

THE IMPACT OF FUNCTIONAL EXERCISES ON WEIGHT REGULATION AND FITNESS MAINTENANCE IN OLDER ADULTS

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Abstract

Many scientific research have shown that regular physical activity cannot stop the biological aging process but can improve the quality of life in elderly people. How we age varies from individual to individual, but many scientific studies have shown that older adults should engage in physical activity for better health. Various studies in this field focus not only on basic exercises but also on the broad concept of the field of functional physical activity. The methodology of the paper is based on literature research, analysis and comparison. Physical well-being in old age depends instead on controlling and maintaining body weight. Many pathologies typical of this age, such as cardiovascular system malfunctions or musculoskeletal structure problems, can be attributed to being overweight. For this, functional physical exercises must be continuous, to stop the accumulation of fat and at the same time keep the heart, muscles, and joints strong. Going up and down stairs, carrying and carrying weights, walking in straight lines and zigzags should be part of the permanent "diet" of the "menu" of physical activity for the elderly. According to the WHO, functional physical exercises, in old age, are good for health because: they improve cardiovascular, muscular, and psycho-emotional health and reduce the risk of chronic diseases deriving from obesity.

Keywords: Keywords: functional physical exercises, old age, fitness, overweight

1. Introduction

With advancing age there is a structural and functional deterioration in a large part of the physiological systems involved in the production of energy and in the expression of movement, even in the absence of perceptible disturbances. The decrease in maximal aerobic capacity (VO₂ max) and the reduced performance of the musculoskeletal system with advancing age are two important examples of how aging produces changes in the body's physical efficiency. Added to these are the profound changes in body composition, with consequences on the health and functional capacity of the elderly, as well as a general immunoendocrine, neurocognitive and psychological decline that affects the level of physical activity performed.

Aging is associated with a general decline of all physiological functions and between the ages of 30 and 70 it is possible to observe a 25-40% reduction in functional capacity. Hallmarks of the aging pathway, such as decreased muscle mass and strength in humans, known as sarcopenia, represent a state of increased vulnerability for these individuals. The regular physical activity represents the lifestyle element that has the greatest influence (together with the adoption of an adequate diet) in slowing down the age-related

involution of the physiological systems involved in the movement (neuroendocrine, immunological, cardiovascular, pulmonary, musculoskeletal), as well as having a significant impact on risk factors for chronic diseases (obesity, arteriosclerosis, hypertension, diabetes, rheumatoid arthritis).

According to a study conducted by the European Commission in 2005 “in the period 2005-2050, the generation of 55-65 years will grow by 8.7%, while the number of individuals between 65 and 79 years will increase by 44% older (over 80) will grow by 1% above 180%”¹.

In Albania, in 2011, the number of people aged 65 and over increased more than 4 times to 318,000. In the future, the difference in age distribution should also be very significant. The percentage of seniors over 60 increased from 11% in 2011 and will continue to grow by 29% by 2060².

We are analyzing important parameters of physical activity such as strength, and power of speed.

Muscle strength, both static and dynamic, decreases slowly until the age of 45, after which it decreases by 5% for each decade, so at the age of 65, the forces are reduced by about 25%. The main cause of muscular dystrophy in the elderly is determined by the reduction of quantitative and non-qualitative muscular mass. Other researchers have confirmed this theory by analyzing the number of fibrous quadriceps muscle fibers in cadavers. They have shown that in the bow of life, from 20 to 80 years, we have a reduction of muscle mass up to 40%³.

Some researchers have noticed a greater speed of movement for the elderly who practiced regular exercise of strength by weight in relation to the same-aged subjects who make a sedentary life and in the elderly relationship that practiced swimming and running. The authors stressed that this decrease in speed is due to the distribution of slow myosin to different types of fibers. These studies demonstrate that regular exercise of strength during the aging period can help maintain the morpho-functional characteristics of fast muscle fibers⁴.

Regarding power, several researchers have shown that in the time span ranging from 65 to 84 years, both in men and women, there is a reduction in power of about 3.5% for each year of age. The same researchers, in a study conducted previously, showed that after 12 weeks of training, there was an average increase of 13-30% in the isometric forces of the quadriceps muscle, the biceps femoris, and the power of the lower extremities. The decrease in potency is more evident after age 50 and is more pronounced in men than in women. This is not due to the change in the ATP or the cross-section of the muscle but from the maximum assumption of motor units and the degeneration of alpha motor neurons⁵.

Doing regular physical activity at senile age brings a series of benefits that improve a number of physiological organs and functions and in particular the functions of the locomotor, cardiovascular, respiratory, and nervous systems. We see these benefits in a more specific way:

¹ Euronote periodical (2005)

² INSTAT “Population and demographic dynamics in Albania”. Tirana, INSTAT (2014)

³ Grimby, G, Saltin, B. (1983) “The Ageing muscle” *Clinical Physiology* 3: 209-218.

⁴ Klitgaard H., Jiang B., Bell G., Harris B., Saltin B., Gollnick P. D., Roy R. R., day M. K., Greenisen M. (1995). Human fiber size and enzymatic properties after 5 and 11 days of spaceflight. *L. Appl. Physiol.* 78: 1733-1739.

⁵ Skelton, D. A., Greig, C. A., Davies, J. M., & Young, A. (1994). Strength, power and related functional ability of healthy people aged 65-89 years. *Age and Ageing*, 23, 371- 377.

- Locomotor system

Bones: greater resistance to mineralization and thickness growth. This process is favored by the traction exercised during movements that positively influence the relationship between osteocytes and osteoblasts.

Muscles: increase in tone and muscle mass, thus improving muscle strength but also speed and endurance.

Joints: training generally gives positive effects, making the movement more fluid and functional, an effect that positively influences the coordination and control of movements.

- Cardiovascular system

Positive effects on systolic pump growth, increased cardiac output, increased capillaries in muscles, reduced heart rate and reduced recovery time after physical exertion were reported.

- Respiratory system

Reinforcement of the diaphragm and of the other muscles of the thorax, lowering of the respiratory rate (respiratory acts are deeper), and increase of vital capacity.

- Nervous system

Greater sensitivity to central and peripheral neurons with better body position in space. The increased transmission speed of nerve impulses, reduction of reaction time, and better synchronization of muscle fibers. At the end of the evaluation of these benefits, we can confirm that physical activity is the main adversary for all forms of aging. Moving, according to an appropriate program, means delaying as much as being ineffective while maintaining a good image for oneself and a better use of personal skills. But we must not even forget the benefits in the psychic sphere with improvements in self-control, concentration, will, and moderation.

2. Methods

This research has analyzed several insights from different researchers in the field of physical activity, comparing the effects, impact, influence and changes made approximately from functional exercise training in elderly people. The methodology of the paper is based on literature research, analysis and comparison. This paper is a review article.

3. Discussion

To help seniors start physical activity and continue with it, I'm showing three ways to deal with it.

1. Add physical activity to your daily life

- Physical activity should be a permanent normal behavior to produce health benefits.

- We must be prepared to be successful as soon as possible by choosing the most suitable activity for you, by training in safety.
- Track your progress to see your achievements and make your physical activity style every day. For many of us who have a number of major daily concerns are easy to set up physical activity at the end of the to-do list every day. But we must remember that being active is one of the most important things that should be done every day to keep improving your health.
- You must be active before starting to handle everyday things. Think of your exercise time as a moment of a special meeting and mark it on the daily chart.
- If the presence of the gym is irreversible for you financially or you are not able to move from a distance, make it easy for yourself. Take 2 medium-weight books and keep them close to the post so that while watching TV, you can work with a little weight to strengthen your legs.
- Move into the room and shoot the ball while your nephew is playing. Go shopping for more but not with a heavyweight.
- Take part in various meetings that take place in the social centers and discuss with your friends.
- You can take care of the activities for a relatively long time, but they can be divided into even smaller parts all day, making it more enjoyable and knowing how to do it better.
- Become compliant by accepting a close relative or a neighbor to do physical exercise or physical activity together. Many people think that having a partner in physical activity is more encouraged.
- You can walk to different distances in places that you like most with your friends looking to add some rhythm. And if you like nature in pure air, try cycling, fishing, jogging, or listening to music or something you like best.

It is possible to be more active if:

- Think about giving importance to physical activity,
- Include those activities that you like best,
- Feel that you can perform physical activity correctly,
- Do you think this activity is safe,
- You can enter your daily schedule with physical activity,
- Think of having the financial opportunity to cope with the costs of gyms
- Look for health benefits when taking physical exercises.

We can be active in many places and in many ways:

- When you leave the food bags after shopping, you can tighten your arms by lifting the bottle a few times with fruit juice or a packet of sugar before putting it in the designated place.
- When you go to buy, increase your resistance by parking your car as far as possible from the store, as you give yourself the chance to walk longer. Another alternative would be to leave the city bus at two or three stations before reaching your favorite store.
- Instead of calling your colleague or friend, meet him, climb, and climb the elevator.

- Leave home without a specific purpose, giving you the opportunity to add the daily steps.
 - When you stand in line to buy something, try practicing balance by staying with the weight of the body on one side of the foot each time, then increasing your strength and balance.
 - While talking on the phone at home, put a foot on a chair and try to lighten it easily so as to increase your versatility and elasticity.
 - While preparing the dessert and waiting for the water to come out, make some tips with the arms resting on the wall or some lifts that break the knees.
2. Try all types of activities or exercise

Most people tend to focus on an activity or type of exercise and think that it is sufficient. The goal is to be as creative as possible and to choose to do exercises that involve the four types of physical condition: resistance, strength, balance, and flexibility. Mixing all of this will help you benefit from any exercise, as well as reduce the amount of trauma and the risk of trauma.

- If you lift the weight, combine these exercises after a while with the ergometer bike or with the rotating mat.
- At the end of the cycle, do some stretching exercises.
- If you want to focus on stamina, be sure to add stretching, balance, and strength exercises.
- If you want to exercise every day you have to combine the work of different muscle groups.

3. Schedule sometimes and prolonged interruptions for various reasons.

Aging can mean more time to travel to visit other family members who live away from home or leave home. You could be transferred to another home or elsewhere. Occasionally unplanned family events or the death of a loved one occur. All these events can interrupt daily physical activity. All these interruptions can make it difficult or impossible to observe the rule of physical activity.

Following are some ideas on how to resume after an abortion exercise:

- Do not be too hard on yourself, realizing that there are times when you can not do physical activity.
- Do not feel alone and you will understand that you can go back to the daily routine.
- As soon as you start managing a type of activity, the better you will feel and the easier it will be to get back to your daily life.
- Talk to your doctor about when to start dealing with your daily activity if you are interrupted by exercise due to some illness.
- Think about why you need to start managing physical activity and your goals. Remember the motivation and benefit you have been doing by doing physical exercises.
- Ask your family and friends to help you get back to the previous situation. Sometimes it is necessary to have a partner during training with physical activity. Here others probably have value only in words.

-Try to do something easier or different than what you did before because it can give you the confidence you need to get back to normal physical activity.

4. Conclusions

Physical inactivity is among the top ten risk factors for the disease and is estimated to be responsible for more than 3 million adult deaths annually. If physical activity represents a means to actively intervene in the prevention of many aging-related disorders, then we should consider the introduction of training programs, to have as many health benefits as possible. Often a limitation in the performance of a physical activity (especially in the over sixties) is related to the sensations of pain that accompany the performance of muscle work (even of low intensity) or to the presence of accompanying pathologies which, worsening the quality of life, causing that the elderly follow a sedentary lifestyle. This situation presents very high risks and costs for the health of the individual and has serious economic consequences at the level of public budgets. Indications for maintaining even a minimal level of physical exercise should be part of any program aimed at treating chronic conditions, whether or not related to painful conditions, educating those involved in the importance of physical activity for maintaining general health.

Motor training must be personalized, in the sense that every elderly person can have different problems, which must be kept in mind to avoid making the situation worse.

Insert basic muscle exercises: the simplest is, in all probability, getting up and sitting down repeatedly. Not for nothing, it is also a criterion for evaluating motor skills in a clinical setting. For the upper part (trunk and arms) a gentle gymnastics protocol is recommended which involves movements with a wide range, slow, with natural load; a good alternative is water activities, thanks to the microgravity which tends to unload the lumbar, coxo-femoral, knees and ankles. Having said that, if the osteoarticular apparatus allowed it, both multi- and single-joint exercises with resistances consisting of elastic bands or undemanding overloads would have a decidedly greater impact. In this case, as in the swimming pool, the advice of a coach or personal trainer is required.

Any kind of movement is fine. Those who have the ability to walk, even with a stick or walker, are welcome. Obviously never outdoors alone, avoiding the hot summer hours and the harsh winter temperatures; the same goes for the use of a bicycle. If, on the other hand, it is not possible to go outdoors, the use of treadmills or exercise bikes is recommended – always useful, even when, as already mentioned, it is not possible to go out.

Often the elderly look for the ideal conditions to carry out functional physical activity, but the important thing is to start it in home conditions and with simple tools such as a chair and an elastic band. They will then be ready to start a program of 8 exercises, simple but effective for their level, composed as follows:

1. Get up and sit down from the chair, helping yourself by placing your hands on a table (typical position of the meal): to be performed calmly about 20 times;
2. Stand up, and rotate the torso from side to side, keeping the legs still at shoulder width, for about 30".

3. Standing, keeping your back straight and legs apart, bend forward as far as possible, and slowly return to an upright position, about 10-20 times;
4. Standing up, raise your arms stretched laterally from along your sides to above your head, or in any case as far as the shoulder joint allows you to do it: about 10-20 times;
5. Standing up, raise your arms stretched out from the sides up to the front of your head: about 10-20 times;
6. Standing up, with your arms stretched out in front of your torso, open and close repeatedly but slowly: about 10-20 times;
7. Tying a rubber band to the handle of a door or to the top of a radiator and holding it with one arm outstretched at a time:

Push down frontally 10-20 times;

Push down laterally 10-20 times;
8. With the elastic bound as above but holding it frontally, pull it towards you by flexing the elbow and keeping it close to the ribs: about 10-20 times.

References

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