29 - ADAPTATION OF SPECIAL JUDO FITNESS TEST FOR KARATE: A STUDY WITH ATHLETES OF BRAZILIAN NATIONAL TEAM.

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INTRODUCTION

Karate is a Japanese word meaning "empty hands". This, in turn, is a martial art source Nipponese, who arrived in Brazil in the 50s, through the Japanese colony, where arms and legs are trained systematically in order to fend off a possible opponent, this, kept in practice the culture and traditions of their nation of origin (Ferraz, 2011).

Nakayama (2001), says that in recent years, rules have been developed aimed at a more combat sports where the physical integrity of the adversary is pretty sight, with the purpose to introduce karate as a competitive sport. The struggle of competition or shiai kumite in Japanese writing, is a game that requires quick reflexes perception, speed, technique, strategy, fair play, control and blow mainly an excellent physical conditioning, where prevails the respect, honor, courage and loyalty.

With the popularity of Karate in sports and the constant growth of this sport in the Olympic world, there is a significant increase in the number of participants in national championships, South American, Pan American and world, thus increasing the level of these competitions and making the longest path that the athlete must travel to reach the podium. Thus, creates the need for greater training load aimed at improving aerobic and anaerobic capacity. When it comes to energy metabolism, according to Nascimento (2005), are found high concentrations of blood lactate during the actual fighting, thus resulting in the need to develop advanced glycolytic system that enables a good support high intensity effort. It is necessary also the presence of an excellent oxidative system, the appropriate order to maintain a good performance during the time of the fight (McArdle, Katch, Katch, 2003).

The methodology of sports training has always been performance-oriented, with it, the physical evaluation of athletes becomes essential as an identifier of the condition of the athlete and the coach provides subsidies for prescription, proper planning and periodization of athletic training.

Thus arises the need for physical testing of athletes in karate. Since there is, in effect in the literature, no test proposed in order to evaluate the ability of anaerobic and aerobic athletes of the sport, the solution is to adapt existing tests in other modalities. One of these tests is the Special Judo Fitness Test (SJFT), used to assess the ability of aerobic and anaerobic athletes.

Several combat sports (including Karate), over the last few years, have evolved. Technology of materials and structures (gi, tatami mats), rules of innovation, scientific development and practice of assessment methods, training prescription and analysis technique and tactics are factors that contributed to the evolution of the performance of athletes worldwide. Thus, it is important to note that the assessment essential in any educational work, thus constituting one of the main stages of training karateka.

After exposure above formula is the following question about the activity: It is possible to adapt the SJFT Karate? As a hypothesis, based on empirical experience, it is assumed that it is likely solving and adaptation.

METHODOLOGY

We use a longitudinal field study of exploratory type, which presented aspects of the quantitative approach (THOMAS, NELSON, 2002). The research was conducted in the gym Karate Club Verdes Mares, Varjota in the neighborhood, in the city of Fortaleza, in the period August to October 2012.

Five participants were involved in categories Junior and Under-21, four males and one female, they considered the most experienced Selection Cearense, considering their results in competitions, both also part of the Brazil squad. Inclusion criteria were asked: participation often in official competitions statewide, national and international training sessions exclusively physical; undergraduate least a brown belt. Excluded were fighters with some physical limitation or technique that could prevent them from performing the tests proposed in this work.

Data collection was conducted in three stages. The first step was an assessment of body composition of athletes, pausing only to measurement of weight and height.

The second stage involved the adaptation of SJFT proposed by researchers. The SJFT aims to analyze the skills aerobic and anaerobic athletes in Judo. It was created in 1995 by Sterkowicz, by using the projection technique called Ippon-Seoi-nage (PAIVA; DEL VECCHIO, 2010).

The Sterkowicz study, conducted in 1995 showed that the selection Polish judoka, who had a significant performance on this test, presented along the competitions most wins of athletes who did not achieve a good performance in it (SOUZA; ASSUMPÇÃO; CESAR, 2011).

The adjustment proposed in this present study consisted in positioning two fighters height similar to athlete's rated at 10 meters distance between them as follows:



The test was conducted in three periods: the first 15 seconds, 30 seconds the second and third of a minute with 10 second intervals between periods. During each period, after the beep authorizing the start of the test, the athlete evaluated applied a sequence of two hits in fighters and B as many times as possible, but following all the criteria required by the Official Rules for the technique is valid. The displacement of the athlete measured by the other two athletes was conducted in the same manner as in shiai kumite.

Two techniques were used following: Gyaku Zuki (straight punch) and Geri Kizame Mawashi (semicircular kick with the leg resting on the front), since according to administrative entities, these techniques have been used more and more efficient in the world's last circuit competitions (FERRAZ, 2011; BIRTH JUNIOR, 2012; ORTUERTA, 2011).

The number of sequences performed was added and the resulting index was calculated from the formula given:

$$\text{Index} = \frac{\text{Final heart rate (bpm)} + \text{heart rate 1 minute after the end of the test (bpm)}}{\text{Total number of sequences}}$$

Thus, the better the athlete's performance in the test, the lower the index value. The performance is evaluated by several factors, among which: the increasing number of sequences during the same period, representing an improvement of speed; anaerobic capacity and / or efficiency in the execution of the coup, lower heart rate (HR) at the end test, which means improved cardiovascular efficiency in the same effort, better heart rate observed one minute after the test, which represents an improvement in aerobic capacity. In a second step we performed the retest, at an interval of 15 minutes, only to check the fidelity of the initial test result.

The third stage consisted of a specific test of endurance, the test Cooper (Cooper, 1968). The objective of this test was to compare the results with data collected in the application of SJFT adapted.

RESULTS AND DISCUSSIONS

The results of the scores obtained in the test and the retest of adapting SJFT applied to athletes participating are described in the tables below:

Table 1: Values obtained in the first embodiment of adapting SJFT.

SJFT **Test**	**Athlete 1**	**Athlete 2**	**Athlete 3**	**Athlete 4**	**Athlete 5**
Category	Under-21 (-50kg)	Under -21 (-68kg)	Juniors (-70)	Juniors (-64)	Juniors (-52)
Gender	Female	Male	Male	Male	Male
Repetitions	24	25	23	27	24
FC Final	164	166	184	200	172
FC after 1 min	106	120	152	140	148
INDEX	11,25	11,44	14,608	12,592	13,3

Source: Research data.

Table 2: Results from the retest of adapting SJFT, only used for verification of the reliability of the first application.

SJFT **Retest**	**Athlete 1**	**Athlete 2**	**Athlete 3**	**Athlete 4**	**Athlete 5**
Category	Under-21 (-50kg)	Under -21 (-68kg)	Juniors (-70)	Juniors (-64)	Juniors (-52)
Gender	Female	Male	Male	Male	Male
Repetitions	25	24	22	25	23
FC Final	164	148	188	186	166
FC after 1 min	126	134	148	140	148
INDEX	11,6	11,75	15,272	13,04	13,434

Source: Research data.

After application of SJFT was conducted one week after the test Cooper to participating athletes. Results were expressed the following:

Table 3: Values obtained in the test Cooper, used for comparison with the SJFT.

COOPER **12 minutes**	**Athlete 1**	**Athlete 2**	**Athlete 3**	**Athlete 4**	**Athlete 5**
Category	Under-21 (-50kg)	Under -21 (-68kg)	Juniors (-70)	Juniors (-64)	Juniors (-52)
Gender	Female	Male	Male	Male	Male
Distance	2.285 meters	2.660 meters	2.450 meters	3.000 meters	2.680 meters
Result	Good	Medium	Medium	Very Good	Good

Source: Research data.

Souza; Assumpção; Cesar, (2011) applied the SJFT adult judokas in Piracicaba-SP, the regional and the state that compete in categories light and found an average score of 16.727 in SJFT. Paulistas judokas showed an average heart rate after the final test of 187.2 bpm and after a minute of 166.4 bpm. When comparing with the results, the team participating in this study, athletes of the Ceará, showed a lower, representing a high speed techniques. The judokas of São Paulo FC showed higher end athletes Ceará, which demonstrates an anaerobic system developed in the latter. The FC after 1min athletes Paulistas were

below the Ceará, which demonstrates progress in the oxidative system of karate.

Carvalho et al. (2002) evaluated the Brazilian judo and found an average score of 13.92 in SJFT. These athletes had a final post test FC 182.7 bpm and after a minute of 160.3 bpm. Although no statistical comparison can be observed that karateka of Ceará showed better anaerobic capacity, since there was less FC final. With respect to aerobic capacity, karateka Ceará showed better recovery than judokas, which shows better resistance. The index presented by the team of karateka in SJFT was lower, showing greater speed in the application of the sequence of strokes compared to the index of the Brazilian judokas.

The SJFT is one of the few tests that are specific for judo, but is more widely used. However it has some limitations since it does not take into account the athlete's body weight and its height, which is also reflected and realized when adapted to Karate.

When comparing the results obtained with SJFT Cooper test, we can confirm the validity of the adaptation since karateka showed very low rates in adaptation, which equals a good performance, and high notes in the endurance test. The three athletes showed the highest rate in SJFT which was adapted and traveled the shortest distance in the endurance test, as well as the four athletes showed lower rate adaptation proposal and highest score in the Cooper test.

FINAL CONSIDERATIONS

It can be concluded that it is possible to adapt the SJFT Karate and that it is extremely important to athletes of the sport, now that allow better verification of aerobic endurance and periodization of training.

With the test results could be performed to verify that the athletes have studied Karate good aerobic capacity, especially taking into consideration the fact that the team of Ceará be category Juniors and Under-21, since the comparisons in the discussion of results studies were carried out involving only adult athletes.

It is suggested that further studies can be performed to improve the evaluation of the physical variables in karate, especially with regard to the particularities of the techniques used by athletes in different age and weight. It is recommended that specific tests that take into consideration, height, age, sex and weight category should be prepared for a more accurate assessment of athletes.

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THANKS

Athletes participating in the research, academia Karate Club Verdes Mares for providing space for the testing.

The State University of Ceará, for providing financial support to the scientific initiation scholarship.

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ADAPTATION OF SPECIAL JUDO FITNESS TEST FOR KARATE: A STUDY WITH ATHLETES OF BRASILIAN NATIONAL TEAM.

ABSTRACT

The aim of this study was to propose the adaptation of the Special Judo Fitness Test (SJFT) for the sport of Karate. As specific objectives, we intend to analyze the aerobic performance in various categories of karate, affiliated to Federation Cearense and composing the brazilian national team. The study included four athletes sex male and one female, aged 16 to 20 years and body mass between 48.0 to 65.5 kg. Specific a test was performed with all aerobic endurance athletes, Cooper Test, and the results thereof were compared with the results of SJFT adapted. Comparing the tests there was great similarity in the results of all athletes. It is concluded that the SJFT can be adapted for athletes Karate.

Keywords: Adaptation, Karate and Fitness Assessment

ADAPTATION DU SPECIAL JUDO FITNESS TEST POUR KARATÉ: UNE ÉTUDE DE SÉLECTION DES ATHLÈTES DU BRÉSIL.

RÉSUMÉ

Le but de cette étude était de proposer l'adaptation du Special Judo Fitness Test (SJFT) pour le sport du Karaté. Comme objectifs spécifiques, nous avons l'intention d'analyser la performance aérobie dans différentes catégories de karaté, affiliée à la Fédération Cearense et composition de l'équipe nationale brésilienne. L'étude a inclus quatre hommes le sexe des athlètes et une femme, âgés de 16 à 20 ans et la masse corporelle entre 48,0 à 65,5 kg. Spécifique d'un test a été effectué avec

tous les athlètes d'endurance aérobie, Test de Cooper, et les résultats de celle-ci ont été comparés avec les résultats de SJFT adaptés. En comparant les essais il y avait une grande similitude dans les résultats de tous les athlètes. Il est conclu que le SJFT peut être adapté pour les athlètes de Karaté.

MOTS-CLÉS: adaptation, de karaté et de fitness evaluation

ADAPTACIÓN DE SPECIAL JUDO FITNESS TEST AO KARATE: UN ESTUDIO CON ATLETAS DE LA SELECCIÓN BRASILEÑA.

RESUMEN

El objetivo de este estudio fue proponer la adaptación de la prueba Special Judo Fitness Test (SJFT) para el deporte del karate. Como objetivos específicos, se pretende analizar el rendimiento aeróbico en varias categorías de karate, afiliado a la Federación Cearense y composición de la selección brasileña. En el estudio participaron cuatro atletas masculinos del sexo y una mujer, de entre 16 y 20 años y de masa corporal entre 48,0 a 65,5 kg. Específica se realizó un ensayo con todos los atletas de resistencia aeróbica, la prueba de Cooper, y los resultados de los mismos se compararon con los resultados de SJFT adaptados. Comparando las pruebas que había una gran similitud en los resultados de todos los atletas. Se concluye que la SJFT puede ser adaptado para Karate atletas.

PALABRAS CLAVE: Adaptación, Karate y Evaluación de la condición

ADAPTAÇÃO DO SPECIAL JUDO FITNESS TEST PARA O KARATE: UM ESTUDO COM ATLETAS DA SELEÇÃO BRASILEIRA.

RESUMO

O objetivo deste estudo foi propor a adaptação do Special Judo Fitness Test (SJFT) para a modalidade de Karate. Como objetivos específicos, pretendeu-se analisar o desempenho aeróbico em karatecas de diversas categorias, filiados a Federação Cearense e que compõe a Seleção Brasileira. Participaram deste estudo quatro atletas do sexo masculinos e um do sexo feminino, com idades entre 16 a 20 anos e massa corporal entre 48,0 a 65,5 kg. Foi realizado um teste especifico de resistência aeróbia com todos os atletas, o Teste de Cooper, e os resultados deste foram comparados com os resultados do SJFT adaptado. Na comparação dos testes houve grande semelhança no resultado de todos os atletas. Conclui-se que o SJFT pode ser adaptado para atletas de Karate.

PALAVRAS-CHAVE: Adaptação, Avaliação Física e Karate