

Prevalence, Patterns, and Prevention of Injuries among Indian Judo Players: An Article Review

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ABSTRACT

Judo is an Olympic combat sport. It is a high-intensity game with demanding technical complexity coupled with physical demands. The sport is characterized in the world by a high incidence of injuries at the shoulders, knees, fingers, and cervical spine. However, there is a lack of injury epidemiology studies concerning judo athletes in India. This review attempts to collate international and Indian literature on types of injuries, risk factors, and prevention strategies and identifying the gaps in the Indian context. A conceptual framework has also been given to guide future research and intervention development. Data shows shoulder dislocation, knee ligament strain, and wrist injuries are the most common types of injuries. Different training environments, lack of physiotherapy access, wrong techniques, and fatigue. While developed countries have established surveillance and preventive models, while Indian systems remain underdeveloped. Establishing injury monitoring programs, incorporating physiotherapy into coaching, educating coaches, and screening athletes are the urgent needs identified to minimize injury risks and prolong performances in India.

Keywords: Judo; injury epidemiology; Indian athletes; combat sports; sports physiotherapy; prevention strategies.

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Introduction

Background of the Study

Judo was invented in Japan by Jigoro Kano in 1882. It transformed into a world-famous martial art and Olympic sport. It is practiced by millions of athletes. The term "judo" means "the gentle way," hence emphasizing the importance of using an opponent's movement and force to their advantage and not fully relying on brute strength. However, despite its safety approach and mutual welfare philosophy, judo holds a physically demanding sporting claim with lengthy bouts and explosive actions with throws, takedowns, joint locks, and immobilizations. Injury prevention assumes great importance mainly due to the risk of injuries occurring in these higher magnitudes. From the viewpoint of its martial practice and competition.

The impact of sports injuries can greatly harm an athlete's career, performance, psychological wellbeing, and livelihood. A thorough knowledge of injury epidemiology containing the aspects of injury prevalence, pattern, mechanism, and possible contributory factors are essential for planning effective injury prevention strategies.

While international literature on the injuries associated with judo can be found in depth, a very little systematic study has been done on Indian judo players. It is also important to generate region-specific data to meet the particular needs of Indian athletes as the training intensity, infrastructure, coaching methods, medical support, and athlete management may differ from one country to another country.

The last few decades a steady increase has been seen increase in the popularity of judo in India, with many athletes from various regions who compete at national and international levels. However, organized sports medicine and injury monitoring classification systems, are in their infancy in India. Therefore, no in-depth investigation has been conducted to comprehensively assess injury patterns and risk factors, as well as provide any strategies for prevention in India. These gaps create a necessity for targeted research to seen the injury burden among Indian judo players and facilitate developing successful, nationally relevant and evidence-based injury programs.

Justifications for the Study Athletes suffer many injuries due to the physical and technical demands of judo. It including sprains, strains, dislocations, fractures, concussions, and soft tissue injuries. These studies, from the European continent to Japan and other countries with established judo programs, have

often reported knee ligament injuries, shoulder dislocations, neck strains, and head injuries, among others.

The possibility remains, however, that these statistics may not be directly applicable to the Indian situation because of variations in the training environment, coaching experience, athlete fitness, nutrition, conviction in competition, and access to hardware. Indian judo athletes Mostly practice in an environment that lacks resources. Their approach to warm-up, strength and conditioning, recovery, and injury control are all different from other countries. Therefore, it is of most importance to investigate the type and seriousness of injuries among the Indian athletes.

Systematic injury surveillance and prevention programs have shown promising results for the reduction in injury occurrence in several sports like rugby, volleyball, and football (FIFA 11+ program). The benefits of modification of these injury prevention programs to judo may be large. But their effectiveness can only be calculated after taking a thorough look at the risk factors and patterns of injury prevalent in the population.

This study, in an attempt to bridge the current knowledge gap, among Indian judo players and prevention techniques to

examine the injury prevalence trends and risk factors. These prevention techniques should be implemented into regular training programs.

The Study's Objectives

The study aims investigating the prevalence of injuries sustained by Indian judo players.

To study the, incidence, nature and severity of injuries sustained.

To identify potential risk factors that are associated with injury incidence.

To assess the means of primary prevention which could minimize injury incidence.

To draft evidence-based recommendations for injury prevention as it applies to judo training systems in India.

Importance of the Research

Stakeholders in the Indian sporting ecosystem are expected to get benefit enormously from the findings of the proposed study:

For Trainers and Coaches: The recommendations of the study will help them design safer training programs, with increased emphasis on conditioning, warm-up, and technical details to minimize the risk of injury.

For Athletes: Athletes will be encouraged to adopt 'safer' practices and prolong performance based tounderstanding the injury mechanisms and possible preventive measures.

For Sports Medicine and Physiotherapy Practitioners: Results are going to provide relevant clinical information for early intervention programs, injury screening, and rehabilitation protocols.

For Sports Administrators and Policy Makers:

Evidence-based recommendations are going to help implement structured injury surveillance systems and resource allocation for injury prevention among judo athletes at different competitive levels.

Scope and Limitations

This study will chiefly concern Indian judo athletes competing in different competitions at the district, state, national, and international levels. Injury data will be collected by using both retrospective and prospective methods like self-reported questionnaires, clinical assessment, and follow-up evaluations.

However, every effort will be made to ensure complete data collection, certain limitations are acknowledged:

Sample Size Variability: Injuries may affect the regional representation due to the athletes' availability for participation.

Recall Bias: With respect for recall bias, self-reporting of past injuries hurt credibility by way of being influenced due to inaccurate recall.

Access to Advanced Diagnostics: Some areas may lack availability in imaging or biomechanics so it may restrict the thorough diagnosis of injury.

Follow-up Challenges: Player may withdrawal for financial, academic, or personal reasons may bias the longitudinal follow-up.

Notwithstanding the above limitations, the purpose of this study is to build a firm foundation for future investigations and genuinely useful solutions to ensure that judo athletes' lives get much safer in India.

Literature Survey:

James and Pieter (2003)

Title: Gender differences in injury rates among elite adult judo athletes

Methodology: This was a comparative study including male and female judo players which were competing in elite-level tournaments.

Findings: in this research It was found in this research that the male judokas suffered more injuries in their fingers and shoulders due to the rigorous grip fighting, while in the female most had the majority of injuries at the knee, involving mainly the ligaments.

Conclusion: according to researchers Strategies for injury prevention should not be "one size fits all". The gender-specific training programs focusing on shoulder stability and grip control for men and for women they recommended strengthening training on the knee joint. They also recommended to collect separate data for injury cases of each sex for informing coaching and rehabilitation strategies.

Green et al. (2007)

Title: Injuries encountered by judokas in international

competition

Methodology: This research based on retrospective view of international tournaments injury data with the help of medical reports.

Findings: The researchers found that the injury rate at 25.3 injuries per 1,000 athlete exposures. Sprains, dislocations, and contusions were the most common injuries, while shoulders and knees took up the major areas affected.

Conclusion: The combination of high-intensity throwing techniques and poor defensive postures was the main cause for those injuries thereafter. Along with strengthening the most inflammatory areas susceptible to injury to increased resilience, it focused to educate athletes on safe techniques, and introduced injury simulation drills as part of their training.

Yamamoto et al. (2008)

Title: Injury survey among junior judo athletes in Japan

Method: This research was based on a five-year retrospective study in which it investigated the injury pattern in judokas of school age using records from training camps and medical evaluations.

Findings: Most injuries occurred in practice sessions rather than competition;

knee sprains commonly occur, lower backs pain, and growth plate issues in younger athletes.

Conclusion: The authors indicated that adolescents are particularly at risk due to their developing musculoskeletal systems. It is advisable to increase their intensity of training gradually, ensure qualified supervision during drills, and make training in breakfalls compulsory. The study also showed the importance of long-term consequences of sports injuries at a young age and supported the establishment of injury tracking systems in youth programs.

Koshida et al. (2010)

Conducted a study titled "Impact of tatami (mat) material on injury risk in judo." The impacts of various mat surfaces by the forces generated during falls were biomechanically analyzed. The finding of study revealed that using softer tatami mats causing a considerable reduction in forces generated on the head, shoulder, and spine. Therefore, they emphasized that high-quality mats should be made available in infrastructure to minimize injuries which are related to impacts in judo. Furthermore, they should be inspected regularly and upgraded, especially in schools and colleges, where older or worn mats could increase the risk of injury.

Franchini et al. (2011)

Title: Physical Demands of Judo and Their

Relationship to Injury Methodology: This is an analytical study about the physiological and biomechanical factors they are involved in judo performance.

Findings: Overuse injuries are common in judo because of repeated bursts of anaerobic activity, eccentric loading and frequent falls, mostly in the shoulders, lower back and knees.

Conclusion: The importance of sports science in Judo training was brought out from the study. It suggested periodization models alternating between high and low-intensity weeks, regular musculoskeletal assessments, and injury prevention strategies via neuromuscular control exercises and proprioceptive training to alleviate the physical demands in the sport.

Pocecco et al. (2013)

Title: Epidemiology of Injuries in Judo: A Review

Methodology: This review considered all injury data concerning the Olympics, World Championships, and other European Judo events.

Findings: Injury occurrence was much different; the range was 25.2-62.9 injuries per 1,000 athlete exposures. Male athletes, suffered a higher number of upper limb injuries, but female athletes tended to suffer from ACL injuries more often.

Conclusion: The study showed that it was necessary to continue monitoring ongoing injury trends to inform changes

in rules and adjustment of training. It stated that the IJF's ban on leg attacks after 2010 has also led to a reduction in lower limb injuries. The authors called for more research on rules improving safety, without compromising performance quality.

Engebretsen et al. (2014):

The role of warm-up in injury prevention across injuries: A meta-analysis

Methodology: The study meta-analyzed randomized and controlled trials from different sports including judo.

Results: The findings showed that injury rates could be reduced by 50% in the dynamic sports if warm-up programs stress mostly on the three components they are balance, agility, and strength.

Conclusion: The authors stated the need for compulsory sport-specific warm-up routines in every training and competition session. For judo, such programs should include joint mobilization, dynamic stretching, balance drills, and progressive technical warm-ups. They also mentioned the need for coach education to ensure that these practices are implemented correct manner.

Kim et al. (2015):

Title: Biomechanical Risk Analysis of Judo Throwing Techniques

Methodology: 3D motion capture and a force platform analysis were used for the study of various throws: seoi-nage anduchi-mata. **Findings:** Analysis showed abnormal shoulder and spine stress patterns because of poor throwing mechanics, mainly after fatigue or if foot positioning is bad.

Conclusions: Incomplete implementation of techniques accounted much to injury in judo, as stated by the authors. It was suggested that the adoption of video feedback and biomechanical analysis processed in an average training course. Also, it was they stressed that all technical drills need to be tailored specific to the athletes to their body type and fatigue states to reduce risks while performing high-intensity throwing.

Matsumoto et al. (2017):

Impact of supervision and feedback on judo skill acquisition and injury prevention Methodology: experimental study was done it included participation with adolescents in judo and comparing a supervised video-feedback training with standard practice.

Findings: Injuries were fewer with the video-feedback group, also they displayed improvements in accuracy of their techniques.

Conclusion: According to the authors, both real-time and post-practice feedback are important to technique enhancement and injury prevention. They strongly recommended for evidence-based coaching strategies with respect to visual learning and movement correction for younger players.

Ceylan et al. (2018):

Types and frequencies of injuries in university-level judo athletes

Methodology: This cross-sectional survey included clinical assessments of 150 university judo athletes.

Findings: The most prevalent injuries were shoulder injuries, finger dislocations, and knee ligament strains. Injuries were highly prevalent among players who trained a greater number of times within a week.

Conclusion: The authors stated the importance of monitoring training loads, making compulsory rest days, and planning structured recovery plans. They also stated the importance of the role which it played by athletic trainers in colleges in the management of injuries and making informed decisions on when athletes return to play.

Milani et al.

Flexibility and injury in judo athletes

This research was carried out on 60 competitive judokas it involved various flexibility tests throughout six months gathering injury data.

The research stated that lower flexibility led to higher injuries with no limits on hamstring and shoulder capsula. And, those who missed warm-ups and specifically failed while doing flexibility exercises got more injuries.

Conclusively, it was stated that flexibility impediments are an elevated risk factor in all bony or joint-related injury a judoplayer can suffer from. Stretching and mobility exercises

customed to each athlete and frequently assessed for effectiveness could prevent against both acute injuries and overuse.

Silva et al. (2019)

Analysis of return-to-play time following injuries in judo A retrospective study was carried out on 40 elite Brazilian judokas with moderate to severe injuries.

The median time for the return to play was between 28 and 42 days with knee and shoulder injuries which were taking lengthiest time to heal. Eight out of these 40 athletes (20%) suffered recurrent injury after an inadequate rehab process.

The study pointed out that injury management was multidisciplinary and focused on evidence-based rehabilitation. A properly designed return-to-play process is helpful in minimizing recurrences and proper long-term performing of the athletes.

Kumar et al. (2019)

Musculoskeletal injuries in Indian judo players: A cross-sectional study

Methodology: Based on this question, the study done 120 competitive judokas at the state and national levels.

Findings: The recurrent injuries included shoulder dislocations (28%), wrist sprains (20%), and knee ligament strains (18%). Severe restrictions in accessing

physiotherapy were reported by 74% players.

Conclusion: With this study, the authors tried to underline the need of structured injury-prevention and recovery protocols in India. Also, the study highlighted an absolute necessity for physiotherapists should be included in all training camps, injury surveillance systems should be set and awareness programs should be conveyed on coaches for detection of injury and preventive strategies.

Chan et al. (2020)

Title: Upper Extremity Trauma Suffered while Engaging in Competitive Judo: A Systematic Review

Methodology: The review analyzed 14 studies on shoulder, elbow, and wrist injuries specific to judo

Results: The most frequent reported injuries were shoulder dislocations and rotator cuff tears; they commonly happened while resisting throws or upon failing to control a fall.

Conclusion: The authors stated the importance of upper body strengthening, rotator cuff integrity, and the ability of the judoka to properly perform a breakfall (ukemi). Authors advised that the rehabilitation approach include improving joint proprioception and a return-to-sport approach which is completed slowly in time so as to prevent re-injury. Kawamura et al. (2020)

Title: Effects of fatigue on throwing performance and injury risk in judo

Methodology: [31] Twenty-two athletes were having enhancement fatigue status by following common throws (seoi-nage, uchi-mata, and so forth) performance

evaluation.

Findings: After this fatigue, we can see a noticeable degradation of technical workability, increasing the risk for injury because of loading onto the joint and alteration of the movement pattern.

Conclusion: The impairment of techniques because of fatigue and a simultaneous increase in the injury risk is another area confirmed as part of this research. Such training should be designed to incorporate exhaustion resistance in a workout tailored toward real-time learning and maintaining a set quality of movement.

Sharma & Reddy (2021),

Title: Pattern on injuries - analysis in combat sport athletes from India

Methodology: A retrospective study Elated to injury was carried out among 180 combat athletes of India, in which 45 athletes were judoka

Findings: Judo athletes are susceptible to shoulder and elbow injuries from grip and takedowns. Many of them least mentioned the access to proper care or guiding principles.

Conclusion: The main core of the study is the necessity of having an established National Injury Tracking System in along with blending physiotherapists at all stages of training in India. Coach training in proper warm-ups, recovery, and important injury preventive practices are red flag sign that looks forward.

Gojanovic et. al. (2021)

Title: The impact of neuromuscular training on reducing injuries in judokas

Methodology: Thirty judo fighters underwent an 8-week neuromuscular training intervention.

Findings: The intervention resulted in a 40% reduction in injury incidence rates; further, participants also exhibited improvement in coordination, postural balance, trunk and foot control, reaction time to consider a first movement, and precise sampling of postural control related to sensorimotor function.

Conclusion: The findings showed that neuromuscular training, combining balance, agility, and plyometric training, provided effective prevention against injury. The authors recommended that these should be implemented as a part and parcel of judo training particularly around bony structures of joints like the shoulder and knee.

Chahal et al. (2021)

Title: Understanding injury risks and prevention strategies for collegiate judo players

Methodology: This research included a survey and physical assessments of 90 university judokas in Canada.

Findings: Injury rates peaked during randori

(sparring), with muscle imbalances and poor core stability predisposing certain athletes to injuries.

Conclusion: The authors stressed the need for pre-season screening for asymmetries, regular core strengthening exercises and supervised training in reducing injury risks. They further suggested the inclusion of a strength and conditioning professional in judo coaching teams.

Jain & Thakur (2022)

Title: Assessment of knowledge and practices of injury prevention among Indian judo coaches

Methodology: A questionnaire survey was conducted with 60 judo coaches from various sports academies across India.

Findings: Only 35% of the coaches had received any formal education in injury prevention. Other measures, such as warm-ups, cool-downs, and physiotherapy support, showed considerable variability between centers.

Conclusion: This study stressed the Indian coaches' poor knowledge and application of injury prevention practices. There is an urgent need to include mandatory certification programs and workshops on injury management and prevention within coaching curricula.

Oliveira et al. (2022)

Title: Impact of competitive pressure on injury rates in judo

Methodology: This was a comparative study between injuries sustained during training as opposed to competitive matches.

Findings: During competitions, injuries occurring at nearly twice the rate, mostly influenced by psychological stress, hurried techniques, and low situational awareness.

Conclusion: The study concluded that in preventing injuries, mental preparedness is as relevant a factor as physical training in judo. Thus, the integration of sports psychologists and cognitive training into an integrated injury prevention program is mandatory.

Takahashi et al. (2022)

Title: Shoulder injury mechanisms in judo throws: A biomechanical evaluation

Methodology: shoulder movements were assessed using high speed video during various popular judo throws, including ippon-seoi-nage and kata-guruma.

Findings: Under load, with an opponent resisting the techniques, the shoulder joint underwent substantial internal rotation and abduction.

Conclusion: The study concluded that shoulder injuries in judo are mainly the result of mechanical overload during resisted throws, and this requires coaches to incorporate progressive training aiming at improving shoulder mobility and stability, applying adequate warm-ups, and facilitating a supervised transition from controlled to resisted practice to minimize the risk of shoulder injury.

Fernandes et al. (2022)

Title: Injury surveillance in elite youth judo players over two competitive seasons

Methodology: This was an observational study on 80 youth judokas less than 18 years of age via injury log

records, physical evaluation, and coach interview.

Findings: There were 112 injuries recorded with respect to observations being the most affected joints for knee and shoulder. 68% of the injuries appeared to be minor, while more than 4 weeks' time loss was reported by 14% of injuries.

Conclusion: The study emphasized the early identification of who are at risk athletes. In conclusion, the study stated that having regularly scheduled musculoskeletal screenings, proper recovery time, and training plans that would accommodate the athlete's age would be required to properly protect young athletes from serious injuries.

Srivastava & Nair (2022)

Title: Prevalence of lower-limb injuries in Indian judo players

Methodology: The study cross-sectionally studied 100 Indian judokas from national-level camps.

Findings: Among all the injuries that were reported, 54% were sustained by the lower limbs—the brunt was borne by the knee and ankle. Injury causing factors included improper landing technique, fatigue, and defective footwear.

Conclusion: The researchers stated that lower limb injuries are very common among Indian judokas who usually pay little attention to biomechanical and recovery practices. They recommended interventions that target technique, monitoring fatigue levels, setting standards for footwear, and involving sports physiotherapists at training stages.

Ahmed et al. (2022)

Title: Injury Occurrence and Its Relationship with Weight Category in Judo

Methodology: The retrospective study analysed the competition injury data that were grouped into athlete weight classes (lightweight, middleweight,

heavyweight).

Findings: Heavyweight judokas sustained more joint sprains and lumbar injuries, however lightweight judokas sustained more upper limb injuries.

Conclusion: The results suggested that injury patterns vary considerably by weight class as determined by differences in force generation, speed, and technique. Hence, the injury prevention program should be made to satisfy specific biomechanical demands of each weight category.

Menon & Patil (2023)
Core stability: An essential component to prevent injuries among Indian judo players

Methodology: An 8-week core strength training program was conducted on 60 state-level judokas who were having injury history data assessed before and after this program.

Findings: The frequency of injuries among these athletes was reduced by 36%, especially with respect to the lower back and knees.

Conclusion: The authors concluded that a strong core is important for injury prevention in judo. They suggested the implementation of core stabilization exercises in regular warm-up and conditioning routines and functional assessment under watch of physiotherapists.

Zhao et al. (2023)

Title: The impact of psychological stress on acute injury risk in elite combat sport athletes

Study Design: The study developed a questionnaire to measure the relationship between anxiety before competition and injury incidence in judo and wrestling athletes.

Results: Athletes who were having high stress levels as high just prior to competition were found to sustain acute injuries, especially in the case of injuries happening during the start of competition. A severe conclusion was that injury risk is high due to stress and anxiety affecting motor control and situational awareness. There is need to include stress inoculation, breathing, and visualization as a part of the injury prevention programs for elite judokas.

Deshmukh & Rao (2023)

Title: Recovery practices assessment among Indian judo players

Methodology: A survey was conducted involving 70 competitive Indian judokas on their recovery strategies like stretching, massage, cryotherapy, and sleep hygiene.

Findings: <40% of the respondents reported consistent use of recovery protocols. The ones who were not following regular recovery practices had a higher rate of injuries.

Conclusion: The study concluded that poor recovery practices were a major risk factor for incurring injuries. It says that the science of recovery should be imparted to athletes and coaches, and further, that institutions should avail professional recovery services and resources.

Santos et al. (2023)

Title: The Effectiveness of Taping and Bracing in Judo Injury Prevention

Methodology: Controlled trial was conducted on the effects of prophylactic taping and bracing on 50 judokas throughout a 3-month competition season.

Findings: Participants who were using joint taping or braces reported a reduced incidence of sprains, mainly in the ankle and wrist regions.

Conclusion: Upon correct application, the external support devices were concluded to be more effective in reducing joint injuries. However, these should accompany strengthening and mobility training rather than act as a substitute. A trained professional should administer these procedures to ensure safety.

Sinha & Raj (2024)

Title: Assessment of injury prevention knowledge among Indian junior judokas

Methodology: A questionnaire was given to 80 junior judo athletes who aged 14 to 18 from five different states in India.

Findings: >60% of the participants never had any formal training on prevention of injuries. Many were still not aware of appropriate warm-up and cool-down practices.

Conclusion: The study stated that injury prevention knowledge is a neglected area for young Indian judokas, which lends weight to the case for compulsory education in sports academies, with proactive participation from parents and coaches to build a culture of injury awareness and reporting.

Rajan & Mukherjee (2024)

Title: Pilot study on injury tracking app usage among Indian combat athletes

Methodology: A pilot trial with 30 Indian judokas and coaches was conducted by using a mobile injury tracking app.

Findings: The app improved the accuracy of reporting injury and allowed coaches to detect trends and adapt training loads accordingly.

Conclusion: Digital platforms, greatly enhance injury monitoring and individualization of training. The integration of athlete monitoring systems in Indian judo could translate to a more informed decision-making approach and step wise reduction in injury prevalence education

Conclusion

This report has made it very clear that musculoskeletal injuries in judo are immensely prevalent, particularly in Indian judo players who usually train by themselves without almost any resources. Shoulder dislocations, strains of knee ligaments, and sprains of the wrist are common injuries which are resulting from poor techniques, absence of structured warm-ups, fatigue, and limited physiotherapy resources.

Most of the international literature describes evidence-based preventive strategies like neuromuscular training, injury tracking tools, and structured warm-up programs; however, these are not properly adopted in India. Indian studies clearly show a huge gap in the areas of injury surveillance, coach education, and athlete monitoring systems.

To that end, adopting the following measures is imperative:

Standardized injury surveillance protocols,
Gender and age specific training modifications,
A coach education program on injury prevention, and

Integrated physiotherapy support in judo training environments.

This would bring about a rapid reduction in injury

rates while improving athlete safety significantly. Foundations for empirical research and policies on safer and more effective judo training practices in India are laid down in this document.

References

- James, G. and Pieter, W. (2003). Gender differences in injury rates among elite adult judo athletes, *Journal of Sports Sciences*, 21(8), 621-628.
- Green, C. M., Petrou, M. J., Fogarty-Hover, M. L., and Rolf, C. G. (2007). Injuries encountered by judokas in international competition. *American Journal of Sports Medicine*, 35(1), 71-77.
- Yamamoto, Y., et al. (2008). Injury survey among junior judo athletes in Japan. *Japanese Journal of Physical Fitness and Sports Medicine* 57(1): 67-74.
- Koshida, S., et al. (2010). Impact of tatami (mat) material on injury risk in judo. *Clinical Journal of Sport Medicine*, 20(2), 79-84.
- Franchini, E., et al. (2011). Physical demands of judo and their relation to injury. *Sports Medicine* 41(2): 147-166.
- Poecco, E. et al. (2013). Epidemiology of Injuries in Judo: A Review. *Sports Medicine* 43(9):819-836.
- Engebretsen, L., et al. (2014). The role of warm-up in injury prevention across injuries: A meta-analysis. *British Journal of Sports Medicine*, 48(5): 436-440.
- Kim, S., et al. (2015). Biomechanical risk analysis of judo throwing techniques. *Journal of Sports Biomechanics*, 14(2), 155-162.
- Matsumoto, D., et al. (2017). Impact of supervision and feedback on judo skill acquisition and injury prevention. *Journal of Coaching Science*, 3(1), 45-51.
- Ceylan, M., Fidan, M., & Koylu, U. (2018). Types and frequencies of injuries in university-level judo athletes. *Journal of Physical Education and Sport*.
- Milani, M., et al. (2018). Flexibility and injury in judo athletes. *European Journal of Sports Health*, 14(3), 201-207.
- Silva, R., Brasil, S., and Castanheira, M. (2019). Analysis of return-to-play time following injuries in judo. *Brazilian Journal of Sports Medicine* 25(2): 100-107.
- Kumar, A., et al. (2019). Musculoskeletal injuries in Indian judo players: A cross-sectional study. *Asian Journal of Sports Medicine*, 10(4), e93384.
- Chan et al. (2020). Upper Extremity Trauma Suffered while Engaging in Competitive Judo: A Systematic Review
- Kawamura, Y., et al. (2020). Effects of fatigue on throwing performance and injury risk in judo. *Journal of Combat Sports Science*, 5(2): 101-108
- Sharma, N., and K. Reddy. (2021). Pattern on injuries - analysis in combat sport athletes from India. *South Asian Journal of Sports Medicine* 2(1):55-62.
- Gojanovic, B., et al. (2021). The impact of neuromuscular training on reducing injuries in judokas. *Journal of Athletic Training* 56(4): 334-342.

- Chahal, J., et al. (2021). Understanding injury risks and prevention strategies for collegiate judo players. *Canadian Journal of Sports Medicine*, 36(3): 215-222.
- Jain, A., & Thakur, R. (2022). Assessment of knowledge and practices of injury prevention among Indian judo coaches. *Asian Journal of Physical Education & Sport Science*, 12(2), 50-58.
- Oliveira, R., et al. (2022). Impact of competitive pressure on injury rates in judo. *Journal of Combat Sports Psychology*, 2(2), 123-129.
- Takahashi, T., et al. (2022). Shoulder injury mechanisms in judo throws: A biomechanical evaluation. *International Journal of Sports Biomechanics* 17(2): 95-103.
- Fernandes, T., et al. (2022). Injury surveillance in elite youth judo players over two competitive seasons. *Journal of Pediatric Sports Science* 4(1): 55-64.
- Srivastava, R., and Nair, S. (2022). Prevalence of lower-limb injuries in Indian judo players. *Indian Journal of Sports Science* 9(1): 44-50.
- Ahmed et al. (2022). Injury Occurrence and Its Relationship with Weight Category in Judo.
- Menon, R., & Patil, S. (2023). Core stability: An essential component to prevent injuries among Indian judo players. *Indian Journal of Physiotherapy and Occupational Therapy*, 17(1): 33-39.
- Zhao, Y., et al. (2023). The impact of psychological stress on acute injury risk in elite combat sport athletes. *International Journal of Sports*
- Deshmukh, R, and Rao A. 2023. Recovery practices assessment among Indian judo players. *Indian Journal of Sports Medicine*, 13(1): 20-27.
- Santos et al. (2023). The Effectiveness of Taping and Bracing in Judo Injury Prevention
- Sinha, P., and Raj, D. (2024). Assessment of injury prevention knowledge among Indian junior judokas. *Indian Journal of Sports Education*, 8(1), 88-94.
- Rajan, K., & Mukherjee, A. (2024). Pilot study on injury tracking app usage among Indian combat athletes. *Indian Journal of Sports Technology* 6(1):10-18