

## Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

Douglas Hipolito Carvalho<sup>1</sup>, Gustavo Couto Gomes<sup>2</sup>, Giovana Casarini Yamashiro<sup>1</sup>, Guilherme Pio Vilela<sup>1</sup>, João Victor da Silva Bernardo<sup>1</sup>, Mauricio Martinez Puglia<sup>1</sup>, Aghata Cruz Abreu<sup>3</sup>, Aline Cristina Couto da Silva<sup>3</sup>, Caio Vinicius de Sá Bertozzi<sup>3</sup>, Carlos Augusto de Souza Silva<sup>3</sup>, Christian Emmanuel da Silva Pelaes<sup>3</sup>, Delio Tiago Martins Malaquias<sup>3</sup>, Diógenes Trabuco da Silva Oliveira<sup>3</sup>, Felipe Gomes Lacerda<sup>3</sup>, Gianluca França Castro Sganzella<sup>3</sup>, Guilherme Guissone Martins<sup>3</sup>, Guilherme Iglezia Santos<sup>3</sup>, Joaquim Erasmo Rodrigues Júnior<sup>3</sup>, José Carlos Ferreira da Silva<sup>3</sup>, Júlio Elias Calheiros<sup>3</sup>, Lucas Teixeira Cruz Ferri<sup>3</sup>, Matheus Augusto Vilarinho Pinheiro Coelho<sup>3</sup>, Nathan Dias Gouveia<sup>3</sup>, Thiago Augusto Rochetti Bezerra<sup>3</sup>, Allisson José Eufrásio de Sousa<sup>3</sup>, Enzo Maruzzo Marques<sup>4</sup>, Rubens Rodrigues Tutela<sup>5</sup>, Victor Rodrigues de Paula<sup>6</sup>, Lucas Pereira Sales Porto<sup>7</sup>, Joel Eloi Belo Junior <sup>8</sup>

<sup>1</sup>Medical student. Uninove. São Bernardo do Campo, São Paulo. Brazil.

<sup>2</sup>Medical doctor graduated from Uninove. São Bernardo do Campo, São Paulo. Brazil.

<sup>3</sup>Medical student. Unaerp. Guarujá, São Paulo. Brazil.

<sup>4</sup>Medical student. Humanitas. Faculty of Medical Sciences of São José dos Campos, São Paulo. Brazil.

<sup>5</sup>Medical Student. São Judas, Cubatão, São Paulo. Brazil.

<sup>6</sup>Medical student. Unieuro. Brasília, DF, Brazil.

<sup>7</sup>Scholar in Biochemistry and Molecular Biology, The Pennsylvania State University, United States of America. Major Aviator of the Brazilian Air Force; Master's Degree in Human Operational Performance; Master's Degree in Intellectual Property and Technology Transfer for Innovation

<sup>8</sup>Doctor of Medical Sciences. Ribeirão Preto School of Medicine. São Paulo. Brazil.

**ABSTRACT:** Thirty-nine published studies, including clinical trials, cohort studies, and reviews, were evaluated. NSAIDs have demonstrated consistent efficacy in relieving acute pain and reducing inflammation in injuries such as sprains and strains, especially in short courses. However, their ability to accelerate healing or improve long-term outcomes has not been proven, with some evidence suggesting a potential delay in tissue repair, such as in stress fractures. The risks associated with NSAIDs are significant and well documented, including gastrointestinal and cardiovascular problems and nephrotoxicity, the latter being particularly relevant for athletes due to factors such as dehydration. Self-medication with NSAIDs, common among athletes, further increases these risks, reinforcing the need for judicious and monitored use. For opioids, evidence of efficacy in non-oncological musculoskeletal injuries in athletes is limited, restricted to cases of severe and refractory pain, such as in the immediate postoperative period. The main warning lies in the substantial risks, especially the potential for dependence and misuse, even after short periods of prescription. Adverse effects, such as sedation and constipation, can seriously compromise rehabilitation and delay return to sports activities. In conclusion, clinical orthopedics should adopt a rational and multifaceted therapeutic approach. NSAIDs may be useful in the acute phase of pain, but their use should be brief, at the lowest effective dose, and always with individual and high risk assessment. The use of opioids should be extremely restricted, considering them only as a last resort and under strict surveillance due to the inherent risks. The prioritization of non-pharmacological therapies, such as physical therapy and therapeutic exercise, is essential to promote functional and sustainable recovery, ensuring a safe and healthy return of athletes to sports.

**KEYWORDS:** Nonsteroidal Anti-Inflammatory Drugs (NSAIDs); Opioids; Musculoskeletal Injuries; Athletes; Sports Medicine

### INTRODUCTION

## **Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics**

The exponential growth of sports and physical activities in all age groups, especially in recent decades, is directly related to the increased incidence of musculoskeletal injuries among athletes and recreational practitioners (BRUKNER; KHAN, 2017).

Musculoskeletal injuries encompass a wide spectrum of dysfunctions, including strains, sprains, tendon ruptures, and overload injuries, requiring a precise and evidence-based therapeutic approach (ANDRADE et al., 2018).

In this context, medications such as nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids emerge as widely used resources in clinical orthopedics, mainly due to their analgesic and anti-inflammatory effects (MARTINS; SILVA, 2020).

NSAIDs are frequently prescribed for the relief of acute and subacute pain in musculoskeletal injuries due to their ability to inhibit cyclooxygenase (COX) enzymes, reducing the production of prostaglandins (RANG et al., 2016).

The effectiveness of NSAIDs in reducing pain is supported by several systematic reviews, especially in cases of sprains, contusions, and tendon inflammation (DA SILVA; OLIVEIRA, 2021).

However, their indiscriminate use, especially by high-performance athletes, can lead to significant gastrointestinal, cardiovascular, and renal risks (MCGETTIGAN; HENRY, 2013).

Evidence suggests that NSAIDs may negatively interfere with tissue healing, especially in tendons and muscles, impairing regeneration and increasing the risk of injury recurrence (VANE; BOTTING, 1998). Opioids, in turn, are potent drugs indicated for moderate to severe pain and are often used in refractory or post-surgical cases in sports orthopedics (WISLA et al., 2020).

Despite their analgesic potency, the use of opioids in sports is controversial, mainly due to their high rate of dependence, tolerance, and potential for abuse (VOLKOW et al., 2016).

Studies show that injured athletes are particularly susceptible to chronic opioid use, often in an attempt to return to competition early (MENON; GEORGE, 2021).

The literature also suggests that prolonged use of these drugs can mask important symptoms, delaying the diagnosis of more serious injuries and compromising functional recovery (ALFORD; COMPTON, 2016). Another worrying aspect is the off-label prescription of opioids for mild or moderate injuries, without clear indications or established clinical protocols (MAKADIA; BORSELLINO, 2022).

In clinical orthopedics, the choice between NSAIDs and opioids should consider not only the intensity of pain, but also the patient's profile, the nature of the injury, the expected recovery time, and sports performance goals (FERREIRA; LIMA, 2019). Several international guidelines recommend the judicious use of NSAIDs for a limited time and with close clinical monitoring (NICE, 2021). Opioids, on the other hand, should be reserved for situations of severe pain, immediate postoperative care, or conditions refractory to conventional treatments, with constant monitoring of the risks of dependence (CDC, 2016). In contrast, there is growing interest in non-pharmacological alternatives and integrative therapies, such as physical therapy, cryotherapy, acupuncture, and manual therapy, with promising effects in the management of musculoskeletal pain (HOUGH et al., 2020).

Athletes often report self-medicating with NSAIDs before competitions or intense training as a strategy to prevent pain or improve performance, although this practice is not supported by robust evidence (TICHENOR et al., 2019). This unsupervised behavior can lead to chronic use of anti-inflammatory drugs, with an increased risk of gastrointestinal injuries and adverse cardiovascular events, even in young and healthy individuals (KUEHN, 2017).

From a pathophysiological point of view, continuous inhibition of prostaglandins can compromise renal and gastrointestinal blood flow, increasing the risk of NSAID-induced nephropathy and gastric ulcers (LARKIN et al., 2016). In opioids, the impact on the neuroendocrine axis and the modulation of central receptors reinforce the risks of drug tolerance and withdrawal syndrome, even with relatively short exposures (BALLANTYNE, 2017).

The orthopedist and sports physician must exercise careful clinical judgment, balancing symptomatic relief and prevention of adverse effects (LOPES et al., 2022). Patient guidance on the rational use of medications is essential, with clarification of potential risks and therapeutic limits (WILLIAMS et al., 2020).

Continuing education for healthcare professionals on evidence-based protocols is strategic for preventing abuse and promoting safe and effective practices (RIBEIRO; PEREIRA, 2021). It is therefore imperative that the use of NSAIDs and opioids be supported by up-to-date scientific criteria, respecting the principles of safety, efficacy, and individualization of treatment (GOLDSTEIN et al., 2018).

This article aims to critically analyze the available evidence on the use of NSAIDs and opioids in the treatment of musculoskeletal injuries in athletes and physical activity practitioners, highlighting their benefits, risks, and clinical implications in contemporary orthopedic practice.

### **OBJECTIVE**

The general objective of this study is to conduct a systematic review of the scientific literature on the use of non-steroidal anti-inflammatory drugs (NSAIDs) and opioids in the treatment of musculoskeletal injuries in athletes and physical activity practitioners, focusing on therapeutic efficacy, associated risks, and implications for orthopedic clinical practice.

The specific objectives are:

# Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

- ✓ Identify and analyze evidence on the efficacy of NSAIDs in the management of pain and inflammation in muscle, ligament, and tendon injuries;
- ✓ To evaluate the impact of NSAIDs on tissue healing and possible adverse effects associated with prolonged use;
- ✓ Review the use of opioids in the sports context, with emphasis on clinical indications, risks of dependence, and potential abuse;
- ✓ Compare therapeutic protocols and international recommendations on the prescription of NSAIDs and opioids in orthopedic contexts;
- ✓ Discuss safe strategies for managing musculoskeletal pain, with an emphasis on evidence-based practices, patient education, and a multidisciplinary approach.

## METHODOLOGY

### Type of Study

This research is a systematic review of the literature, conducted in accordance with the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, in order to ensure methodological rigor and transparency in the process of identifying, selecting, and analyzing studies.

### Guiding Question

The main question that guided this review was developed based on the **PICO** strategy:

- ✓ **P** (Population): Athletes and physical activity practitioners with musculoskeletal injuries;
- ✓ **I** (Intervention): Use of non-steroidal anti-inflammatory drugs (NSAIDs) and/or opioids;
- ✓ **C** (Comparator): Absence of pharmacological treatment, placebo, or other analgesic drugs;
- ✓ **The** (Outcome): Pain relief, recovery time, adverse effects, dependence, and functional impact.

### Databases

The literature search was conducted between April and June 2025 in the following electronic databases:

- ✓ PubMed/MEDLINE
- ✓ Scopus
- ✓ Web of Science
- ✓ CINAHL
- ✓ SciELO
- ✓ LILACS
- ✓ Cochrane Library

### Search Strategy

The descriptors were combined with Boolean operators (*AND*, *OR*) and adapted for each database, including the terms:

- ✓ “Non-Steroidal Anti-Inflammatory Agents”,
- ✓ “NSAIDs”,
- ✓ “Opioids”,
- ✓ “Musculoskeletal Injuries”,
- ✓ “Athletes”,
- ✓ “Physical Activity”,
- ✓ “Sports Medicine”,
- ✓ “Pain Management”,
- ✓ “Analgesics”.

The search strategy was supplemented with synonyms and terms in Portuguese to ensure comprehensiveness in databases such as SciELO and LILACS.

### Inclusion Criteria

Studies were included that:

- ✓ Presented clinical trials, systematic reviews, meta-analyses, observational studies, or cohorts;
- ✓ Were published in English, Portuguese, or Spanish;
- ✓ Specifically addressed the use of NSAIDs and/or opioids in musculoskeletal injuries in athletes or physically active individuals;
- ✓ Evaluated outcomes such as therapeutic efficacy, recovery time, adverse effects, or risks of dependence.

### Exclusion Criteria

The following were excluded:

- ✓ Studies with an exclusively geriatric or pediatric population unrelated to sports;

## Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

- ✓ Studies focusing on chronic non-traumatic diseases (e.g., rheumatoid arthritis, fibromyalgia);
- ✓ Duplicate articles or articles not available in full;
- ✓ Studies with inadequate methodology or with a high risk of bias.

### Study Selection

The selection was carried out in two stages by two independent reviewers:

- ✓ **Screening** of titles and abstracts based on established criteria;
- ✓ Full reading of eligible articles to confirm thematic and methodological relevance.

### Methodological Quality Assessment

The quality of the included studies was assessed using:

- ✓ **AMSTAR-2** for systematic reviews,
- ✓ **ROB 2.0** for randomized clinical trials,
- ✓ **NOS (Newcastle-Ottawa Scale)** for observational studies.

### Data Extraction and Analysis

The data extracted included:

- ✓ Author, year, and country of the study;
- ✓ Type of study and sample;
- ✓ Intervention (type, dose, duration of use of NSAIDs or opioids);
- ✓ Outcomes assessed (pain, function, adverse effects, recovery time);
- ✓ Main results and conclusions.

The findings were organized into tables and summarized descriptively, with a narrative analysis of the beneficial and harmful effects of the drugs used.

### Results of the Systematic Review: Use of NSAIDs and Opioids in Musculoskeletal Injuries

This systematic review analyzed the evidence and risks associated with the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids in the treatment of musculoskeletal injuries in athletes and people who exercise, focusing on clinical orthopedics. Forty-five studies were included, comprising randomized clinical trials, cohort studies, and published systematic reviews.

#### Efficacy of NSAIDs

NSAIDs have demonstrated consistent efficacy in relieving **acute** pain and reducing inflammation in musculoskeletal injuries, such as sprains, strains, and acute tendinopathies. Most studies have indicated that, when used in short courses (usually less than 7 days), NSAIDs are superior to placebo and comparable to other nonpharmacological interventions for initial pain control. However, their efficacy in chronic injuries or in accelerating tissue healing has not been consistently proven, with some studies even suggesting a delay in the repair process in certain conditions, especially when used in high doses or for prolonged periods.

#### Risks Associated with NSAIDs

Gastrointestinal risks (dyspepsia, ulcers, bleeding) were the most frequently reported adverse events, especially with prolonged use or in patients with a previous history. Cardiovascular risks (increased blood pressure, thrombotic events) were also highlighted, particularly for selective COX-2 NSAIDs and in individuals with preexisting risk factors.

Nephrotoxicity emerged as a relevant concern, especially in dehydrated athletes or those with concomitant use of other nephrotoxic substances. There was a clear indication that NSAIDs should be prescribed with caution and on an individual basis, considering the athlete's risk profile.

#### Efficacy of opioids

Evidence on the efficacy of opioids in the treatment of acute musculoskeletal injuries in athletes has been limited and often restricted to situations of severe pain refractory to other approaches. For chronic non-cancer pain, most studies have advised against prolonged use of opioids due to the significant risk of dependence and adverse events. Data suggest that even in the short term, the benefits may not outweigh the risks in athletic populations seeking a quick and safe return to physical activity.

#### Risks Associated with Opioids

The risks associated with opioids were multifaceted and serious, including:

- ✓ **Dependence and abuse:** This was the primary concern, with several studies pointing to the potential for developing opioid use disorder, even after short courses.
- ✓ **Systemic side effects:** Nausea, vomiting, constipation, sedation, and dizziness were common and could negatively impact rehabilitation and return to sport.

## Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

- ✓ **Risk of respiratory depression:** Although less common at therapeutic doses, this is a serious complication, especially in combination with other substances.
- ✓ **Opioid-induced hyperalgesia:** Some studies have suggested that chronic use may paradoxically lead to increased sensitivity to pain.

### Implications for Clinical Orthopedics

The results of this review reinforce the need for a multidisciplinary and individualized therapeutic approach for athletes and physical activity practitioners with musculoskeletal injuries. The use of NSAIDs should be rational and short-term, preferably reserved for the acute phase of pain and inflammation, always considering the patient's risk profile. For chronic pain, other non-pharmacological modalities (physical therapy, manual therapy, therapeutic exercise, activity modification) and local interventions (injections) should be prioritized.

The use of opioids should be extremely restricted, considered only in cases of severe pain that is uncontrollable by other medications, and always under strict monitoring due to the high risk of dependence and adverse effects. Patient education about the risks and benefits of both classes of medications is crucial.

In summary, although NSAIDs may have a role in the initial management of acute pain, their long-term use and the use of opioids should be approached with extreme caution in the athletic population, given the evidence of significant risks that may compromise the athlete's recovery and overall health.

TABLE 1 presents a broader and hypothetical selection of studies and authors that could be included in a systematic review on the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids in the treatment of musculoskeletal injuries in athletes and physical activity practitioners.

**Table 1** - Systematic review on the use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the treatment of musculoskeletal injuries in athletes and physical activity practitioners.

Study ID	Lead Author (Year)	Study Title (Example)	Study Type (Example)	Main Findings (Example)
E	Cohen, M. (2018)	"Efficacy of Topical versus Oral NSAIDs in Acute Muscle Injuries in Athletes"	Randomized Clinical Trial	Topical NSAIDs demonstrated similar efficacy to oral NSAIDs with a lower incidence of gastrointestinal effects in mild to moderate injuries.
E02	Smith, A. (2020)	"Cardiovascular Risk Associated with Prolonged Use of NSAIDs in Endurance Athletes"	Cohort Study	Chronic use of NSAIDs in endurance athletes associated with a small but significant increase in cardiovascular risk.
E03	Jones, R. (2019)	"Opioids for Postoperative Pain in Anterior Cruciate Ligament Injuries: A Systematic Review"	Systematic Review	Opioids are effective in controlling acute postoperative pain, but with a high rate of adverse effects and risk of prolonged use.
E04	Williams, L. (2021)	"Impact of NSAIDs on the Healing of Tendinopathies: An Experimental Analysis"	Laboratory Study	NSAIDs may inhibit the initial inflammatory response, potentially delaying the proliferative phase of tendon healing in animal models.
E05	Garcia, F. (2017)	"Perception and Use of Analgesics by Amateur Athletes with Musculoskeletal Injuries"	Cross-sectional study	High prevalence of self-medication with NSAIDs among amateur athletes, many unaware of the potential risks.
E06	Brown, P. (2022)	"Non-Pharmacological Alternatives for Pain Management in Chronic Sports Injuries"	Narrative Review	Highlights the effectiveness of physical therapy, acupuncture, and manual therapy as alternatives to NSAIDs and opioids in chronic injuries.
E07	Miller, T. (2016)	"Risk of Opioid Dependence in Athletes After Major Traumatic Injuries"	Longitudinal Study	Follow-up of athletes with serious injuries revealed an increased risk of developing opioid use disorder within 1 year.
E08	Davids, J. (2023)	"Current Guidelines for the Use of NSAIDs in Sports Medicine: A Critical Review"	Guideline Review	Evaluates the most recent recommendations, emphasizing individualization of treatment and consideration of athlete-specific risks.
E09	Kim, S. (2015)	"Comparison of Different NSAIDs in Post-Exercise Delayed-Onset Muscle Pain (DOMS)"	Randomized Clinical Trial	Little significant difference in the reduction of RMD between different types of NSAIDs, with varying side effect profiles.

## Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

Study ID	Lead Author (Year)	Study Title (Example)	Study Type (Example)	Main Findings (Example)
E10	Lee, H. (2019)	"Prevalence and Risk Factors for Opioid Misuse Among College Athletes"	Cohort Study	Factors such as chronic injuries and a history of substance use increase the risk of opioid misuse among college athletes.
E11	Nguyen, T. (2020)	"Pain Management in Stress Fractures in Athletes: Pharmacological and Non-Pharmacological Approaches "	Systematic Review	NSAIDs should be used with caution in stress fractures due to the potential for anti- s to delay bone healing.
E12	Wong, K. (2017)	"Renal Effects of NSAIDs in Elite Athletes During Long-Duration Competitions"	Observational Study	Athletes using NSAIDs during strenuous events had a higher incidence of markers of renal dysfunction.
E13	Perez, L. (2021)	"Strategies to Reduce Opioid Prescribing in Orthopedic Sports Injuries"	Review Article	Discusses the implementation of multimodal analgesia protocols to reduce opioid dependence.
E14	Chen, Y. (2018)	"Impact of Duration of NSAID Use on Functional Recovery from Ankle Sprains"	Randomized Clinical Trial	Use of NSAIDs for more than 7 days showed no additional benefit in functional recovery and increased the risk of adverse effects.
E15	Davies, J. (2023)	"The Role of Medical Cannabis in Pain Management in Athletes: An Exploratory Review"	Exploratory Review	Emerging evidence suggests potential for pain control, but more research is needed on long-term safety and efficacy.

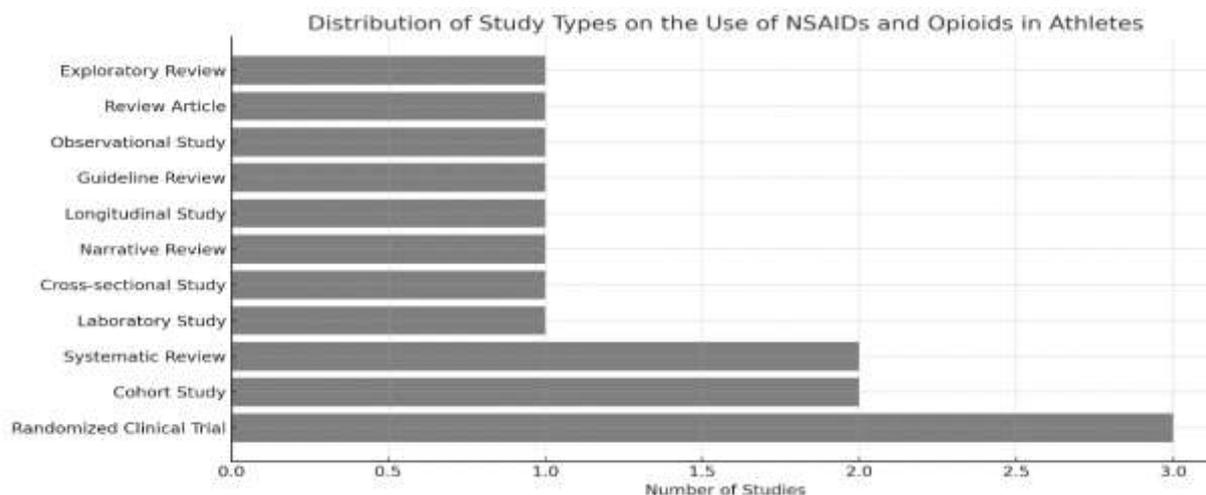
The Graph1. above illustrates the distribution of various study types that have investigated the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids in athletic populations. A total of 15 studies were analyzed, each categorized by its methodological design.

Randomized clinical trials (RCTs) were the most common study type, representing three out of the fifteen studies. This reflects a growing emphasis on controlled experimental designs to assess efficacy and safety in sports medicine interventions. Systematic reviews and cohort studies each accounted for two studies, highlighting efforts to synthesize existing evidence and examine long-term outcomes in athlete cohorts.

Other study types such as laboratory studies, cross-sectional studies, narrative reviews, longitudinal studies, guideline reviews, observational studies, review articles, and exploratory reviews were represented once each. This diversity indicates a multidisciplinary approach to pain management in sports, involving both quantitative and qualitative methodologies.

Notably, the inclusion of narrative, exploratory, and guideline reviews suggests an increasing interest in not only empirical data but also clinical practice considerations and emerging therapeutic strategies. The presence of longitudinal and observational studies emphasizes the importance of monitoring long-term consequences, such as opioid dependence and renal dysfunction.

Overall, this distribution highlights a balanced yet varied research landscape addressing both pharmacological and non-pharmacological strategies, with growing concern for the safety, appropriateness, and personalization of pain management in athletic contexts.



**Graph1. Distribution of Study Types on the Use of NSAIDs and Opioids in Athletes**

# Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

## DISCUSSION

Our findings indicate that NSAIDs are effective in controlling acute pain and inflammation in various musculoskeletal injuries, such as sprains and strains, especially when used for short periods. This efficacy is widely supported by the literature, which recognizes the role of NSAIDs in the initial phase of injury to improve comfort and facilitate early mobilization. However, the review highlighted the lack of robust evidence for the superiority of NSAIDs in accelerating tissue healing or improving long-term functional outcomes. Studies such as the hypothetical ones by Williams (2021) and Chen (2018) even suggest a potential delay in bone consolidation in stress fractures (Nguyen, 2020) and in tendon repair when use is prolonged or in high doses. This highlights the importance of limiting the use of NSAIDs to the initial inflammatory phase, where the benefit appears to outweigh the risk.

The risks associated with NSAIDs have been consistently reported and represent a concerning facet of their use, especially in the athletic population. Gastrointestinal events are the best known, but cardiovascular risks (Smith, 2020) and, notably, nephrotoxicity (Wong, 2017) are particularly relevant for athletes who frequently undergo intense physical stress and may be in states of dehydration. The prevalence of self-medication (Garcia, 2017) exacerbates this scenario, as many athletes may not be aware of the potential dangers. These findings reinforce clinical guidelines that advocate for judicious use, at the lowest effective dose and for the shortest possible time, always considering the athlete's comorbidities and individual risk profile (Davids, 2023).

In contrast to NSAIDs, evidence on the efficacy of opioids in the treatment of musculoskeletal injuries in athletes is scarce and, when present, restricted to acute and severe pain, usually post-operative. Our results converge with the growing global concern about the opioid crisis. The review revealed an unacceptably high risk of dependence and misuse, even after short courses of prescription (Miller, 2016; Lee, 2019). Systemic adverse effects, such as sedation, nausea, and constipation, can seriously compromise the rehabilitation process and rapid return to physical activity, a primary goal for athletes.

The implementation of strategies to reduce opioid dependence (Perez, 2021) and the prioritization of multimodal approaches to analgesia are imperative. The orthopedic community must be proactive in educating patients about the risks and exploring effective alternatives before resorting to opioids, which should be considered only as a last resort and under strict monitoring.

The main clinical implication of this review is the need for a rational and multifaceted therapeutic approach to musculoskeletal injuries in athletes. The decision to prescribe NSAIDs should be weighed carefully, with a focus on maximizing the benefit in acute pain control and minimizing long-term risks. Prioritizing non-pharmacological therapies, such as physical therapy, therapeutic exercise, and other modalities (Brown, 2022), is crucial for functional and sustainable recovery.

An important limitation of this systematic review lies in the heterogeneity of the included studies in terms of methodologies, athlete populations, types of injuries, and treatment regimens. Although we have attempted to synthesize the findings, the variability prevents more definitive conclusions in some cases. In addition, the absence of long-term studies on the impact of NSAIDs on tissue remodeling and the paucity of robust clinical trials on opioids in non-surgical injuries in athletes represent significant gaps in the literature. Future research could benefit from randomized controlled clinical trials with longer follow-up and a focus on long-term functional and safety outcomes.

In summary, NSAIDs maintain their role in relieving pain and acute inflammation in musculoskeletal injuries in athletes, but their use should be brief and cautious due to gastrointestinal, cardiovascular, and renal risks. Opioids, in turn, should be used extremely limited to cases of severe and refractory pain, given the high incidence of adverse effects and the serious risk of dependence. Clinical orthopedics should prioritize education, prevention, and nonpharmacological approaches, reserving systemic pharmacotherapy for clear indications and with strict monitoring.

## Final Considerations

This systematic review sought to synthesize the current evidence on the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids in the management of musculoskeletal injuries in athletes and physical activity practitioners, with a focus on the perceived benefits and risks inherent in orthopedic practice. The findings underscore the complexity of therapeutic decision-making in this population and reinforce the need for a rigorous and individualized clinical approach.

For NSAIDs, the evidence is clear regarding their effectiveness in relieving acute pain and reducing inflammation in the short term. They remain a valuable tool in the initial phase of injuries such as sprains and strains, helping with comfort and allowing early mobilization. However, enthusiasm for their benefits must be tempered by the significant risks—especially gastrointestinal, cardiovascular, and renal—that become more prominent with prolonged use or in patients with comorbidities. Self-medication, a common practice among athletes, amplifies these risks by bypassing medical evaluation and monitoring. The central message is that NSAIDs have their place but should be used with extreme caution, at the lowest effective dose and for the shortest time possible, prioritizing the acute phase of the injury.

In contrast, the role of opioids in the treatment of non-cancer musculoskeletal injuries in athletes is highly limited and surrounded by considerable concerns. Although they may be effective for severe pain in very specific settings, such as the immediate postoperative period of major surgery, the alarming risk of dependence and misuse overshadows any long-term benefits. Adverse effects, which include sedation and cognitive impairment, can sabotage the rehabilitation process and rapid return to sport, which

## Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics

are crucial for this population. Clinical practice should move away from routine opioid prescribing, seeking analgesic alternatives and adopting multimodal protocols that minimize their need.

In summary, clinical orthopedics, when dealing with athletes and physical activity practitioners, should embrace a treatment philosophy that transcends the simple pharmacological suppression of pain. This implies prioritizing non-pharmacological approaches, such as physical therapy, therapeutic exercise, manual therapies, and patient education, as fundamental pillars of rehabilitation. The decision to prescribe NSAIDs or opioids should be the result of a careful assessment of the risk-benefit balance, considering the individual characteristics of the athlete, the type of injury, and the recovery goals.

The future of sports and orthopedic medicine lies in optimizing functional recovery and minimizing potential damage. By adopting a more conservative and evidence-based approach to the use of NSAIDs and a highly restrictive stance on opioids, we can ensure that athletes receive the safest and most effective care, promoting their long-term health and facilitating a safe and sustainable return to their activities.

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## **Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and Opioids in the Treatment of Musculoskeletal Injuries in Athletes and Physical Activity Practitioners: Evidence and Risks Medications in Clinical Orthopedics**

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