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Original article

INFLUENCE OF RESPIRATORY GYMNASTICS IN ELDERLY HIPERTENSIVE SUBJECTS

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Abstract

Aim. Breathing is a vital function for the human body, and a correct execution leads to a better state of physical and mental health. The interdependence of breathing and blood circulation caused experts to establish links between poor lung ventilation and cardiovascular diseases in the context of modern life influenced by a number of cardiovascular risk factors. In hypertension are present in a number of ventilator disorders due to increased blood pressure in the small circulation, increasing vascular tone and vascular-connective shaft stiffness of lung or due to spasms of blood vessels that supply the respiratory center of the bulb.

Taking as a starting point ventilator changes present in elderly hypertensive subjects we outlined the importance of respiratory gymnastics which can cause an antihypertensive therapeutic effect. The premises of this study was theoretically related issues and efficiency of exercise capacity using respiratory gymnastics as a means of recovering the elderly with essential hypertension.

Conclusions. Applying individualized, controlled, systematic and progressive of respiratory gymnastics programs have improved resistance to effort in the elderly hypertensive. Respiratory gymnastics has prevented the effects of functional capacity limitation by age, inactivity and disease and caused physical and mental reconditioning in elderly hypertensive subjects. Respiratory gymnastics improved respiratory function and decreased peripheral vascular stiffness expressed by a drop in blood pressure, increased exercise tolerance and positively influenced the health, component of quality of life of elderly with essential hypertension.

Keywords: hypertension, respiratory gymnastics, elderly

Introduction

Despite imperceptible connection between breath and thought, it is an essential one, those who have a deep and correct breathing with rhythm and optimal frequency are distinguished by calm behavior, positive attitude, confident of life and ability to meet the responsibilities and stressful situations.

Following the report proportionally between breathing and blood circulation, specialists established connection between poor pulmonary ventilation and cardiovascular diseases.

In essential hypertension are present dynamic ventilator disorders that cause a state of hypoxia in the body reflected by lower values of arterial blood oxygen saturation and followed by increases in amplitude and respiratory rate. As a result of these outstanding issues, blood pressure will increase even more.

Bălteanu, (Romanian Journal of Physical Therapy, 2006) considers that breathing has mechanical, reflex and neurohumoral effects on

cardiovascular risks by intensity, frequency and technique.

There is a well-known technique of respiratory gymnastics called "Rebirth", which was then extended to Europe, especially in France and Germany, and later in Romania. It uses breathing exercises performed in the recovery of essential hypertension as a deep inspiration which drives cost and diaphragmatic breath and exhale a prolonged vowel chanting "U" as a sigh. Inspiratory phase of the exercise lasts 5 to 10 seconds and 45 seconds expiratory phase.

Negoescu, Cheregi (1998) states that Rebirth technique, better known as Tirala technique named after the teacher who perfected it is able to lower blood pressure at a constant level, to reduce and even suspension of administered medication, if practiced for 3-4 weeks with a frequency of three times a day, 15 minutes each. It is necessary to respect the rules of application.

Compared to the positive effects of technique, in terms of disruption of treatment,

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recurrence of essential hypertension was found, so it is necessary to repeat this type of gym several times during the year.

In our country, Vlaicu and Marin (1996) argue technique Tirala, adding that inspire lasting 30 seconds, followed by an exhale as extended, pronunciation the vowel "U" is buzzing and singing, so tone to match the tone of speech of topic, contributes to a better oxygenation of blood from visceral deposits, having positive effects on subjective symptoms of cardiovascular persons.

Crainici (2000) added to the national literature specialist, studies supporting the application of breathing exercises in cardiac pathology which is necessary to control the flow and balance of that intangible energy, subtle called Qi by oriental, which Collinge (1997) found that "intangible force that gives us life."

By Qi fresh and in large quantities can ameliorated disease, can increase and maintain the life force (Yesudian, Haich, 2011). The same point is supported by Reid, (2005).

The aim of the research

Taking as a starting point ventilator changes present in elderly hypertensive subjects we outlined the influence of respiratory gymnastics on lowering blood pressure and increasing exercise capacity in these.

To obtain improve the health of older people with essential hypertension is necessary to establish

the general structure of the respiratory gymnastics program.

The present paper is part of the author's PhD thesis.

Utility applications

Objectives of the respiratory gymnastics program taken and adapted from the Lozincă, I. (<http://ro.scribd.com>, 2012) and Armean, (2004) are:

- Balancing the nervous system and neuro-psychological relaxation,
- Decreased cardiac labor for a given level of effort,
- Promote vasodilation in skeletal muscle by decreasing peripheral resistance in order to stimulate blood circulation,
- Increased vital capacity through enhancing the elasticity of the lung,
- Improving coordination as a means of muscle relaxation,
- Achieving and maintaining optimal body weight,
- Educating the subject and family to adopt a lifestyle rational to deprive as many cardiovascular risk factors.

The general structure of the respiratory gymnastics program (Jianu, 2013) can be applied in elderly hypertensive can be diagramatic according to Table 1.

Table 1. The general structure of the respiratory gymnastics program

General objectives	<ul style="list-style-type: none"> • Increase cardio respiratory strength <ul style="list-style-type: none"> ➢ Activating blood circulation ➢ Increase vital capacity • Neuro-psychological relaxation
Specific objectives	<ul style="list-style-type: none"> • Awareness of correct body alignment • Awareness of respiratory act • Toning of respiratory, antigravity, abdominal and perineal muscle
Methods	<ul style="list-style-type: none"> • Effort interval method • Isotonic method, concentric and eccentric contractions
Means	
Component parts :	Structure of exercises:
Introductory	Exercises for warming joints and muscle groups involved in the effort
Fundamental	Respiratory, antigravity, abdominal and perineal muscle toning exercises represented types of breathing exercises with and without associated movements of the body segments Coordination exercises
End	Muscle relaxation and neuro-psychological exercises



The respiratory gymnastics program is structured in terms of Physical Education and Sport in three parts: introductory, preparatory body for the effort, fundamental part to achieve the objectives of the program and the end part or recovery of the body after exercise which subjects are restored functional balance existing at program startup.

The preparation of the body for effort or warm up allows gradual increase cardio-respiratory parameters, ensure successful exercise practiced and gives the body the opportunity to make the necessary changes during and after exercise. It also causes heating performing several exercises for a period of time and, based on progressive dilatation of the coronary arteries, lowers the risk of cardiovascular incidents. It uses dynamic stretching exercises, trying to gloss over the maximum possible body segments (Damian, 2003), performed slowly so as not rapidly increase blood pressure.

They determine a good perception of body movements, develops balance and proprioception provides benefits to the brain being informed about the static and balance bones, joints, tendons and muscles to be used during specific effort itself. Moreover, stretching allows a greater awareness of breathing and trigger respiratory muscles (Raisin, 2001).

Muscle flexibility exercises relaxes psyche, allowing gentle and free movements who helps coordinate and stimulate to focus on those parts of the body put in motion (Anderson, 2007), important elements of neuro muscular relaxation to hypertensive subject.

The main part consists in educate respiratory techniques, and voice, and muscle contractions produced by slow movements of the segments.

The intensity of the contractions is moderate, and among them is carried muscle relaxation exercises, consisting of balancing, shaking and twisting the trunk. It emphasized the coordination of movements and corroborating their breathing to achieve neuropsychological relaxation.

The conclusion of respiratory gymnastics program included breathing exercises with the issuance of sounds and stretching for postural muscles of the trunk.

The three parts of the program with targeted exercises, assignments and exercises structures are found in Table 2.

Table 2. Structure of component parts of the respiratory gymnastics program

Component parts	Objectives	Assignments	Exercises structure
Introductory	Preparing the body subjects for requests under the program	Stimulating of tghe muscle and joints involved in respiratory gymnastic Decreased risk of cardiovascular accidents at work	Exercises to mobilize the body segments Breath awareness exercises



Fundamental	Learning the technique of breathing exercises	Awareness of respiratory act	Breathing exercises : ➤ diaphragmatic ➤ lower rib ➤ complete ➤ staggered ➤ simple rhythmic ➤ double rhythmic ➤ phonetic ➤ exercises with stretching by stretching
	Improve the effort capacity of hypertensives	Reacquisition diaphragm mobility	Exercises to mobilize the body segments Coordination exercises
	Improve the functional capacity of the cardiorespiratory system	Toning of respiratory, antigravity, abdominal and perineal muscle Improve muscle coordination Mental resistance capacity training	
End	Bringing the body to the status ahead of schedule	Body function returns to values close to those detected at the start	Exercises of phonetic gymnastic (with release sound) Balancing Shaking Twisting the trunk Stretching exercises
	Muscular and neuro-psychological relaxation	Inducing physical psychological relaxation	

Respiratory gymnastics programs respects the classic structure of any physical training program: heating, proper effort and end. Programs complies with parameters and aerobic effort to effect of adaptation of subjects.

Physical training parameters are: the intensity is small using amount of 50-60% of the heart rate, reserve length is from 20-30 to 40-50 minutes, depending on the exercise capacity of the subject involved, and the frequency of meetings 3 times per week.

Conclusions

1. Applying individualized, controlled, systematic and progressive of respiratory gymnastics programs have improved resistance to effort in the elderly hypertensive.
2. Respiratory gymnastics has prevented the effects of functional capacity limitation by age, inactivity and disease and caused physical and mental reconditioning in elderly hypertensive subjects.
3. Respiratory gymnastics improved respiratory function and decreased peripheral vascular stiffness expressed by a drop in blood pressure.
4. Breathing exercises conducted according to the methodical rules of the program increase

exercise tolerance and positively influenced the health, component of quality of life of elderly with essential hypertension.

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