment of obtaining clearance for RTS. When athletes face obstacles during this process, the positive side of applying adaptive coping strategies in controlling rehabilitation outcomes was highlighted by Flanigan et al. (2021) and Wadey et al. (2014). In their research, multiple mediation models were used, utilizing readiness assessment scales relying on the validation established by Glazer (2009). This role of cognitive restructuring is fully supported in the latest works of Meredith et al. (2025) and Nwachukwu et al. (2024), which prove that athletes who successfully reframe the risk of injury into a challenge show a higher degree of protocol adherence and faster restoration of functional performance.

### **Athletic Identity**

A strong identification with the role of an athlete significantly influences behavior during recovery, but it also carries specific risks. The link between the total AIMS score and adherence to the rehabilitation program, established by Hilliard et al. (2017), is also confirmed by the study of Meredith et al. (2025), which states that athletes with a high athletic identity experience rehabilitation as the only way to regain their social status, which further motivates them to strictly adhere to protocols. However, this predictor shows its negative side in the same sample – negative affectivity was recognized as the only significant predictor of attempts at an accelerated RTS (Hilliard et al., 2017). This finding corresponds with the latest RTS research conducted by Shaw et al. (2025), which proved that athletes with extremely high AIMS scores often consciously hide pain and simulate a false readiness to force an earlier clearance to return to the field, thereby drastically increasing health risks.

### **Anxiety and Depression**

Clinical psychological barriers in terms of anxiety and depression have the heaviest impact on the timeline of physical recovery and the rate of sport dropout. The research results of Baltassat et al. (2024) that patients with signs of anxiety and depression achieve a slower RTS and show a greater tendency to give up on sports completely match the multicenter RTS research conducted by Nwachukwu et al. (2024), which confirms that affective disorders directly inhibit neuromuscular activation during critical phases of RTS. Triana et al. (2021) emphasize that the simultaneous presence of kinesiphobia and depressive states leads to the most unfavorable RTS outcomes. The protective mechanism in which satisfaction with social support during rehabilitation significantly reduces the probability of developing symptoms of depression and anxiety, pointed out by Yang et al. (2014), is also supported by McPherson et al. (2024), emphasizing that a well-organized clinical environment and therapist support prevent the social isolation of the athlete after injury, which directly generates negative affect and leads to a permanent discontinuation of sports participation.

This systematic review has several significant advantages. First of all, it encompassed a wide spectrum of psychological and psychosocial factors associated with RTS after injury. Unlike numerous previous reviews that mainly focused on individual constructs or exclusively on the injury of a single body segment, this review is excluding such limitations, thereby enabling an integrative insight into the psychological factors influencing RTS. An additional advantage is the inclusion of studies with different methodological designs, which allowed for the observation of the process of RTS from both quantitative and qualitative perspectives.

However, the results of this review should be interpreted with certain limitations. The included studies showed significant heterogeneity regarding the type of injury, participant characteristics, time of assessment of psychological factors, and the instruments used. In addition, the most frequently represented studies in the scientific literature with this topic relate to athletes after ACLR, which also determined the structure of our sample. This fact may limit the possibility of generalizing the effects of the action of psychological and psychosocial predictors to other types of sports injuries. Also, certain predictors, such as athletic identity, anxiety, and depression, were represented in a relatively small number of

studies, which limits the reliability of the conclusions relating to these constructs. Despite the stated limitations, the consistency of the findings for fear of reinjury, psychological readiness, confidence, and self-efficacy provides strong support for the crucial role of mental aspects during athletic recovery phases. Additionally, an exact statistical verification of consensus among investigators (such as Cohen's kappa coefficient) was omitted for the title, abstract, and full-text screening stages, which represents a methodological limitation of this review. Furthermore, a formal methodological quality assessment or risk of bias tool (such as the Newcastle-Ottawa Scale or RoB 2) was not applied to the included studies, which should be considered a limitation when interpreting the strength of the evidence.

### **Conclusion**

The success and course of RTS after sports injuries represent a multidimensional process that, in addition to stable functional and anatomical parameters, critically depends on psychological and psychosocial predictors. Negative cognitive and affective factors, primarily fear of injury, kinesiphobia, anxiety, and depression symptoms, provenly prolong recovery time and act as primary causes of permanent sport abandonment. On the other hand, high intrinsic motivation and developed self-efficacy accelerate the course of RTS, while adequate social support and adaptive coping mechanisms provide a crucial protection against the athlete's mental decline during isolation.

However, prematurely high psychological readiness and unrealistic confidence can lead to a false sense of security before the complete restoration of neuromuscular control, with a consequent increase in the risk of sustaining a reinjury. Therefore, the main conclusion of this study is that the RTS clearance process requires the mandatory introduction of standardized psychometric screening protocols and the implementation of a multidisciplinary approach, with the aim of determining the optimal balance between the mental and physical readiness of the injured athlete.

### **Conflict of interests**

The authors declare no conflict of interest.

### **Author Contributions:**

Conceptualization, I.G. and M.B.; methodology, I.G., M.B. and H.S.; software, A.K. and D.D.; validation, M.B., A.K. and H.S.; formal analysis, D.D.; investigation, I.G. and M.B., A.K. H.S. and D.D.; resources, I.G.; data curation, M.B., H.S. and D.D.; writing—original draft preparation, I.G., M.B., A.K. H.S. and D.D.; writing—review and editing, I.G., M.B., H.S., A.K. and D.D.; visualization, I.G., M.B. and H.S.; supervision, I.G., M.B., A.K., H.S. and D.D.; All authors have read and agreed to the published version of the manuscript.

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