Functional Status and Quality of Life of Judokas Due to Knee Injury

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ABSTRACT

Introduction: Judo, is a primarily a sport. The objective is to master the opponent. This is mainly done by applying pressure to arm joints or to the neck to cause the opponent to yield. This format of play leads to a ligament tear due to a direct blow to the knee, either from a fellow athlete or the judo mats. Injuries mainly occur due to a poorly executed throw or bad falling technique. The knee usually buckles and pain is severe. This knee injury affects the players badly.

Objectives: To find the percentage of knee injury and affection on functional status and quality of life of judokas.

Methods: Based on inclusion and exclusion criteria 100 subjects were enrolled for the study of purposive sampling. Judokas filled the set of questionnaire about knee injury and osteoarthritis outcome score.

Results: Data was meaningfully assorted through calculation of mean, median and standard deviation. Value of mean is 55.48, median is 56 and standard deviation is 26.976.

Conclusion: The conclusion of the study is that 51% of the players have mild effect on their functional status and quality of life due to knee injury during their practice session followed by moderate 45% and only 4% of population has severe effect on their functional status and quality of life during and after their practice sessions.

Key Words: Functional status, Quality of life, Disability, Physiotherapy, Practice session and Judokas.

INTRODUCTION

According to Burdick D¹ Judo, Japanese jūdō, is system of unarmed combat, now primarily a sport. Techniques are generally intended to turn an opponent’s force to one’s own advantage rather than to oppose it directly.

Judo is a highly technical sport based on the principle of “maximum efficiency with minimum effort”. A judo fight starts with the opponents both standing, attempting to throw each other off balance. After a throw, judokas transition to ground-fighting, the so-called “ne-waza” ².

Judo was appointed as a sport that has a prominent relative risk of injury compared to other sports as stated by Parkkari J et al.³

According to Buschbacher RM et al.³, it is plausible to reason that more training should correlate with lower injury incidence. A recent study of karate injuries found that injury incidence increased with competitor rank, and with number of years practicing, as stated by Destombe C et al.⁴

In two studies on the Korean Olympic team judokas, the knee was frequently injured,⁵ with 20% of the injuries occurring in the trunk, especially in the lumbar and thoracic spine. According to Witkowski et al. the injuries occurred mainly during training, not during competition. They found that 30% of the injuries occurred in the lower limbs (most at the knee), and 20.7% of injuries in the trunk and shoulder combined. Cynarski WJ⁷ stated that Judo injuries mostly affect body extremities, especially the knee (up to 28%), shoulder (up to 22%) and hand/fingers (up to 30%). There is high prevalence of anterior cruciate ligament injuries (ACL) in judokas has been reported, there has been very little research concerning events preceding the injury as stated by the Koshida Set al.⁸.
The need of the study is to check how functional status and quality of life is affected by knee injury during regular training.

**METHODOLOGY**

**Study design**: The study was Survey in nature.

**Sampling Technique**: The subjects were selected by purposive sampling.

**Sample size**: 100 subjects

**Source of data**: Sports clubs of Dehradun

**ELIGIBILITY**

**Inclusion criteria**
- Age group between 10-30 years.
- Both males and females.
- Had a knee injury within past year.
- Subjects are taken from Sports clubs of Dehradun
- Subjects who are taking training for at least three months.

**Exclusion criteria**:
- Fracture of lower limb.
- Recent surgical procedure.
- Any neurological disorder like stroke, head injury.
- Subjects who are beginners are excluded.

**PROCEDURE**

Table 1: Analysis of symptoms of knee injury

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Qnos</th>
<th>Always (%)</th>
<th>Often (%)</th>
<th>Sometimes (%)</th>
<th>Rarely (%)</th>
<th>Never (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S1</td>
<td>1%</td>
<td>8%</td>
<td>29%</td>
<td>44%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>S2</td>
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<td>25%</td>
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<td>30%</td>
</tr>
<tr>
<td></td>
<td>S3</td>
<td>0%</td>
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<td>9%</td>
<td>32%</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>S4</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
<td>15%</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>S5</td>
<td>1%</td>
<td>2%</td>
<td>21%</td>
<td>38%</td>
<td>38%</td>
</tr>
</tbody>
</table>

On the basis of Inclusion and Exclusion criteria subjects filled a Knee injury and osteoarthritis outcome score (KOOS) questionnaire about knee injury, which included the content about life style after knee injury, amount of pain, problems in daily life, questions on crackle, swelling, catch, stiffness and range of motion and pivoting of knees.

**RESULTS**

Descriptive analysis and mean is applied to find the frequency of Functional Status and Quality of Life of Judokas due to knee injury. The results showed that out of 100 subjects 4 were severely disabled, 45 were moderately disabled and 51 were mildly disabled.

First 5 questions of questionnaire asked about the symptoms of knee injury. First set of questions were asked about symptoms during the last week. 44% of population had swelling rarely followed by sometimes (29%), never (18%), often (8%) and always (1%). 43% of population reported grinding feel and hear clicking or other types of noise when their knee moved rarely followed by sometimes (25%), often (2%) and never (30%). 57% of the population never felt their knee catch or hang up while moving followed by rarely (32%), sometimes (9%).

In second set of questions population was asked about stiffness in their knee. 42% of population reported mild joint stiffness after waking in the morning followed by moderate (23%), severe (7%), extreme (1%) and none (27%). 47% of the population had mild knee stiffness after sitting, lying or resting later in the day followed by moderate (29%), severe (8%) and none (22%).

![Figure 1: Analysis of Stiffness.](image-url)
(38%), severe (8%), extreme (4%) and none (9%). 73% of the population experienced mild knee pain while in bed followed by moderate (14%), severe (4%), extreme (1%) and none (9%). 66% of the population experienced mild knee pain while sitting or lying followed by moderate (18%), severe (7%) and none (9%). 44% of the population experienced mild knee pain while standing upright followed by moderate (35%), severe (5%), extreme (4%) and none (12%).

44% of the population experienced moderate difficulty while descending stairs followed by mild (36%), severe (9%), extreme (2%) and none (9%). 46% of the population experienced moderate difficulty while ascending stairs followed by mild (35%), severe (6%), extreme (4%) and none (9%). 37% of the population experienced moderate difficulty while bending to floor to pick up an object followed by mild (36%), severe (8%), extreme (1%) and none (8%). 32% of the population experienced mild difficulty while putting on socks followed by moderate (9%), severe (2%) and none (57%). 46% of the population experienced moderate difficulty while lying in bed and turning over or maintaining knee position followed by mild (37%), extreme (5%), severe (3%) and none (9%). 52% of the population experienced moderate difficulty while getting in/out of bath, followed by mild (31%), severe (7%), extreme (2%) and none (8%). 64% of the population experienced mild difficulty while getting on/off toilet followed by moderate (21%), severe (6%) and none (9%). The difficulty may differ due to the different toilet styles (like Indian or western) used by players. 45% of the population experienced mild difficulty while doing heavy domestic duties like moving heavy boxes, etc. followed by moderate (30%), severe (8%) and none (17%). 43% of the population experienced mild difficulty while doing light domestic duties like cooking, etc. followed by moderate (33%), severe (8%), extreme (2%) and none (14%).

Table 2: Analysis of Pain

<table>
<thead>
<tr>
<th>Qnos</th>
<th>Extreme (%)</th>
<th>Severe (%)</th>
<th>Moderate (%)</th>
<th>Mild (%)</th>
<th>None (%)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>47%</td>
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Table 3: Analysis of Function and Daily Living

<table>
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<th>Severe (%)</th>
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Another set of questions were asked about functions, sports, recreational activities and what degree of difficulty they had experienced during last week due to their knee. 47% of the players experienced mild difficulty while squatting followed by moderate (29%), severe (12%), extreme (1%) and none (11%) during their last week practice session. 59% of the population experienced mild difficulty while running followed by moderate (25%), severe (6%) and none (10%). 41% of the population felt difficulty while jumping followed by moderate (38%), severe (8%), extreme (4%) and none (9%). 44% of the players experienced mild difficulty while twisting/ pivoting on their knee during their practice followed by moderate (35%), severe (5%), extreme (4%) and none (12%). 44% of the players experienced moderate difficulty while kneeling followed by mild (36%), severe (9%), extreme (2%) and none (9%).

Last set of questions were based on quality of life affected due to knee. 46% of the population were moderately aware of their knee problems followed by mild (35%), severe (6%), extreme (4%), and none (9%). 46% population had moderately modified their lifestyle to avoid potentially damaging activities to their knee followed by mildly (37%), extremely (5%), severely (3%) and none (9%). 52% of the population was moderately troubled with lack of confidence in their knee followed by mildly (31%), severely (7%), extremely (2%) and none (8%). In general, 47% of the population had moderate difficulty with their knee followed by mild (36%), severe (8%), extreme (1%) and none (8%).
DISCUSSION

The study aimed to know how knee injuries affect the functional status and quality of life in Judokas. According to Adams, a judo practitioner is called judoka. The result of the present study depicted that 51% of the players had mild effect on their functional status and quality of life due to knee injury during their practice session followed by moderate 45% and only 4% of population.

In the study the number of male judokas was 52% and female judokas were 48% and with age of 10-15 years were 40%, 16-20 were 29%, 21-25 were 20% and 26-30 years were 11%.

The subjects reported rare to mild swelling with 43% of population reported grinding feel and hear clicking or other types of noise when their knee moved. 42% of population reported mild joint stiffness with, 41% of the population experienced moderate and 31% severe knee pain.

The whole symptoms may arise because of improper training session and techniques. In a study conducted by Brostinni, They presented a relationship with the knee injuries, in the majority in the UK situation. The author also suggested that the relationship of the training injuries is very concerning, mainly due to the evidence that the major part of the reports occurred whenever a heavier opponent participated, and that is a quite common situation in the trainings. Another study by Hirokazu Kobayashi et al. suggested that the common mechanisms of anterior cruciate ligament injuries in judo: a retrospective analysis and concluded that Grip style may be associated with Anterior cruciate ligament injury occurrence in judo. In addition, direct contact due to the opponent’s attack may be a common mechanism for Anterior cruciate ligament injuries in judo.

The study depicted that previous knee injury does have an impact on function, daily living, recreational activities and degree of difficulty. It proves that there is severe effect on functional status and quality of life due to knee injury of Judokas during their practice sessions. This may be because of improper techniques and lack of physiotherapy services in sports academies. The flooring of the academies is also cemented and not proper which may be the important factor affecting the knee joints and performance of players. Main problem with the players occurred while performing sports activities. So, knowledge of precise and particular techniques is very important as suggested by Pocepco E et al. comprehensive knowledge about the risk of injury during sport activity and related risk factors represents an essential basis to develop effective strategies for injury prevention. Thus, the introduction of an ongoing injury surveillance system in judo is of utmost importance.

Another study conducted in Russia by Osipov A et al. suggests that a qualified trainer should establish a high-quality interaction with the athletes, in close interpersonal relationships and moral authority.

Another study conducted in Athens by Callister R et al. described that training is performed as over training and some aspects of performance were adversely affected as the consequence.

This study helps to aware physiotherapists as well as judokas towards the prevalence of knee injuries, so further refining of treatment protocols and techniques used in judo can be done. These also aware judokas about physiotherapy profession and the physiotherapists will help them to use the proper technique efficiently in their training to prevent further injuries.

The future scope of the study can be done by taking into consideration of following aspects:

- Large sample size.
- Differentiating the judokas based on their belts.
- Years of practice.

CONCLUSION

The conclusion of the study is that 51% of the players have mild effect on their functional status and quality of life due to knee injury during their practice session followed by moderate 45% and only 4% of population has severe effect on their functional status and quality of life during and after their practice sessions.

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Self

CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to research, authorship and/or publication of this article.

AUTHORS’ CONTRIBUTION

1. Dr Deptee Warikoo: Investigation, Manuscript writing.
2. Dr Harshita Raghu: Data Collection
3. Dr Lovish Gupta: Data collection
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