Prevalence of Knee Dysfunction in Mallakhamb Players in Karad

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Abstract

Background: Mallakhamb is combination of Yoga, Gymnastics and Martial Arts. There is various types of mallakhamb such as pole, rope, hanging, niradhar(without support), on cane, on floating platform, mallakhamb with weapons etc. but at competitive level only pole, rope and hanging mallakhamb are being performed by mallakhamb player.In the sport , knee is common injury site. Knee dysfunction leads to long absence from sports and are one of the main causes of permanent sports disability. Common cause of musculoskeletal pain is hypermobility. In mallakhamb players knee dysfunction is diagnosed with the help of KOOS scale. Conservative management is important to correct knee dysfunctions in mallakhamb players. This study has been undertaken to check the prevalence of knee dysfunction in mallakhamb players.

Objective: To find out the prevalence of knee dysfunction in mallakhamb players.

Method: An observational study was carried out using a cross sectional study design. The study conducted in and around karad, Maharashtra. The samples were chosen using the simple random sampling method. The participants in this study were both males and females who were played state and national level mallakhamb game more than 6years. Subjects who played only national level mallakhamb game and subjects who were not willing to participate in mallakhamb were excluded from this study. Study was conducted using a sample size of 84 mallakhamb players ($n= 4pq/L^2$) for a period of 6 months. The materials was used in this study includes paper, pen, data collection sheet, consent form.

Results: On the basis of statistical analysis there was significant knee dysfunction in mallakhamb players.

Conclusion; After analyzing the data, it was concluded that there is a prevalence of knee dysfunction in mallakhamb players.

Keywords: *Mallakhamb players, hypermobility, knee dysfunction, KOOS.*

Introduction

Mallakhamb is combination of Yoga, Gymnastics and Martial Arts. There are various types of mallakhamb such as pole, rope, hanging, niradhar(without support), on cane, on floating platform, mallakhamb with weapons etc. but at competitive level only pole, rope and hanging mallakhamb are being preformed by mallakhamb player[1]. At competitive level, gymnast has to perform a set of elements transitional movement satisfying the requirement of 'Code of Mallakhamb Federation of India'[2].

Mallakhamb is the game which is played against the gravity.it requires agility, quickness of reflexes, coordination of different muscles, strength, flexibility to execute turn and twist which stretch and maintain balance on the pole during practice or competition.

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In the sport , knee is common injury site. Knee dysfunction leads to long absence from sports and are one of the main causes of permanent sports disability[4].

Most common factor during this practice is hypermobility which leads to musculoskeletal pain which further leads to knee injuries[9] .

Being a traditional sport, the absence of proper physio and medical care results in increased incidence of knee dysfunction. Joint hypermobility is a feature of several disorders that results in joint laxity which can cause dislocations , subluxations and sprains[6].

Knee dysfunction was defined as any orthopedic conditions of the knee that contributed to a decreased level of function as perceived by the individual[11,12].

There are various outcome measures which are used to quantify knee injuries in athletes specifically in Mallakhamb players but KOOS is very easy to determine, with no any equipment or technology involved, and is validated for clinical and research use. A 2010 systematic review found that subjects categorized as hypermobile were at a significantly increased risk for sustaining knee injuries, but not ankle injuries, compared to their non-hypermobile peers[12].

This study has been undertaken to check the prevalence of knee dysfunction in mallakhamb players.

Methodology

An observational study was carried out using a cross sectional study design. The study conducted in and around karad, Maharashtra. The samples were chosen using the simple random sampling method. The participants in this study were both males and females who were played state and national level mallakhamb game more than 6years. Subjects who played only national level mallakhamb game and subjects who were not willing to participate in mallakhamb were excluded from this study. Study was conducted using a sample size of 84 mallakhamb players ($n= 4pq/L^2$) for a period of 6 months. The materials was used in this study includes paper, pen, data collection sheet, consent form.

Procedure

An approval for the study was obtained from the Protocol committee and Institutional Ethical committee of KIMSDU. Individuals were approached and those fulfilling the inclusion criteria were selected. The procedure was explained and written informed consent was taken.

Demographic information of the subjects was taken. Individuals were thoroughly explained about the procedure. If any word or terminology in the questionnaire was not familiar to them, it was explained to them. A thorough and necessary assessment were taken. The intensity of pain and knee dysfunction of each individual was noted. The score was calculated and data was recorded. Later statistical analysis was done.

Findings

Table no.1 Pain at rest and on activity in pre-operative subjects

	Mean ± SD	**T Value**	**P Value**	**Interfernence**
Age	18.5±4.2	23.6	<0.0001	Extremely Significant
VAS – At Rest and On Ac-tivity	2.17±1.4	8.41	<0.0001	Extremely Significant
	5.28±1.6	17.06	<0.001	extremely Significant

Interpretation: This table shows that mean of VAS score at rest is 2.17 and on activity is 5.2 in pre-operative subjects.

Table no.2KOOS Score of pre-operative subjects

KOOS Score	Mean ± SD	T Value	P Value	Interfernence
Pain	49.1±16.2	16.5	<0.0001	Extremely Significant
Sympt	59±18.1	17.7	<0.001	Extremely Significant
ADL	64.9±13.5	26.2	<0.001	Extremely Significant
S/R	42.1±12.1	18.9	<0.001	Extremely Significant
QOL	43.5±10.6	22.3	<0.001	Extremely Significant

Interpretation: This table shows that mean of pain is 49, symptom is 59, ADL is 59.7,S/R is 42.1 and QOL is 43.5 (KOOS Score) in pre-operative subjects.

Table no.3 Pain at rest and on activity in post-operative subjects

	Mean ± SD	T Value	P Value	Interfernence
Age	22.6±3.5	35.0	<0.0001	Extremely Significant
VAS – At Rest and On Ac-tivity	1.83±1.2	7.9	<0.0001	Extremely Significant
	4.10±1.6	13.3	<0.001	extremely Significant

Interpretation: This table shows that mean of VAS score at rest is 1.8 and on activity is 4.33 in pre-operative subjects.

Table no.4KOOS Score of post-operative subjects

KOOS Score	Mean ± SD	T Value	P Value	Interfernence
Pain	74.3±8.53	47.7	<0.0001	Extremely Significant
Sympt	72.9±7.9	50.0	<0.001	Extremely Significant
ADL	75.7±8.8	46.8	<0.001	Extremely Significant
S/R	67.1±11.0	33.1	<0.001	Extremely Significant
QOL	63.7±15.7	22.1	<0.001	Extremely Significant

Interpretation:: This table shows that mean of pain is 74, symptom is 72.9, ADL is 75.7,S/R is 67.1 and QOL is 63.7 (KOOS Score) in pre-operative subjects.

Discussion

Mallakhamb is the combination of yoga, gymnastics and martial arts. There is various types of mallakhamb but at competitive level only pole, rope and hangingmallakhamb are being performed by players. Gymnasts has to perform a set of elements transitional movements which is against gravity. The performers to execute turning and twisting, stretching movement and balance exercises on mallakhamb during training and competition. In this game, hypermobility is one of the factors which can cause musculoskeletal pain. Lack of proper physio and medical care results in increased incidence of knee dysfunction in this game. Therefore, consequent negative impact on players.

This is a prevalence study of knee dysfunction in mallakhamb players. There is generalised ligament laxity in this player which leads to joint hypermobility resulting in increased incidence of knee injuries such as pain, dislocation, subluxation and sprains. Movements in mallakhamb game such as turning, twisting, locking, jumping, sudden jerk and landing which also cause of risk of knee injuries.

This studys was done in 6months of duration with sample size 84 and age 12-28years. Later this group were divided into pre-operative and post- operative subjects. Subjects were selected as per inclusion and exclusion criteria. Consent from was taken from subjects and assessment were done.

According to SAYALI DHURI, DR SAJEER USMAN, conducted a study on prevalence of hypermobility in traditional gymnasts and its comparison with normal papulation. This study shows that mallakhamb players have more generalized hypermobility than same age normal children. So due hypermobility increases the incidence of knee injuries in mallakhamb players.

After that pain assessment were done with the help of VAS score and then ask to fill KOOS questionnaire, which includes 5 dimensions were scored separately: pain(9 items), symptoms(7 items), ADL(17 items), S/R(5 items), QOL(4 items) and their total score were calculated.

Table no.1- shows that mean of VAS score at rest is 2.17 and on activity is 5.2 in pre-operative subjects.

Table no.2- shows that mean of pain is 49, symptom is 59, ADL is 59.7, S/R is 42.1 and QOL is 43.5 (KOOS Score) in pre-operative subjects.

Table no.3- shows that mean of VAS score at rest is 1.8 and on activity is 4.33 in post-operative subjects.

Table no.4-shows that mean of pain is 74, symptom is 72.9, ADL is 75.7,S/R is 67.1 and QOL is 63.7 (KOOS Score) in post-operative subjects.

According to articles and this study proved that there is increase incidence of knee dysfunction due to hypermobility in mallakhamb players which consequent negative impact on players and on knee joint. so the findings suggest that therapist should consider the factors that impact on plassyers and with the help of this study can concentrate on knee dysfunction in mallakhamb players for future training and red alerts.

Conclusion

On the basis of the results of the study, it was concluded that there is significant knee dysfunction in mallakhamb players. After analysing the KOOS score it was found that in pre operative patients KOOS score is less which means they have extreme knee problems while in post operative patients KOOS score is more which means they had less pain or knee dysfunction.

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Conflict of Interest: There were no conflicts of interest in my study.

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Ethical Clearance: The Institutinal ethics committee has hereby given permission to initiate the research project titled, "PREVALENCE OF KNEE DYSFUNCTION IN MALLAKHAMB PLAYERS IN KARAD" .

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