

Effects of Inclined Surface Uchikomi Practices on Selected Kinematical Variables of Morote Seoi Nage in Judo

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Abstract:- In this study the scholar trying to put forward an inclined surface uchikomi practice training program for improving the kinematical components as well as the technical skills which is essential for judo players. The purpose of the study was to find out the effects of inclined surface uchikomi practices on selected techniques of judo. 20 judo players from Calicut University male judokas aged between 17 and 24 years were selected as the subjects for the study,. The selected 20 subjects were divided in to two equal groups of 10 each, 10 controlled group 10 experimental group. Selection of the variables: position of C.G, Movement speed, Displacement, Angle of Knee Joint, Angle of Hip joint. The experimental group underwent practicing uchikomi on an inclined platform for a period of six weeks and control group were not given any training. All the subject were tested on selected criterion variables prior to and immediately after and six weeks of practicing uchikomi on an inclined platform training, the study aimed at mainly to find out the kinematical effects of practicing uchikomi on an inclined platform on selected judo technique Morote Seoi nage .The data were collected by the computer software assisted video analysis. Results: The collected data by applying t-test and the level of significance chosen was at 0.05 throughout the study to determine the significance difference. Under the condition and the limitation of the present investigation of the following conclusion were drawn. Practicing uchikomi on an inclined platform improves the kinematical components of performing Judo techniques. This program may consist as a planned systemic activity based judo training for developing kinematical components of a judo technique.

Keywords:- Judo, Uchikomi, Ippon Seoi Nage, Kinematics, Sports Training.

I. INTRODUCTION

Judo is a tremendous and dynamic combat sport that demands both physical prowess and great mental discipline. From a standing position, it involves techniques that allow lifting and throwing the opponents onto their backs on the judo mat called Tatami, it includes techniques that allow pinning the opponents down to the tatami, controlling them,

and applying various choke holds or joint locks until submission.

The Uchikomi practice of judo means forcibly invading the opponent's space, gaining control and throwing, controlling or giving to the opponent's player. Uchikomi is a practice for skill development. Uchikomi is used to give players the opportunity to practise a technique several times in a short period of time, as well as to prevent uke wear and tear from falls. The basic goal of uchikomi is to improve one's skills. Uchikomi drills instil gross motor movement such that it becomes second nature. Uchikomi allows judoka to practise the proper technical moves for each particular technique in order to ensure that tori moves efficiently and uke reacts correctly.

Uchikomi training is usually done on a flat surface but this research also examines the kinematical effects of training on an inclined surface as opposed to a flat floor. The research is based on a six-week experimental training session.

➤ Statement of the Problem

The purpose of the study was to find out the effects of inclined surface uchikomi practices on selected techniques of judo hence the problem was stated *effects of inclined surface uchikomi practices on selected kinematical variables of morote seoi nage in judo*

➤ Delimitations of the study

The study was delimited to the total of 20 Intercollegiate Level Judokas of male from Calicut University, the age ranged between 17 and 24 years. Also delimited to the selected kinematical variables : position of C.G, Movement speed, Displacement, Angle of Knee Joint, Angle of Hip joint and to the six week inclined surface uchikomi practices.

➤ Limitations of the study

Diet, daily routines of the subjects and climate conditions were not taken in to consideration, Previous experience of the subject in the field of sports and games which may influence the training and data collection were taking in to consideration and the research scholar had not put any effect to control or assess the quality and quantity of good ingested separately for

each individual. The quantum of physiological stress and other factors that affect the metabolic functions were also considered as limitations.

➤ Hypothesis

- There will be a significant improvement on selected kinematical variables due to the six weeks inclined surface uchikomi practices.
- There will be a significant difference between experimental and control group on selected kinematical variables due to the six weeks inclined surface uchikomi practices.

II. METHODS

➤ Selection of subjects

20 judo players from Calicut University male judokas aged between 17 and 24 years were selected as the subjects for the study,. The selected 20 subjects were divided in to two equal groups of 10 each, 10 controlled group 10 experimental group.

➤ Selection of the variables

Taking in to consideration all these factors a set of variables was selected to test on selected subjected, for observing the variations in their levels due to uchikomi practices on inclined surface. The variables selected were position of C.G, Movement speed, Displacement, Angle of Knee Joint, Angle of Hip joint.

➤ Collection of data

The researcher recorded videos of judo technique morote seoi nage performed by the selected subjects before and immediately after six week inclined surface uchikomi. The judokas were perform selected technique Morote Seoi-Nage. The technique selected for analysis has been recognized as being used commonly and extensively in world-class competition (the report of All Japan Judo Federation).

Mechanical variables were measured by motion capture analysis method. A most favourable Micro soft kinect tool camera arrangement for a 3 x 1.5 x 2m viewing volume was

used to provide optimal visual construction. This viewing volume is sufficiently large enough to capture the performance of subjects. No markers are required for this tool. The data received from the Microsoft kinect will export to an excel format in regard. The data were collected by the computer software assisted video analysis; Kinovea and Quintic software were used for the kinematical analysis. The data were exported to an excel file for the statistical analysis.

➤ Experimental Design

The experimental designs used in the study were random group design. In which twenty male judokas were selected as subjects, were divided in to groups of ten each, namely experimental and control groups. The experimental group underwent participation of inclined surface uchikomi for a period of six weeks and control group were not given any training. All the subject were tested on selected criterion variables prior to and immediately after and six weeks of inclined surface uchikomi practices, the study aimed at mainly to find out the effect of inclined surface uchikomi on selected kinematical variables of morote seoi nage technique..

➤ Administration of Training Program

For the convenience of the training session plan for inclined uchikomi practice a platform which had an inclination of 30 degree from the ground. The experimental group had to undergo uchikomi practices on the inclined surface for a period of six weeks. The control group was not involved in uchikomi prtices. The total duration of uchikomi practices including warm up and cool down sessions was of 45 minutes. Intensity of the exercise increased in progressive manner.

III. ANALYSIS OF DATA AND FINDINGS OF THE STUDY

The influence of inclined surface uchikomi practices on position of C.G, Movement speed, Displacement, Angle of Knee Joint, Angle of Hip joint were determined by statistically examine collected data by applying paired ‘t’ test and the level of significance chosen was at 0.05 throughout the study to determine the significance difference.

Table-1 Paired Samples Statistics of Kinematical Variables

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Position of C.G point,	1.2140	10	.11266	.03563
	APosition of C.G point,	.8440	10	.02171	.00686
Pair 2	Movement speed,	4.2610	10	.26316	.08322
	AMovement speed,	3.060	10	.1350	.0427
Pair 3	Displacement,	48.10	10	5.109	1.616
	ADisplacement,	39.20	10	2.658	.841
Pair 4	Angle of Knee Joint,	146.10	10	5.466	1.729
	AAngle of Knee Joint,	120.20	10	2.394	.757
Pair 5	Angle of Hip joint.	89.90	10	1.729	.547
	AAngle of Hip joint.	72.00	10	.943	.298

Table-2 Paired Samples Correlations of Kinematical Variables

		N	Correlation	Sig.
Pair 1	Position of C.G point, & APosition of C.G point,	10	.465	.175
Pair 2	Movement speed, & AMovement speed,	10	-.174	.631
Pair 3	Displacement, & ADisplacement,	10	.015	.968
Pair 4	Angle of Knee Joint, & AAngle of Knee Joint,	10	-.112	.758
Pair 5	Angle of Hip joint. & AAngle of Hip joint.	10	.409	.241

Table-3 Paired Samples Test of Kinematical Variables

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Position of C.G point, - APosition of C.G point,	.37000	.10435	.03300	.29535	.44465	11.213	9	.000
Pair 2 Movement speed, - AMovement speed,	1.20100	.31596	.09992	.97497	1.42703	12.020	9	.000
Pair 3 Displacement, - ADisplacement,	8.900	5.724	1.810	4.805	12.995	4.917	9	.001
Pair 4 Angle of Knee Joint, - AAngle of Knee Joint,	25.900	6.208	1.963	21.459	30.341	13.192	9	.000
Pair 5 Angle of Hip joint. - AAngle of Hip joint.	17.900	1.595	.504	16.759	19.041	35.486	9	.000

*level of significance chosen was at 0.05

Table-3 indicates the statistical results as per the paired ‘t’ test the result shows significance in the kinematical variables. Position of C.G point :The t-value is 6.4209, The p-value is < .00001. The result was significant at $p < .05$, Movement Speed :The t-value is 12.84094. The p-value is < .00001.The result was significant at $p < .05$, Displacement : The t-value is 4.88696. The p-value is .000059. The result was significant at $p < .05$, Angle of Knee Joint : The t-value is 13.72483, The p-value is < .00001. The result was significant at $p < .05$ and the Angle of Hip Joint : The t-value is 28.74495.The p-value is < .00001. The result was significant at $p < .05$.

IV. DISCUSSION ON HYPOTHESIS

On the basis of the findings of the study, In case of all the selected kinematical variables: position of C.G, Movement speed, Displacement, Angle of Knee Joint, Angle of Hip joint. There for the first hypothesis that stated there will be a significant improvement on selected kinematical variables due to the six weeks inclined surface uchikomi practices were accepted.

The finding revealed that there was a significant improvement on experimental group than control group on selected criterion variable position of C.G, Movement speed, Displacement, Angle of Knee Joint; Angle of Hip joint had noticed a significant difference after six weeks inclined uchikomi practice of morote seoi nage. Hence the second hypothesis sated that there will be a significant difference between experimental and control group on selected motor components due to the specific complex training programme were accepted.

V. CONCLUSION

Under the condition and the limitation of the present investigation of the following conclusion were drawn. Practicing uchikomi on an inclined platform improves the kinematical components of performing Judo techniques. This program may consist as a planned systemic activity based judo training for developing kinematical components of a judo technique.

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