102 - VERIFICATION OF THE BIGGEST SPEED BETWEEN TWO DISTINCT THROWS OF THE HANDBALL

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Introduction

Sports using a spherical instrument are known since of the ancient times and come captivating the human being have centuries. In the middle of the last century the Danish Professor Holger Nielsen created in the Institute of Ortrup, a called game "Haaddbold" determining its rules. However, handball as it plays today, was introduced in the last decade of the last century, in Germany, as "Raftball" (SÃO PAULO FEDERACY OF HANDBALL, 2002).

One team of handball consists of 12 athletes being not allowed the permanence of more than 7 athletes at the same time inside of the square, the team of handball has as objective to make the biggest possible number of goals, and to suffer the lesser possible number. For mark a goal is necessary that the ball crosses in all its circumference the line determined for two beacons in the vertical line where rest one third beacon in the transversal line (BRAZILIAN CONFEDERATION HANDEBOL, 2002).

According to Knjnik, (2004), handball is a very simple game to starting to play, its technical gestures require the combination of some basic motor abilities as to walk, to run, to jump, to bounce the ball, to receive, and to throw, being this of utmost importance to reach its main objective, the goal.

The throw is the gesture to fling the ball in direction to the goal, and is classified by execution of movements as Kings (1994) of the following form:

·Shoulder-ball must be hold with the palm of the hand directed toward front, elbow slightly above of the line of the shoulder, the ball must be taken in the posterior line of the head and at the moment of the throw it has to be pushed to the front with a movement of rotation of humerus;

·Chest-ball must be hold with the palm of the hand directed to the front, elbow slightly above of the line of the shoulder, the ball must be taken in the posterior line of the head and at the moment of l throw it has to be pushed to the front with a movement of horizontal *adução* of shoulder with extension of elbow.

The question of the effectiveness to get a positive result during the collection of a shot of 7 meters (a penalty due to a serious lack in handball, where an athlete whose team suffered such lack, is rank the 7 meters of its objective of game, the same has that to make one throw for goal, interposing only the goalkeeper of the adversary team) can be in the technical and motor aspects as the technique used in it throw, this using all muscular explosive force (ANTÓN, 1992).

Menzel (2002) still affirms that the task of the thrower in making it difficult the defense of the goalkeeper corresponds the two independent variables between the precision of throw and the speed of the ball. The precision of throw is the characterized for the time of reaction of the thrower against a premature action of the goalkeeper. Let us assume that the goalkeeper does not make no movement, the determinative factor for the good exploitation of the throw will be the speed of the ball. However in relation the speed would be pertinent to raise the following question: "Which the technique of throw that it gives to the ball of handball a bigger speed, the throw of shoulder or throw of chest during a collection of shot of 7 meters"?

The present work has as main objective to verify if the throw that gives a greater speed to the ball of handball in a shot of 7 meters is of Shoulder or of Chest.

Material and Method

The sampling is constituted of ten athletes of handball of the masculine gender in average of age of 17,6 years, with shunting line standard of more or less 2,7; with an average of experience of 5 years with a shunting line standard of more or less 3 years. The athletes had been located in line in the mark of 7 meters of the goal, had been carried through six batteries of throws with ten individuals, each athlete played three times throws of shoulder and three times of chest, when made one throw the athlete executants soon located in the end of the line. The athletes only thrown when an individual located to the side of the line whistled, indicating that it was everything ready for the throw it, was used a radar of the Sports trademark Radar that was located to the one distance of 2,5 meters behind the goal of front for the throw, was used an annotators that also was located behind the goal writing down with a pen the speed of each throws on a sheet, being the speed given in kilometers for hours. The athletes had been located in the following form: legs opened in the sagittal direction, with the feet lined up with the shoulders in the longitudinal direction, erect trunk with initial positioning of the throw arm in accordance with the described in literature and the other arm alleged to the long one of the body. The five initial athletes had made the three first throws of Shoulder and the last five of Chest, after the three collections of each, had been inverted the types of throws. The results had been analyzed by means of a program of statistics with significance of $p < 0,05$.

Results

The corresponding results to each throw are expressed in tables below, being Table 1 it corresponds to throw of Shoulder and Table 2 correspondent throw of Chest.

Table 1. Average of the speed of each athlete of throw of shoulder throw and below of the table the general average of all the throws.

Sample	throw of Chest Speed km/h			Average of the throws Km/h
1	57,6	60,8	60,8	59,73
2	64	65,6	64	64,53
3	56	65,6	57,6	59,73
4	54,4	56	51,2	53,86
5	44,8	54,4	54,4	51,2
6	60,8	56	54,4	57,06
7	57,6	62,4	54,4	58,13
8	44,8	46,4	49,6	46,93
9	52,8	44,8	56	51,2
10	52,8	43,2	46,4	47,46

The general average of throw of Chest was of 54,9Km/h.

Table 2. The average of each athlete in throw of chest and below of the table the general average of all the throwers..

Sample	Throw of Shoulder Speed km/h			Average of the throw Km/h
1	51,2	51,2	54,4	52,26
2	56	62,4	60,8	59,73
3	57,6	57,6	59,2	58,13
4	44,8	52,8	49,6	49,06
5	43,2	46,4	46,4	45,33
6	44,8	48	51,2	48
7	51,2	57,6	59,2	56
8	41,6	43,2	46,4	43,73
9	44,8	51,2	54,4	50,13
10	38,4	41,6	43,2	41,06

The general average of throws of Shoulder was of 49,24 Km/h

It is perceived above in tables, that it did not have no average of throw of bigger Shoulder of the one than throw of Chest.

The throw of Shoulder presented the following results: bigger value of throw of shoulder was of 59,73Km/h and its lesser values was 41,06 Km/h and shunting line standard between the averages of the throw of shoulder was more or less 6,2.

The throw of Chest presented the following results; the maximum value was of 64,53 Km/h and its minimum value was 46,9km/h, the shunting line standard corresponded to 6,2

In accordance with the analysis the difference between the two throws was of 4,64Km/h, in favor of I throw of chest, or either, it was 4,64Km/h, quicker than of shoulder. Test T of Student for simple dependent. $p< 0,05$ showed the existence of difference among the medias the throws.. According with Menzel (2000) the variable of speed and force have that to be analyzed as a complex in common, being that occurring an alteration in one to another one also it will be modified. The speed is a resultant of variable of the force applied for the brake or acceleration of an object. The relations between force and speed are explained by the equation to follow:

$F=mv/t$

m- mass of a body to be accelerate-brake

v- difference of speed

F- force that acts in body

t- time of the application of the force

In accordance with the equation above the alteration of the speed is resultant of the application of a force in one determined interval of time. The force in question is the muscular force that acts around the object thus provoking the displacement, how much bigger the applied force bigger the speed. The muscles are responsible for the generation of force in the sport questions.

Finish Considerations

It can be considered in the present work, the significant difference of speed of throw of Chest, the throw of Shoulder, that caused the appearance of new problems, concerning the ascertainment of the variable in such a way of the biomechanics, how much anatomical functionaries that can come to influence the speed of throw of Shoulder and Chest.

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VERIFICATION OF THE BIGGEST SPEED BETWEEN TWO DISTINCT THROWS OF THE HANDBALL

ABSTRACT

The present work has as objective to inquire if it has significant difference in the speed of the throw of Shoulder and Chest in 7 meters. The sampling is constituted of ten athlete of handball of the masculine gender, average of age of 17,6 years, with a average of experience of 5 years. Each athlete carried through 3 throws of each type (Shoulder and Chest), in the mark of the 7 meters. The general average of throw of Shoulder 49,24 Km/h and the general average of throw of Chest was of 54,9Km/h. Test T of Student for dependent simple variable with $p< 0,05$ it showed to have significant difference between the averages of the throws. It can be considered from the results that throw of Chest in this study was significantly quicker than throw of Shoulder.

KEY-WORDS: handball, throw of shoulder, throw of chest.

VÉRIFICATION DE LA PLUS GRANDE VITESSE ENTRE DEUX JETS DISTINCTS DU HANDBALL

RESUMÉ

Le travail actuel a en tant qu'objectif à s'enquérir s'il a la différence significative dans la vitesse du jet de l'épaule et du

coffre en 7 mètres. Le prélèvement est constitué de l'athlète dix du handball du genre masculin, moyenne de l'âge de 17.6 ans, avec une moyenne d'expérience de 5 ans. Chaque athlète a réalisé 3 jets de chaque type (épaule et coffre), dans la marque des 7 mètres. La moyenne générale du jet de l'épaule 49.24 Km/h et la moyenne générale du jet du coffre étaient 54,9Km/h. de l'essai T de l'étudiant pour la variable simple dépendante avec p< 0,05 il a montré pour avoir la différence significative entre les moyennes des jets. Il peut considérer des résultats qui le jet du coffre dans cette étude était sensiblement plus rapide que le jet de l'épaule.

MOT-CLEFS: handball, jet d'épaule, jet de coffre.

VERIFICACIÓN DE LA VELOCIDAD MÁS GRANDE ENTRE DOS TIROS DISTINTOS DEL BALONMANO

RESUMEN

El actual trabajo tiene como objetivo a investigar si tiene diferencia significativa en la velocidad del tiro del hombro y del pecho en 7 metros. El muestreo se constituye del atleta diez del balonmano del género masculino, promedio de la edad de 17.6 años, con un promedio de experiencia de 5 años. Cada atleta llevó a través de 3 tiros de cada tipo (hombro y pecho), en la marca de los 7 metros. El promedio general del tiro del hombro 49.24 Km/h y el promedio general del tiro del pecho estaban 54,9Km/h. de la prueba T del estudiante para la variable simple dependiente con p< 0,05 demostró para tener diferencia significativa entre los promedios de los tiros. Puede ser considerado de los resultados que el tiro del pecho en este estudio era perceptiblemente más rápido que el tiro del hombro.

PALABRA-LLAVES: balonmano, tiro del hombro, tiro del pecho.

VERIFICAçãO DA MAIOR VELOCIDADE ENTRE DOIS DISTINTOS ARREMESSOS DO HANDEBOL

RESUMO

O presente trabalho tem como objetivo averiguar se há diferença significativa na velocidade dos arremessos de Ombro e de Peito na cobrança de 7 metros. A amostragem se constituiu de dez atletas de handebol do gênero masculino, média de idade de 17,6 anos, com uma média de experiência de 5 anos. Cada atleta realizou 3 arremessos de cada tipo (Ombro e Peito), na marca dos 7 metros. A média geral do arremesso de Ombro 49,24 Km/h e a média geral do arremesso de Peito foi de 54,9Km/h. O teste T de Student para variáveis simples dependentes com p< 0,05 mostrou haver diferença significante entre as médias dos arremessos. Pode-se considerar a partir dos resultados que o arremesso de Peito neste estudo foi significativamente mais veloz que o arremesso de Ombro.

PALAVRAS-CHAVE: handebol, arremesso peito, arremesso ombro.