47 - INFLUENCE OF DEEP WATER RUNNING PRACTICE IN PEOPLE BEARERS OF CHRONIC DISEASE OBSTRUCTIVE

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INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) classifies various respiratory tract diseases which obstruct airflow, such as asthma, bronchitis and emphysema. Such obstruction is caused by the narrowing of the airways, obstructing the passage of air and gas exchange of the respiratory system. Other variables have the potential to increase the frequency of COPD, among them are sedentary lifestyle, heredity, stress levels, as well as environmental conditions such as places of high pollution and low humidity (LANGER, et. al., 2009; LAIZO, 2009).

COPD is a silent disease because about 30 years after the onset of respiratory damage is that individuals begin showing symptoms clearer that this compromised lung capacity. The disease seems to start at a early stage of life, yet it does not cause symptoms until the fourth decade and only custom lead to progressive disability from the sixth or seventh decade (BETHLEM, 2000; CAMELIER, 2004). After the onset of clinical manifestations, a patient with COPD suffers from progressive functional deterioration. The treatment serves, firstly, to monitor components or reverse complications. The hope of preventing disease progression or even reverse its course seems to depend to diagnose it before symptoms appear.

The Global Initiative for Chronic Obstructive Lung Disease (2007), created in collaboration with the U.S. National Institute of Heart, Lung and Blood Institute (NHLBI) in 1998, and the Pan American Health Organization (WHO) in 2000, reported that COPD is a public health problem.

Controlling this disease epidemiological data, is not so simple, because it is chronic and asymptomatic, making it difficult for many times their initial records. According to Silva (1981) there are several factors that may hinder obtaining accurate epidemiological data on COPD. The initial phase of the disease is difficult to detect with the usual resources, the criteria for diagnosis of bronchitis and emphysema are often not used, there is confusion between these entities and even between them and other chronic lung diseases. The latest is that the mortality and morbidity as reflected in death certificates and binders doctors do not report accurately on the participation of chronic bronchitis and emphysema in the death or disability of patients.

According Betlhen, (2000), it is estimated that 10 million Americans have COPD, and 7.5 million with chronic bronchitis and 2.5 million with emphysema. The study of 9,000 people with Tecumesh Community showed that 14% of adult men and 9% of women had COPD. More than 17 million visits were attributed to COPD or its complications, 13% of all hospitalizations (about two million) had this symptom complex your question. It is the fifth leading cause of death worldwide (CUPPARI, 2003). Gold (2004) describes that COPD is the fourth leading cause death in the United States. In 2000, an estimated 2,740,000 deaths caused by COPD throughout the world. In 1990 the disease was classified in ranking 12th. It is estimated that in 2020, she reached the 5th place. The number of people hospitalized because of COPD in 2000 is estimated at 726,000 people. Spending on medicines in 2002 is around 18 million. With conventional treatment would be spent around 73.8 million, as an alternative treatment to about 2.7 million, have so public spending 27 times smaller.

In the early 90s, the World Health Organization (WHO) realized the damage that this disease brings, not only to patients but also to public health systems. The patients with COPD suffer low exercise tolerance, reducing their overall physical activity due to progressive worsening of lung function, however, these limitations are not the effort only closely related to pulmonary function (OLIVEIRA et. al., 2009; McARDLE, KATCH & KATCH, 2003), to the authors suffers deteorização skeletal muscles, causing a decrease in strength, muscle mass and reduced oxidative capacity.

As a consequence of the variables described above the patient with COPD comes into detraining framework that can be aggravated by a sedentary lifestyle, so applying a suitable exercise program, has the potential to alleviate reverse abnormalities associated with COPD (STERN & RECH, 2006; LORENZO, et. al., 2003; SMITH, MORAES & TANNUS, 2001).

Based on the data presented above, there is the need to develop programs that can benefit this population, reducing the aggravation of the disease, maximizing the quality of life of the patient, and also reducing the costs of government institutions. Thus, it is urgent to strengthen lines of investigations on the effects that different programs could empower this group of subjects.

The aquatic environment seems odd to have a potential for the promotion of positive effects for patients with COPD. The characteristics of the environment and the changes produced thereby, in the human organism appear to rise over a light into the solution and ameliorating the problems caused by the condition (IDE, BELINI, & CAROMANO, 2005; CASSADY & NIELSEN, 1992; KURABAYASHI, et. al. 2000; WADELL et. al. 2004; LOTSHAW, et. al. 2007).

The exercise in water is characterized by the advantages that the principles of the liquid medium to provide individual. These principles act beneficially in the muscular, respiratory and vascular systems, these, who regress with the progress of the disease. According to Becker (2000, 2009) immersion in water causes significant adjustments in these systems and these effects are caused by the compressive action of immersion, thus the pressure exerted on the chest wall; increases resistance of air going, which decreases the rate of respiratory flow, decreases lung compliance, decreased lung volume and vital capacity, for the author quoted above generates the resultant of these phenomena lead to an increased work of breathing by 60% compared to the terrestrial environment. These findings are corroborated by Baum (2000) where the author suggests that lung capacity is profoundly affected by the immersion of the body in the chest level. Part of this effect is due to the change of blood into the chest cavity and is partly due to the understanding of the chest wall by the water. The combined effect produces a change in lung function, increased respiratory effort and a modification of the respiratory dynamics.

Another change that occurs in the water is the heart rate that is lower when compared to land, the characteristics of the environment (one of them is to be about 700 times denser than air) reducing cardiovascular risks and improving security and strengthening higher practitioner (PEREIRA, et. al., 2009). Also in this aspect of heart rate, second Medeiros et. al., (2010) investigated the modifications thereof in different types of intensity in the liquid medium in the form shown below.

Among the methods practiced in liquid medium, the Deep Water Running (DWR) is presented as a positive strategy to exercise wanting to benefit from a resistive environment, humid and zero impact against the ground.

The DWR is at the junction of the two programs, Running Deep (DR) and Deep Water (DW). The DR is characterized

narrowly transfer the execution of the movements of the race terrestrial aquatic exercises this way for technical training (educational and corrective) as well as exercises to improve the performance of this specific program is astonished. In this embodiment uses a vest floating support predominantly made of strong material like EVA, for the practice of this activity, in order to facilitate the buoyancy (fixed at the iliac crest - hip region) and the water surface is located at shoulder level, holding all the time to head out of the water with their feet without touching the ground (GOLLEGÃ, et. al., 2004b). Aboarrage Jr. (1997), describes a variation of the DR, which is called Running Water, this segment simulation race on water, for the author can be used in deep water as well as shallow water (waist). Therefore, technical race with or without impact, as well as variations in knee high, heel, projection torso forward, straight trunk are characteristic of the specialty, having variations in the actions of strokes and ease of quantification load as described in the work of Gollegã et. al. (2003, 2004a).

In another embodiment, the DW is also practiced with the aid of a vest or belt float, however in this program are realized number of water gymnastics exercises similar to traditional hence this model training instructors make use of materials with different densities to maximize overload on different muscle groups. Thus arose this new modality DWR, in which it is possible to perform both general labor work as race specific muscle groups you want.

With the joining of the two DR programs and DW was born a new mode, called Deep Water Running (DWR), where it is possible to perform both general labor work as race specific muscle groups you want (GOLLEGÃ et. al., 2005).

The water sports, deep, can be applied to all kinds of people, but are more in demand by pregnant women, obese, elderly, disabled, athletes and patients with COPD. In the first five cases the main reason is the decrease of the overall impact on the vertical axis, since in the latter case, the focus is on maximizing the stimulus to the respiratory muscles.

OBJECTIVE

To analyze the influence of the practice of DWR, on activities of daily living (ADLs), in anthropometric and neuromuscular actions of people with COPD.

METHODOLOGY

Research sample consisted of 6 volunteers (2 men and 4 women) with the following characteristics: age 62.83 (4.17) years, weight 73.0 (14.2) kg and height 1.60 (0.1) m. All clinic patients MAS specializes in treating people suffering from chronic obstructive pulmonary disease, located in the city of Santos.

The project lasted three months, and practical lessons twice a week, 25 classes in total, each with a time of 45 minutes. The first two weeks were an adaptation to the vest, made in a pool of 1.40 meters. In those two weeks was emphasized mastery of possible displacements and change of direction, given that the space where the program would be applied to 12 X 8 meters and 5 meters deep which would require constant changes of body tilt to exchange decubitus or to perform shifts with changes of trajectories. Within 45 minutes of class, first 10 minutes were used for heating, 30 minutes to work and aerobic final 5 minutes for a return to calm.

On heating emphasized the job of running with large variations of strokes. In the main part were used exercises for all muscle groups interval with localized races and displacements. At the end were alternating breathing exercises to work, stretching and relaxation.

For the analysis of the survey were made two assessments (pre and post) performed at the Laboratory for Evaluation and Performance Motor, located in the College of Physical Education Santos (CPES - UNIMES). Anthropometric assessments were performed: weight, height, circumferences - protocol described by JACKSON POLLOCK and (1978) and body mass index (BRAY, 1992). Neuromuscular tests: flexibility - Wells Bench; muscular endurance (MATSUDO, 2005). Test of Activities of Daily Living - ADL: Walk / run 800 meters; Sitting and getting up from his chair and moving around the house, climbing stairs, and getting up from the ground, all proposed by Andreotti & Okuma (1999).

STATISTICAL ANALYSIS

After exploratory data analysis and confirmation of non-normality for statistical proof of Shapiro-Wilk and by inspection of quantile plots, we chose to use the nonparametric Wilcoxon test for repeated samples. The level of significance was set at $\alpha \leq 0.05$.

RESULTS

Table 1. Description of variables after training program Deep Water Running.

Variables	*Before*	*After*	*?_PC (%)*
Body Weight (kg)	73,0	71,2	-2,3
BMI (kg.cm-1)	26,8	25,2	-5,5
Circumferences (cm)			
Arm	28,6	30,0†	4,9
Forearm	25,0	25,9†	4,0
Waist	88,9	87,4	-1,8
Hip	104,0	102,6	-1,3
Abdominal	97,9	95,7	-2,2
Thigh	51,7	53,8	4,6
Leg	35,7	36,3	2,0
ADL (s)			
LS[a]	3,7	3,6	0,8
SLL[b]	33,2	30,8	-5,0
SE[c]	5,3	4,8	-8,7
800m[d]	498,7	464,5	-8,0
RML (rep)	13,67	17,33	39,81
Flexibility (cm)	25,25	26,67	9,97

† indicates statistical differences of P=0,05.

[a] get up to the solo; [b] sit and get up from the chair and moving around the house; [c] climbing stairs; [d] walk/run 800m.

DISCUSSION

The results showed that after the program DWR individuals decreased by 2.27% in body mass (p = 0.075). Regarding BMI, the group spent the classification of overweight to normal (p = 0.06). The lower thermal stress due to a stronger heat transfer from the water, as pointed out by Becker (2000, 2009), and the fact that the individual does not expose your body to the other practitioners, to be submerged up to the line of the shoulders, may be relevant and contribute to adherence programs involving changes in weight and body fat through practicing DWR.

Already arm circumference (p = 0.027) and forearm circumference (p = 0.042) showed a statistically significant difference to the circumference of the thigh showed no such difference, and the leg circumference (p = 0.07) thus occurred a trend of significant improvement.

There was no statistical difference in the circumference measurements: hips, waist, abdomen, however, there was a decrease in the absolute result of these three measures, what makes us think of the benefit program aimed at quality of life of these individuals, given that the accumulation of fat in this region is the main trigger of obesity-related pathologies (McArdle, Katch & KATCK, 2005)

To test the battery of ADL was not found statistical differences for any variable, the tests showed improvements only descriptive, demonstrating the portability of motor skills won aquatic to the terrestrial environment.

CONCLUSION

This study demonstrated that the DWR method was effective in different ways, yielding improvements in most descriptive volunteers. As the volunteer group was formed by people aged over 40 years, maintaining the characteristics presented in the pre-assessment, may also connote a positive influence of the program. However, it is necessary to implement programs in future, due to the complexity of the sport, greater attention in the run-up to the volunteers to practice DWR, so it is suggested to specific classes of awareness exercises that will run and recognition environment, especially if the volunteers have long settled society in the absence or personal history of experiences with aquatic physical activity.

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THE INFLUENCE OF DEEP WATER RUNNING PRACTICE IN PEOPLE BEARERS OF CHRONIC DISEASE OBSTRUCTIVE.

ABSTRACT

Chronic Obstructive Pulmonary Disease (COPD) is for damages airways and smokers are more likely to acquire this disease. Symptoms appear only after thirty years when lung capacity is already compromised. This study aimed to analyze the liquid medium, particularly the Deep Water Running (DWR) potentiating agent may be a quality of life of COPD patients. The sample consisted of 6 patients, 4 women and 2 men. There were 25 classes DWR, taking 45 minutes in three months. There were two assessments: pre-and post-training for the following variables (weight, height, Body Mass Index, measures Circles, localized muscle strength) than the protocol of Activities of Daily Living.

KEYWORDS: COPD, Smoking and AVD.

L'INFLUENCE DE LA PRATIQUE EN EAU PROFONDE DE RODAGE BEARERS PEUPLE DE MALADIES CHRONIQUES OBSTRUCTIVE.

RÉSUMÉ

Maladie pulmonaire obstructive chronique (MPOC) est pour les dommages voies respiratoires et les fumeurs sont plus susceptibles d'acquérir cette maladie. Les symptômes apparaissent seulement après trente années où la capacité pulmonaire est déjà compromise. Cette étude visait à analyser le milieu liquide, en particulier l'eau courante profonde (DWR) potentialisant agent peut être une qualité de vie des patients atteints de BPCO. L'échantillon se composait de 6 patients, 4 femmes et 2 hommes. Il y avait 25 classes de DWR, de 45 minutes à trois mois. Il y avait deux évaluations: pré-et post-formation pour les variables suivantes (poids, taille, indice de masse corporelle, les cercles de mesures, la force musculaire localisée) que le protocole des activités de la vie quotidienne.

MOTS-CLÉS: MPCO, tabagisme et AVQ.

LA INFLUENCIA DE PRÁCTICAS EN AGUAS PROFUNDAS EN MARCHA PORTADORES DE PERSONAS OBSTRUCTIVA CRONICA ENFERMEDAD.

RESUMEN

La enfermedad pulmonar obstructiva crónica (EPOC) es por daños y perjuicios vías respiratorias y los fumadores tienen más probabilidades de adquirir esta enfermedad. Los síntomas aparecen sólo después de treinta años en los que la capacidad pulmonar ya está comprometida. Este estudio tuvo como objetivo analizar el medio líquido, especialmente el agua corriente profunda (DWR) potenciar agente puede ser de una calidad de vida de los pacientes con EPOC. La muestra consistió en 6 pacientes, 4 mujeres y 2 hombres. Había 25 DWR clases, teniendo 45 minutos en tres meses. Había dos evaluaciones: pre- y post-entrenamiento para las siguientes variables (peso, talla, índice de masa corporal, Círculos de medidas, resistencia muscular localizada) que el protocolo de las Actividades de la Vida Diaria.

PALABRAS CLAVE: EPOC, fumadores y AVD.

INFLUÊNCIA DA PRÁTICA DO DEEP WATER RUNNING EM PESSOAS PORTADORAS DA DOENÇA OBSTRUTIVA CRÔNICA

RESUMO

A Doença Pulmonar Obstrutiva Crônica (DPOC) consiste por danos nas vias respiratórias e os tabagistas são os mais propensos a adquirir esta patologia. Os sintomas só aparecem após trinta anos, quando a capacidade pulmonar já está comprometida. Este trabalho visou analisar se o meio líquido, particularmente o Deep Water Running (DWR), pode ser um agente potencializador da qualidade de vida dos portadores de DPOC. A amostra constituiu-se de 6 pacientes, sendo 4 mulheres e 2 homens. Foram realizadas 25 aulas de DWR, tendo 45 minutos de duração no período de três meses. Ocorreram duas avaliações: pré e pós-treinamento para as seguintes variáveis (Peso, Altura, Índice de Massa Corporal, Medidas de Circunferências, Resistência muscular localizada) além do protocolo das Atividades da Vida Diária.

PALAVRAS-CHAVE: DPOC, Tabagismo e AVD.