Surgical Fixation May Improve QoL for Pickleball Achilles Ruptures

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> Achilles tendon ruptures, once primarily associated with high-impact sports like basketball or football, now frequently present in the emergency department following pickleball injuries. This demographic shift, often involving middle-aged and older adults, complicates treatment decisions, balancing the desire for rapid return to activity against surgical risks. The question for many clinicians remains whether operative intervention truly provides a tangible benefit over conservative approaches in this increasingly common patient cohort.

KEY TAKEAWAYS

- The Pivot: The rising incidence of Achilles ruptures in pickleball players, a distinct patient demographic, necessitates re-evaluation of optimal treatment strategies.
- The Data: Patients undergoing surgical repair often report higher functional scores and lower re-rupture rates compared to non-operative management.
- The Action: Consider surgical fixation for active pickleball players with Achilles ruptures, particularly those motivated to return to sport, after a thorough discussion of risks and benefits.

Achilles tendon ruptures represent a significant musculoskeletal injury, historically peaking in men aged 30 to 50 years participating in sports requiring sudden acceleration and deceleration. The advent and explosive popularity of pickleball, a sport attracting a broader age range, including many individuals over 50, has altered the epidemiological profile of these injuries. Clinicians now routinely encounter patients in their 60s and 70s presenting with acute Achilles ruptures sustained during a seemingly benign game of pickleball, prompting a re-examination of standard treatment paradigms.
The Achilles tendon, the largest and strongest tendon in the human body, connects the calf muscles to the heel bone. It is critical for plantarflexion of the foot, enabling walking, running, and jumping. Ruptures typically occur during eccentric loading, such as pushing off or landing, when the calf muscles contract while the ankle rapidly dorsiflexes. This mechanism is common in pickleball, with its quick lateral movements, lunges, and sudden stops. The injury often presents with a sudden, sharp pain, a 'pop' sensation, and immediate functional impairment, making weight-bearing difficult or impossible. Physical examination typically reveals a palpable gap in the tendon and a positive Thompson test, where squeezing the calf muscle fails to produce plantarflexion of the foot.
Management strategies for acute Achilles tendon ruptures generally fall into two broad categories: operative and non-operative. Non-operative management typically involves immobilisation in a cast or boot, initially in plantarflexion, with gradual progression to a neutral position over several weeks, followed by a structured rehabilitation programme. Surgical repair, conversely, involves direct approximation of the torn tendon ends, often using sutures, followed by a similar period of immobilisation and rehabilitation. The choice between these approaches has been a subject of ongoing

debate, with each carrying distinct advantages and disadvantages regarding re-rupture rates, functional outcomes, and complication profiles. For the younger, highly active athlete, surgical repair has often been favoured due to perceived lower re-rupture rates. But for older, less active individuals, the risks of surgery, including infection, wound complications, and nerve injury, often tip the scales towards conservative management.

The numbers on surgical repair

For the pickleball demographic, who are often active but may have comorbidities, the decision is less clear-cut. Data from several retrospective and prospective studies, though not always specific to pickleball, suggest that surgical repair may offer superior functional outcomes and lower re-rupture rates. A meta-analysis of randomised controlled trials comparing operative and non-operative treatment for acute Achilles ruptures, for instance, found that surgical repair reduced the risk of re-rupture by 72% (RR 0.28; 95% CI, 0.17-0.45; P<.001) compared to non-operative management. This translates to a number needed to treat (NNT) of approximately 14 to prevent one re-rupture. While this analysis did not specifically isolate pickleball players, the mechanism of injury and patient profile in pickleball often align with those included in these broader studies.

Functional outcomes, often assessed using patient-reported outcome measures such as the Achilles Tendon Rupture Score (ATRS) or the American Orthopaedic Foot & Ankle Society (AOFAS) Ankle-Hindfoot Score, also tend to favour surgical intervention. Patients undergoing surgical repair consistently report higher scores, indicating better overall function and less pain, particularly in the long term. For instance, a study following 100 patients with acute Achilles ruptures found that at 2-year follow-up, the mean ATRS was 85.2 in the surgically repaired group compared to 76.5 in the non-operative group (P=.012). This difference, while statistically significant, requires careful interpretation in the context of individual patient goals and activity levels. A patient aiming to return to competitive pickleball may value this difference more than someone whose primary goal is pain-free ambulation.

The mechanism behind these improved outcomes likely relates to the more robust anatomical repair achieved through surgery. Direct approximation and tensioning of the tendon ends can restore the original length and tension of the Achilles tendon more effectively than conservative healing, which relies on scar tissue formation. This anatomical restoration is crucial for optimal biomechanical function, particularly for activities requiring powerful plantarflexion. The ability to regain calf muscle strength and endurance is often superior in surgically treated patients, which directly impacts their capacity to return to sport and maintain pre-injury activity levels. One study noted that calf muscle strength, measured by heel-rise height, was 15% higher in the operative group at 12 months post-injury (P=.03). This strength differential is particularly relevant for the dynamic demands of pickleball.

But surgical intervention is not without its drawbacks. The most common complications include wound infection, nerve injury (particularly to the sural nerve), and skin necrosis. The risk of superficial wound infection can be as high as 5% to 10%, while deep infection is less common but more severe. Nerve injury, typically transient paraesthesia or numbness, occurs in up to 15% of cases. These complications, though generally manageable, can prolong recovery and impact patient satisfaction. For older patients or those with comorbidities such as diabetes, peripheral vascular disease, or obesity, these risks are amplified, necessitating a careful risk-benefit analysis. The open-label design of many of these studies is an obvious caveat, as patient and surgeon preference can introduce bias into reported outcomes.

Still, advancements in surgical techniques, including minimally invasive approaches, have aimed to mitigate some of these risks. Percutaneous or minimally invasive repairs involve smaller incisions, potentially reducing the risk of wound

complications and infection. While these techniques may offer a faster initial recovery and reduced complication rates, some concerns persist regarding the strength of the repair and the potential for sural nerve entrapment. A systematic review comparing open versus minimally invasive repair found no significant difference in re-rupture rates, but minimally invasive techniques were associated with a lower rate of wound complications (RR 0.45; 95% CI, 0.25-0.81; P=.008). This suggests that for appropriate candidates, minimally invasive surgery could offer a favourable balance of efficacy and safety.

The rehabilitation protocol following either operative or non-operative management is equally critical to the final outcome. Early functional rehabilitation, involving controlled ankle motion and progressive weight-bearing, has largely replaced prolonged immobilisation. This accelerated approach aims to promote tendon healing, prevent muscle atrophy, and restore range of motion more quickly. Regardless of the initial treatment choice, adherence to a structured, supervised rehabilitation programme is paramount for achieving optimal functional recovery and minimising the risk of re-rupture. The intensity and duration of rehabilitation can vary, but typically involves 6 to 12 months of progressive exercises focusing on strength, flexibility, and proprioception. For the pickleball player, this means a significant commitment to physical therapy before returning to the court.

The trial was not powered to detect differences in specific subgroups of pickleball players, such as those with different levels of pre-injury activity or varying ages, and that gap matters. The generalizability of these findings to the entire spectrum of pickleball players, from casual social players to competitive league participants, remains unclear. Furthermore, the long-term impact of surgical versus non-operative management on return to sport and sustained performance in pickleball specifically has not been rigorously studied. Most studies focus on general activity levels rather than sport-specific metrics. This lack of granular data makes it challenging to provide definitive, evidence-based recommendations tailored precisely to the pickleball population.

The economic burden of Achilles ruptures also warrants consideration. Surgical repair typically incurs higher initial costs due to hospitalisation, operating room time, and surgeon fees. But non-operative management can lead to prolonged rehabilitation, potential re-ruptures requiring further intervention, and extended time away from work, which can accumulate significant indirect costs. A cost-effectiveness analysis would be valuable to determine the overall economic impact of each treatment strategy in the pickleball demographic, considering both direct and indirect costs over the patient's lifetime. Such an analysis could provide a more holistic perspective on the value of surgical intervention.

Ultimately, the decision between operative and non-operative management for pickleball-related Achilles ruptures must be individualised, taking into account patient age, activity level, comorbidities, and personal preferences. For the highly motivated pickleball player who prioritises a rapid and complete return to sport, surgical fixation, particularly with minimally invasive techniques, appears to offer a compelling advantage in terms of lower re-rupture rates and superior functional outcomes. But for those with significant surgical risks or lower activity demands, a carefully managed non-operative approach may still be appropriate. The next trial needs to show a clear benefit in a prospective, randomised study specifically targeting the pickleball population, with sport-specific return-to-play endpoints.

CLINICAL IMPLICATIONS

The shift in Achilles rupture demographics, driven by pickleball's popularity, forces clinicians to reconsider traditional treatment algorithms. For the active, middle-aged pickleball enthusiast, the data on re-rupture rates

> and functional scores tilts towards surgical repair. Ignoring this evidence risks suboptimal outcomes for a patient population eager to return to their chosen sport.
> Surgeons must engage in frank discussions with patients about the trade-offs. While operative repair offers a statistically lower re-rupture risk and better long-term function, it introduces surgical complications like infection and nerve injury. These are not trivial concerns, especially for patients with pre-existing conditions that might complicate healing.
> The industry should recognise this evolving patient profile. Development of more robust, less invasive surgical techniques tailored to the specific biomechanics of pickleball-related injuries, or even advanced rehabilitation protocols, would be a welcome addition. Current evidence, while informative, is largely extrapolated from broader athletic populations, leaving a gap for truly sport-specific data.
> Ultimately, the goal is to get patients back on the court safely and effectively. For many pickleball players, the prospect of a second rupture or persistent functional deficit is a significant deterrent. Surgical intervention, when appropriate, offers a more predictable path to achieving that goal, even if it comes with its own set of risks.

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REFERENCES

1. 1. van Mechelen W, Hlobil H, Kemper HC. Incidence, severity, aetiology and prevention of sports injuries. A review of concepts. Sports Med. 1992;14(2):82-99. doi:10.2165/00007256-199214020-00002
2. 2. Fong DT, Hong Y, Chan LK, Yung PS, Chan KM. A systematic review on ankle injury and ankle sprain in sports. Sports Med. 2007;37(1):73-94. doi:10.2165/00007256-200737010-00006
3. 3. Ding L, Luo J, Smith DM, et al. Effectiveness of Warm-Up Intervention Programs to Prevent Sports Injuries among Children and Adolescents: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health. 2022;19(10). doi:10.3390/ijerph19106336
4. 4. Hameed I, Farooq N, Haq A, Aimen I, Shanley J. Role of strengthening exercises in management and prevention of overuse sports injuries of lower extremity: a systematic review. J Sports Med Phys Fitness. 2024;64(8):807-815. doi:10.23736/S0022-4707.23.15470-3
5. 5. Gennarelli SM, Brown SM, Mulcahey MK. Psychosocial interventions help facilitate recovery following musculoskeletal sports injuries: a systematic review. Phys Sportsmed. 2020;48(4):370-377. doi:10.1080/00913847.2020.1744486
6. 6. Asker M, Brooke HL, Waldén M, et al. Risk factors for, and prevention of, shoulder injuries in overhead sports: a systematic review with best-evidence synthesis. Br J Sports Med. 2018;52(20):1312-1319. doi:10.1136/bjsports-2017-098254

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