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Role of Exercise as a Residue for Maintaining Non-Communicable Diseases

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Abstract
The focus of this paper is on low regular, moderate- intensity exercise activities can benefits and have side effects on non-communicable diseases such as osteoporosis, diabetes, arthritis, hypertensions (BP) and so on, while these diseases are no infections, they nonetheless can occur in epidermis proportions. The global increase in chronic disease is drive largely by globalization, urbanization and rapid aging of populations. These determinants contribute to the three primary risk factors common to most chronic disease-unhealthy diet, inactivity and tobacco/alcohol use. Prevention and management of certain non-communicable diseases through a well-planned exercise programme were highlighted; conclusion and recommendations were also made.

INTRODUCTION

Over the past century, we have become increasingly sedentary due to the technical advancement of today's world. Ironically, while machines and improvement in transportation and communication have made our lives easier, studies shows that the decline in our physical activity associated with this advancement plays a large role in the decline of our health. (Haskell, 2000)

A Surgeon General's Report (2013), addressed the finding that continuous and consistent physical activity is proven to enhance longevity and the quality of life for people of all ages. Furthermore, the report noted that although it has been recognized for years that regular physical activity can lead to substantial health benefits 70% of American adult are not regularly active and about 30% of the adult population are not active at all. Physical fitness and exercise can reduce the risk of diseases such as heart disease, non-insulin-dependent, diabetes mellitus, some cancers, osteoarthritis, osteoporosis and obesity. Studies also shows that exercise can promote psychological well-being and reduce feelings of depression and anxiety. (http://www.medgraph.com/aboutexercise.html2013)

ROLE OF EXERCISE IN DISEASE PREVENTION

While physical activity and exercise provide health benefit which positively effect a large range of factors contributing to the quality of life, there are few areas of disease or health complication where regular exercise predominately reduces risk in controlling disease. The following are;

i. Coronary Heart Disease
ii. Obesity
iii. Atherosclerosis
iv. Chronic Obstructive Pulmonary Disease
v. Diabetes Mellitus

ROLE OF EXERCISE IN PREVENTING HEART DISEASE

Cardiovascular disease is the leading cause of death in the world. The American Heart Association has stated that the leading cause of heart disease is physical inactivity. A Surgeon General's Report (2013), stated that 'regular physical activity or cardiorespiratory fitness decreases the risk of cardiovascular disease mortality in general and of coronary heart disease (CHD) mortality in particular. Regular physical activity prevents or delays the development of high blood pressure in people with hypertension. Due to the complexity and the numerous possible causes to heart disease and failure, it is logical that physical activity can reduce that risk of heart disease by influencing different aggravating factors such as coronary artery flexibility and cholesterol level. (Adrian, M. J. & Cooper, J. M. 1989).

A Stanford University (Haskell, 2000) study on exercise and heart disease focused on whether or not running prevented heart disease by increasing the flexibility of the coronary arteries. Heart attacks are caused by inadequate blood flow to the heart. Physical activity also aids in the prevention of heart disease by improving a person's cholesterol level. Research on physical activity and cholesterol shows that exercise reduces the level of good cholesterol, lowers the fat issue level, improve the total cholesterol ratio and slightly lowers the level of bad cholesterol. (Shaping 2000). The improved cholesterol status of the physically fit is largely due to the fact that overweight people often have an excess fat which increases unhealthy cholesterol status. The average American male has an HDL (cholesterol) level of 4.5. A distance runner has a level of 65. For everyone two point increases in your HDL, there is 2 to 4 percent reeducation in your risk of triglyceride. (Shaping 2000).

EXERCISE AND DIABETES MELLITUS

Physical fitness and exercise can aid in preventing the onset of non-insulin dependent, diabetes mellitus as well as aid in the regulation of blood glucose for those already suffering from diabetes. The American Diabetes Association stated that exercise promotes the entry of glucose into the cells, helping the body to use its food supply more efficiently and to lower blood sugar levels. Exercise can be an effective way to prevent the onset of diabetes. Exercise can also be helpful for those who already have diabetes.

Ninety percent of all diabetes have type II diabetes or non-insulin dependent diabetes mellitus. (Henmham 1996) in type II diabetes, an individual either produces insufficient amount of insulin or produces sufficient or even excess insulin, but their cells are resistant to the insulin. For both categories of type II diabetes, it is difficult to maintain normal glucose levels. Regular exercising for individuals whose cells are resistant to insulin will aid in the regulation of glucose levels in the blood. Diabetes who take insulin shots can also exercise with caution so that they do not subject themselves to hypoglycemia. (http//envirolimk.org/arrs/VRG/Diabetes.html%#3458//insulin

Exercise also contributes to the prevention of cardiovascular disease which is a common problem and leading cause of death in diabetics. Studies revealed that more than 80% of people with diabetes die from some form of heart and blood vessel disease. Furthermore, exercise help in preventing obesity which can lead to diabetes. Almost eight of ten people with non-insulin dependent diabetes mellitus are overweight. Diabetics have higher than normal blood fat levels, creating a greater risk for heart disease, but regular exercise also has a positive effect on reducing cholesterol levels and weight. Extreme caution and doctors consultation is advised for diabetic exercisers because of the importance of balancing food, exercise and insulin levels.(http//ww.injury.com/living/healthyexercise/diabetes.html.

EXERCISE AND OBESITY

As mentioned previously in the heart disease and diabetes sections, obesity alone can lead to further complications of an individual physical health. Among those who are moderately obese, that is 150 to 200 percent weight, moderate weight loss in an obese person can reduce several chronic disease risk factors by 20% to 75%. (Murray 1994) obesity places individual at greater risk for heart disease, cancer, stroke, diabetes and hardening of the arteries. Inactivity results in inefficient use of calories intake toward energy usage. Emphasis needs to be placed on maximizing fat loss and minimizing lean tissue loss. Specifically, weight loss in an obese individual is ideal when 75% of weight loss is body fat (Murray 1994).

ROLE OF EXERCISE IN COMBATING SLEEPLESSNESS

Two major findings about exercise are particularly relevant to insomniacs.

1. Insomniacs lead more sedentary lives than good sleepers. The lack of physical activity can contribute to insomnia by inhibiting the daily rise and fall of the body temperature rhythm. As a result, many people get caught in a cycle of insomnia, reduced energy and physical activity and worsened insomnia.
2. Exercise improves sleep by producing a significant rise in body temperature, followed by a compensatory drop a few hours later. The drop in body temperature, which persists for two to four hours after exercise, makes it easier to fall asleep and stay asleep.

EXERCISE AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

COPD often makes it difficult to breathe, which in turn may limit how active you are and how much you exercise. But it is important to remain active and exercise when you have COPD. Activity and exercise can

- Build muscle strength and endurance. This will help you be more active you will be able to do more activities for longer period of time.
- Reduce shortness of breath

Exercise for COPD can be done nearly anywhere. They are often done as part of a pulmonary rehabilitation program.

Always consult your doctor before starting an exercise program. Heart problems, such as coronary artery disease (CAD) or high blood pressure, are common in people with COPD and may limit exercise option. You may need medical supervision when you start your program. (Brickell B. et al 1994).

WHAT EFFECTS DOES COPD HAVE ON ABILITY TO BE ACTIVE

COPD leaves you short of breath-uncertain and perhaps worried about your ability to exercise. But a lack of activity means your muscles, heart and lungs continue to get weaker-resulting in greater shortness of breath, more weakness and less ability to exercise.

This harmful cycle can result in depression, isolation, less independence, and a weakened immune system, making it difficult to prevent and fight infections. (Henmham, 1996).

IMPORTANCE OF EXERCISE TO COPD

Although exercise does not improve lung function, it improves your body's ability to use your existing lung function. Exercise builds muscle strength, improves shortness of breath, and helps you to be more activity one can be able to do more activities for longer period of time. This includes everyday activities such as shopping or preparing food, as well as recreational activities with friends. One may become less anxious about your shortness of breath, feel less tired, and be more independent. Exercise also often improves how one feels about themselves. All this can lead to an improved quality of life. (Henmham 1996)

HOW TO EXERCISE FOR COPD

Exercise for COPD are simple to do and take little time. They generally consist of aerobic exercises, which increase oxygen flow to ones muscles and upper and lower body exercises, which strengthen muscles. If one become breathless while doing any of the exercises, rest in a position with one shoulders supported (such as in a chair) and wait until you can breathe easily again

To get started with an exercise program;

- Talk to one doctor. He or she may ask that you do specific exercises and will help you figure out not only how often and how long to do your exercises but also how to set your long term exercise program goals. Although it may take weeks before you are able to reach your goals, how long it takes is not as important as doing the exercises consistently.
- Start slowly and gradually. For each exercise, either time how long you can do it or count the number of time you can do it before you are mildly out of breath. Then rest and move on to the next exercise. Each week, increase the time you spend doing each exercise or how many times you do each one.
- Pick activities that you enjoy most
- Always have a warm up and cool down exercise. This is a good time for stretches
- Pay attention to your breathing. Try to breath slowly to save your breath. Breathe in through your nose, keeping your mouth closed. This warms and moisturizes the air you breathe.

THE FOLLOWING ARE EXAMPLE OF EXERCISE FOR PEOPLE WITH COPD

Aerobic Exercise

- Aerobic exercise increase the amount of oxygen that is delivered to your muscles which allows them to work longer. This helps you do more activities for longer period of time.
- Any exercise that raises your heart rate and keeps it up for an extended period of time will improve your aerobic fitness. These exercise include walking, using a treadmill, cycling or using a stationary bicycle, swimming, and water aerobic
- Daily activities can also be aerobic; walking to work or to run around, sweeping, playing actively with children and walking with your dog

There is an easy way to determine whether your heart rate is at the right level during aerobic exercise.

- If you cannot talk and exercise at the same time, you are exercising too hard
- If you can talk while exercise, you are doing fine
- If you can sing while you exercise, you may not be exercising hard enough.

Talk to your doctor before starting aerobic exercise. He/she will help you know how often and how long to exercise and how to set your long term exercise goals. (Cooper, J.O., Heron, T. E., & Heward, W. L. 1987).

Lower Body Exercise

Knee extensions, leg lifts and step-ups develop lower body muscles and will help you move around more easily for longer period of time.

- **Knee Extension:-** sit in a chair with your feet slightly apart. Breathe in as you bend your knee and return your foot to the floor
- **Leg Lifts:-** Sit in a chair with your feet slightly apart. Breathe out as you lift one leg straight up so that the knee rises toward your shoulder. Breathe in as you return your foot to the floor
- **Step-Ups:-** Start on a flight of stairs with a banister to hold. Breathe out as you take one step up. Breathe in as you step back down.

Upper Body Exercise

Upper body exercise increase strength in arm and shoulder muscles, which provide support to the rib cage and can help improve breathing. They help everyday tasks such as carrying groceries and doing housework.

Arm Extension:- Start with your arms by your side. Breathe out as you raise one arm to shoulder height, keeping the arm straight and pointing to the side. Breathe in as you return the arm to your side

Elbow Circles:- Sit or stand with your feet slightly apart. Place your hands on your shoulder with your elbows. Breathe out as you start the circle and breathe in as you complete the circle.

Elbow Breathing:- Sit with your feet slightly apart. Lift your elbows to shoulder level and touch your fingertips

in front of your chest. Breathe in as you pull your elbows back so that your fingertips separate. Breathe out as you return your elbows and fingertips to the original position.

EXERCISE AND ATHEROSCLEROSIS

Atherosclerosis is the progressive narrowing of the three main coronary arteries which deliver blood to the heart. The arteries are typically three to four meters in diameter. In order to prevent problems in blood flow to the heart, atherosclerosis must be prevented or an increase in the diameter of the arteries must occur. (American College of Sports Medicine 1997).

Regular physical activity using large muscle groups, such as walking, running, or swimming produces cardiovascular adoptions that increase exercise capacity, endurance and skeletal muscles strength. Habitual activity also prevents the development of atherosclerosis and coronary artery disease (CAD) and reduces symptoms in patients with established cardiovascular diseases. There is also evidence that exercise reduce the risk of other chronic diseases which among other include diabetes, osteoporosis, obesity, depression, cancer etc. (Ayres, 2010).

CONCLUSION

In conclusion, physical activity and exercise is a crucial and critical component to healthy living. It is never too late to start exercise as long as the type of activities engaged in is appropriate and recommended by an expert in the field of sport sciences and other related health field. Start out slowly and gradually to build up to a recommendable degree, frequency, duration and time. Talk to your doctor before starting any exercise. He/she will help you know how often and how long to exercise and how to set your long term exercise goals.

RECOMMENDATIONS

The following are recommendations made;

1. There is the need to focus on physical activity that reduce depression, obesity, coronary heart disease and other chronic disease that affect the individual.
2. There is growing recognition of the contribution of social support and the value of integrating behavioural changes into our daily routines to sustain improvement in physical activity levels. For this reason, health care providers should advocate changes in organizational practices within work sites and civil and recreational settings that encourages active living.
3. Health professional should personally engage in active lifestyle to familiarize themselves with the issue involved in maintaining lifelong physical activity and to set a positive example to patient and the public. This may increase the likelihood that healthcare providers will recommend physical activity to their patients.
4. Health Care Providers should use their influence as parents and community members to encourage schools to provide physical education programme that teach the importance of engaging in physical activities and to tech the correct skills to the public to develop the necessary skill possible for them.

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