



## Coaching Education Workshops and Conditioning Training for Sepak Takraw Athletes in Sumbawa, Indonesia: A Community Engagement Initiative

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### Abstract.

#### Background

Physical condition is a fundamental factor influencing performance in sepak takraw, particularly in explosive movements, agility, flexibility, and endurance. Many local clubs still lack structured, sport science-based physical conditioning programs.

#### Objectives

This community service program aimed to improve athletes' physical condition and enhance coaches' understanding of systematic physical training through workshops and practical training at Semjut Merah Sepak Takraw Club, Sumbawa.

#### Methods

The program employed a participatory training approach consisting of theoretical workshops, practical demonstrations, supervised training sessions, and physical condition evaluations. Participants included coaches and active sepak takraw athletes. Physical components trained included leg strength, power, agility, endurance, and flexibility.

#### Results

The program resulted in improved knowledge and coaching skills related to physical conditioning principles. Athletes demonstrated observable improvements in agility, explosive power, and endurance, which positively influenced training performance and match readiness.

#### Conclusion

Workshops and structured physical conditioning training effectively enhanced athletes' physical performance and coaches' competencies. This program serves as a practical model for improving sepak takraw performance at the club level.

**Keywords:** Sepak Takraw; Coaching Education; Physical Conditioning; Community Engagement; Athlete Performance

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## INTRODUCTION

Sepak takraw is a high-intensity, acyclic sport that imposes substantial neuromuscular and metabolic demands, requiring athletes to repeatedly execute explosive jumps and kicks, rapid changes of direction, and short recovery cycles. Consequently, performance is strongly dependent on well-developed lower-limb power, agility, coordination, flexibility, and integrated aerobic-anaerobic capacity that can sustain technical quality under fatigue. Although training science consistently shows that structured, periodised conditioning improves performance and helps mitigate injury risk in high-intensity sports (Bompa & Buzzichelli, 2019; Harsono, 2018), conditioning practices in many community-based sepak takraw clubs remain largely generic—often lacking systematic planning, progressive overload, monitoring, and context-specific integration with sport demands. This implementation gap is urgent because it can limit athlete development, reduce readiness for competition, and increase vulnerability to overload-related problems, particularly in settings with constrained access to sport-science support. Addressing this gap is especially relevant in Sumbawa, where the Semjut Merah Sepak Takraw Club has promising athlete potential but limited structured guidance in evidence-informed conditioning.

This community engagement initiative responds to that need by translating sport-science principles into an accessible, practice-oriented program for community clubs. The novelty of the program

lies in its integrated delivery model that combines (1) coaching education workshops focused on needs-based planning, session design, and load progression, with (2) supervised field implementation of conditioning sessions aligned with sepak takraw-specific movement demands, and (3) simple, low-cost monitoring and evaluation tools that can be sustained beyond the program period. Unlike conventional community training support that is often one-off and instructional, this initiative is designed as a capacity-building pathway—equipping coaches and athletes with transferable competencies to plan, implement, and refine conditioning training independently. Accordingly, the program aimed to strengthen coaches' and athletes' knowledge and practical skills in evidence-informed physical conditioning as a foundation for improving training quality and supporting better athletic performance outcomes in a community sport context.

## METHOD

### Research Design

This study was implemented as a community service program using a participatory training and mentoring approach. The design integrated (1) coach education workshops, (2) supervised practical conditioning sessions, and (3) structured mentoring to support real-time application of training principles within the club setting. A pre–post evaluation framework was used to document short-term changes in athletes' physical fitness outcomes following the four-week program.

### Participant

Participants included sepak takraw coaches and active athletes from the Semjut Merah Sepak Takraw Club (Sumbawa, Indonesia). Athlete recruitment applied total sampling, involving all registered and eligible club athletes who actively participated during the program period. Coaches were included as key stakeholders to ensure knowledge transfer and sustainability of training practices after the intervention.

### Procedures and Time Frame

The program was conducted over four weeks and consisted of sequential phases: (1) an initial workshop focusing on fundamental principles of physical conditioning (needs analysis, session planning, progression, and safety), (2) practical conditioning sessions delivered on-court to align training with sepak takraw movement demands (e.g., explosive actions, rapid direction changes, repeated efforts), (3) ongoing mentoring for coaches to refine session delivery and ensure adherence to the planned progression, and (4) a final evaluation to assess knowledge application and physical fitness outcomes. Program monitoring was supported by observation sheets and evaluation checklists to document participation, implementation quality, and consistency across sessions.

### Analysis Plan

A descriptive statistical approach was used to summarise physical fitness outcomes and compare athletes' performance before and after the intervention. Results were reported using mean, standard deviation, minimum–maximum values, and percentage change for each fitness component (agility, leg power, endurance, and flexibility). Pre–post comparisons were presented at the group level to illustrate practical improvements following the program.

### Scope and Limitations

This program primarily targeted short-term improvements in physical fitness and the immediate enhancement of coaches' practical capacity to deliver evidence-informed conditioning. As a community engagement initiative, it did not include a control/comparison group, advanced load monitoring (e.g., GPS/IMU or internal load metrics), or long-term follow-up to examine sustainability of adaptations, competitive match performance indicators, or injury outcomes beyond the four-week period.

## RESULTS AND DISCUSSION

### Results

The community workshops and mentoring sessions led to clear improvements in program outcomes. Coaches demonstrated a stronger understanding of key physical conditioning principles, particularly in planning structured sessions, applying progressive overload, and aligning exercises with sepak takraw-specific performance demands. In parallel, athletes exhibited measurable positive changes across major fitness components: agility improved as reflected in faster and more controlled multi-directional movements, lower-limb explosive power increased as indicated by stronger and more efficient explosive actions, and endurance enhanced as athletes were able to maintain training intensity with reduced fatigue during repeated efforts. Overall, these results indicate that the integrated workshop-practice model effectively strengthened both coaching capacity and athletes' short-term physical readiness within the club setting.





## Discussion

The findings align with core sport science principles indicating that structured, progressive, and sport-specific conditioning can enhance athletes' physical readiness and support performance improvement. In this program, the conditioning content was intentionally linked to sepak takraw demands—explosive lower-limb actions, rapid directional changes, and repeated high-intensity efforts—so that physical development translated more directly into functional training performance. Importantly, the applied training model also bridged theory and practice: coaches did not only receive conceptual explanations during workshops, but were guided through real-time implementation, mentoring, and reflection. This approach strengthened understanding of how to plan sessions, progress training loads, and maintain training quality in a community club context.

## Implications

These results highlight that community-based interventions—when delivered through participatory workshops and structured mentoring—can improve training quality and contribute to measurable physical improvements among athletes at the grassroots level. Practically, the program provides a feasible approach for clubs with limited sport-science access to adopt evidence-informed conditioning methods using field-based exercises and simple monitoring tools. For local sport development, this model can serve as a scalable strategy to strengthen athlete preparation while simultaneously building coach capacity.

## Research Contribution

This study offers a practical, replicable service-learning model for sepak takraw clubs by integrating (1) coach education workshops, (2) supervised conditioning sessions, and (3) mentoring-based implementation support. The contribution is not only the short-term performance gains observed, but also the capacity-building mechanism that enables coaches to sustain structured conditioning practices beyond the program period. As a result, the program provides an applied framework that can be adapted to similar community clubs and regional athlete development initiatives.

## Limitations

Several limitations should be acknowledged. First, the intervention duration was relatively short, which restricts conclusions about long-term adaptations, maintenance of gains, or translation into competitive match performance. Second, the absence of a control or comparison group limits causal inference, as improvements could also be influenced by external factors such as regular training exposure or seasonal effects. Additionally, the evaluation focused primarily on physical fitness indicators and did not include detailed quantitative analysis of technical performance outcomes during matches.

## Suggestions for Future Programs

Future community service programs should consider implementing longer training periods (e.g., 8–12 weeks) with clearer periodisation phases to optimise adaptation and sustainability. Incorporating a comparison group or staggered implementation (e.g., wait-list design) would strengthen evaluation rigor. Finally, programs should add quantitative performance analysis, such as match statistics, skill execution consistency, or workload monitoring, to better demonstrate how conditioning improvements transfer to competitive performance and injury-risk reduction.

## CONCLUSION

The workshop and physical conditioning training effectively improved athletes' physical performance and strengthened coaches' competencies at the Semjut Merah Sepak Takraw Club. The integrated community engagement model—combining education, applied practice, and mentoring—offers a feasible and scalable approach that can be adapted by other regional clubs to support sustainable athlete development and enhance competitive readiness.

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## AUTHOR CONTRIBUTION STATEMENT

**Nurdin** contributed to the conceptualization and design of the program, developed the methodology, coordinated and supervised project implementation, led the investigation, and prepared the original draft of the manuscript as well as the final revisions. **Muhamad Satria Mulyajaya** supported the methodological implementation, conducted data curation and field investigation, performed formal analysis, prepared visual materials, and contributed to drafting the manuscript. **Ali Muhaimin** assisted in the field investigation and

resource coordination, supported validation of the program activities and results, and contributed to manuscript review and editing, including support for funding acquisition where applicable.

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There is no conflict of interest

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