

### 3. EVALUATION METHOD OF JUDOISTS' STANDARD PHYSICAL FITNESS TEST

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Sub-Committee for Training has made Judo Standard Physical Fitness Test for the improvement and training of physical fitness of judo players.

We are going to mention this time the evaluation method of standard physical fitness test, marks for valuation, comparison by body weight concerning with the world champion candidate players in 1967 and student judo club players by new evaluation method, and individual profile of topclass players. We hope this will show the present status of individual physical fitness and will make up for the lacking side of physical fitness. We wish this will be the foundation for the improvement of the entire physical fitness.

#### (1) Measurements

As is shown in Table 1, subjects for this standard physical fitness test are—A. 15 subjects concerning with, morphological features and B. 13 subjects concerning with function, which amount to 28 in all. As for the evaluation, we omitted formal subjects, which do not change much by training, and inserted 13 B subjects (functional ones).

**Table 1**

Measurements	A 15 morphological feature subjects	28 in all
	B 13 functional subjects	

#### A Anthropometric measurements

1 body weight 2 height 3 length of upper limb (right and left) 4 length of lower limb (right and left) 5 girth of neck 6 girth of chest 7 girth of waist 8 girth of hip 9 girth of upper arm (right and left) 10 girth of forearm (right and left) 11 girth of wrist (right and left) 12 girth of thigh (right and left) 13 girth of leg (right and and left) 14 subcutaneous fat 15\* photograph (front, side and back)

#### B Functional Measurements

1 side step	} agility test
2* reaction time	
3 vertical jump	} power test
4 grip strength right and left	
5 back strength	} muscle strength test
6* pull strength	
7 push up	
8 sit up	} muscular endurance test
9 vital capacity	
10 Harvard step test	} whole body endurance test
11 standing trunk flexion	
12* flexibility of ankle joint right and left	} flexibility test
13 twist of upper body right and left	

\* They are not compulsory measurement instruments are not equipped enough.

## (2) Evaluation Method

Standard of evaluation method is as shown in Table 2. Each subject is ruled by ten grades, and maximum mark is 10 and minimum 1. Evaluation method was, as a rule, established by marking the average of the third grade of junior high school 1 point or minimum value of physical fitness test 1 point in subjects contained in physical fitness and sports ability test by Ministry of Education. Moreover, maximum point is 10, which is the best mark reached by top-class judo players. As for the subjects which are not contained in physical fitness test by Ministry of Education, we made inquiries into the maximum and minimum value of world champion candidate players and student judo players. And comparing with the materials of another sports players, we reached the final decision.

We made this mark list by supposing the general grading order that in each subject the average value from the third of junior high school to the first of senior high school is 1, the average of senior

Table 2  
Standard of Evaluation Method  
(ten grades in each subject)

Subject	the marks obtained
average of boys in general in the third grade of junior high school to the first grade of senior high school (minimum)	1
average of senior high school judo club members	2~3
average of university judo club members	5~6
average of topclass players	7~8
maximum value of topclass players (maximum)	10

high school judo players 2—3, the average of university judo club members 5—6, the average of top-class players 7—8 and the maximum of top-class players 10.

## (3) Mark List of Standard Judo Physical Fitness Test

In Table 3 and 4 are revealed the marks from 1 to 10 concerning with 13 B subjects according to the standard above. Other than those mentioned in the standard of valuation method, each subject has some reasons for the way of deciding maximum and minimum points or of deciding the sphere between each valuation point. But we intend to omit its details here.

B item is composed of 13 subjects, and in three subjects—B—2, reaction time B—6, pull strength, B—12, flexibility of ankle joint—measurement is not compulsory when the instruments are not equipped enough. So, each of them is measured, but it is not added to the total mark. In ten subjects except these three, 10 points×10 subjects=100 full points, which is the mark of total evaluation.

## (4) Measurement Results of Top-Class Players and University Judo Club Members

In Table 5 is shown the average value by body weight concerning with 24 world champion meet candidate players measured in March of 1967 and 46 new club members of Tokyo University of Education and Tokyo Gakugei University in July of 1967. Table 6 was made by inserting this into the mark list of Table 3 and 4. ( ) means good subjects whose average mark is each above 8 and ○ means the subjects whose average is each below 2, and for which more maturity is hoped. A survey of the results by subject world champion candidate players do not well in Harvard Step Test. This may be partly because many gave it on the way and the index of some extremely fell down, and moreover the attitude to participation in the measurement may be talked over.

At a survey of the average mark by body weight, in any classes except light weight class, candidate players gained better mark than student players. It is because examinees were only to and one of

**Table 3 Mark List of Judo Standard Physical Fitness Test (I)**

October, 1967

subject mark	B-1 side-step frequency	B-2* reaction time msec	B-3 vertical jump cm	B-4 grip strength kg	B-5 back strength kg	B-6* pull strength kg	B-7 push up frequency
1	below 37	above 240	below 50	below 36	below 120	below 51	below 20
2	38	239-230	51-52	36.5-40.0	121-130	52-57	21-30
3	39	229-220	53-54	40.5-44.0	131-140	58-63	31-40
4	40	219-210	55-56	44.5-48.0	141-150	64-69	41-50
5	41-42	209-200	57-58	48.5-52.0	151-160	70-75	51-60
6	43-44	119-190	59-60	52.5-56.0	161-170	76-81	61-70
7	45	189-180	61-62	56.5-60.0	171-180	82-89	71-80
8	46	179-170	63-64	60.5-64.0	181-190	88-93	81-90
9	47	169-160	65-66	64.5-68.0	191-200	94-99	91-100
10	above 48	below 159	above 67	above 68.5	above 201	above 100	above 101

note 1 \* are not added to total mark.

note 2 In each subject, full mark  $\times 10$  subjects = 100 full marks.**Table 4 Mark List of Judo Standard Physical Fitness Test (II)**

October, 1967

subject mark	B-8 sit up (frequency)	B-9 vital capacity (cc)	B-10 H.S.T. (point)	B-11 standing trunk flexion (cm)	B-12 flexibility of ankle joint (degree)	B-13 twist of upper body (degree)
1	below 25	below 360	below 70	below 1	below 20	below 50
2	26-45	3,610-3,900	71-76	2-4	21-25	51-56
3	46-60	3,910-4,200	77-76	5-7	26-30	57-62
4	61-75	4,210-4,500	83-88	8-10	31-35	63-68
5	76-90	4,510-4,900	89-94	11-13	36-40	69-74
6	91-100	4,810-5,100	95-100	14-16	41-45	75-80
7	100-120	5,110-5,400	101-106	17-19	46-50	81-86
8	121-135	5,410-5,700	107-112	20-22	51-55	89-92
9	136-150	5,710-6,000	113-118	23-25	56-60	93-98
10	above 151	above 6010	above 119	above 26	above 61	above 99

them got extremely bad mark in all subjects that candidate players in light weight class showed quite a bad result.

At a survey of the inclination of the average mark by body weight, candidate players did well in heavy weight class and middle weight class, and in the case of student players in middle weight class. This result may be an endorsement that top-class judo players have 70-60 kilograms body weight.

#### (5) Profiles of Representative Players

In Table 7 is shown the Karte of representative players with an emphasis on the players who took part in Tokyo Olympic Games and in World Champion Games in 1967. ( ) means good

**Table 5 List of Measurement Volume by Body Weight of Top-class and University Judo Club Members (average)**

	class	number of example	side step (fire-quency)	reaction time (msec)	vertical jump (cm)	grip strength (kg)	back strength (kg)	pull strength (kg)	sit up (fire-quency)	vital capacity (cc)	H.S.T. (point)	trunk flexion (cm)	flexibility of ankle joint (degree)	twist of upper body (degree)
World Champion candidate players 24	light	2	—	249	—	42.8	145	77.5	95.0	3.780	74.4	15.7	—	81.5
	light middle	6	—	174	—	46.4	143	76.0	85.0	4.076	102.3	20.4	—	82.7
	middle	7	—	175	—	50.5	159	79.4	91.0	4.427	93.6	19.3	—	88.6
	light heavy	5	—	220	—	56.2	182	91.4	86.4	4.836	73.1	16.8	—	86.4
	heavy	4	—	197	—	48.8	174	92.0	84.0	5.110	68.3	11.4	—	89.0
student judo club members 46	light	3	43.7	176	59.8	48.6	174	73.0	145.0	4.353	83.9	20.8	42.7	81.7
	light middle	20	41.9	186	54.6	46.3	168	74.0	94.7	4.446	90.3	17.0	42.2	73.3
	middle	18	42.2	181	58.0	51.4	175	78.3	106.3	5.160	90.5	17.4	38.5	69.9
	light heavy	5	39.6	191	53.5	53.4	169	79.5	67.4	5.092	83.7	15.7	43.4	74.5

subjects gaining mark above 9 and ○ the subjects below 4, for which more training is hoped.

Inokuma and Kaminaga are both retired players. So referring to the measurement results in a training camp before Olympics we picked up only the appropriate subjects and inserted them into the marks of this standard physical fitness test. In the case of five other members, results are those measured in a training camp for World Champion Meet candidate players, given in March of 1967.

This result shows that even top-class players have — subjects below 4 points, for which more fullness is required. This shows the terrible inclination of physical fitness. Especially, muscular strength is good in heavy weight class and bad in light weight class. On the other hand Harvard step test, which shows the whole body endurance, showed the reverse inclination of muscular strength, and its result was bad in heavy weight class and good in light weight class. For example, Shigeoka is poor at grip strength and back strength and good at Harvard step test and trunk flexion (flexibility). Nakatani shows the same inclination. Heavy weight class player Kaminaga is good at grip strength and back strength but poor at Harvard step test and vertical jump (power).

In total marks player Inokuma got the average 7.6 which was the best and below it Sato (Sen) and Kaminaga got 6.9. Player Inokuma showed the most balanced physical fitness by having no subject below 4 points and gaining the mark above 7 except Harvard step test and vital capacity whose marks were 5. Among the players in active service Sato (Sen) was the only player who showed the all-round physical fitness, with no subject below 4 points, but he gained many 6–7 points. So, on the whole, one more level up is hoped for him.

#### (6) Conclusion

Making a standard physical fitness test of Judoists and examining it, we found that even top-class players showed various profiles of physical fitness. And so, balanced training of physical fitness is required of them. We hope this test will be the reference material for grasping the characteristics of individual physical fitness and for making the all-round physical fitness.

Drawing up this test gives one tentative plan. And we intend to investigate and improve it more by examining the reliability, propriety and objectivity of test, and moreover by taking actual measure-

Table 6 Average Mark by Body Weight of Top-Class Players and University Judo Club Members

	class	number of example	side step	* reaction time	vertical jump	grip strength	back strength	* pull strength	sit up	vital capacity	H.S.T.	trunk flexion	* flexibility of ankle joint	twist of upper body	average
World Champion candidate Players (24)	light	2	—	①	—	3	4	(8)	6	②	②	6	—	7	4.8
	light middle	6	—	(8)	—	4	4	7	5	3	7	(8)	—	7	5.6
	middle	7	—	(8)	—	5	5	6	6	4	5	7	—	(8)	5.8
	light heavy	5	—	3	—	7	(8)	7	5	6	②	7	—	7	6.1
	heavy	4	—	6	—	5	7	6	5	7	①	5	—	(8)	5.5
student judo club members (46)	light	3	6	(8)	6	5	6	6	(9)	4	4	(8)	6	7	6.1
	light middle	20	5	7	4	4	5	4	6	4	5	7	6	5	4.9
	middle	18	5	7	5	5	6	4	7	7	5	7	5	5	5.6
	light heavy	5	4	6	3	6	5	3	4	6	4	6	6	6	4.7
	heavy	5	4	6	3	6	5	3	4	6	4	6	6	6	4.7

( ) good subjects above 8 points

○ subjects which should be strengthened more (below 2)

\* are omitted from average value.

Table 7 Profiles of Representative Players

name	class	side step	*reaction time	vertical jump	grip strength	back strength	*pull strength	push up	sit up	vital capacity	H.S.T.	trunk flexion	*flexibility of ankle joint	twist of upper body	average
Shigeoka	light middle	—	9	—	③	①	5	(9)	5	③	(10)	(9)	—	(9)	6.2
Nakatani	middle	—	8	—	③	②	5	7	6	③	(9)	7	—	(10)	6.0
Maruki	middle	—	7	—	6	7	6	7	5	7	6	④	—	8	6.3
Sato (Sen)	light heavy	—	6	—	6	6	8	7	7	5	6	8	—	(10)	6.9
Matsuzaka	heavy	—	7	—	5	7	8	—	5	7	④	7	—	(10)	6.0
Inokuma	light heavy	—	8	(9)	7	(9)	—	—	—	5	5	8	—	(10)	7.6
Kaminaga	heavy	—	7	④	(10)	(10)	—	—	—	5	③	6	—	(10)	6.9

( ) good subjects above 9 point

○ subjects which should be strengthened below 4 points

note 1 \*are omitted from average value.

note 2 In the case of Inokuma and Kaminaga, measurement is that taken in a training camp before Tokyo Olympic games.

ments one after another and taking age, technique and ranking into account. And in addition we wish this will be a guide to the study of physical fitness much related with the technique of judo and to the study of training method.