

Kinetic prophylaxis involvement upon the cardiac respiratory system for the persons at the iiird age

Dumitru Andrei

Summary: *Most of the chronically cardiovascular sick people belong to the third age. While our body gets aging a series of visible modifications of the cardiac respiratory system and neurological muscle system appear. By the use of kinetic therapy at the third age one can act very efficiently at the level of the big functions of the body (respiratory, cardiovascular, neuromuscular, metabolic) with the possibility to ameliorate the life quality, which is very important for the sick people at this age.*

Key words: *Kinetic prophylaxis, cardiovascular – respiratory system, the third age*

INTRODUCTION

The aging process is defining for all living beings, included humans.

The aging process characterizes itself in general by four fundamental aspects:

- a. Deterioration (lowering of accuracy) and lack of organization (increase of entropy);
- b. Progressively according to a parametric exponential pattern;
- c. Internal mechanisms, therefore intrinsic;
- d. Universal mechanisms that characterize all members of a species.

The aging process drives a series of morphologic and functional modifications of the organism that develop according to a certain program in time.

Some of these modifications can be detected, and they establish the indicator of the aging process. Based on these indicators the biological age of a subject can be estimated, which one influenced by ideal conditions, is mistaken with the chronological age. Under this circumstance it refers to a normal aging. In case the biological age is bigger than the chronological one it refers to the accelerated aging; and in case it is less than the chronological age, it refers to a late aging.

The biological age and therefore the aging rhythm, depend on:

- genetic factors;
- environment factors (ecosystem, social system, cultural, technologic system, etc);
- pathological factors (infectious, toxic, degenerative diseases, post trauma or neoplasia).

The pathologic factors lead to an accelerated aging.

Because appear some new morphologic functional modifications, generated by the respective disease, the aging in such cases, is not only accelerated but also pathological (with deteriorations).

The aging indicators were called markers or criterions.

From the entire group of possible indicators, only a part has been selected for geriatric practice. This selection was done considering certain criterions:

- the possibility to do a simple detection;
- their undoubted inter relation with the aging process since 40-45 years;
- their objective characters (therefore their truthfulness);
- eventually the possibility to be evaluated quantitatively;

There is a relationship between the modifications of some criterions and some belonging to the age group. Most of the signs have the same aging patterns for a certain period after which, they maintain to a relatively constant level, such it is for instance, with hearing accuracy; others like arterial blood pressure present a diminishing after the VIIth age decade.

For the elder decade (over 60 years) the score is due, mostly to the cardiac apparatus or the respiratory system.

SCOPE AND GENERAL OBJECTIVES OF THE RESEARCH

Applying the physical effort like a controlled physical activity through kinetic therapy in preventing the cardiac vascular complications that allow promoting the social – educational values such as perseverance, self respect, exceeding ones limits or barriers triggered by pathologies that are most frequently associated to age III, promoting the health status and improving life's quality.

Objectives refer to adapting the kinetic treatment depending on the particularities linked to the aging process – physiological and pathologic, and particularizes its in relation to the associated primary or secondary pathology. In this regard, the focusing of the effort is done towards the development of the autonomy and independence of the elderly one and his /her reintegration into family and society.

I proposed myself that through the prophylactic program applied to the elderly person, to obtain:

- the maintenance of a satisfactory somatic level;
- the increase of the functional level;
- to make up an efficient program to prevent getting seriously ill or to appear some morphologic functional complications of a chronic disease;
- to regenerate the diminished functions;
- to increase the compensating adapting level in cases of functional readapting.

PARTICULARITIES OF THE EFFORT CAPACITIES OF THE ELDERLY PERSONS

Most of the chronically cardiovascular sick people belong to the third age.

While our body gets aging a series of visible modifications of the cardiac respiratory system and neurological muscle system appear.

Thus the elasticity of the lungs and thorax case lowers in time, while in order to defeat this resistance, the respiratory muscles over work.

As a result the oxygenation capacity of the body lowers in parallel with the alteration of the possibility to transport oxygen throughout arteries.

The lowering of aerobic muscle transposes at the local metabolic level by the lowering of capacity of aerobic muscle effort.

The aerobic muscle effort depends on the oxygen excess, its speed to be spread into the capillary alveolar cells, number of capillary vessels opened at the local muscle level, quantity of muscle mioglobine and glycogen and also on the activity of muscle enzymes.

The role of therapeutic exercise is much more important having into consideration the functional modifications that occur inside the body of the persons at age III.

The recommendations of the specialist are that the elderly one should benefit of an aerobic type kinetic therapeutic program till the age of 70 – 80.

It is also necessary to have a careful monitoring of the sick person.

CLASSIFICATION OF ELDERLY PERSONS DEPENDING ON THE PHYSICAL ACTIVITY LEVEL

By studying the literature in specialty results the following categories of elderly persons.

Elderly persons with a very high fitness level; in this category enter the persons which, did a systematic physical effort, were performance sportsmen or practiced sports in the spare time, and they are more easily integrated in the recovery programs and can be an example for their fellows.

Elderly persons with a high fitness level; are the persons that do not practice physical activities but their capacity to effort is superior to that their fellows, these persons are active till late age, have a good psychic tonus, integrate and adapt easily to the recovery program and are sociable.

Elderly persons with a low fitness level: are the independent persons that have different chronic pathologies which in exchange, do not affect the capacity to self care;

chronic pathologies associated to the medications and do not modify very much the functional capacity: any type of additional disease, fall, emotional, physical and psychic stress can destroy their balance and turn them into persons with different degree of dependence; most commonly they adapt very hard to new situations that affect their physical and psychical balance.

There are such patients that cannot do the daily physical activities and require assistance in specialty at home or in specialized institutions.

In the followings few examples are given for the basic daily activities: Eating and drinking; Bathing and shower; Personal toilet (caring the hands, feet, hair, face, teeth); Physiological needs; Raising from a chair; Dressing, laying down and raising off the bed; Walking to the house; Climbing and descending the stairs; Walking outside the house on a flat surface.

Example of activities that belong to daily life style: House keeping; Preparing the food; Doing the bed; Washing and ironing; Shopping; Using the telephone; Writing; Unlocking and locking a door with the key; Climbing into the bus or taxi without assistance;

Other activities: Traveling abroad; Sports and recreation activities (jogging, fishing, dancing); Driving the car; Gardening.

Evaluation and testing at effort of the elderly persons

There are different scaling types for overall evaluation of the elderly persons, the kinetic therapist being directly interested in the evaluation of fitness, muscle force, joints motion, balance, stability and coordination.

Elder persons testing at effort

The effort testing of the elderly persons must be carefully monitored due to the cardiovascular risk that appears depending on the physical effort done.

The testing at effort is also called the stress testing, due to this reason. .

The testing way is recommended by the testing at the floor because of the possibility to monitor the individual tolerance. It is started with low effort intensity while the patient is continuously monitored.

Generally is recommended that this type of testing should not exceed 6 minutes.

Labor or sport activities or the daily routine ones can make themselves the effort tests starting with the metabolic equivalents that were consumed for doing these activities.

AEROBIC TRAINING OF ELDERLY PEOPLE

The syndrome of low physical condition is the one that is met most frequently at the elder people due to the gradual lowering of physical activity level.

This is due to negligence, idleness, careless or more often due to chronic diseases associated.

That's why starting from these causes, kinetic therapy like a method to improve the physical condition, represents a priority in the elder person's recovery.

At the same time, the access to this type of therapy is pretty difficult for the time being, on one side due to the lack of services in specialty and on the other side due to the isolation of the patients – either at home or in specialized institutions.

Before establishing an aerobic training program for the elder persons with a low physical condition syndrome one must consider the following aspects:

The elder person must never be isolated, he / she must interact, socialize with the persons in his vicinity or in the collectivity in which he / she belongs and for this reason some actions for education, training and psychical therapy, need to be taken.

The objectives of the recovery program must always be correlated with the chronic pathology associated to the patient and the attempts to correct the morphological – functional out of balance will be done under permanent surveillance by monitoring some basic indicators; when choosing the aerobic program, one should always consider the

indications, pros and counters for the participation at the effort and the tolerance to the effort will be established individually.

It is needed a complex approach of the pathology specific to age III by a correlation of the activity of many specialists (physician, kinetic therapist, physical therapist, psychologist medical assistant, social assistant) .

It is recommended for the training program at age III to consider all factors that were mentioned above and the choosing of the physical exercises must provide a diversity of possibilities and ways to work to make it more attractively on one side and at the same time to reach the aimed target.

Generally the recovery programs are individual, which makes them monotonous, not interesting, making more stressful the patient's social isolation.

The common factor for fulfilling the kinetic recovery program is given by the patient's functional level.

The parameters that are recommended for the make up of an aerobic training program are:

- to know the diagnosis of the patient, the medical recommendations in regard with the treatment, medication, eventual complications and associated pathologies;

- to establish the pros and counters for the effort based on the functional evaluations;

- to establish the initial fitness level as a starting point in administering the physical effort;

- to establish the objectives of the recovery program and its stages;

- to establish the exercises set by the observance of the basic principles of kinetic therapy;

- the intensity of the physical effort is established depending on the individual work possibilities for each patient and are based on the over loading principle and the principle of specificity

- the total length of the program is established depending on the patient's capacity to adapt himself / herself to the effort, initially being 10 – 15 minutes and reaching 30 – 45 minutes afterwards;

- the number of exercises established will be chosen depending on the tolerance of the subject but also considering the principle of diversion of the program to make it more attractive to the patient;

- the number of repetitions of an exercise is established depending on the capacity of the patient to execute the motion as correct and efficient as possible;

- the number of sets is being established initially for each exercise gradually increasing from 1 to maximum 6 for each session;

- the breaks between the sets is for 1- 3 minutes, depending on the intensity of the physical effort (bigger for those with maximum intensities and minimum for those with minimum intensity):

- it is recommended to respect the break time between the sets to allow a proper recovery of the body and a better fitting to the effort;

- complex combined programs are recommended, the most efficient ones being those outdoors (jogging, walking in fresh air, biking, swimming).

One can state that the best kinetic treatment model that is most favorable to the syndrome of low physical conditions is the permanent aerobic training adapted to the subject's functional capacity and his / her availability for effort.

CONCLUSIONS

By the use of kinetic therapy at the third age one can act very efficiently at the level of the big functions of the body (respiratory, cardiovascular, neuromuscular, metabolic) with the possibility to ameliorate the life quality, which is very important for the sick people at this age.

The role of the physical exercises used as therapeutic basic element in the geriatric recovery process is to increase the effort capacity and to obtain the improvement of the health status of the patient.

The recovery programs that use the physical exercise of the elderly persons are very little applied in geriatric practice. The costs for medical assistance for elderly persons could lower if applying physical exercise for prophylactic purpose or associated with the medication. There is anyway a correlation between the level of physical activity that was done and the amount of medication needed by elder people.

The physical exercises carried on in a controlled manner and with direct monitoring of the functional reserves of the body, determine an improvement of the physical conditions shown by an increased VO_{2max} . These effects are due to the process of physical adapting both in resting as during the physical effort.

The physical effort correctly applied, programmed and dosed fight against the functional reserves restriction due to age, disease or incapacity. It contributes to the lowering of the psychical effort, improves the tolerance for daily activities, improves the quality of life and increases the socialization degree and integration in community of the patients.

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Contact:

Dumitru Andrei, University Assistant, University of Pitești

Докладът е рецензиран.