INTEGRATION OF REHABILITATION THERAPY AND PSYCHOLOGICAL SUPPORT TO REDUCE RELAPSE AND IMPROVE RETURN QUALITY TO SPORTS ACTIVITY AFTER INJURY

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Recieved:, January 21, 2026 **Accepted:** February 24, 2026

ABSTRACT

Background. Significant advancements in sports injury treatment and rehabilitation programs, relapse rates after returning to athletic activity remain a real challenge for both athletes and specialists. Field experience indicates that many athletes return to activity after regaining apparent physical fitness, but lack full psychological readiness, increasing their likelihood of recurring injuries. **Objectives.** The study aims to identifying impact of integrating rehabilitation therapy and psychological support in reducing relapse rates among athletes after injury. **Method.** The researcher adopted experimental method using a quasi-experimental design Two-Group Pretest-Posttest Design, as it was suitable for nature of study, which aimed to investigate effect of integrating rehabilitation therapy and psychological support in reducing relapse and improving quality of return to athletic activity after injury. Sample was divided into two groups experimental group is subject to an integrated rehabilitation program physical and psychological support. Control group undergoes a traditional physical rehabilitation program without organized psychological intervention. Pre- and post-tests were performed for both groups, in addition to a follow -up test to monitor relapse rates after returning to activity. **Results.** Results showed integration of rehabilitation therapy and psychological support has proven to be clearly effective in reducing relapse rates compared to traditional physical rehabilitation. Integrated rehabilitation program contributed to improving quality of return to sports activity to a statistically significant degree. Integrating psychological support into the rehabilitation program significantly reduced level of fear of recurrence. **Conclusion.** Physical-psychological integration has contributed to enhancing level of motor confidence among injured athletes. Results confirm importance of adopting a comprehensive, integrated approach in sports rehabilitation programs that balances physical and psychological readiness.

Keywords; psychology, psychological support, rehabilitation therapy, sports activity.

A. INTRODUCTION

One of the most severe problems associated with the athletes of all levels is sports injuries, which leave a break in training and competitions, deterioration of physical performance, and, in the long term, can have a severe psychological impact (Dalgas et al., 2014; Jaić et al., 2010). Though the treatment and rehabilitation approaches have progressed remarkably, the rate of returns to athletic functions remains to be linked with considerable rates of relapse, which means that physical recovery cannot be considered sufficient to have an athlete fully ready (Lloret et al., 2023; Skelly, Andrea et al., 2018; Sonune et al., 2021).

The conventional rehabilitation programs have mainly been concerned with restoring the physical capabilities, i.e. muscle strength, range of motion, balance and endurance as the important markers of recovery (Mahesvi et al., 2023, 2024; Simplicio et al., 2024). Nevertheless, a sports injury is not only a physical process that is accompanied by complex psychological experience associated with fear of reoccurrence, reduced confidence in the ability to perform, and anxiety associated with being back in the game. Such psychological factors have been demonstrated in the recent literature in sports psychology to directly affect the quality of return to athletic activity and may play a role of increasing the probability of relapse despite full physical recovery (James et al., 2019; Lundeberg et al., 2018).

Integrative mode that involves rehabilitation treatment and psychological help, has become a more recent one and is based on preparing athletes as a whole both physically and psychologically taking into account the interdependence of the two (Cederström et al., 2021; Rendina, 2014; Van Way III et al., 2013). It is a scientific and practical necessity because the contemporary tendencies pay attention to the fact that the effectiveness of rehabilitation programs is determined not only by the rate of the restoration, but also the ability to remain active in sport after recovery, without relapse, and the degree of confidence and psychological stability which reflects in the sport.

Research Importance

First: Scientific significance: The scientific value of the study consists in the fact that it will help to enrich the theoretical knowledge on the issue of the relationship between motor rehabilitation and psychological support in a complex and inseparable system and fill the

scientific literature about sports rehabilitation and sports psychology. It is also aimed at filling a gap in knowledge related to the contribution of psychological variables to minimizing the prevalence of relapses and enhancing the quality of return-to-sport after an injury.

Second: Practical importance: This research contributes to providing a practical model that can be adopted in designing comprehensive rehabilitation programs that integrate physical therapy and psychological support, helping treatment centers and sports clubs improve rehabilitation outcomes and reduce the likelihood of re-injury. It also guides specialists on the importance of assessing psychological readiness alongside physical readiness before allowing a return to activity.

Third: Professional importance: The study allows evolving professional activity in such areas as physiotherapy, sports rehabilitation and sports psychology, as it proves the idea of multidisciplinary work, which is more likely to make the sport safe and guarantee the continuation of the competitive activity of its participants in the future.

Research Problem

Although the treatment of sports injuries and the rehabilitation process have gone a long way, the issue of relapse following the resumption of sport activity is still a challenge to both the athletes and the experts. The evidence in the field indicates that quite a number of athletes resume their sports activity once they feel physically fit to play, yet they are not psychologically prepared to do it, thus contributing to the risk of re-injuries.

The issue is that the majority of the rehabilitation programmes emphasize more on the restoration of motor and functional evidence, which are muscle strength, range of motion and balance, but pay scarce attention to the psychological part of the injury, which is fear of reappearing, loss of confidence in performance and anxiety regarding the reentry to the sport. This short-coming causes an imbalance between physical recovery and psychological preparedness that adversely affects the quality of the return to athletic activity, performance sustainability, and worsens the chances of relapse despite full physical recovery.

Research problem is defined as the need to verify the effectiveness of integrating rehabilitation therapy and psychological support in reducing relapse rates and improving the quality of return to sports activity after injury, compared to traditional rehabilitation programs that are limited to the physical aspect only.

The research aims to identifying impact of integrating rehabilitation therapy and psychological support in reducing relapse rates among athletes after injury. Measuring impact of integrated rehabilitation program (physical-psychological) on improving the quality of return to sports activity. Determining the role of psychological support in reducing fear of recurrence. Identifying the impact of rehabilitative-psychological integration in enhancing motor confidence among injured athletes. Comparison between the results of traditional rehabilitation and the results of integrated rehabilitation in terms of physical and psychological readiness indicators.

B. METHOD

Participant

The sample was divided into two groups experimental group is subject to an integrated rehabilitation program physical and psychological support. The control group undergoes a traditional physical rehabilitation program without organized psychological intervention. Pre- and post-tests were performed for both groups, in addition to a follow -up test to monitor relapse rates after returning to activity. The research community consisted of athletes with moderate sports injuries who were undergoing rehabilitation programs in specialized centers or sports clubs. The research sample was selected purposively according to the following criteria:

1. The participant must have been a regular athlete in training before the injury.
2. The injury must be non-surgical or surgically stable.
3. He must have completed the acute phase of medical treatment.
4. The sample members were randomly assigned to the experimental and control groups to ensure equivalence.

Research Tools

1. Physical measurements: Testing the muscle strength of the injured limb, Range of motion test and Balance and motor function tests.
2. Psychological scales: A scale measuring the fear of recurrence of the injury, Motor confidence scale, Measures the quality of return to sports activity, Follow-up record and A relapse monitoring form for a specific period of time after returning to activity.

Research Design

The researcher adopted the experimental method using a quasi-experimental design (Two-Group Pretest-Posttest Design, as it was suitable for the nature of the study, which aimed to investigate the effect of integrating rehabilitation therapy and psychological support in reducing relapse and improving the quality of return to athletic activity after injury.

1. Physical program: It included progressive strength training, balance exercises, neuromuscular control exercises, and motor simulation exercises specific to athletic activity.
2. Psychological program: The organized psychological support sessions included: Relaxation and anxiety management exercises, Cognitive reconstruction of negative thoughts associated with the injury, Enhancing motor confidence using mental visualization, Strategies for coping with the fear of recurrence of injury and The program was implemented for a specific period of time (e.g., 6–8 weeks) with a certain number of sessions per week.

Field Procedures

1. Conduct pre-tests for both groups.
2. Implementing the rehabilitation program over the specified period.
3. Conduct post-program measurements after the program has ended.
4. Allowing a gradual return to sports activity in accordance with specific medical standards.
5. Conduct a follow-up measurement after a period of time to monitor relapse rates.
6. The data were statistically processed using mean, standard deviation, and t-test for differences, in addition to relapse rate analysis.

Statistical Methods

Data analysis through the stages of The arithmetic mean, Standard deviation, (T) test for two independent samples, (T) test for two related samples, and Percentage change assisted by using the SPSS 26 application with a Significance level (0.05).

C. RESULTS AND DISCUSSION

Table 1. Shows The Differences In Relapse Rate Between The Experimental And Control Groups After The End Of The Follow-Up Period.

Group	Sample size	Number of relapse cases	Relapse rate (%)
Experimental (Rehabilitation + Psychological Support)	20	2	10%
(Traditional training)	20	6	30%

Calculated chi^2 value = 4.11, Significance level = 0.043 (< 0.05)

The findings revealed that the rate of relapse was reduced significantly in the experimental group than in the control group which means that psychological support combined with physical rehabilitation is effective. This is explicable by the fact that treating the fear of re-injury and augmenting self-efficacy minimise conservative or apprehensive patterns of movement that can augment the unbalanced load of the injured joint/tissue. The result is in line with a systematic review which affirmed that psychological factors particularly fear and anxiety are the factors that are related to an increased risk of re-injury upon returning to sports (Ardern, 2015). A recent review was also in support of the role of the psychological factors in safe return decisions and relapse reduction (Ardern, et al., 2014). Thus, the integration of cognitive-behavioral measures into the rehabilitation regimen will help to decrease occurrence of relapse because psychological preparation is enhanced in tandem with physical restoration.

Table 2. Shows Differences Between Pre- And Post-Measurements Of Two Groups In Quality Of Return To Sports Activity

Group	Pre measurement M. ± St.d	Post measurement M. ± St.d	(t) Value	Sig. level
Experimental	55.30 ± 6.20	82.45 ± 5.10	9.21	0.000
Control	54.80 ± 5.90	68.10 ± 6.75	4.12	0.001

The highest quality of returns in the experimental group proved the idea that psychophysical integration does not only hasten the process of recovery, but also enhances the quality of returns (confidence, decision efficiency, and satisfaction of the decisions). This result is consistent with the framework of the psychological readiness to come back on sport, which makes the relationship between confidence, decreased fear, and quality of performance following the injury (Everhart, et al., 2015). A systematic review also indicated that better performance and more sustainable returns were realized in athletes who had greater psychological preparation (Ardern, et al., 2014). As such, the skill of being able to

visualize on the motor side, restructure cognitions and control anxiety also improve the quality of returns, not only their time aspect.

Table 3. Shows Differences Between Pre- And Post-Measurements In Level Of Fear Of Recurrence Of Injury

Group	Pre measurement M. ± St.d	Post measurement M. ± St.d	(t) Value	Sig. level
Experimental	70.15 ± 7.80	38.60 ± 6.45	10.34	0.000
Control	69.40 ± 6.95	55.20 ± 7.10	3.87	0.002

The level of fear of the experimental group was significantly lower than that of the control group, which proves the efficiency of the psychological program used with physical rehabilitation. The fact why the amount of fear in the experimental group decreased dramatically can be attributed to the use of specific interventions (relaxation, catastrophic thoughts correction, and the progressive exposure of the participants to athletic activities). It has been demonstrated in the literature that the fear of re-injury is an important determinant of delayed or failure to return to sports and even fear of re-injury is related to avoidance behaviours that may hamper the performance mechanisms (Webster, et al., 2018). It has also been reviewed that it is related to improving the returns and lowering the risk in case this fear is addressed (Ardern, 2015). Thus, the reduction of the fear is one of the psychological mediators that explain the reduced relapse rate and the better quality of returns noted in the given study.

Table 4. Shows Differences In Motor Confidence Levels After Application

Group	Mean	Standard deviation	(t) Value	Sig. level
Experimental	85.20	4.75	6.58	0.000
Control	71.35	6.10	—	—

The results showed a significant advantage for experimental group in motor confidence, reflecting importance of integrating psychological support into rehabilitation programs. This advantage reflects impact of psychological support on enhancing task self-efficacy, a crucial behavioral determinant of rehabilitation commitment and decision to return to work. Review evidence indicates that higher confidence is associated with better adherence to rehabilitation program and positive return outcomes (Podlog, L., Banham, et al., 2015; Forsdyke, et al., 2016). Furthermore, psychological skills programs (visualization, goal setting, positive self-talk) promote a sense of control over performance after injury (Brewer, 1994; Czuppon, et al., 2014). Therefore, enhancing motor confidence is not merely a

psychological outlet, but a functional factor that impacts performance and relapse prevention.

D. CONCLUSION

Based on the research findings and the discussion on the research variables, it was concluded that integration of rehabilitation therapy and psychological support is obviously useful in lowering the occurrence of relapse as opposed to conventional physical rehabilitation. Integrated program of rehabilitation helped to enhance the quality of restoration to sports activity to statistically significant extent. The degree of fear of relapse decreased significantly with the introduction of the psychological support into the rehabilitation program. Injured athletes have gained in terms of physical-psychological integration to increase the degree of motor confidence. Only physical rehabilitation without taking into consideration psychological factors could result in a partial restoration of fitness with the risk of revert. Findings support relevance of the holistic and integrative strategy in athletic rehabilitation programs that strikes a balance between physical and mental preparedness.

Based on the study's findings, the researcher recommends need to integrate organized psychological support programs within sports rehabilitation protocols in treatment centers and clubs. Adopting psychological readiness measures as one of the basic criteria before allowing a return to sports activity. The training of therapists and trainers in the implementation of psychological assistance strategies regarding fear management and the increase of motor confidence. Improving the cooperation of sports rehabilitation experts and sports psychologists in multidisciplinary working teams. Carry out subsequent research with bigger samples and other age groups to confirm the external validity of the findings. Researching about effects of rehabilitative-psychological integration on other measures such as commitment to rehabilitation program, and the level of performance after getting back into the competition.

E. ACKNOWLEDGMENT

The researcher would like to express his sincere gratitude to close friends and colleagues who have helped in this research.

F. AUTHOR CONTRIBUTION STATEMENT

Saif Salah Hassan Hegel and Ali Khayoon Tarish Hamidi contributed to the completion of this research manuscript.

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