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Original Article

Association of Non-Surgical Interventions for Groin Pain, Physical Function, and Quality of Life in Athletes: A Cross-Sectional Survey

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ABSTRACT

Background: Groin pain is a common issue among athletes, impacting performance and quality of life. Traditional treatments often include surgery or long-term medication, which can have significant drawbacks. Given these challenges, there is increasing interest in exploring the effectiveness of non-surgical interventions.
Objective: The study aimed to evaluate the efficacy of non-surgical interventions in reducing groin pain and improving physical function and quality of life in athletes.
Methods: This cross-sectional survey involved 57 athletes suffering from groin pain. Participants underwent a 12-week non-surgical treatment program consisting of physical therapy and targeted exercise regimens. Outcomes were measured using the Visual Analog Scale (VAS) for pain, a specific functional scale for physical function, and the Short Form-36 (SF-36) for quality of life. Data analysis was performed using paired t-tests and regression models to assess changes from baseline to post-intervention, with SPSS version 25.
Results: The study recorded significant improvements post-treatment: VAS pain scores decreased from 6.5 ± 1.4 to 4.2 ± 1.3 ($p < 0.001$), physical function scores improved from 55 ± 15 to 75 ± 12 ($p < 0.001$), and SF-36 quality of life scores increased from 60 ± 10 to 80 ± 8 ($p < 0.001$).
Conclusion: Non-surgical interventions were effective in significantly reducing groin pain and enhancing physical function and quality of life among athletes. These findings suggest that non-surgical treatments can be a viable alternative to more invasive methods, supporting their integration into clinical practice for managing groin pain in athletes.

INTRODUCTION

Groin pain is a prevalent issue among athletes, commonly resulting from acute injuries or chronic conditions related to sports activities. Its impact on performance, participation, and quality of life underscores the need for effective management strategies (1, 2). The complexity of groin pain, often involving multiple anatomical structures, makes diagnosis and treatment particularly challenging (3, 4). Traditionally, management has included a combination of rest, pharmacological interventions, and in some cases, surgical procedures. However, the invasiveness and associated risks of surgery, coupled with the potential side effects of long-term medication use, have prompted interest in non-surgical treatment options (5, 6).

Recent advances in sports medicine have highlighted the efficacy of non-surgical interventions, including physical therapy, targeted exercise programs, and biomechanical adjustments, in treating groin pain among athletes (7, 8). These approaches focus on alleviating symptoms, restoring function, and preventing recurrence, which are crucial for athletes aiming to return to full activity. Moreover, non-surgical methods are often preferred by athletes to avoid the downtime and uncertainty associated with surgical recovery (9,10).

Given the high incidence of groin pain in sports and the growing preference for conservative treatment modalities, this study was designed to evaluate the effectiveness of non-surgical interventions in managing groin pain among athletes. The objective was to assess changes in pain intensity, physical function, and quality of life following a structured non-surgical treatment regimen. By focusing on a cohort of 57 athletes from various sports disciplines, the study aimed to provide comprehensive insights into the outcomes of non-surgical treatments, contributing valuable data to guide clinical practices and athlete management (11). The findings are expected to support the development of targeted, effective treatment protocols that can be integrated into sports medicine

Conflict of Interest: None

practices, ultimately enhancing the care and recovery of athletes suffering from groin pain (12, 13).

MATERIAL AND METHODS

The study was a cross-sectional survey conducted to assess the effectiveness of non-surgical interventions for groin pain in athletes. A total of 57 athletes from various sports disciplines, including soccer, rugby, and hockey, participated in the study. Participants were eligible for inclusion if they had experienced groin pain for at least one month and were undergoing non-surgical treatment at the time of the study. Athletes who had undergone surgical treatment for groin pain within the past year were excluded.

Data collection was performed using standardized questionnaires administered at the beginning and end of a 12-week treatment period. The questionnaires assessed pain intensity, physical function, and quality of life. Pain intensity was measured using the Visual Analog Scale (VAS), while physical function was evaluated using a specific functional scale designed for athletes. Quality of life was assessed through the Short Form-36 (SF-36) health survey. All instruments were validated and widely used in clinical research, ensuring the reliability of the data collected.

Ethical approval for the study was obtained from the institutional review board of the associated university, in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. Informed consent was obtained from all individual participants included in the study. Participants were assured of confidentiality and informed of their right to withdraw from the study at any time without any consequences.

Data were analyzed using SPSS version 25. Descriptive statistics were used to summarize demographic and baseline characteristics. Changes in pain, physical function, and quality of life before and after the intervention were analyzed using paired t-tests. The level of significance was set at $p<0.05$. The study also utilized regression analysis to adjust for potential confounders, including age, gender, and type of sport, providing a comprehensive analysis of the treatment effects.

These methodological choices facilitated a thorough evaluation of the non-surgical interventions, aiming to derive robust conclusions about their effectiveness in alleviating groin pain and improving overall functionality and quality of life among athletes.

RESULTS

Table 1 Participant Demographics

Variable	Details
Total Athletes	57
Average Age (years)	25.3 ± 4.7
Gender Distribution	Male: 42 (73.7%), Female: 15 (26.3%)

Demographic Overview: The study involved a total of 57 athletes with an average age of 25.3 years. The gender distribution was predominantly male, making up approximately 73.7% of the participants, while female participants accounted for 26.3%.

Table 2 Sports Type Distribution

Sport Type	Number of Athletes	Percentage
Soccer	20	35%
Rugby	15	26.3%
Hockey	12	21.1%
Others	10	17.5%

Sports Participation: Participants were primarily involved in soccer, rugby, hockey, and other sports, reflecting a diverse range of athletic backgrounds. Soccer was the most common sport, with 35% of the athletes participating, followed by rugby and hockey.

Table 3 Outcome Measures Before and After Intervention

Outcome Measure	Pre-intervention	Post-intervention	p-value
VAS Pain (0-10)	6.5 ± 1.4	4.2 ± 1.3	<0.001
Physical Function (0-100)	55 ± 15	75 ± 12	<0.001
Quality of Life (SF-36, 0-100)	60 ± 10	80 ± 8	<0.001

The intervention led to significant improvements across all measured outcomes. The Visual Analogue Scale (VAS) for pain showed a significant decrease from a mean of 6.5 to 4.2, indicating effective pain management. Physical function scores improved markedly from 55 to 75, demonstrating enhanced mobility and strength. Quality of life, assessed by the SF-36 scale, also saw a substantial rise from 60 to 80, suggesting overall better health and well-being post-intervention. These results underscore the effectiveness of non-surgical interventions in managing groin pain in athletes, enhancing their physical capabilities and overall quality of life. The statistical significance of these improvements ($p < 0.001$) strongly supports the use of these therapeutic approaches in sports medicine.

DISCUSSION

The findings of this study demonstrate significant improvements in pain management, physical function, and quality of life for athletes undergoing non-surgical interventions for groin pain. These outcomes align with existing literature that emphasizes the efficacy of conservative treatment methods in managing sports-related injuries, specifically highlighting the role of structured rehabilitation programs in mitigating pain and enhancing functional capacity The reduction in pain

intensity, as evidenced by the decreased VAS scores, supports previous research which suggests that exercise and physical therapy can alter pain perception and improve pain thresholds among athletes with chronic injuries (14,15).

The improvement in physical function noted in the study is particularly noteworthy. This enhancement not only reflects the physical recovery of the athletes but also underscores the potential of non-surgical interventions to facilitate a return to pre-injury levels of sport-specific performance. These findings are consistent with those of Jones et al. (16), who reported that targeted rehabilitation programs could significantly increase joint stability and muscular strength, which are crucial for athletic performance (17).

Quality of life improvements, as measured by the SF-36, highlight the broader impact of pain relief and enhanced physical function on athletes' overall well-being. This aspect of recovery is critical as groin pain can lead to prolonged physical and psychological distress, affecting athletes' professional careers and personal lives (18). The positive changes observed in quality-of-life metrics through non-surgical means provide a compelling argument for integrating these modalities into standard care practices for athletes presenting with groin pain (19).

Despite the encouraging results, the study has limitations that warrant consideration. The reliance on self-reported measures introduces potential biases, as these can be influenced by individual pain tolerance and personal motivation, which might affect the reporting accuracy. Furthermore, the lack of a control group limits the ability to attribute improvements solely to the intervention without considering the natural recovery process or placebo effects (20).

The study's strengths include its focused approach on a specific athlete population and the practical application of widely accessible non-surgical interventions, which enhances its relevance to clinical settings. However, future research should aim to include larger sample sizes, diverse athletic disciplines, and randomized controlled trial designs to validate these findings further. Additionally, longitudinal studies are needed to assess the long-term effects of these interventions on groin pain recurrence and performance sustainability (21,22).

CONCLUSION

In conclusion, the present study adds to the growing body of evidence supporting non-surgical interventions for groin pain in athletes. It suggests that these strategies not only reduce pain and improve function but also enhance quality of life, offering a comprehensive benefit that is vital for athletes' rehabilitation and return to sport. Clinicians are encouraged to consider these non-invasive options as part of a holistic treatment plan tailored to the specific needs and conditions of athletes.

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