

IMPLEMENTATION OF THE INJURY PREVENTION EXERCISE PROGRAM KNEE CONTROL+ IN THE PAKISTANI FUTSAL COMMUNITY

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Abstract

Background: In real-world settings, the implementation of injury prevention exercise programs (IPEPs) is complex and requires understanding of players, coaches, and organizational structures. While considerable research focuses on the effectiveness of such programs, their practical implementation in sports communities is often overlooked.

Objective: To evaluate the implementation of the Knee Control+ injury prevention exercise program among futsal clubs and coaches in the Pakistani futsal community.

Methods: A cross-sectional study was conducted within the Pakistani futsal community. A multistage random sampling technique was used to recruit participants. A total of 190 participants including club officials and coaches were enrolled after meeting the inclusion criteria. Data were collected using structured questionnaires focusing on awareness, adoption, and implementation of the Knee Control+ program. Data were analyzed using IBM SPSS version 21, and results were presented as frequencies, percentages, means, and standard deviations.

Results: The findings demonstrated a substantial gap in injury prevention policy implementation among futsal clubs. Only 3.4% of clubs reported having formal injury prevention policies, while 42.0% reported having none. Awareness of the Knee Control+ program among club personnel was relatively high (87.5%), yet full implementation was limited (9.5%). Among coaches, 61.97% were aware of the program and 56.81% reported using it during training sessions. Coaches who used the program expressed high satisfaction and perceived effectiveness in reducing injury risk.

Conclusion: Despite high awareness of the Knee Control+ program, its actual adoption and consistent implementation remain limited in the Pakistani futsal community. Strengthening injury prevention policies, providing structured education for coaches, and promoting systematic implementation strategies are essential to improve injury prevention practices in futsal.

INTRODUCTION:

Futsal is a fast-paced indoor sport that demands rapid acceleration, deceleration, and frequent

directional changes. These characteristics place players at an increased risk of musculoskeletal injuries, particularly involving the lower

extremities. Knee injuries are among the most common injuries observed in futsal players and can lead to significant functional limitations, reduced performance, and long-term health consequences.

In recent years, injury prevention exercise programs (IPEPs) have been developed to reduce the risk of sports-related injuries. One such program is Knee Control+, which is designed to improve neuromuscular control, strength, and stability of the lower limbs. Evidence suggests that structured injury prevention programs can significantly reduce the incidence of knee and lower extremity injuries among athletes. However, the effectiveness of such programs largely depends on their successful implementation within sports organizations and training environments. Factors such as awareness, accessibility, coaching practices, and organizational support can influence the adoption and sustainability of injury prevention strategies.

In developing countries, including Pakistan, limited research has been conducted on the real-world implementation of injury prevention programs in sports communities. Understanding the level of awareness, adoption, and barriers to implementation is crucial for developing effective strategies to promote athlete safety.

Therefore, the present study aimed to evaluate the implementation of the Knee Control+ injury prevention program within the Pakistani futsal community, focusing on the awareness, adoption, and usage patterns among futsal clubs and coaches.

LITERATURE REVIEW:

Several studies have highlighted the effectiveness of structured injury prevention exercise programs (IPEPs) in reducing the risk of knee injuries in team sports. Programs such as Knee Control+ and FIFA 11+ focus on neuromuscular training, balance, strength, and proprioception. Recent meta-analyses (Clar et al., 2025; Gu et al., 2025) demonstrate significant reductions in anterior cruciate ligament (ACL) injuries and other lower extremity injuries in athletes adhering to these programs.

Implementation research has emphasized that awareness alone is insufficient; successful adoption requires structured policies, coach education, and systematic integration into training routines (Lindblom et al., 2023). Studies in futsal-specific contexts also suggest that tailored programs can improve knee joint stability, jump biomechanics, and overall injury resilience (Khosravi Rad et al., 2025; Zheng et al., 2025). Despite strong evidence, research from developing countries shows low implementation rates due to limited organizational support, resources, and training (Oliveira et al., 2024).

METHODS AND MATERIALS:

Study Design: A cross-sectional study design was used to assess the implementation of the Knee Control+ injury prevention program among futsal clubs and coaches.

Participants:

A total of 190 participants were included in the study using a multistage random sampling technique. Participants included futsal club officials and coaches involved in organized futsal activities.

Inclusion Criteria:

- Registered futsal clubs and coaches
- Individuals actively involved in futsal training or management
- Participants willing to provide informed consent

Exclusion Criteria:

- Individuals not actively involved in futsal coaching or management
- Incomplete questionnaire responses

Data Collection:

Data were collected using a structured questionnaire designed to evaluate:

- Awareness of injury prevention programs
- Knowledge of the Knee Control+ program
- Adoption and implementation practices
- Perceived effectiveness of the program

Data Analysis:
Statistical analysis was performed using IBM SPSS version 21. Descriptive statistics including

frequencies, percentages, means, and standard deviations were used to summarize the data.

Table 1: Dimension of RE-AIM, Club (Chairman or other Administrative Personnel) and Team (Coach)

Dimension of RE- AIM	Club (chairman or Other administrative personnel)	Team (coach)
Reach	Whether they knew about Knee Control+. How they encountered the programme. (3 questions)	Whether they knew about Knee Control+. How they encountered the programme. (3 questions)
Perceived effectiveness		Satisfaction with Knee Control+. Belief in programme effects on preventing injuries and improving performance. (3 questions)
Adoption	Whether teams in the club started using Knee Control+ during the 2021 futsal season. (1 question)	Whether the team started using Knee Control+ during the 2021 futsal season. (1 question)
Implementation	Whether clubs had informed coaches about Knee Control+ in the present season. (1 question)	Whether the team had done any regular training to prevent injuries in the present season. Whether the team used other measures to prevent injuries in the present season. For how long period, how often, how long time per session and how many repetitions per exercise they had used Knee Control+, which exercises in Knee Control+ they used. (2+5 questions)
Maintenance	Whether clubs planned to inform coaches about Knee Control+ in the upcoming season. (1 question)	Whether they intended to prioritize injury prevention training with Knee Control+ in the upcoming season. (1 question)

RESULTS:

Injury prevention policies:

The results of the survey conducted among club personnel (n=119) regarding injury prevention policies show a significant lack of formal structures. Only 3.4% (n=4) of respondents indicated that their clubs have a formal policy on injury prevention, while 16.8% (n=20) reported having an informal policy. A notable 37.8% (n=45) were unsure if such policies existed, and 42.0% (n=50) stated there were no policies at all. Among the clubs with policies (n=24), specifics regarding which injury prevention exercise program (IPEP) to use varied. Knee Control was specified in 25.0% (n=6) of the policies, Knee Control+ in 29.2% (n=7), and the 11+ program in 33.3% (n=8). No respondents indicated the

absence of a specified IPEP, while 12.5% (n=3) reported other programs being mentioned.

In terms of strategies for injury reporting and management, 64.7% (n=77) of the clubs included such strategies in their policies, whereas 35.3% (n=42) did not. Additionally, various resources were reported to support injury prevention work: 36.1% (n=43) had the possibility to consult a physiotherapist or physician, the same percentage (36.1%) received help with planning and structuring injury prevention measures, and 38.7% (n=46) got assistance with executing injury prevention initiatives. Education in injury prevention measures was available in 17.6% (n=21) of the clubs, while other resources were mentioned by

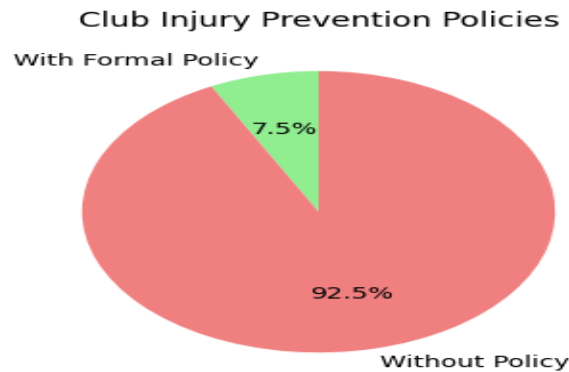
54.6% (n=65). These results have been displayed in Table 2.

Table 1: Injury prevention policies

Sr. No.	Outcomes	Descriptives (n=119)*
1	Do you have policies regarding injury prevention in the club?	(n=119)
	Yes, formal policy	4 (3.4%)
	Yes, informal policy	20 (16.8%)
	Unsure	45 (37.8%)
	No	50 (42.0%)
2	Is it specified in this policy which IPEP to use?^	(n=24)
	Yes, Knee Control	6 (25.0%)
	Yes, Knee Control+	7 (29.2%)
	Yes, 11+	8 (33.3%)
	Yes, another programme	3 (12.5%)
	No	0 (0%)
3	Does the policy include strategies for injury reporting and management?	(n=119)
	Yes	77 (64.7%)
	No	42 (35.3%)
4	What resources/possibilities do you have in the club to support injury prevention work?	(n=119)
	Possibility to consult physiotherapist/physician/	43 (36.1%)
	Help with planning and structuring injury prevention measures from, for example, physiotherapist	43 (36.1%)
	Help with execution of injury prevention initiatives from, for example, fitness coach or physiotherapist	46 (38.7%)
	Education in injury prevention measures (e.g., training, recovery, nutrition, sleep)	21 (17.6%)
	Other resource/possibility	65 (54.6%)
Club	Club Injury Prevention Policies (With Formal Policy)	7.5%
	Club Injury Prevention Policies (Without Formal Policy)	92.5%

*Club personnel only (excluding coaches)

^Answers from those who had policies



Implementation of Knee Control+ program from club perspective:

From the club personnel who had injury prevention policies (n=24), 87.5% (n=21) had heard about the Knee Control+ program. Access to the program was mainly through printed or digital brochures (66.7%, n=14), with no respondents reporting access via lectures by the researcher or exercise films online. Other methods included training programs on Google Forms (4.8%, n=1) and various unspecified sources (28.6%, n=6).

Learning about the program predominantly occurred through the PSFF (66.7%, n=14), followed by social media (19.0%, n=4) and contacts with coaches (14.3%, n=3). No

information was disseminated via email from the researcher.

Regarding adoption, 9.5% (n=2) of the clubs had all teams using Knee Control+, 52.4% (n=11) had some teams using it, while 38.1% (n=8) did not adopt the program. Implementation efforts showed that only 19% (n=4) of clubs informed or educated coaches about Knee Control+ during the 2023 season.

Looking ahead, 61.9% (n=13) of the clubs intend to inform or educate their coaches about Knee Control+ in the upcoming season, while 38.1% (n=8) do not. These results have been displayed in Table 3.

Table 2: Implementation of Knee Control+ program from club perspective

Sr. No.	Outcomes	Descriptives* (n=24)
1.	REACH	
1	Have you previously heard about the injury prevention exercise programme Knee Control+?	(n=24)
	Yes	21 (87.5%)
	No	3 (12.5%)
2	In what ways have you accessed the programme?^	(n=21)
	Printed or digital (pdf) programme brochure	14 (66.7%)
	Lecture by the researcher	0 (0%)
	Exercise films online	0 (0%)
	Training programme on Google forms	1 (4.8%)
	Digital workshop/webinar	0 (0%)
	Other	6 (28.6%)
	How did you learn about Knee Control+?^	(n=21)

3	From contact with coaches	3 (14.3%)
	Via email from the researcher	0 (0%)
	Via the PSFF	14 (66.7%)
	Via social media (Instagram/Twitter/Facebook)	4 (19.0%)
	Other	0 (0%)
2. ADOPTION		
1	Did teams in your club start using Knee Control+ during the 2023 season?^	(n=21)
	Yes, all teams	2 (9.5%)
	Yes, some teams	11 (52.4%)
	Unsure	0 (0%)
	No	8 (38.1%)
3. IMPLEMENTATION		
1	Did your club inform or educate coaches about Knee Control+ during the 2023 season?^	(n=21)
	Yes	4 (19%)
	No	17 (81%)
4. MAINTENANCE		
1	Does your club intend to inform or educate coaches in Knee Control+ in the upcoming season?^	(n=21)
	Yes	13 (61.9%)
	No	8 (38.1%)

*Club personnel only (clubs with injury prevention policies)

^Answers from those who had reach

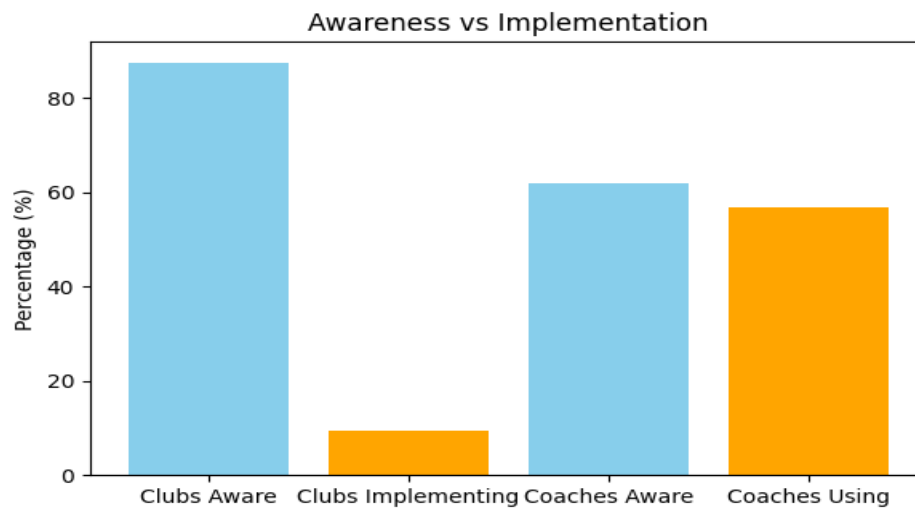
Club Awareness and Implementation:

The present study highlights a significant gap between club awareness and implementation of injury prevention strategies within the Pakistani futsal community. Although a high proportion of participants were aware of the Knee Control+

program, its actual adoption among clubs was limited. One possible explanation for this discrepancy may be the lack of formal injury prevention policies within clubs as reflected in Table 4.

Table 4: Club Awareness and Implementation

Indicator	Number of Clubs	Percentage (%)
Clubs aware of Knee Control+	44	87.5
Clubs fully implementing	5	9.5
Clubs with formal injury prevention policy	2	3.4
Clubs with no policy	21	42.0



Coach Awareness and Usage:

Another factor may be limited access to education and training resources related to injury prevention programs. Coaches who are properly trained in the implementation of programs like Knee Control+ are more likely to integrate them effectively into practice. The findings are consistent with previous research indicating that the success of injury prevention programs depends not only on their effectiveness but also on the quality of their implementation in real-world settings.

Improving implementation may require collaborative efforts involving sports organizations, coaches, physiotherapists, and policy makers to promote awareness, provide training, and establish standardized injury prevention policies. Without structured guidelines and administrative support, coaches may face challenges integrating injury prevention programs into routine training sessions as reflected in Table 5.

Table 5: Coach Awareness and Usage:

Indicator	Number of Coaches	Percentage (%)
Coaches aware of Knee Control+	87	61.97
Coaches using Knee Control+	80	56.81

Discussion:

Conclusion:

The study arrived at concluding remarks that awareness of the Knee Control+ injury prevention program ensured effective in the Pakistani futsal community, though its actual implementation remained limited. Strengthening injury prevention policies, improving coach education, and promoting structured implementation strategies were instrumental in enhancing the adoption of injury prevention programs and reducing injury risk among futsal players.

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