117 - PILOT STUDY OF AN ANALYSIS OF MOTOR SKILLS INHERENT IN SLAP SHOT

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INTRODUCTION

A pilot study is a test performed on a small scale of the, procedures materials and methods proposed in order to enable the change or improvement of the instruments in the phase that precedes the investigation itself (MACKEY; GASS, 2005; CANHOTA, apud 2005 BAYLOR, TOMICH AND D'ELY, 2011).

A pilot study aim to find out the weaknesses and potential issues to be resolved before the implementation of the research itself. For their achievement, the quantity of participants need not be more than 10 targeted sample (MACKEY; GASS, 2005; CANHOTA, apud 2005 BAYLOR, TOMICH AND D'ELY, 2011).

The slap shot is executed when the player grab the stick with 40 cm to 60 cm of distance between the hands. In the initial phase of the movement, the stick loses contact with the ice and is raised backward and then brought forwards stronger as possible and so reach the puck at a speed close to 30 m/s or 100 km/h. (PEARSALL, 1999 apud CARLISLE, 2011).

The blade comes into contact with the ice before reaching the puck and with it, a slight deformation is done at bat. When contacting the puck, the greater the deformation, the greater will be the final speed of the puck (VILLASEÑOR, TURCOTTE AND PEARSALL, 2006 apud GILENSTAM, HENRIKSSON-LARSÉN AND THORSEN, 2009). It's the strongest type of shoot, but also, the less precise in ice hockey (ALEXANDER, HADDOW AND SCHULTZ, 2013).

Recent studies indicate that the joint kinematics, the strength and the skill level of the performer are as important as the degree of deformation reached by the stick (WOROBETS et al., 2006; WU et al., 2003 apud GOKTEPE, 2010), so that, the motor skills involved are as relevant as the implement used in the movement.

The motor skills are classified in the following ways: discrete, organized in such a way that the action has clearly defined start and end and of brief duration; Serial, series of discrete skills connected in quick succession; Ongoing, carried out repeatedly by a certain time. With beginning and end is not defined. These classifications are made with regard to the organisation of the task (SCHMIT AND WRISTBERG, apud 2001 PÓVOAS AND SILVA, 2009).

Another way of classification is to analyze the environmental aspects, thus there is two types of categories: open skills which is when an environment is unpredictable and is constantly changing, making individuals do constant changes and adjustments in the movement pattern to suit the demands and skill which is closed when the environment is stable and predictable allowing the person to plan their moves in advance by determining when the action starts and end (SCHMIT AND WRISTBERG, apud 2001 PÓVOAS AND SILVA, 2009).

Fonseca (2013) classify the ability based on muscle mobilization, defining as global when is performed by the large muscle groups and thin when held by small muscle groups.

With the use of the Shuttle Run test and Flagner Test, in this work were observed agility and llower limbs power. The agility is responsible for rapid change of direction effectively against unpredictable situations (BOMPA, 2002; SCHMID AND ALEJO 2002 apud MIGUEL AND CAMPOS 2010) and may be defined as the ability to make quick changes of direction with any part of the body (HEINIOLA, apud 2011 AALTO AND RÄIHÄ, 2012).

During the sports gesture, the main parameter observed is not the value of the force, but the speed with which the strenght can be produced. Thus, power can be set to the fastest speed imposed by the neuromuscular system in a given period of time (SCHMIDTBLEICHER, 1992; GOMES AND TEIXEIRA, 1998 apud MAIOR, 2013).

It can be also defined as the ability of the nervous and muscular systems support the resistance developed by maximum muscular contraction, thus, although absolute strength is an important physical ability, the speed at which that strenght is used is more important in most activities (FLECK et al., 1999 apud DUARTE et al., 2009).

So this research has for theme the pilot study of an analysis of motor skills present in Slap Shot with the objective to verify if the tests currently applied are the best way to gauge such skills in order to guide further research on the topic. It is importante to highlight that due to scarce of literary in Brazil on this subject justifies the possible originality of this study since many researchers turn to polls about summer sports practiced on a large scale in Brazil.

MATERIAL AND METHOD

The survey was developed from a literature review on the studies about the acquisition of motor skills, focusing on the method of evaluation and measurement of such skills. It is characterized as descriptive, field and pre experimental.

The sample has three ice hockey athletes summoned for the Brazilian national team that participated in the first Pan American Games in Mexico and that, according to coach Ice Hockey Brasiléia, Alexandre Capelle, are who better execute the slap shot (CAPELLE, 2014).

As an instrument of data collection were used the Shuttle Run test and Power Test Flegner for the analysis of muscle power and agility of lower limbs in ice hockey athletes aiming to identify whether such skills then present in the gesture of the slap shot.

RESULTS

The Shuttle Run test results (table 1) and the Flegner Power Test (table 2) show: age, body weight and high of each athlete. According to the results of the Flegner Power Test, verify the type of muscle fiber and the Absolute Anaerobic (alactic) Power Unit (table 3).

Table 1: Shuttle Run test result

Athlete	Time (s)	Age	Body Weight (Kg)	High (cm)
I	10,02	28	97,5	184,5
II	10,21	38	67,5	173
III	10,07	25	87,1	180,5
Average	10,10	30,33	84,03	179,3
D. Padrão	0,10	6,81	15,23	5,84

Table 2: Result of Flegner Power Test

Athlete	Time (s)	Distance (m)	Age	% Gordura	BMI
I	7,56	27,12	28	13,699	28,64
II	8,12	21,68	38	14,198	22,55
III	7,94	21,17	25	13,198	26,73
Average	7,87	23,32	30,33	13.968	26,12
D. Padrão	0,29	3,30	6,81	0,5	3,11

Table 3: type of fiber and Absolute Anaerobic Power Unit (AAPU) according to the results obtained in the Flegner Power Test.

Athlete	Predicted Anaerobic Power	Fiber type	AAPU
I	378,762	LENTA	349,762
II	225,6015	LENTA	180,2217
III	328,9008	LENTA	232,2301
Média	311,15	-	254,07
D. Padrão	78,2	-	86,85

The average time of Shuttle Run test was 10.1 seconds, lower than results found for Miguel and Campos (2010) when submitted seventeen athletes of different positions of futsal under-17 category at the same procedure with and without the ball. The average for the procedure without the ball was 10.16.

In other hand the result found was slower than the results found by Massa (1999) when submitted 75 volleyball players in several categories at the same test. Of those 75, only 10 were professional players and the average for the Shuttle Run Test was 9,25s.

The AAPU found was higher than the results found by Faial (2007) when submitted sprinters, distance runners and middle-distance runners to Flegner Power test. The AAPU average found in the present study was to 254.07 (+/-86.85) while the result obtained by Faial for sprinters was 238.19 (+/-27.47), 147.85 (+/-18.47) for middle-long distance runners and 125.85 (+/-31.20) for distance runners.

However Coutinho (2003), when compared 16 expert athletes by estimated composition of muscle fibers (8 sprinters and 8 marathon runners), obtained an average of 301.70 UPAA (+/-23.03) for sprinters and 216.77 (+/-19.10) for marathoners.

It is worth mentioning that the UPAA found in all athletes tested in this study was smaller than the preicted anaerobic power and it is estimated that, in theory, the composition of the muscle fibers of these athletes is slow.

The corollary shows that the results obtained with the amateur hockey athletes both in the Shuttle Run test and Flegner Power Test were better than those obtained in the same tests for amateur athletes in other modalities that are more practiced in Brazil than hockey, although the result obtained by professional athletes has been superior to the athletes tested in this study.

CONCLUSION

For all that this research demonstrates, it can be observed that the Shuttle Run test has an important limitation when it comes to evaluate and measure motor skills in ice hockey, especially the gesture of the slap shot.

The land employed during the test differs completely from the ice, surfice used for the practice of hockey, which may have hampered the implementation of the test.

The Flegner Power Test also presented a limitation since none of the evaluated was used to the gesture involved in testing and all have reported difficulty in achieving the same.

So, given the fact the interests of brazilians be walking to meet this kind of sport and, facing scarce literature on the subject, the term well recommend for future researches the choice of other tests to gauge the skills here studied. It is advisable to seek the collaboration of most athletes, but also, with a control group so that it is possible a comparison between those who well running movement and other athletes that do not run mode the gesture engine in question with the same precision and effectiveness.

Is here recorded the importance of this study and the need to enlarge it, aimed at both increasing the literature as the brazilian competitiveness in this sport.

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PILOT STUDY OF AN ANALYSIS OF MOTOR SKILLS INHERENT TO SLAP SHOT

ABSTRACT

INTRODUCTION: In Brazil, the Olympic Winter sports practice is very scarce due primarily to weather conditions. However in winter Olympic Edition based in Sochi, in Russia, the Brazil attended by twenty athletes, the biggest number of athletes sent by Brazil to this competition so far and also participated in the first Pan American Ice hockey with only one naturalized athlete. This shows that the practice of these sports, by Brazilians, is increasing. The present study is characterized by a pilot study and aimed to check whether the Shuttle Run test and Flegner Power Test are effective tests to check motor skills inherent in slap shot, kick more powerful than ice hockey. The study is justified by the shortage produced in Brazil about this literary theme. MATERIAL AND METHODS: The sample included three Brazilian athletes who participated in the first Pan American Ice hockey and who were singled out by coach of the Brazilian men's national ice hockey team as athletes who best perform the slap shot. As an instrument of data collection were used the Flegner Power Test and the Shuttle Run test. Data collection was carried out on a date with each athlete and they were subjected to the tests on different days, but in the same place and the same time of the day. RESULTS: in the Shuttle Run test the average time was 10:10 seconds and Flegner Power Test the average absolute anaerobic power unit (AAPU) amounted to 254.07 and all tested showed a predominance of slow fibers. CONCLUSION: The tests used may not be the best way to verify motor skills in question in ice hockey. The main limiter of the tests was the difference in terrain where they were carried out the tests and the land on which it is practiced the sport.

KEYWORDS: Motor Skill; Slap Shot; Flegner Power Test.

ÉTUDE PILOTE D'UNE ANALYSE DES HABILETÉS MOTRICES INHÉRENTES À SLAP SHOT.

RÉSUMÉ

INTRODUCTION: Au Brésil, la pratique de sports olympiques d'hiver est très rare, due principalement aux conditions météorologiques. Cependant en hiver que édition olympique basée à Sotchi, en Russie, le Brésil, suivi par vingt athlètes, le plus grand nombre d'athlètes envoyés par le Brésil à cette compétition jusqu'à présent et aussi a participé à la première session de hockey sur glace américain Pan avec qu'un seul athlète naturalisé. Cela montre que la pratique de ces sports, par les Brésiliens, est en augmentation. La présente étude est caractérisée par une étude pilote et visant à vérifier si la navette exécuter le test et pouvoir tester Flegner sont efficaces tests afin de vérifier la motricité intrinsèque en slap shot, le coup plus puissant que le hockey sur glace. L'étude est justifiée par la pénurie produite au Brésil sur ce thème littéraire. MATÉRIEL ET MÉTHODES: L'échantillon comprenait trois athlètes brésiliens qui ont participé à la première de hockey sur glace américain Pan et qui ont été choisis par l'entraîneur de l'équipe de hockey sur glace masculin brésilien comme athlètes qui mieux exécuter le coup de la gifle. Comme instrument de données collection ont utilisé le Test de puissance de le Flegner et la course-navette d'essai. Collecte de données a été réalisée sur une date avec chaque athlète et ils ont été soumis à des tests sur des jours différents, mais dans le même endroit et en même temps de la journée. RÉSULTATS: Dans l'épreuve de course-navette la durée moyenne était de 10:10 secondes et Flegner pouvoir tester l'unité de puissance anaérobie absolue moyenne (UPAA) s'élevait à 254,07 et tous testés ont montré une prédominance de fibres lentes. CONCLUSION: es tests utilisés peuvent être pas la meilleure façon de vérifier la motricité en question dans ce mode. Le limiteur principal des essais a été la différence dans un terrain où ils ont été effectués les tests et le terrain sur lequel il est pratiqué ce sport.

MOTS-CLÉS: Habilités motrices; Slap Shot; Flegner Test.

ESTUDIO EXPERIMENTAL DE UN ANÁLISIS DE LAS HABILIDADES MOTORAS INHERENTES EN EL SLAP SHOT.

RESUMEN

Introducción: En Brasil, la práctica de deportes de invierno olímpico es muy escasa debido principalmente a las condiciones meteorológicas. Sin embargo en invierno que Edición Olímpica Basada en Sochi, en Rusia, el Brasil asistido veinte atletas, el mayor número de atletas enviados por Brasil a esta competición hasta el momento y también participó en la primera del hockey sobre hielo estadounidense Pan con sólo un atleta naturalizado. Esto demuestra que la práctica de estos deportes, por los brasileños, está aumentando. El presente estudio se caracteriza por un estudio piloto y dirigido para comprobar si el Shuttle Run test y poder probar Flegner son pruebas eficaces para comprobar las habilidades motoras inherentes en el tiro, patear más poderoso que el hockey sobre hielo. El estudio está justificado por la escasez producida en Brasil acerca de este tema literario. MATERIAL Y MÉTODOS: La muestra incluyó tres atletas brasileños que participaron en la primera del hockey sobre hielo estadounidense Pan y que fueron seleccionados por el entrenador del equipo de hockey sobre hielo de los hombres brasileños como atletas que mejor realizan el tiro. Como instrumento de información recogida se utilizaron la prueba de potencia Flegner y el Shuttle Run test. Recolección de datos se llevó a cabo en una cita con cada atleta y se sometieron a las pruebas en días diferentes, pero en el mismo lugar y al mismo tiempo del día. RESULTADOS: En la prueba de Shuttle Run el tiempo promedio fue de 10:10 segundos y Flegner poder probar la unidad de potencia anaeróbica absoluta media (UPAA) ascendió a 254.07 y a toda prueba mostró un predominio de fibras lentas. CONCLUSIÓN: Las pruebas usadas no pueden ser la mejor manera de comprobar las habilidades motoras en cuestión en este modo. El limitador principal de las pruebas fue la diferencia en el terreno donde se realizaron las pruebas y la tierra en la que practica el deporte.

PALABRAS CLAVES: Habilidades motoras; Slap Shot; Teste de Flegner.

ESTUDO PILOTO DE UMA ANÁLISE DAS HABILIDADES MOTORAS INERENTES AO SLAP SHOT.

RESUMO

INTRODUÇÃO: No Brasil, a prática dos esportes olímpicos de inverno é muito escassa devido, principalmente, às condições climáticas. Entretanto na edição das Olimpíadas de Inverno sediadas em Sochi, na Rússia, o Brasil contou com vinte atletas, o maior número de atletas enviado pelo Brasil para esta competição até o momento e também participou do I Pan Americano de Hóquei no Gelo contando apenas com um atleta naturalizado. Isso mostra que a prática desses esportes, por brasileiros, está aumentando. O presente estudo se caracteriza por um estudo piloto e teve como objetivo verificar se os Teste de Shuttle Run e Flegner Power Test são testes eficazes para verificar as habilidades motoras inerentes ao slap shot, chute mais potente do hóquei no gelo. O estudo se justifica pela escassez literária produzida no Brasil sobre esse tema. MATERIAL E MÉTODO: A amostra contou com três atletas brasileiros que participaram do I Pan Americano de Hóquei no Gelo e que foram apontados pelo técnico da seleção brasileira de hóquei no gelo como os atletas que melhor executam o slap shot. Como instrumento de coleta de dados foram utilizados o Flegner Power Test e o teste de Shuttle Run. A coleta de dados foi realizada em um encontro com cada atleta e os mesmos foram submetidos aos testes em dias diferentes, porém no mesmo local e no mesmo período do dia. RESULTADOS: No teste de Shuttle Run a média de tempo encontrada foi de 10:10 segundos e no Flegner Power Test a média da unidade de potência anaeróbica absoluta (UPAA) foi de 254,07 e todos os testados apresentaram a predominância de fibras lentas. CONCLUSÃO: Os testes utilizados podem não ser a melhor forma de verificar as habilidades motoras em questão nessa modalidade. O principal limitador dos testes foi a diferença de terreno onde foram praticados os testes e o terreno onde é praticado o esporte.

PALAVRAS-CHAVE: Habilidades motoras; Slap Shot; Teste de potencia de Flegner.