



## ANALYSIS OF THROWING TECHNIQUE IN 35<sup>th</sup> NATIONAL GAMES JUDO COMPETITION FOR MEN DURING 2015

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### ABSTRACT

The Technical efficacy of throwing techniques in 35<sup>th</sup> National Games 2015 were subject to analysis. 56 male competitors in seven weight categories of different states, competing in 77 bouts under the 2012-2016 IJF Rules were analysed using Open judo software and recorded video footage of National games 2015 judo competitions. The ultimate aim was to develop a technical profile for standing techniques in India judo, looking into technique type and throwing efficiency. After the data analysis the male participants most effectively use side sacrificing technique (Yoko sutemi waza) to obtain scoring, with Tani Otoshi (Valley drop) proving to be the most effective technique among Indian judokas. Uchi Mata (inner thigh throw) and MOROTE-Seoi Nage (Both hand and shoulder throw) are being the other most scoring and efficient techniques.

**KEYWORDS:** Technical efficacy, data analysis, judokas, throwing techniques, side sacrificing technique.

### INTRODUCTION

Olympic Judo is a sport with high relevance in understanding the reflexes, attacks and counterattacking capabilities of the players. A detailed analysis of techniques related to high performance Judo was conducted during 35<sup>th</sup> National Games held in Kerala in 2015. Judo competitions during the games lasted for 4 days and 56 male judokas from all over India participated. The major area of analysis was throwing of Judo. The entire competition was recorded using 4 video cameras. A single bout was recorded using four cameras; placing one each in every corner of the mat area. This was done in order to capture every movement by the judokas from every angle possible to make the analysis more reliable. A total of 77 bouts were conducted for male categories as well as all the 7 weight categories combined.

The seven weight categories for men are Extra Light Weight (-60kg), Half Light Weight (-66kg), Light Weight (-73kg), Half Middle Weight (-81kg), Middle Weight (-90kg), Half Heavy Weight (-100kg), Heavy Weight (above 100kg). Various tactics related to each weight category was analyzed according to classification of judo techniques. Different types of throwing were analyzed. Throwing techniques were 67 in number and difference in techniques used by male judokas were closely watched and were noted down.

Out of 67 techniques approved by International Judo federations (IJF), 13 throwing techniques for male category were used by the referees for awarding points during the competitions. And the same parameters used by them were taken for our critical analysis. The procedure of analysis included close viewing of videos

of each bout. The video was played in slow motion for better understanding of the techniques used by the judokas. The analyzing process was carried out by one international referee (IJF) and two national referees (JFI). The videos of a bout from cameras kept at four different angles were played simultaneously and these referees awarded points for the judokas according to their analysis. The scores awarded in real time for the bout during the competition were then compared with the scores awarded by the referees during the video analysis. And thereby it was analyzed whether the judgment during the competition was fair.

In the men's Extra Light Weight (-60kg) category successful throwing techniques were used 11 times. In the men's Half Light Weight (-66kg) category successful throwing techniques were used 13 times. In the men's Light Weight (-73kg) category successful throwing techniques were used 13 times. In the men's Half Middle Weight (-81kg) category successful throwing techniques were used 9 times. In the men's Middle Weight (-90kg) category successful throwing techniques were used 1 times. In the men's Half Heavy Weight (-100kg) category successful throwing techniques were used 7 times. In the men's Heavy Weight (above 100kg) category successful throwing techniques were used 3 times.

### POPULATION OF THE STUDY

The participants for the study were the competitors qualified for the Judo competition of 35<sup>th</sup> National Games 2015 held at Thrissur. The top 8 states qualified in men section were taken part in event was considered. The teams participated are Punjab, Haryana,

Uttar Pradesh, Services Sports control Board, Rajasthan, Madhya Pradesh and host state Kerala in Men's section

The total numbers of participants were 56 in 7 weight categories in Male section.

**TABLE I**  
**TECHNICAL DATA OF 35<sup>th</sup> NATIONAL GAMES 2015 - JUDO MEN**

Technical Data of 35 <sup>th</sup> National Games 2015 - Judo Men									
Sl No	Throwing Techniques	Weight Categories							Total Score
		-60 Kg	-66 Kg	-73 Kg	-81 Kg	-90 Kg	-100 Kg	Above 100 Kg	
1	TANI-OTOSHI	4	2	1	1	0	1	0	9
2	UCHI- MATA	0	2	4	0	0	1	0	7
3	MOROTE-Seoi Nage	1	3	0	0	0	1	0	5
4	SEOI-NAGE	0	1	0	2	1	0	0	4
5	KO-UCHI-GARI	1	2	0	1	0	1	0	5
6	O-UCHI-GARI	0	2	3	0	0	0	0	5
7	Ochi gari Gaeshi	2	0	0	1	0	1	0	4
8	SASAE-TSURI Ashi	0	0	4	1	0	0	0	5
9	KO-SOTO-GARI	0	1	1	1	0	0	0	3
10	SODE-TSURI-KOMI-GOSHI	1	0	0	0	0	1	0	2
11	O-SOTO-GARI	1	0	0	1	0	0	0	2
12	Osoto Makkikomi	0	0	0	1	0	1	0	2
13	SUMI-GAESHI	1	0	0	0	0	0	0	1

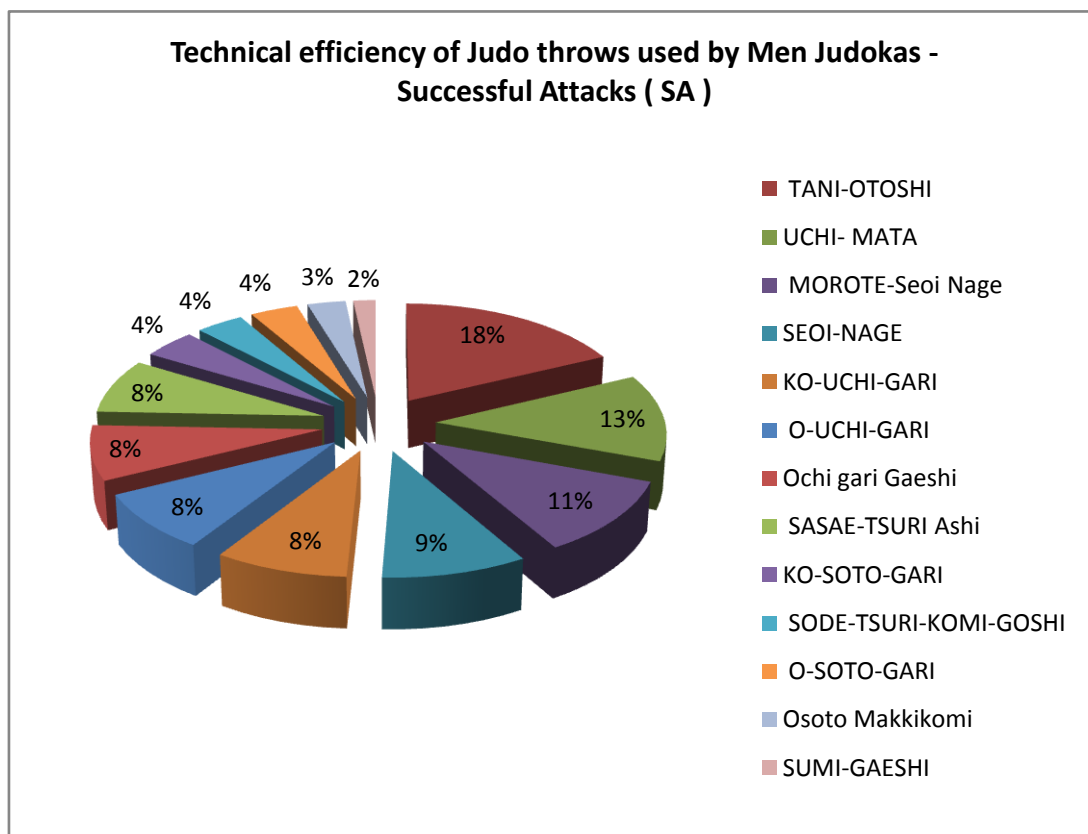
**TABLE II**  
**THROWING TECHNIQUE EFFICIENCY**

Throwing Technique Efficiency		
Sl No	Throwing Techniques	Successful Attacks ( SA )
1	TANI-OTOSHI	0.94
2	UCHI- MATA	0.66
3	MOROTE-Seoi Nage	0.57
4	SEOI-NAGE	0.48
5	KO-UCHI-GARI	0.44
6	O-UCHI-GARI	0.44
7	Ochi gari Gaeshi	0.42
8	SASAE-TSURI Ashi	0.42
9	KO-SOTO-GARI	0.22
10	SODE-TSURI-KOMI-GOSHI	0.19
11	O-SOTO-GARI	0.19
12	Osoto Makkikomi	0.16
13	SUMI-GAESHI	0.09

The above presented table I and table II shows that, 112 Judo players participated in National Games 2015. Based on the gender, the population consists of 56 (50%) men and 56 (50%) women. Considering the participants' gender, in men section 7 weight category is included, 13 throwing techniques were used by men competitors for the competition. Among the throwing

techniques, Tani-Otoshi was used 9 times by men. The success of throwing technique depends on the number of points scored in the competition. After considering the analysis of Successful Attacks (SA) 0.94 scored with Tani-Otoshi and 0.66 scored with Uchi- Mata. Morote seoinage was scored 5 times with SA score of 0.57.

**FIGURE I**  
**GRAPHICAL REPRESENTATION OF TECHNICAL EFFICIENCY OF THROWING TECHNIQUES**



In this figure I shows that the percentage of Successful Attacks (SA) in Throwing technique performed by women competitors. Tani-Otoshi was mostly used by women judokas with 18% followed by Uchi Mata scored 13%, Morote-Seoi Nage scored 11%, Seoi-Nage scored 9%, O-Uchi-Gari scored 8% , Ochi Gari Gaeshi scored 8%, Ko-Uchi-Gari scored 8%, Sasae-Tsuri Ashi scored 8%, Ko-Soto-Gari scored 4%, O-Soto-Gari scored 4%, Sode-Tsuri-Komi-Goshi scored 4%, Osoto Makkikomi scored 3% , Sumi-Gaeshi scored 2% .

**RESEARCH INSTRUMENT**

The data for the purpose of study was collected from the analysis of video recordings of the 77 bouts and technical data of the Judo competitions (Indian participants) held in 35<sup>th</sup> National Games 2015. The video recordings were appropriately tabulated and further statistically analyzed in detail to determine the possibility of optimizing the relationship between

technical and tactical training (Stekowicz and Koziol,1996) requirements of the Judoka. The present research initiative has been carried out in line with the international Algorithmic system (Hantau, 2000) concept. As the international algorithmic system has been based on the complexity and specific motor actions the methodology for this study has been based on the international algorithmic systems.

**STATISTICAL TOOLS APPLIED**

The present research initiative has been carried out in line with the international Algorithmic system (Hantau, 2000) concept. Judo as a sport has high relevance in understanding the reflexes, attacks and counterattacking capabilities of the players. As the international algorithmic system has been based on the complexity and specific motor actions the methodology for this study has been based on the international algorithmic systems.

**ANALYSIS**

A method used by Adam (2007) and Glenn et.al, (2015) to order the efficiency has been used to identify the highest scoring techniques performed in British Judo.

% of successful attacks = (No. of successful attacks/total number of attacks) x 100 (1)

The value of indices of efficient attacks (Sa) is equal to points scored by efficiently executed techniques during one contest,

$$Sa = (5 \times Y) + (7 \times W) + (10 \times I) / n \quad (2)$$

Where:

Y,W,I – number of attacks scoring for Yuko (Y),Wazari (W)and Ippon(I)

N – number of contests

The analysis of the techniques used by men Judo players of National Games 2015 were noted.

**CONCLUSION**

This study underlines the trend set in National level judo players of India regards to technique that are most effectively used in competition,with *yoko sutemi waza* contributing the highest percentage of scores

overall and in the majority of the analysed categories. Tani otoshi is the most effective throw in used in the tournament. Tani otoshi is the dominating technique, uchi mata is the second most frequently scoring attack within National games 2015.

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