# Bruised Beyond the Cage: Chronic Pain and Self-Treatment Behaviors Among Martial Arts Athletes

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## Introduction

- Martial arts athletes sustain **frequent acute and chronic injuries** due to repetitive impact, submissions, grappling, and high-force training demands.
- Chronic injury prevalence is poorly characterized
- Management strategies vary widely and often lack evidence ranging from **NSAIDs and physical therapy** to **peptides, psychedelics, and regenerative therapies**.
- A deeper understanding of injury patterns and treatment behaviors may inform **safer training practices** and **more effective pain management**.

## Objectives

Primary Objective

- Assess the **prevalence**, **causes**, and **recovery experiences** of martial arts related injuries.

Secondary Objectives

- Characterize **injury patterns** by body part, chronicity, and martial arts discipline.
- Identify **treatment and pain-management strategies**, including medical, alternative, and substance-based approaches.
- Evaluate **perceived effectiveness** of treatments.
- Highlight gaps in **prevention**, **rehabilitation**, and **clinical guidance**.

## Material & Methods





Study Design

- Cross-sectional, anonymous survey distributed digitally and in person to martial arts gyms, competitions, training academies, and online martial arts forums.

Survey Characteristics:

- **Demographics:** age, gender, race/ethnicity
- **Training characteristics:** discipline, belt/rank, years of practice, professional vs recreational status
- **Injury assessment:**
  - Body part injured (head → toes, 28 regions in total)
  - Injury type (concussion, sprain/strain, ligamentous, fracture, dislocation, overuse, etc.)
  - Duration categories: < 3 months, 3–12 months, >1 year, up to 5 years
  - Injury onset: sudden vs developed over time
- **Medical evaluations:** EM, primary care, sports medicine, ortho, pain medicine, chiropractic, or none
- **Pain management Strategies:**
  - Medications (NSAIDs, gabapentinoids, steroids, opioids, antidepressants, patches, etc)
  - Interventions (PT, acupuncture, cupping, injections, nerve blocks, surgery, testosterone, PRP, stem cells, RFA, TENS, SCS, hyperbaric therapy)
  - Substances (marijuana, alcohol, psychedelics, cocaine, ketamine, others)
- **Outcome measures:**
  - Perceived pain-relief effectiveness (0–30%, 30–50%, 50–70%, 70–100%)
  - Open-text responses on what helped most and additional comment sections to promote hypothesis generating inquiries
- **Analysis**
  - Descriptive analysis and characterization of injury patterns, treatment utilization, and perceived efficacy.

## Results

- **52 martial arts athletes** completed the survey
- **Persistent pain/injury:** 70% reported symptoms lasting >3 months, and 20% reported symptoms lasting >1 year.
- **Most affected body regions**: ribs (27%), shoulders (27%), elbows (25%), knees (25%), and lower back (23%).
- **Most common injury types:** sprains/strains (52%), soft-tissue injuries (34%), and overuse injuries (31%).
- **Healthcare utilization:** Nearly 75% sought physician evaluation: 40% saw an orthopedic specialist, 32% saw a primary care physician, and one-third were evaluated by an Emergency Medicine physician.
- **Pain Medicine utilization:** Only 2 athletes reported evaluation by a Pain Medicine specialist.
- **Common treatments:** NSAIDs (78%), massage therapy (61%), physical therapy (57%), temporary cessation of training (45%), acetaminophen (41%), topical analgesics (39%), muscle relaxants (29%), and cupping (18%).
- **Substances used for pain management:** cannabis (19%), alcohol (8%), and psychedelics (3%).
- **Symptom improvement remained limited:** 46% reported <50% improvement, while only 25% reported >70% improvement despite multimodal treatment and substantial healthcare utilization.

## Discussion

- **Persistent pain** is common and may represent an underrecognized burden in martial arts athletes.
- **High healthcare utilization did not translate to adequate symptom relief** with many athletes reporting persistent symptoms despite multimodal treatment.
- **Pain Medicine was underutilized** with only two athletes receiving specialty evaluation.
- **Self-treatment was common** including NSAIDs, rehabilitation, complementary therapies, and substance use.
- **Gap in care:** Despite frequent healthcare utilization and multimodal treatment, persistent pain remained common, while specialty Pain Medicine involvement was rare.
- Athletes may lack a coordinated transition from acute injury care to long-term pain management.