

Physical Exercise Effect on Ageing

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Abstract

Regular exercise and physical activity are important to the physical and mental health of almost everyone, including older adults. Being physically active can help you continue to do the things you enjoy and stay independent as you age. Vital capacity, elastic recoiling ability of the lungs decreases as ages. Decreased cardiac output, stiffened arteries, increased chances of arrhythmias are the changes to cardiovascular system. With ageing muscle contractile velocity of muscles, muscle mass, muscle strength, power, muscle endurance, muscle mitochondrial function and muscle oxidative enzyme capacity decreases. Reduced health risk associated with obesity, reduced cancer risk, reduced susceptibility to infections, improved peristaltic functions, reduced injuries, improved quality of living, strengthened bone, managed cholesterol level, decreased resting blood pressure and maintained BMR are some of the benefits of exercising. Keeping in mind the contraindications like acute illness, undiagnosed chest pain, uncontrolled diabetes, uncontrolled hypertension, uncontrolled asthma, musculoskeletal problems and weight loss and falls the risks of exercising during old age can be minimized.

KEYWORD:- Age, Vital capacity, cardiovascular system, muscle endurance, muscle mitochondrial

INTRODUCTION

Healthy aging is the development and maintenance of optimal physical mental and social well being and function in older adults. It is most easily achieved when physical environments and communities are safe and support the adaptation and maintenance of attitudes and behaviours known to promote health and well being; and by the effective use of health services and community programme to prevent or minimize the impact of acute or chronic disease on function. Regular exercise reduces or prevent functional decline associated with aging. Endurance training can maintain or improve cardiovascular function. Strength training helps to prevent loss of muscle mass. Exercise can improve bone health; improve postural stability, increase flexibility and range of motion. Reductions in risk factors improve health and affect life expectancy.

Physiological Changes Accompanying Aging

Respiratory System:

A linear decrease of vital capacity is found that amounts to a decrement of about 26mL per year for men and 22mL per year for women starting at age 20.the total lung capacity remains constant and the residual volume increases with age. Although alveolar oxygen tension remains constant with age arterial oxygen pressure shows a progressive decrease, thus increasing the alveolar- arterial oxygen difference. The elastic recoil of the lungs decreases with age. There is a 2% to 30% decrease in maximum voluntary ventilation forced expiratory volume in one second, maximal expiratory flow rate and maximum mid expiratory flow during adult life.

Cardiovascular System:

Cardiac output decreases linearly with ageing. With ageing there will be an increased diastolic and systolic myocardial stiffness. There will be a progressive stiffening of the arteries. Blood pressure increases with ageing. Heart valves become sclerotic. Heart tends to have increased chance of arrhythmias.

Musculoskeletal System:

Adipose tissue increases linearly with age. Lean body mass decreases. Bone mineral content diminishes. Connective tissue becomes less resilient. Viscosity of the synovial fluid increases. Spinal curvature gets exaggerated. Along with a reduction in muscle contractile velocity of muscles, muscle mass, muscle strength, power, muscle endurance, muscle mitochondrial function and muscle oxidative enzyme capacity decreases.

Benefits of Exercise

- Reduces health risk associated with obesity
- Reduces cancer risk.
- Reduces susceptibility to infections
- Improves peristaltic functions
- Reduces injuries
- Improves quality of living
- Strengthens bone
- Cholesterol level is managed
- Resting blood pressure decrease
- Resting heart rate is reduced
- BMR is maintained
- Strength and endurance are improved.

Guidelines for Exercising for the aged

Avoid Inactivity

Some physical activity is better than none — and any amount has health benefits.

Do aerobic activity

For substantial health benefits, do one of the following:

150 minutes (2 hours and 30 minutes) each week of moderate-intensity aerobic physical activity

(such as brisk walking or gardening) 75 minutes (1 hour and 15 minutes) each week of vigorous-intensity aerobic physical activity (such as jogging or swimming laps)

An equivalent combination of moderate- and vigorous-intensity aerobic physical activity

Do aerobic physical activity in episodes of at least 10 minutes and, if possible, spread it out through the week.

- For even greater health benefits, do one of the following:
- Increase moderate-intensity aerobic physical activity to 300 minutes (5 hours) each week
- Increase vigorous-intensity aerobic activity for 150 minutes (2 hours and 30 minutes) each week

Strengthen Muscles

Do muscle-strengthening activities (such as lifting weights or using resistance bands) that are moderate or high intensity and involve all major muscle groups on 2 or more days a week.

When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow. Older adults should do exercises that maintain or improve balance if they are at risk of falling.

Older adults should determine their level of effort for physical activity relative to their level of fitness. Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.

What Type of Exercise Is Best?

The new recommendations speak not only to how much exercise older adults need but also what type of exercise is needed. There are four different categories of exercise, and participation in all four types is necessary for full health benefits. The first two categories, endurance or aerobics and strength training or weight lifting, are the ones with which most people are familiar. The second two categories, while not new to the field of exercise, are relatively new in that they fall into a separate category with specific recommendations. These are balance and stretching or flexibility. The key to fitness is to do all four of the major types of exercise regularly and increase the level of intensity over time.

Endurance exercises: With the previously stated goal of a minimum of 150 minutes of exercise per week, it is recommended that older adults strive to increase from the minimum goal of 10 minutes of aerobic increments to longer stretches as well as increasing over time the weekly number of minutes from 150 to 300. Examples of endurance exercises are walking, jogging, dancing, and playing tennis.

Strength training: Strength-training or weight-lifting exercises should be performed two to three days per week with a rest day between sessions. This rest day doesn't mean to forgo the other types of exercises, just strength training. Strength-training activities should include exercises for all major muscle groups (shoulders, arms, chest, abdomen, back, hips, and legs). If an elder chooses to strength train on a daily basis, he or she must alternate the muscle groups to allow for a rest day. Examples of strength-training exercises include lifting or pushing free weights, pulling resistance bands, and using strength-training equipment at a fitness centre or gym.

Balance exercises: Some balance exercises build up leg muscles, while other exercises focus on stability. Balance exercises, therefore, fall into two categories. Strengthening exercises must be performed two or more days per week (but not on any two days in a row), whereas stability exercises can—and in some cases should—be performed daily. Balance exercises include strength exercises for the lower body such as back and side leg raises and toe stands as well as stability exercises such as heel-to-toe walking and the stork pose (standing on one foot with arms held out to the side.)

Stretching/flexibility exercises: Stretching exercises improve flexibility but do not improve endurance or strength. Despite this, it is suggested that older adults perform stretching exercises after they have completed endurance and strength exercises. If they do only stretching/flexibility exercises, they must warm up first with gentle movements or slow walking. Stretching exercises can be performed daily and include shoulder, upper arm, calf, and thigh stretches.

Example of Aerobic and Muscle-Strengthening Physical Activities for Older Adults. The intensity of these activities can be either relatively moderate or relatively vigorous, depending on an older adult's level of fitness.

Aerobic	Muscle-Strengthening
Walking	Exercises using exercise bands, weight machines, hand-held weights
Dancing	Calisthenic exercises (body weight provides resistance to movement)
Swimming	Digging, lifting, and carrying as part of gardening
Water aerobics	Carrying groceries
Jogging	Some yoga exercises
Aerobic exercise classes	Some T
Bicycle riding (stationary or on a path)	
Some activities of gardening, such as raking and pushing a lawn mower	
Tennis	
Golf (without a cart)	

Contraindications for exercise for the aged

- Acute illness
- Undiagnosed chest pain
- Uncontrolled diabetes
- Uncontrolled hypertension
- Uncontrolled asthma
- Musculoskeletal problems
- Weight loss and falls

Conclusion

Health is an important aspect of life which needs utmost care throughout life. Ageing results in reduced efficiency of all the physiological systems that leads to decreased physical activity. Training during physical activity has got many advantages. But care must be taken to keep away contraindications. Physical activity helps to improve health status and as a whole helps to improve the standard of living of the aged.

REFERENCES

Books & journals:

1. King, A & King, D. (2010). Physical Activity for an Aging Population. Public Health Reviews. 2, 401-26.
2. Abby, C. King & Diane, K. King. (2010) Physical Activity for an Aging Population. Public Health Reviews, 32(2), 401-426.
3. Who. (1998). Aging and physical activity in everyday life. WHO/HPR/AHE, 98.1.
4. National institute of health. (2010), exercise and physical activity. 09-425

Web source:

- www.webmed.com
- www.pubmed.com
- www.wikipedia.com