

CONSTRUCTION OF SPECIFIC FITNESS TEST BATTERY AND DEVELOPMENT OF NORMS FOR JUDOKAS

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Abstract

The purpose of this study was the construction of specific fitness test battery and development of norms for Judokas of All India Intersarsity Level. The subjects of this study were 150 Judokas who represented different universities in All India Intersarsity Judo Championship held in the year 2002-2003 and 2003-2004. The subjects were tested on 19 different items of fitness test. The data in this study were also collected on the basis of weight category of the subjects. Since sufficient number of subjects in all weight categories were not available for the purpose of preparing norms, some weight categories were clubbed and only three weight categories were retained i.e. (i) Lower Body Weight category of below 56 kg. and below 60 kg., (ii) Middle Body Weight category of below 66 kg. and below 73 kg. and (iii) Heavy Body Weight category (above 73 kg.). The factorial analysis technique was applied to develop a specific fitness test battery for the University Level Judokas. Further Hull-scale and T-scale test were used to prepare the norms. The test battery of specific fitness of Judokas consists of 8 items namely modified dips, modified sit-ups, half squats with a partner of equal body weight, uchikomi with o-goshi in one minute, standing broad jump, squat thrust in one and half minute, holding the legs with raised position and bridge-up test. All 8 tests indicated a highly significant relationship with Judo performance. The specific fitness test battery has been developed and standardized for Judokas of age group of 17 to 25 years representing different Indian Universities in the All India Intersarsity Judo Championships during year 2002-2003 and 2003-2004.

Keywords: Fitness Test Battery, Judokas and Uchikomi with O-goshi.

Introduction

Fitness is one of the most misused and overused words in the English language. It can be used for the feeling of pleasure which a person experiences. Physical fitness is an individual matter and, as such, has little meaning unless viewed in relation to the specific needs of each individual. Many people do not realize and even do not know, the level of physical fitness which is actually required. Keeping in view the importance of fitness, Guild said: "Without Motherhood, there is extinction, Without Justice, there is slavery, Without Honour, there is swindling, and Without Fitness, there is death". Many researchers, scientists and physical educators

have written much about the "Principles of specificity", but very few have defined specific fitness. As Singh has stated, each sport activity demands different types and levels of different motor abilities and when a sportsman possesses these he is said to have specific fitness. Judo is an exciting unarmed combat sport that originated in the orient as a means of self-defense which has since grown into an international competitive sport. Judo developed out of Ju-jitsu, a form of unarmed combat believed to have been introduced into Japan by a Chinese monk, Chen Yuan-Pink in the early seventeenth century. Various Ju-jitsu schools developed and young samurai were instructed in art. This was in the days of chivalry among Japanese Knights. It is a well-known fact that all sports activities need higher standards of general fitness and each sport requires dominance of particular fitness components, such as arm strength in Judo. Similarly abdominal strength, leg strength, endurance and co-ordination are all contributory factors essential for attaining proficiency in Judo. Judo is predominately an aerobic activity as continuous bouts are played with fast speed. Thus it needs development of a high level aerobic endurance among the Judokas. A Judoka requires a high degree of strength and total body ability exercises so that he is able to gain good mat position and competes with his opponent in offensive as well as defensive man oeuvres.

Methodology

The purpose of this study was the construction of specific fitness test battery and development of norms for Judokas.

The subjects for this study were selected from the participants of All India Intersarsity Judo Championship. Only 150 male Judokas were selected. The age group of subjects ranged between 17 to 15 years. The specific physical fitness components such as strength endurance, speed, speed of movements, endurance, flexibility and explosive power were selected to prepare the valid test items. The data on selected test items were collected from Intersarsity Level Judokas i.e. Coaching Camps of Lucknow University, Lucknow, Deen Dayal Upadhyay University, Gorakhpur, Maharishi Dayanand University, Rohtak and Lakshmbai National Institute of Physical Education, Gwalior etc. and rest of the data were collected during All India Intersarsity Competition held in the year 2002-2003 at Punjab University, Chandigarh and in 2003-2004 at Punjabi University, Patiala. Data for the study

was collected in two phases. In first phase, data was collected on 19 items from 100 male Judokas and in the second phase, data was collected on newly developed specific fitness test battery from 150 subjects, for constructing the norms.

Statistical Analysis

Factor analysis technique was used as an instrument to select the test items out of 19 variables, best suited to measure the specific fitness of the Judokas. The correlation matrix of the inter correlation between the 19 variables was obtained by applying Pearson's Product Movement Method. Finally, for developing the norms the T-scale and Hull-scale were used.

Finding and Results

TABLE NO.1
DISCRIPTIVE ANALYSIS OF 19 FITNESS TEST ITEMS

S.No.	Test Variables	Mean	S.D.
1.	Pull-ups	18.33	4.02
2.	Modified dips	19.77	4.28
3.	Raising and holding legs and upper body	33.29	12.64
4.	Holding the legs in raised position	75.30	16.20
5.	Modified sit-ups	49.61	11.64
6.	Half-squat with weight (Maximum capacity)	120.20	31.58
7.	Half squats with a partner of an equal body weight	30.99	8.28
8.	Thirty metres run	5.32	0.42
9.	Fifty metres run	7.91	0.85
10.	Extent flexibility	26.36	7.30
11.	Bridge-up test	12.85	3.23
12.	Squat thrust for one minute	58.45	13.22
13.	Squat thrust for one and half minute	26.44	10.69
14.	Modified sit and reach test	15.79	4.04
15.	Standing broad jump	2.07	0.36
16.	Three minutes run/walk	775.79	98.07
17.	Medicine ball throw	10.14	3.06
18.	Uchikomi with O-goshi	33.94	4.17
19.	Uchikomi with Seoi Nage	32.32	4.31

Table No.1 presents descriptive measures for all the fitness test items administered on 100 Judokas.

TABLE NO.2
FACTOR 1 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Standing Broad Jump	0.744
2.	Medicine Ball Throw	0.667
3.	Thirty Metres Run	-0.634
4.	Raising the Legs & Upper Body	0.547

In the Table No.2 Factor 1 has disclosed that the representative of power in the form of standing broad jump and medicine ball throw revealed rotated factor loading of 0.74 and 0.67 respectively.

TABLE NO.3
FACTOR 2 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	One Minute Uchikomis with Ogoshi	0.713
2.	Fifty Metres Run	0.641
3.	Modified Sit and Reach Test	0.610

In the Table No.3 Factor 2 consists of three variables. The One Minute Uchikomis with O-goshi performance showed a loading on rotated factor of 0.713.

TABLE NO.4
FACTOR 3 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Modified Dips	0.863
2.	Squat Thrust for One Minute	0.534
3.	Pull-ups	0.513

In the Table No.4 Factor 3 consists of three variables. The modified dips test showed a loading of 0.863 for this factor, the squat thrust for one minute had a loading of 0.534 and the pull-ups has registered rotated factor loading of 0.513.

TABLE NO.5
FACTOR 4 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Holding the Legs in raised position	0.80
2.	Half Squat with Weight (Maximum Capacity)	0.70

In the Table No.5 Factor 4 consists of two variables that is holding the legs in raised position with a loading of 0.80, half squat with weight (maximum capacity) with a loading of 0.70.

TABLE NO.6
FACTOR 5 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Squat Thrust for One and Half Minute	0.78
2.	Extent Flexibility	0.67

In the Table No.6 Factor 5 consists of two variables that is squat thrust for one and half minute and extent flexibility of 0.78 and 0.67 respectively.

TABLE NO.7
FACTOR 6 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Bridge-up Test	0.80
2.	Uchikomi with Seoi-Nage for One Minute	0.58

In the Table No.7 Factor 6 consists of two variables with highest factor loading shown by Bridge-up Test that is 0.80 followed by Seoi-Nage for one minute with factor loading of 0.58.

TABLE NO.8
FACTOR 7 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Modified Sit-ups	0.864
2.	Squat Thrust for 60 Seconds	0.516

In the Table No.8 Factor 7 included two variables that is modified sit-ups and squat thrust for 60 seconds of 0.864 and 0.516 respectively.

TABLE NO.9
FACTOR 8 OF ROTATED FACTOR LOADINGS

S.No.	Name of Test Items	Factor Loading
1.	Half Squat with a Partner of an Equal Body Weight	0.922

In the Table No.9 Factor 8 shows that only one test item have emerged which measures the half squat with a partner of an equal body weight with a loading of 0.922.

TABLE NO.10
TEST BATTERY FOR THE CONSTRUCTION OF SPECIFIC FITNESS TEST FOR JUDOKAS

S. No.	Factor Measured	Name of Test Items	Factor Loading
1.	Power	Standing Broad Jump	0.74
2.	Speed of Movement	One Minute Uchikomi with O-goshi	0.71
3.	Shoulder Strength Endurance	Modified Dips	0.86
4.	Lower Abdominal Strength Endurance	Holding the Legs in Raised Position	0.80
5.	Endurance	Squat-Thrust for One and Half Minute	0.78
6.	Flexibility	Bride-up Test	0.80
7.	Upper Abdominal Strength Endurance	Modified Sit-ups	0.86
8.	Legs Strength Endurance	Half Squat with a Partner of an Equal Body Weight	0.92

Table No.10 shows eight test items, one from each factors having the highest loading were selected to constitute a fitness test battery for Judo Players.

Discussion of Findings

It was evident from the findings of the study that overall eight factors were selected out of 19 test items. The factor analysis technique has been significantly established their crucial role and relationship to Judo performance.

Conclusion

Within the constraints and limitations of the study, the following conclusions were drawn:

1. The factor analysis yielded eight specific fitness test items as factors.
2. A test battery of eight items developed by the scholar has the ability to predict specific fitness of Judokas.
3. All eight tests namely modified dips, modified sit-ups, half squats with a partner of an equal body weight, Uchikomi with O-goshi in one minute, standing broad jump, squat thrust in one and half minute, holding the legs in raised position and bridge-up test indicated a highly significant relationship with Judo performance.
4. The newly developed test battery of specific fitness test meets the criterion of specific authenticity, i.e. the test items are reliable, objective and valid.
5. The specific fitness test battery has been developed and standardized for Judokas of age group 17 to 25 years representing different Indian Universities in the All India Intervarsity Judo Championships during the year 2002-2003 and 2003-2004.

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