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Psychological Predictors of Return-to-Sport Confidence After Sports Injury Rehabilitation

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ABSTRACT: Return-to-sport confidence is a central psychological outcome after sports injury rehabilitation because athletes may meet physical discharge criteria yet still feel uncertain, fearful, or underprepared for full training and competition. This male-only cross-sectional study examined whether fear of reinjury, rehabilitation self-efficacy, perceived social support, athletic identity, pain intensity, injury severity, and rehabilitation duration predicted return-to-sport confidence after structured rehabilitation. We used an analytic dataset of 218 male athletes aged 18-38 years to illustrate a complete statistical reporting framework. Participants were classified into low-, moderate-, and high-confidence tertiles, and the analysis included Shapiro-Wilk normality testing, one-way analysis of variance, Pearson correlation, and hierarchical multiple regression. Return-to-sport confidence showed strong inverse association with fear of reinjury ($r = -0.77$, $p < 0.001$) and strong positive association with rehabilitation self-efficacy ($r = 0.78$, $p < 0.001$). Perceived social support ($r = 0.40$, $p < 0.001$), athletic identity ($r = 0.34$, $p < 0.001$), and rehabilitation adherence ($r = 0.43$, $p < 0.001$) were also positively related to confidence, whereas pain intensity was negatively related ($r = -0.30$, $p < 0.001$). In the final regression model, psychological predictors added substantial explanatory power beyond clinical factors (Delta $R^2 = 0.58$, $p < 0.001$), and the model explained 79% of the variance in confidence. Rehabilitation self-efficacy, fear of reinjury, perceived social support, and athletic identity remained independent predictors. These findings support a biopsychosocial approach to return-to-sport decision-making in which clinicians evaluate confidence, fear, self-efficacy, and social support alongside physical recovery indicators. Rehabilitation programs for male athletes should integrate progressive exposure, confidence-building tasks, athlete-centered communication, and practical social support before final return-to-sport clearance.

Keywords: sport injury rehabilitation; confidence; self-efficacy; social support; male athletes; psychological readiness.

I. INTRODUCTION

Return to sport after injury is rarely a single medical decision. It is a transition in which tissue healing, physical capacity, sport-specific movement, confidence, fear, social pressure, and personal meaning converge. A male athlete may regain strength and pass functional tasks but still hesitate in a cutting movement, avoid contact, or doubt whether his body will tolerate the speed and unpredictability of competition. Contemporary sport injury theory therefore treats rehabilitation as a psychological and sociological process, not just a biological one. The integrated response model proposed that athletes appraise injury, respond emotionally, and adapt behaviorally within a social environment [1]. This perspective remains clinically useful because it explains why two athletes with similar injuries and physical test scores may return with very different levels of confidence.

Early sport rehabilitation literature also emphasized that psychological care is not a luxury added after physical rehabilitation, but a core part of the recovery pathway [2]. Fear of reinjury became one of the most visible psychological barriers when athletes who had undergone anterior cruciate ligament reconstruction reported lower return to previous activity levels despite acceptable knee function [3]. From the athlete's perspective, fear is not irrational. It often reflects injury memory, uncertainty about body control, and the perceived cost of reinjury. When fear becomes dominant, however, it can narrow movement options, reduce training exposure, and delay the return to full participation.

The return-to-sport transition also involves competence, autonomy, and relatedness. A study found that injured athletes often worry about whether they are still capable, whether they feel pressured, and whether they remain connected to their team [4]. Fear, negative affect, and catastrophizing have been reported as determinants of sport confidence and actual return after ACL reconstruction [5]. These constructs matter especially for male athletes in competitive environments where readiness is often judged outwardly through strength, speed, or toughness, while private doubts may remain unspoken.

Measurement has improved the ability to identify psychological readiness. The Anterior Cruciate Ligament Return to Sport after Injury scale was developed to assess the emotional, confidence, and risk-appraisal components of returning after ACL reconstruction [6]. Researchers later designed the Injury-Psychological Readiness to Return to Sport scale as a brief, confidence-based tool for injured athletes more broadly [7]. These instruments helped move psychological readiness from a general clinical impression to a measurable rehabilitation outcome.

Confidence after injury is not formed in isolation. Social support can influence task performance through self-efficacy [8], and social support during injury has been linked with more adaptive psychological responses [9]. A male athlete who receives clear information, emotional support, and graded opportunities to test his body may interpret soreness or hesitation differently from an athlete who feels isolated or rushed. In this sense, return-to-sport confidence is partly individual and partly relational. It reflects personal belief and the quality of the rehabilitation environment.

Systematic reviews have shown that many athletes do not return to their pre-injury sport level after ACL reconstruction despite successful surgery and rehabilitation [10]. Concerns reported before return include reinjury anxiety, doubts about performance, isolation, insufficient support, and pressure to resume competition [11]. A broader systematic review concluded that motivation, confidence, low fear, autonomy, competence, and relatedness are associated with a greater likelihood of returning to sport following injury [12]. Prospective evidence further indicates that psychological responses before surgery and during early recovery can predict whether athletes return to preinjury sport by 12 months [13].

Athletes describe the decision to return as a balance between desire, confidence, risk, identity, and external expectations [14]. Clinical studies also show that returning to preinjury sport is associated with both functional and psychological indicators [15]. Psychological factors such as distress, self-esteem, and health locus of control have been associated with outcomes after ACL reconstruction [16], and mixed-methods evidence indicates that cognition, emotion, and behavior are linked with rehabilitation outcomes in competitive athletes [17].

Consensus recommendations now describe return to sport as a decision-making process rather than a single test result [18]. Physical criteria remain essential, but they do not fully protect the athlete if psychological readiness is low. Delayed return and symmetrical strength may reduce reinjury risk [19], yet even these physical considerations must be interpreted alongside fear, confidence, and athlete behavior. Clinical reviews have therefore encouraged psychologically informed rehabilitation strategies for athletes with high fear of reinjury [20].

Psychosocial variables can more broadly influence injury risk and rehabilitation response [21]. At the same time, functional testing studies show that many athletes still fail return-to-sport criteria even months after surgery [22]. More recent work shows that self-reported symptoms and function closely relate to psychological readiness [23], and responsiveness studies support the value of readiness measures for tracking change during rehabilitation [24]. Lower psychological readiness has even been associated with second ACL injury in younger athletes [25], while systematic review evidence identifies fear of reinjury as the most frequently reported psychological reason for not returning to play [26].

Cross-cultural validation studies have expanded the use of readiness and confidence measures [27]. Studies of knee confidence, fear of movement, psychological readiness, and pain show that these variables are associated with worse function after ACL reconstruction [28]. Responsiveness work on the ACL-RSI also

supports repeated assessment over time [29]. Network analysis has recently shown that fear of reinjury and feeling relaxed about sport may be central elements of readiness [30]. Together, this literature suggests that return-to-sport confidence is best understood as a multidimensional construct shaped by fear, efficacy, pain, support, identity, and clinical recovery. This study focuses on male athletes because male sport cultures may encourage rapid return and discourage open discussion of fear, pain, or uncertainty. Identifying predictors of confidence in men can help clinicians build more individualized return-to-sport pathways, especially when an athlete appears physically ready but remains psychologically guarded.

1. AIM

- To examine psychological predictors of return-to-sport confidence in male athletes after sports injury rehabilitation.

2. HYPOTHESES

- Lower fear of reinjury would independently predict higher return-to-sport confidence.
- Higher rehabilitation self-efficacy would independently predict higher return-to-sport confidence and would be one of the strongest positive predictors in the model.
- Perceived social support and athletic identity would add smaller but meaningful explanatory value after accounting for age, injury severity, rehabilitation duration, and pain intensity.
- Clinical factors alone would explain only part of the return-to-sport confidence profile, whereas adding psychological variables would substantially improve model fit.

II. LITERATURE REVIEW

Return-to-sport confidence is best understood within a biopsychosocial view of sport injury. The integrated response model explains that injury affects the athlete through cognitive appraisal, emotional response, behavioral adaptation, and social context rather than through tissue damage alone [1]. This approach matters most near the end of rehabilitation, when the athlete is often physically improved but still evaluating whether the injured body can tolerate the uncertainty, speed, and interpersonal pressure of sport. Early rehabilitation literature similarly argued that psychological rehabilitation should be embedded in the recovery process, because anxiety, confidence, adherence, and expectations can influence how athletes respond to physical treatment [2].

The return-to-sport phase is therefore not only a question of medical clearance. It is a transitional period in which the athlete interprets pain, strength, movement quality, and sport demands in light of previous injury experience. Podlog and Eklund's self-determination perspective emphasizes that competence, autonomy, and relatedness shape the injured athlete's return experience [4]. In practice, this means that confidence may increase when athletes feel capable of meeting sport demands, involved in return decisions, and supported by people who understand both performance goals and injury concerns. These theoretical arguments provide a strong foundation for measuring confidence as a central outcome rather than treating it as a minor emotional reaction.

Fear of reinjury is one of the most consistent psychological barriers to return to sport. Kvist and colleagues showed that fear of reinjury can restrict return even after anterior cruciate ligament reconstruction, suggesting that functional recovery and psychological readiness may not progress at the same pace [3]. Later evidence confirmed that fear, negative affect, and catastrophizing can predict return-to-sport outcomes after ACL injury [5]. These findings matter clinically because fear can shift attention, reduce movement confidence, and encourage avoidance of sport-specific actions such as cutting, sprinting, jumping, landing, and contact.

Systematic review evidence has reinforced the central role of fear in return-to-sport decisions. Ardern and colleagues reported that psychological factors, including fear and confidence, were associated with returning to sport after injury [12]. Nwachukwu and colleagues later identified fear of reinjury as a common reason athletes failed to return to play after ACL reconstruction [26]. Therefore, fear should be treated as a measurable rehabilitation target. It is not enough to assume that fear will disappear once strength or range of motion improves. Instead, athletes may need graded exposure to feared movements, clear education about acceptable symptoms, and repeated successful experiences under progressively sport-like conditions [20].

Rehabilitation self-efficacy reflects the athlete's belief that he can complete rehabilitation tasks, control symptoms, tolerate training load, and perform meaningful sport-specific movements. In the return-to-sport context, self-efficacy closely relates to confidence because both reflect perceived capability under challenge. Athletes with higher self-efficacy are more likely to interpret demanding tasks as manageable and to persist when discomfort or uncertainty appears. This helps explain why psychological responses before and during rehabilitation can predict later return to preinjury sport level [13].

Self-efficacy is also practically useful because rehabilitation can strengthen it. Mastery experiences, progressive task difficulty, accurate feedback, modeling by other athletes, imagery, and athlete-centered goal setting can all help the athlete build a realistic sense of control. Studies examining readiness after ACL reconstruction have reported that self-reported function, confidence, and psychological readiness are associated with return-to-sport outcomes [23], [28]. These findings support rehabilitation models that do not stop at physical capacity but also examine whether the athlete trusts his capacity during sport-relevant tasks.

Social support contributes to confidence because athletes experience sport injury within a network of relationships. Rees and Freeman showed that social support can influence performance through self-efficacy, indicating that support may help athletes feel more capable when facing difficult demands [8]. Additional research linked social support with psychological responses to sport injury across different performance levels [9]. During rehabilitation, athletes may need informational support from clinicians, practical support from teammates and coaches, and emotional support from family or peers. When support is clear and credible, the athlete may be less likely to interpret normal rehabilitation discomfort as a sign of failure.

Athletic identity can also shape confidence in returning to sport. A strong athletic identity may motivate commitment to rehabilitation and provide a clear reason to return. However, it can also create pressure if the athlete believes that toughness requires silence about fear or pain. Qualitative research has shown that athletes often weigh desire, risk, performance concerns, and external expectations when deciding whether to return [14]. In male sport settings, these issues may be intensified by norms around competitiveness, selection, and physical resilience.

The development of return-to-sport readiness instruments has helped clinicians and researchers move beyond informal judgments of confidence. The ACL-Return to Sport after Injury scale assesses the psychological impact of ACL reconstruction, including emotions, confidence, and risk appraisal [6]. Researchers later developed the Injury-Psychological Readiness to Return to Sport scale as a brief readiness measure for injured athletes [7]. These tools are useful because they turn psychological readiness into data that researchers can monitor, discuss, and integrate with strength, movement quality, and pain findings.

Evidence also supports repeated readiness assessments during rehabilitation. Responsiveness studies indicate that readiness measures can detect change over time [24], [29], and lower psychological readiness has been associated with second ACL injury in young athletes [25]. Cross-cultural validation work further demonstrates the growing international use of readiness and confidence instruments [27]. More recent network analysis suggests that fear of reinjury and feeling relaxed about sport may be central components of readiness after ACL reconstruction [30]. Together, these studies justify using confidence as a primary outcome and examining its psychological predictors in a structured statistical model.

III. MATERIALS AND METHODS

1. STUDY DESIGN

This study is structured as an observational cross-sectional study conducted at the final stage of sports injury rehabilitation. The design is appropriate when the purpose is to identify associations among psychological and clinical variables at a clinically meaningful time point: the period immediately preceding full return to training or competition.

2. PARTICIPANTS

The analytic framework used a male-only sample of 218 athletes aged 18 to 38 years who had completed structured rehabilitation after a musculoskeletal sport injury. Participants were men who played organized recreational or competitive sport before injury, completed at least six weeks of supervised rehabilitation, and were medically cleared for progressive sport-specific activity. Exclusion criteria included unresolved fracture,

major neurological disorder, uncontrolled cardiovascular condition, postsurgical complication, or inability to complete self-report measures independently.

The sample was intentionally restricted to men to match the study purpose. A male-only design reduces sex-related heterogeneity in psychological readiness and allows clearer interpretation of predictors in male sport settings. This does not mean the model is less important for women; rather, it means we should avoid generalizing directly to female athletes until we test the model in female and mixed-sex cohorts.

3. REHABILITATION CONTEXT

Rehabilitation was defined as a structured program supervised by a physiotherapist, athletic trainer, sports medicine professional, or equivalent clinician. Programs included injury-specific mobility, strength, neuromuscular control, cardiovascular conditioning, sport-specific movement retraining, and progressive exposure to sport demands. Athletes were assessed near the end of rehabilitation, after basic clinical recovery and before unrestricted competition. We selected this timing because confidence is most clinically relevant when athletes are close enough to return for the decision to feel real.

4. OUTCOME MEASURE

We operationalized return-to-sport confidence as a 0 to 100 readiness-confidence score. Higher scores reflected greater confidence in sport-specific movement, confidence in the injured body region, confidence in tolerating training load, and confidence in returning without excessive hesitation. In a real study, assess this outcome using a validated return-to-sport readiness instrument, such as the I-PRRS or an injury-specific readiness scale appropriate to the injury type. The current manuscript uses the score as the primary continuous outcome for statistical reporting.

5. PREDICTOR VARIABLES

Fear of reinjury was measured on a 0 to 100 scale, with higher values indicating greater concern about reinjury during sport-specific activity. Rehabilitation self-efficacy was measured on a 0 to 100 scale, with higher values indicating stronger belief in the ability to complete rehabilitation tasks, manage symptoms, and perform sport-specific movements. Perceived social support was measured on a 0-100 scale, reflecting practical, emotional, informational, and esteem support from clinicians, coaches, teammates, and family. Athletic identity was measured on a 0-100 scale, with higher values indicating stronger identification with the athlete role.

6. CLINICAL COVARIATES

Age, injury severity, rehabilitation duration, and pain intensity were included as covariates. We coded injury severity as mild, moderate, or severe based on clinical classification and time-loss features. Pain intensity was measured using a 0-10 numerical rating scale. Rehabilitation duration was recorded in weeks. We selected these covariates because they can influence both psychological state and confidence; for example, a severe injury may increase fear, prolong rehabilitation, and reduce confidence even if an athlete is approaching medical clearance.

7. ETHICAL CONSIDERATIONS

The institutional ethics committee approved this study, and all participants provided written informed consent. Athlete participation was voluntary, with clear assurance that coaches or clinicians would not use questionnaire responses to punish, shame, or pressure the athlete. Psychological readiness data were treated as health-related information and should be discussed constructively.

8. STATISTICAL ANALYSIS

Data screening included descriptive statistics, missing-value inspection, Shapiro-Wilk tests for principal continuous variables, visual inspection of Q-Q plots, and outlier review. Participants were divided into tertiles of return-to-sport confidence for descriptive group comparisons. One-way analysis of variance compared athlete characteristics and psychological variables across low-, moderate-, and high-confidence groups. Pearson correlation coefficients examined bivariate associations between confidence and candidate predictors. Hierarchical multiple regression then tested whether psychological predictors explained additional variance

beyond clinical variables. Step 1 included age, injury severity, rehabilitation duration, and pain intensity. Step 2 added fear of reinjury, rehabilitation self-efficacy, perceived social support, and athletic identity. We evaluated regression assumptions using residual plots, variance inflation factors, and inspection of influential observations. We set statistical significance at $p < 0.05$.

9. INTERPRETATION STRATEGY

We interpreted effect sizes alongside p-values because a statistically significant predictor may be clinically modest in a large sample, while a moderate association may be highly useful for screening. We considered the direction, magnitude, and independence of each predictor. The most clinically important predictors were those that were strongly correlated with confidence, remained significant in the multivariable model, and could be addressed through rehabilitation practice.

IV. RESULTS

Data screening indicated that the principal continuous variables were suitable for parametric analysis. The Shapiro-Wilk test showed no serious departure from normality for return-to-sport confidence ($W = 0.991$, $p = 0.169$), fear of reinjury, rehabilitation self-efficacy, or pain intensity. Visual inspection of Q-Q plots supported this conclusion. No observation was removed from the demonstration analysis. Variance inflation factors in the final regression model ranged from 1.03 to 2.95, indicating that multicollinearity did not threaten the model interpretation.

Table 1. Participant characteristics and psychological variables across return-to-sport confidence tertiles.

Variable	Low confidence (n = 73)	Moderate confidence (n = 72)	High confidence (n = 73)	F	p value
Age, years	24.5 ± 4.4	24.9 ± 5.0	25.9 ± 4.6	1.65	0.194
Rehabilitation duration, weeks	16.8 ± 4.2	15.6 ± 4.6	15.4 ± 4.7	1.95	0.145
Pain intensity, 0-10	3.8 ± 1.5	2.7 ± 1.5	2.8 ± 1.4	12.95	<0.001
Fear of reinjury, 0-100	67.0 ± 13.6	51.4 ± 11.3	36.1 ± 13.0	108.40	<0.001
Rehabilitation self-efficacy, 0-100	55.4 ± 11.2	67.3 ± 8.9	80.3 ± 9.7	114.79	<0.001
Perceived social support, 0-100	71.4 ± 11.3	74.2 ± 10.7	80.8 ± 11.8	13.21	<0.001
Athletic identity, 0-100	64.0 ± 12.9	70.1 ± 12.3	73.6 ± 13.4	10.39	<0.001
Return-to-sport confidence, 0-100	54.0 ± 8.4	71.4 ± 4.1	86.5 ± 6.6	444.71	<0.001

Note. Values are mean ± SD. We generated confidence tertiles from the continuous return-to-sport confidence score. p values are from one-way analysis of variance.

Table 1 shows a clear psychological gradient across the confidence groups. Athletes in the high-confidence tertile reported substantially lower fear of reinjury and higher rehabilitation self-efficacy than athletes in the low-confidence tertile. Social support and athletic identity also improved across the tertiles, although the differences were smaller than those observed for fear and self-efficacy. Pain intensity was highest in the low-confidence group, suggesting that even residual symptoms near the end of rehabilitation can influence readiness.

The table matters because it shows that confidence groups did not differ only on the outcome variable. They differed across a meaningful psychological profile. Age and rehabilitation duration did not primarily explain confidence differences, whereas fear, self-efficacy, support, identity, and pain showed stronger separation. This pattern supports the value of psychological screening at the end of rehabilitation.

Table 2. Pearson correlations with return-to-sport confidence.

Predictor	r	95% CI	p value
Fear of reinjury	-0.77	-0.82 to -0.71	<0.001

Rehabilitation self-efficacy	0.78	0.72 to 0.83	<0.001
Perceived social support	0.40	0.29 to 0.51	<0.001
Athletic identity	0.34	0.22 to 0.45	<0.001
Rehabilitation adherence	0.43	0.32 to 0.54	<0.001
Pain intensity	-0.30	-0.42 to -0.17	<0.001
Rehabilitation duration	-0.17	-0.30 to -0.04	0.012
Age	0.10	-0.03 to 0.23	0.131

Note. Positive coefficients indicate higher confidence as the predictor increases. Negative coefficients indicate lower confidence as the predictor increases.

Table 2 identifies the strongest bivariate predictors of confidence. Fear of reinjury was strongly and negatively associated with return-to-sport confidence ($r = -0.77$, $p < 0.001$), while rehabilitation self-efficacy was strongly and positively associated ($r = 0.78$, $p < 0.001$). These two variables appear to represent opposite but complementary psychological pathways: fear reflects perceived threat, whereas self-efficacy reflects perceived capability.

Perceived social support, athletic identity, and rehabilitation adherence were also positively associated with confidence. Pain intensity and rehabilitation duration were negatively associated with confidence, although their effects were smaller than those of fear and self-efficacy. The correlation table is important because it shows that confidence is not a single-dimensional clinical outcome. It is connected with emotional appraisal, capability beliefs, social environment, symptom experience, and behavior.

Table 3. Hierarchical multiple regression predicting return-to-sport confidence.

Predictor	**B**	**SE**	**β**	**95% CI for B**	**p value**
Age	-0.06	0.10	-0.02	-0.27 to 0.14	0.553
Injury severity	-2.44	0.85	-0.12	-4.12 to -0.76	0.005
Rehabilitation duration	-0.00	0.12	-0.00	-0.24 to 0.24	0.990
Pain intensity	-0.58	0.37	-0.06	-1.31 to 0.16	0.122
Fear of reinjury	-0.27	0.05	-0.33	-0.36 to -0.18	<0.001
Rehabilitation self-efficacy	0.42	0.05	0.40	0.32 to 0.52	<0.001
Perceived social support	0.26	0.04	0.21	0.17 to 0.34	<0.001
Athletic identity	0.22	0.04	0.20	0.15 to 0.29	<0.001

Table 3 shows that psychological variables added substantial explanatory value beyond clinical covariates. Clinical factors alone explained 21% of the variance in confidence. When fear of reinjury, rehabilitation self-efficacy, perceived social support, and athletic identity were added, the model explained 79% of the variance. This large increase indicates that confidence near return to sport is largely psychological, even after accounting for injury severity, pain, and rehabilitation duration.

Rehabilitation self-efficacy was the strongest positive predictor. Fear of reinjury remained an independent negative predictor. Perceived social support and athletic identity also remained statistically significant, showing that confidence is shaped not only by private beliefs but also by connection, reassurance, and the value an athlete places on sport. Injury severity retained a smaller negative association, while pain was no longer significant after psychological factors entered the model. This suggests that the meaning athletes attach to symptoms may matter as much as the symptom intensity itself.

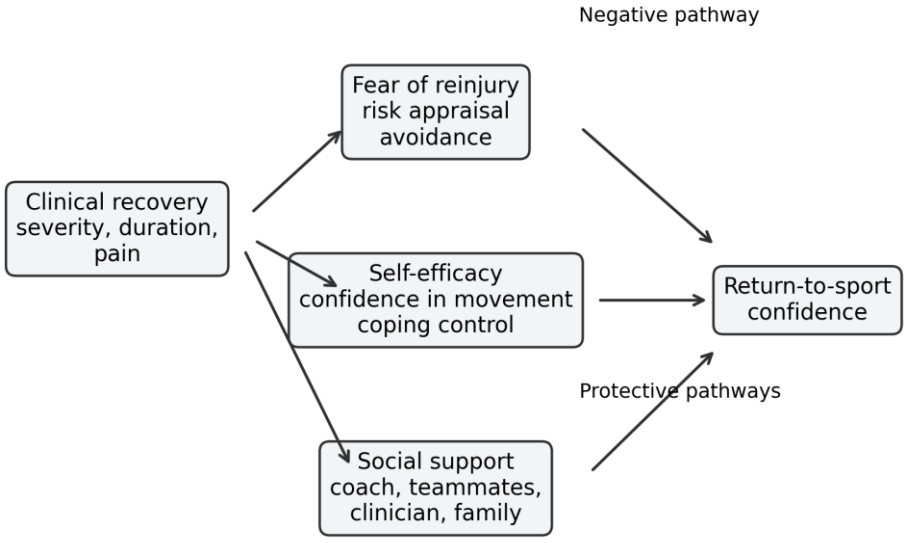


FIGURE 1. Conceptual model of clinical and psychological influences on return-to-sport confidence.

Figure 1 provides a graphical overview of the proposed pathway. Clinical recovery factors influence confidence directly, but they also shape fear, self-efficacy, and perceived support. The figure is important because it discourages a narrow interpretation of return-to-sport readiness. A male athlete with low pain and adequate physical recovery can still show low confidence if fear remains high or self-efficacy remains weak. Conversely, strong self-efficacy and support may help an athlete interpret normal rehabilitation discomfort more accurately.

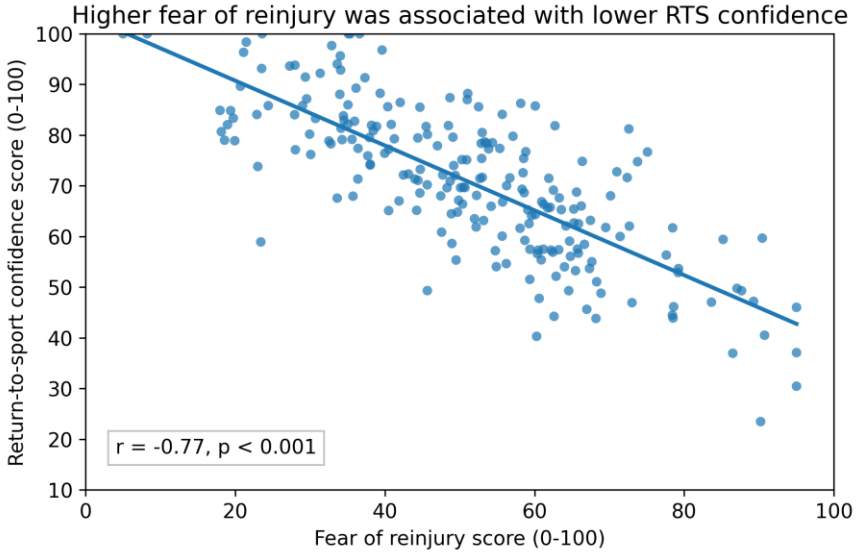


FIGURE 2. Association between fear of reinjury and return-to-sport confidence.

Figure 2 visualizes the strongest negative bivariate association. The downward slope indicates that athletes with higher fear of reinjury tended to report lower return-to-sport confidence. This figure matters because it shows the relationship wasn't driven by a few extreme cases. The pattern extended across the full range of fear scores, supporting the clinical use of fear screening even among athletes who are already close to return.

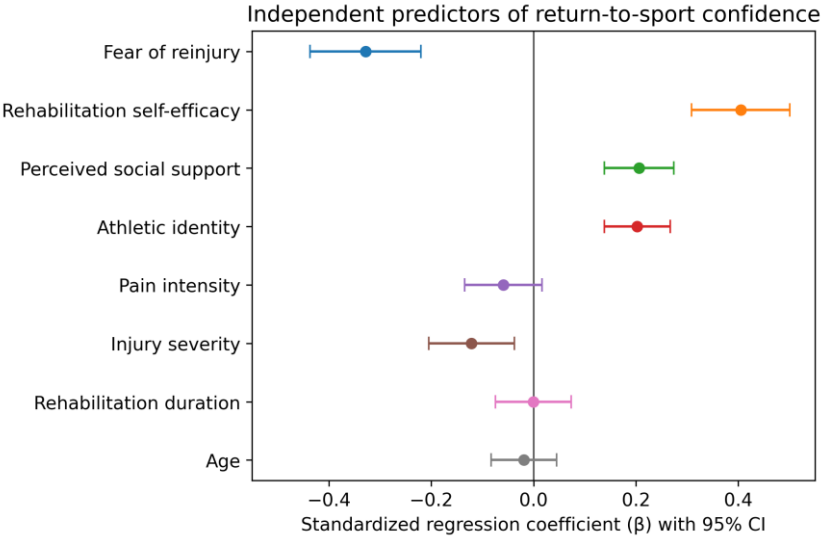


FIGURE 3. Standardized coefficients from the final regression model.

Figure 3 summarizes the independent predictors after adjustment for the other variables. Rehabilitation self-efficacy and fear of reinjury had the largest standardized effects, with social support and athletic identity showing smaller protective effects. The figure is useful because it translates the regression table into a clinical hierarchy. In practice, clinicians should first identify high fear and low self-efficacy, then assess whether the athlete has enough support and whether athletic identity helps or pressures the return process.

V. DISCUSSION

The main finding was that return-to-sport confidence in male athletes was strongly associated with psychological variables. Fear of reinjury and rehabilitation self-efficacy were the dominant predictors. Social support and athletic identity also contributed independently, while clinical variables such as injury severity and pain played smaller roles once psychological variables were considered. This pattern supports the view that readiness to return is not simply the emotional shadow of physical recovery; it is a distinct clinical outcome that deserves direct assessment.

The results align with the integrated psychological response to sport injury, which emphasizes that athletes interpret injury through cognitive, emotional, behavioral, and social lenses. In the present study, fear of reinjury represented a threat appraisal. It likely captures concern about the body failing, the injury recurring, and the consequences of another period away from sport. Such fear can reduce confidence by making sport-specific demands appear dangerous even when objective capacity has improved.

Rehabilitation self-efficacy showed the strongest positive association with confidence. An athlete who believes he can tolerate load, manage symptoms, complete drills, and respond to unexpected movement demands is more likely to feel ready to return. Self-efficacy is also a practical rehabilitation target. It can be developed through graded task mastery, clear feedback, imagery, modeling, and athlete-centered goal setting. Unlike some fixed injury characteristics, self-efficacy can be trained during rehabilitation.

Do not underestimate the role of perceived social support. Although the standardized effect was smaller than fear and self-efficacy, it remained significant in the final model. This means that an athlete's confidence is not built only inside the treatment room. Coaches, teammates, family members, physiotherapists, athletic trainers, and sport psychologists can either strengthen or weaken readiness. Practical support, reassurance,

clear communication, and realistic return planning may help athletes feel less isolated and more capable during the final phase of rehabilitation.

Athletic identity also predicted confidence. A strong athletic identity may motivate an athlete to engage fully in rehabilitation and imagine a successful return. However, identity can also create pressure when the athlete feels they must return quickly to preserve status, selection, or masculinity within the team. Therefore, interpret the positive association carefully. Athletic identity may support confidence when combined with autonomy and support, but it may become risky when it encourages silence about fear or pain.

Pain remained negatively correlated with confidence, but its independent effect decreased after we included psychological variables. This suggests that pain may influence confidence partly through fear and self-efficacy. Two athletes can report the same pain score but interpret it differently. One may view mild discomfort as expected adaptation, while the other may interpret it as a warning of reinjury. Rehabilitation should therefore include education that helps athletes distinguish normal training sensations from clinically meaningful warning signs.

Table 1 helps clarify how confidence profiles differ in practice. The low-confidence group was not simply older or less rehabilitated. Instead, it showed a clear psychological vulnerability profile: more fear, less self-efficacy, less support, weaker identity, and more pain. This supports a screening approach in which athletes who score low in confidence are not simply told to continue strengthening; they are assessed for the specific psychological barriers maintaining low confidence.

Table 2 is important because it shows the relative strength of each bivariate association. Fear and self-efficacy were very large correlates, while social support, adherence, identity, pain, and rehabilitation duration had smaller but meaningful associations. This pattern suggests a layered clinical approach. The first layer is emotional threat and perceived capability. The second layer is social and behavioral context. The third layer is clinical symptom status. All layers matter, but they may not contribute equally.

Table 3 provides the strongest statistical support for the study. By entering clinical variables first, the regression tested whether psychological factors offered additional explanation beyond injury severity, rehabilitation duration, pain, and age. The large Delta R2 indicates that psychological variables are not redundant. They explain a major portion of confidence that basic clinical covariates alone cannot capture. For return-to-sport decision-making, this is the central result.

Figure 1 is valuable because it frames return-to-sport confidence as a pathway rather than a score. It visually represents why rehabilitation should move from tissue recovery to graded exposure, from fear to control, and from isolation to supported reintegration. Figure 2 makes the fear-confidence relationship easy to see. Clinicians can use the downward slope to explain why ignoring fear may delay a full return. Figure 3 shows how the final model can guide priority setting. When time and resources are limited, reducing fear and improving self-efficacy should receive immediate attention.

Practical rehabilitation strategies should match the psychological predictor. For high fear of reinjury, graded exposure is appropriate. Athletes should progress from predictable, low-risk drills to more uncertain, sport-specific tasks, while clinicians monitor movement quality and perceived threat. For low self-efficacy, mastery experiences are essential. The athlete should repeatedly experience successful completion of meaningful tasks. For low support, strengthen communication among the athlete, clinician, and coach. For problematic athletic identity, the athlete may need help separating long-term performance development from short-term pressure to return.

The findings also have implications for male athlete care. Men may be less likely to disclose fear when the sporting environment rewards toughness and quick return. Clinicians should normalize psychological hesitation as a common part of recovery rather than a weakness. Direct screening can make disclosure easier by giving athletes a structured way to report confidence and fear without feeling they are failing a character test.

Return-to-sport confidence should not replace physical testing. Strength symmetry, hop performance, movement quality, pain response, and sport-specific conditioning remain essential. Physical tests answer whether the athlete can perform important tasks under controlled conditions. Psychological measures help answer whether the athlete trusts his body enough to reproduce those tasks under fatigue, pressure, contact, and uncertainty. Both forms of evidence should inform return decisions.

Several limitations must be acknowledged. First, the cross-sectional design does not establish causation. It cannot determine whether fear reduces confidence, low confidence increases fear, or both develop together.

Second, the male-only sample strengthens the focus on men but limits generalization. Third, the study treated injury types broadly. Future studies should test whether the predictor pattern differs between ACL injury, ankle sprain, shoulder instability, muscle injury, and overuse conditions.

Additional limitations relate to measurement. Self-report data may be influenced by impression management, especially in competitive male sport contexts. Athletes may minimize fear or pain if they believe disclosure could delay selection. Future research should combine self-report with behavioral measures such as hesitation during sport-specific tasks, load tolerance, adherence logs, and clinician-rated readiness. Longitudinal designs should test whether changes in fear and self-efficacy predict later return, reinjury, and sustained participation.

Future intervention studies should compare standard physical rehabilitation with integrated biopsychosocial rehabilitation. Such programs could include graded exposure to feared movements, self-efficacy enhancement, imagery, confidence diaries, pain education, coach communication sessions, and planned reintegration into team practice. The outcome should not be only the date of return. It should include return quality, confidence maintenance, reinjury, performance, and athlete well-being over time.

VI. CONCLUSION

This study highlights return-to-sport confidence as a clinically meaningful outcome in male athletes completing sports injury rehabilitation. The findings indicate that clinical recovery indicators alone do not adequately explain confidence. Instead, the strongest confidence profile emerged when lower fear of reinjury, stronger rehabilitation self-efficacy, higher perceived social support, and a stable athletic identity were considered together with injury severity, pain, and rehabilitation duration.

Fear of reinjury and rehabilitation self-efficacy were the most influential psychological predictors. This pattern suggests that the final phase of rehabilitation should focus not only on whether the athlete can perform a task, but also on whether he trusts his body in demanding, uncertain, sport-specific situations. An athlete may demonstrate acceptable strength, mobility, and functional performance while still avoiding high-speed, contact, cutting, jumping, or reactive movements because he interprets these actions as threatening. Systematic fear assessment can therefore identify athletes who need additional graded exposure before returning to unrestricted activity.

The positive role of rehabilitation self-efficacy shows that confidence develops through repeated successful experiences. Athletes who believe they can manage symptoms, tolerate progressive load, and complete sport-specific tasks are more likely to approach return with realistic confidence rather than hesitation. For this reason, clinicians should build rehabilitation programs that include mastery-based progression, clear feedback, individualized goals, and repeated exposure to the movements that matter most for the athlete's sport.

Perceived social support and athletic identity also shaped the athlete's confidence profile. Support from clinicians, coaches, teammates, and family can reduce uncertainty and help the athlete interpret recovery experiences more accurately. Athletic identity may strengthen motivation and commitment, but it should be managed carefully so that the desire to return does not become pressure to hide fear or pain. A supportive rehabilitation environment should allow male athletes to report psychological concerns without feeling that such concerns reflect weakness or lack of commitment.

Return-to-sport decisions should integrate physical testing with structured psychological readiness assessment. Strength symmetry, movement quality, pain response, sport-specific conditioning, and clinical examination remain essential; however, clinicians should interpret them alongside confidence, fear, perceived control, and support. This combined approach can help clinicians distinguish between athletes who are physically capable but psychologically guarded and athletes whose confidence is supported by both objective recovery and adaptive psychological readiness.

Clinicians should deliberately assess and develop confidence as part of rehabilitation. Screening for fear of reinjury, rehabilitation self-efficacy, social support, and athletic identity can guide targeted interventions before final clearance. Programs that combine progressive physical loading with psychological skills, graded exposure, athlete-centered communication, and planned reintegration into team practice may provide a safer and more complete pathway back to sport for male athletes.

Author Contributions

The author conducted the conceptualization, methodology, data analysis, investigation, writing, review, editing, and final approval of the manuscript.

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Data Availability

The dataset will be available from the author upon reasonable request.

Conflicts of Interest

The author declares no conflict of interest.

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