91 - FAT LOSS OF LOCATED ADJACENT TO MUSCLE RECRUITED AND NOT RECRUITED IN HANDBALL ATHLETES

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INTRODUCTION

Common sense there is a relationship between the localized exercise and fat loss in muscle adjacent to the required fat, yet the literature contains a diversity as to this information. Legaz and Eston (2005) showed a significant reduction in the adjacent muscles recruited runners in adipose tissue. Already Vispute (et al, 2011) identified no relevant decrease.

According to Heinonen (2012) Metabolic functions of the subcutaneous adipose tissue are closely related to your blood stream, and exercise a modulator of blood flow in adipose tissue (FSTA) from the local metabolic need (POWERS; HOWLEY, 2014). There is an influence of temperature rise only in the muscle adjacent regions activated fat, caused by these functions. Stallknecht, Dela, Helge (2006) shows that lipolysis is related with the FSTA.

The activation of lipolysis during exercise is also triggered by the action of noradrenaline, adrenaline and glucagon. These hormones are released into the bloodstream that are transported to all body segments. However, there is a vasoconstriction in inactive members, directing the flow of blood to the active segment. Consequently the lipolytic hormones are more present in the muscle tissue in the same manner as in adipose tissue adjacent. (Greenhaff; GLEESON; MAUGHAN, 2000, Stallknecht; HERS; HELGE, 2006).

Therefore, the lipolysis relates to increased blood flow and increases the exercise located adjacent to FSTA exercised muscle, it is possible to reduce the adipose tissue segment trained occur? In this sense, it is appropriate to this study, is of great importance as it will be investigated more tool to be used in acquiring the best health and physical standard to those seeking cosmetic and sports performance.

OBJECTIVE

Verify the loss of fat located adjacent to muscle recruited and not recruited athletes in women's handball team a yield of Fortaleza, CE.

METHODOLOGY

This study is descriptive direction, with the quantitative methodology of experimental cross types. The study was conducted with the female handball athletes selection FORTRESS / IFCE with at least 3 years of uninterrupted practice. Since the choice of the sports due to the specificity of dominant unilateral movements in practice. The determination of the practice time was given from what is presented in the literature, in which the achievement of significant results occurred in a distant period (Legaz; ESTON, 2005). Athletes who were not trained for a period of at least 4 months and returned to training to a maximum of 1 month were excluded from the study;

Sensitization with athletes was performed and delivered the terms of informed consent (IC) who agreed to participate. An anthropometric assessment by skinfold measurement was performed following Recruited Recruited and not the acceleration phase of throwing handball, height and body mass. The measurement was performed by a single researcher with expertise in the assessment instruments used, being scientific, validated and calibrated, for achieving a reliable result, according to Guedes, Souza, Rocha (2008) protocol. Results were analyzed using SPSS 20.0 statistical software.

RESULTS AND DISCUSSION

From the collected data presented in Table 1, we identified that the average age of the team handball athletes Fortaleza / IFCE is 24 years, with time practice of eight years, with the frequency of training 3x a week. The average height of 1,62m participating athletes was 62.7 weight on average. And BMI, 23.77.

According to the classification of Guedes and Souza Rocha (2008), the nutritional classification of an individual whose BMI is between 18 and 24.9 is characterized as normal, which is the classification found for athletes evaluated. In other studies (CAPUTO; SILVA; Rombaldi, 2012; Marchetti et al, 2014; DELAGRANNA, et al, 2010) there were similarities in the results. Dechechi (et al, 2010) conducted a study that was also identified similar values as the height and weight when compared to this study, these possible evidence of a morphological pattern of semi-professional handball athletes.

TABLE 1: Overview of the characteristics of handball players regarding practice time, training frequency and morphological and nutritional characteristics.

	N	
Sample	13	
	Average	**Standard Deviation**
Age	24,7	5,45
Practice time (Years)	8,5	4,64
Weekly Frequency of Training	3	,632
Height	1,62	,078
Body Mass	62,7	7,34
BMI	23,77	2,31

Regarding the comparison of body fat of the dominant and non-dominant segments (Table 2) was identified that the values generally were similar. The pectoral skinfold, suprailiac and midaxillary dominant segments of lower values were found in measures of adipose tissue from 8.8 to 9.0, 13.2 to 13.6; 17.6 -17.8 respectively. In contrast, biceps skinfold, triceps and subscapular the dominant members had higher values, being 7.95 to 7.78; 15.73 to 15.44; 17.96 to 17.53 respectively.

Studies that loss fat located adjacent to the trained muscle present diverse results. In this case, no difference was identified between the most activated segments (dominant) and not activated (non-dominant) during sports activities. Likewise,

Vispute (et al, 2011) did not find results favorable to this hypothesis in a study where an intervention where participants had to perform localized exercises for the abdominal muscle was performed. McArdlle, Katch, and Katch (2010) argues that there is no association between performing exercise located at the loss of fat surrounding the trained muscle. The same shows that there is an increase in girth, but that is due to muscle hypertrophy, adipose tissue being unchanged from the untrained limb.

However, Eston and Legaz (2005) confirmed the central hypothesis of the study to evaluate athletes racing for 3 consecutive years, it has identified fat loss only in the lower limbs. Stallknecht, Dela, Helge (2006) identified, through a catheter, there is a greater mobilization of glycerol in the trained segment and therefore there is a loss of fat located adjacent to the active muscle. However it should be noted that this loss may not be noticeable to the scientific caliper. So Nindl (et al, 2000) suggests other instruments such as DEXA. This being a possible factor not to identify differences in the above mentioned values.

TABLE 2: Comparison of the percentage of fat in the dominant and non dominant segments.

	dominant	Not dominant
	Mean (Std. Deviation)	Mean (Std. Deviation)
Skinfold Bicipital	7,95 (3,46)	7,78 (3,41)
Triceps skinfold	15,73 (2,84)	15,44 (2,94)
Chest skinfold	8,8 (3,36)	9,00 (3,4)
Skinfold Subscapular	17,96 (5,74)	17,53 (5,02)
Axillary average skinfold	13,23 (7,11)	13,65 (7,55)
Supra iliac skinfold	17,61 (6, 35)	17,80 (6,25)

CONCLUSION

From the results found in this study, it is concluded that there was no loss of fat located adjacent to the handball athletes trained female muscle. It is stated that subsequently performs the processing study with other modalities, it is possible to make a comparison among the sports, but also using other more reliable instruments such as MRI or DEXA.

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FAT LOSS OF LOCATED ADJACENT TO MUSCLE RECRUITED AND NOT RECRUITED IN HANDBALL ATHLETES

ABSTRACT

There is a relationship between the localized exercise and fat loss in the adjacent muscle recruited adipose tissue. Metabolic functions of the subcutaneous adipose tissue are closely related to your blood stream, and exercise a modulator of blood flow in adipose tissue. In this sense, the objective is to verify the relationship between the loss of fat located adjacent to muscle recruited and not recruited athletes in women's handball. The study was conducted with athletes from the women's team handball from Fortaleza / IFCE. An anthropometric assessment by skinfold measurement was performed following Recruited Recruited and not the acceleration phase of throwing handball, height and body mass. From the data collected it was found that the average height of the participating athletes was 1,62m weighing 62.7 on average, and BMI, 23.77. Regarding the comparison of body fat of the dominant and non-dominant segments, we found that the values were generally similar. The pectoral skinfold,

suprailiac and midaxillary dominant segments of lower values were found in measures of adipose tissue from 8.8 to 9.0, 13.2 to 13.6; 17.6 -17.8 respectively. In contrast, biceps skinfold, triceps and subscapular the dominant members had higher values, being 7.95 to 7.78; 15.73 to 15.44; 17.96 to 17.53 respectively. It was concluded that there was no loss of fat located adjacent to the trained muscle, making it necessary to use more reliable instruments such as DEXA and MRI in future studies.

KEYWORDS: Lipolysis Fat Exercise.

LA PERTE DE GRAISSE DE SITUÉ À CÔTÉ DE MUSCLE RECRUTÉ ET PAS RECRUTÉ CHEZ LES ATHLÈTES DE HANDBALL

RÉSUMÉ

Existe une relation entre l'exercice localisé et la perte de graisse dans le muscle adjacent recruté le tissu adipeux. Fonctions métaboliques du tissu adipeux sous-cutané sont étroitement liées à la circulation sanguine, et d'exercer un modulateur de la circulation sanguine dans les tissus adipeux. En ce sens, l'objectif est de vérifier la relation entre la perte de graisse situé à côté de muscle recruté et les athlètes ne sont pas recrutés dans le handball féminin. L'étude a été menée avec des athlètes de l'équipe de handball féminin de Fortaleza / IFCE. Une évaluation anthropométrique par mesure du pli cutané a été effectuée à la suite Recruté Recruté et non la phase d'accélération de jeter handball, la hauteur et la masse corporelle. D'après les données recueillies, il a été constaté que la hauteur moyenne des athlètes participant a 1,62m pèse 62,7 en moyenne, et l'IMC, 23.77. En ce qui concerne la comparaison de la masse grasse corporelle de segments dominants et non dominants, nous avons trouvé que les valeurs étaient généralement similaires. Le pli cutané pectoral, suprailiac et segments dominants axillaire de valeurs inférieures ont été trouvés dans les mesures du tissu adipeux de 8,8 à 9,0, de 13,2 à 13,6; 17,6 -17,8 respectivement. En revanche, les biceps, les triceps et du pli cutané sous-scapulaire les membres dominants avaient des valeurs plus élevées, étant de 7,95 à 7,78; 15,73 à 15,44; De 17,96 à 17,53, respectivement. Il a été conclu qu'il n'y avait pas de perte de graisse situé à côté du muscle entraîné, ce qui rend nécessaire d'utiliser des instruments plus fiables tels que DEXA et IRM dans les études futures.

MOTS-CLÉS: lipolyse Fat exercice.

PÉRDIDA DE GRASA UBICADO JUNTO AL MÚSCULO RECLUTADOS Y NO RECLUTADOS EN ATLETAS DE BALONMANO

RESUMEN

Existe una relación entre el ejercicio y pérdida de grasa localizada en el músculo adyacente reclutado tejido adiposo. Funciones metabólicas del tejido adiposo subcutáneo están estrechamente relacionados con su torrente sanguíneo, y ejercen un modulador de flujo de sangre en el tejido adiposo. En este sentido, el objetivo es verificar la relación entre la pérdida de grasa localizada adyacente al músculo reclutado y atletas no reclutados en el balonmano femenino. El estudio se llevó a cabo con atletas de balonmano femenino de Fortaleza / IFCE. Una evaluación antropométrica mediante la medición del pliegue cutáneo se realizó siguiendo Reclutado Reclutado y no la fase de aceleración de lanzar el balonmano, la altura y la masa corporal. De los datos recogidos se encontró que la altura media de los atletas participantes se 1,62m pesando 62,7 en promedio, y el IMC, 23,77. En cuanto a la comparación de la grasa corporal de los segmentos dominantes y no dominantes, se encontró que los valores fueron generalmente similares. El pliegue cutáneo pectoral, suprailíaco y segmentos dominantes medioaxilares de los valores más bajos se encontraron en las medidas de tejido adiposo 8,8-9,0, 13,2-13,6; 17,6 -17,8, respectivamente. En contraste, los pliegues cutáneos de bíceps, tríceps y subescapular los miembros dominantes tuvieron valores más altos, siendo 7,95 a 7,78; 15,73 a 15,44; 17,96-17,53 respectivamente. Se concluyó que no hubo pérdida de grasa localizada adyacente al músculo entrenado, por lo que es necesario el uso de instrumentos más fiables, como DEXA y la RM en futuros estudios.

PALABRAS CLAVE: Lipólisis Grasa Ejercicio.

PERDA DE GORDURA LOCALIZADA ADJACENTE AO MÚSCULO RECRUTADO E NÃO RECRUTADO EM ATLETAS DE HANDEBOL

RESUMO

Existe uma relação entre o exercício físico localizado e a perda de gordura no tecido adiposo adjacente ao músculo recrutado. Funções metabólicas do tecido adiposo subcutâneo são intimamente relacionadas com o seu fluxo de sangue, sendo o exercício físico um modulador do fluxo sanguíneo do tecido adiposo. Nesse sentido, objetiva-se verificar a relação entre a perda de gordura localizada adjacente ao músculo recrutado e não recrutado em atletas de handebol feminino. O estudo foi realizado com atletas de handebol da seleção feminina do Fortaleza/ifce. Foi realizada uma avaliação antropométrica com a mensuração da dobra cutânea no seguimento Recrutado e Não Recrutado na fase de aceleração do arremesso do handebol, estatura e massa corporal. A partir dos dados coletados identificou-se que a média de altura das atletas participantes foi 1,62m com peso de 62,7, em média, e o IMC, 23,77. Quanto a comparação da gordura corporal dos segmentos dominantes e não-dominantes, identificou-se que os valores, em geral, foram semelhantes. Nas dobras cutâneas peitoral, supra-ilíaca e axilar média dos segmentos dominantes foram encontradas menores valores nas medidas do tecido adiposo de 8,8 - 9,0;13,2 - 13,6;17,6 -17,8 respectivamente. Em contrapartida, as dobras cutâneas bicipital, tricipital e subescapular dos membros dominantes obtiveram valores maiores, sendo 7,95-7,78; 15,73-15,44; 17,96-17,53 respectivamente. Conclui-se então que não houve perda de gordura localizada adjacente ao músculo treinado, fazendo-se necessário a utilização de instrumentos mais fidedignos como o dexa e ressonância magnética em estudos futuros.

PALAVRAS-CHAVE: Lipólise Gordura Exercício.