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The Nurse’s Role in Promoting Activity in the Older Adult

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The Nurse's Role in Promoting Activity in the Older Adult

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Abstract

The older adult population has a high rate of chronic disease, falls, and a decline in mental health (Nelson et al, 2007). In addition, the aging population utilizes the highest proportion of medical care than any other age group (Chen et al., 2011). The older population trusts the face-to-face interaction with their health care team and nurses are at the forefront of care for their patients (Pacucci, Chu, Leasure, 2012). It is the responsibility of the nurse to educate and advocate for the active lifestyle of an elderly patient for better health promotion and prevention of disease or disease progression. Exercise promotes mobility and strength when it comes to gait, balance and age-related muscle and bone weakness; all of which can affect an older adult’s risk for falls (McMahon, Fleury, 2012). Exercise increases mental health by promoting blood flow to the brain and can increase neural connections. This aids in slowing the progression of dementia and increasing mood. The purpose of this capstone project is to review the literature and look at the effects of exercise on the body of the older adult and determine the specific roles the nurse plays in helping maintain an active lifestyle.
**Introduction**

One definition of health in the older adult is the maintenance of functional independence until death (Park et al., 2014). Through exercise, the older adult is not only living healthier, but also living longer. This review of literature discusses the effects of exercise on the aging process related to chronic disease, fall risks, and mental health. Strength, balance, and aerobic training, as different forms of exercise have been shown to decrease blood pressure, delay or prevent the onset of type two diabetes, and lessen the number of falls in the older adult. Through this review of literature, the effects of exercise on the blood vessels, serum bloods levels, and muscles will be discussed to show how and why the elderly should be engaging in regular activity and that it is never too late to begin an exercise regimen.

**Chronic Disease**

Chronic disease is becoming more prevalent in today’s day and age, and it is common for a person age 65 years or older to have more than one chronic illness (World Health Organization, 2015). According to the National Council on Aging (2016), 80% of older adults have at least one chronic condition and approximately 70% have two or more. The most common chronic disease that affect the elderly are cardiovascular disease and diabetes.

**Cardiovascular Disease.** Cardiovascular disease includes heart conditions involving blood vessels, structural problems, and blood clots. Some common types of cardiovascular disease include hypertension, coronary artery disease, and heart failure (Mayo Clinic, 2014). Exercise in older adults has a direct effect on heart disease, for example, reversing arterial stiffness that can cause the heart to pump harder and lead to hypertension, or increased blood pressure (Madden et al, 2009). Exercise also decreases modifiable risk factors of heart disease, including obesity, dyslipidemia, high blood pressure, and high cholesterol levels that are becoming more prevalent in the population (De Moraes et al, 2012; Mayo Clinic, 2014). During
exercise, the blood vessels expand, allowing more blood flow to various parts of the body where energy is being expended, for example, the muscles and the heart. The increase in blood flow affects the plasticity of the vessels and helps prevent any hardening or blockage of the vessels.

Aerobic exercise including walking and jogging have more beneficial effects on heart disease than other types of exercise, like balance training or weight lifting (Madden et al, 2009; Rodriguez et al., 2008). Madden et. El, (2009) studied an aerobic training program that was three months long. Subjects were split into two groups; the aerobic group exercised using either a treadmill or stationary bike, and the nonaerobic group used the exercise ball and dumbbells. The findings showed that aerobic exercise decreased arterial stiffness three times more than the nonaerobic exercise group. The study was measured using arterial pressure. Aerobic training decreased arterial stiffness by increasing the pressure on arteries (Madden et. al, 2009).

Similarly, Rodriguez et. al (2008) conducted a study using a training program consisting of primarily walking, that only required twice-a-week participation. Overall, exercise decreased blood pressure by increasing baroreceptor sensitivity. Baroreceptors sense pressure changes in the arteries. In addition, just 45-75 minutes of walking a week has a significant effect on the risk of cardiovascular disease (Nelson et al., 2007). In all, if the nurse and healthcare team can encourage the older adult to get up and walk a couple times a week, the risk for cardiovascular disease can be greatly reduced. As a nurse, we can tailor a specific exercise program to an individual by assessing their ability and illness. By working with the health care team, we can determine how many days a week and to how hard an exercise should be. The older adult respond better when a more tailored program is prescribed for them.

Type 2 Diabetes. Another chronic disease that has significantly increased in the past ten plus years is type 2 diabetes and exercise is a cornerstone of diabetes management (Sung and
The American Diabetes Association (2016) estimates that 25% of adults 60 years and older are affected by diabetes. There is not a certain type of exercise therapy that is specified for the management of diabetes, however a regular exercise regimen is recommended to be followed. Insulin resistance is when the body does not respond to the hormone insulin, and the blood sugar rises. During exercise, the peripheral blood volume increases, activating insulin in muscle, adipose tissue, and the glucose utilization rate, resulting in a decrease in insulin resistance over time (Sung and Bae, 2012). When a regular exercise regimen is followed, glycosylated hemoglobin (A1C) levels, or long-term blood glucose levels, are shown to decreased, often times back within normal limits (Geirsdottir et al., 2012).

In the older adult, the literature paralleled that walking exercises were the most common way to exercise among the population and agreed that at least 150 minutes per week should be spent exercising (Sigai et al., 2006; Umpierre et al., 2011). Resistance training, or strength training, has been found most helpful in controlling blood glucose. The muscle is the primary site of glucose uptake and by activating the muscle, the body can metabolize the glucose. By metabolizing the glucose more efficiently, the insulin resistance is then decreased (DeFronzo and Tripathy, 2009). Education with these clients is important because exercise can cause hypoglycemia, or a drop below 60 in blood glucose. Clients should be advised on how fast and how long their insulin will work, as well as how an oral diabetic medication works. Clients should also be advised of the correct snacks to eat before engaging in physical activity. These clients can be advised by a diabetic educator, who is also a registered nurse.

**Fall Prevention**

As a part of the aging process, the muscles and bones decline in strength and bones become more brittle, which increases the risk for falling. Falls in the elderly is one of the most serious public health concerns. Falls are also one of the most expensive cost to health and social
services (Ishigaki, Ramos, Carvalho, Lunardi, 2014). In contrast to the exercise training for cardiovascular disease, balance training and weightlifting have proven more beneficial to decrease the risk of falls in the older adult (Seo, Lee, Park, 2014; Ishigaki, et al, 2014; Fairhall et al., 2013).

Lower limb training has shown to be the most effective training intervention by reducing falls and injuries from falls (Ishigaki et al., 2014). When working on strengthening the lower limbs, gait and mobility become steadier and improves the quality of life by promoting independence in regular activities of daily living. (Seo et al., 2014). Balance training, which can be evaluated using the sit-to-stand exercise, allows an older adult not only gain the muscle needed for balance, but also the confidence needed to reduce the anxiety or fear of falling (Nelson et al., 2007). The sit-to-stand exercise consists of the patient sitting in a chair with their arms crossed over their chest; they then stand up and sit back down as many times as possible in a designated time frame. The sit-to-stand exercise also allows an examiner to assess the patient’s ability to be on their own, as moving from a chair is part of a person’s daily routine. Being able to perform this exercise can increased confidence and therefore reduce the anxiety of falling (Ishigaki et al, 2014). Some other exercises that can improve exercise is standing on one foot for 10-15 seconds for multiple repetitions, heel-to-toe walking, and balance walking. Balance walking consists of the regular walking motion, however when the leg is raised, hold the leg up for one second before setting it down. These exercises should be done with a chair or near a wall for guidance and safety (National Institute on Aging, 2016).

**Mental Health**

Regular physical activity has been linked to not only improved physical function, but also improved psychological function (Lindwall, Rennemark and Berggren, 2008). Aging is generally accompanied with a general decline of cognitive function, including disease such as
dementia, depression, and anxiety (Park et al., 2014). Exercise routines in conjunction with cognitive function tests have been used to test memory, perceptual speed, or the ability to quickly recognize similarities and differences, and other aspects of cognitive function. Exercise increases the blood flow to the brain, which increased neural connections and functional connectivity, meaning that brain function increases with blood flow increase.

Voss et al. (2014) measured the neurological biomarkers, or markers that measure the plasticity of the brain, and exercise has shown to increase function in various regions of the brain. One of those regions affected was the hippocampus, the memory center of the brain (Voss et al., 2013). Also, through exercise, increased respirations allow more oxygen to enter the body and protects the brain from hypoxia, or lack of oxygen, and ischemia, or tissue death. In dementia patients, this is particularly important, because although exercise may not reverse the effects of the disease, it has shown to improve cognitive function when paired with cognitive training (Yoon et al., 2013; Lindwall et al, 2008). This is significant because the incidence of dementia doubles with every five years of age, after the age of 65 (Kawas, 2008).

Nurses Role

First and foremost, nurses are advocates for their patients and their patient’s health. Adherence and motivation are amongst the biggest problems why the older adult does not get involved in a regular exercise routine. As an advocate, it is the nurses job to promote a healthy lifestyle, including adding a regular exercise routine into an older patient’s lifestyle. Older adults are more likely to listen to their health care team rather than anywhere else when it comes to their health decisions. (Pascucci, Chu, Leasure, 2012).

Another way nurses can get involved in promoting an active lifestyle is through home health care. Nurses go into the home and immediately begin assessing their patients, including
their environment (Rantanen, 2013). Many times, falls occur because of loose rugs, wires, misplaced furniture, or inconvenient placement of restrooms. Upon assessment, the nurse can work with the patient and family to create a safer environment by taping down wires, rearranging furniture and finding safer pathways to the restroom. In order to thoroughly assess the safety of the environment and of the patient, the nurse also assesses the patient’s ability to move, perform activities of daily living, and gait speed. In the nursing care plan, the exercise plan should be planned around the patient’s strength, flexibility, and gait ability (Rantanen, 2013). This plan should then be relayed to the physical or occupational therapist, or any other part of the health care team.

A barrier to patients enrolling or engaging in regular activity includes their fear of falling. This can be overcome by providing necessary equipment, including walkers, canes, wheelchairs, and other walking devices that can aid in balance. Other resources and referrals can be given to the patient, including group exercise and physical therapy can be recommended to the patient. The nurse should promote group activity classes for the older adult. Group activities have shown to be beneficial not only for adherence, but also to alleviate anxiety, promote mental health, and allow for a more social environment for the older adult (Geraedts et al., 2014; Hirosaki et al., 2012). Many patients have anxiety because of lack of information, thus, providing the proper education to the patient can alleviate much of the anxiety involved with falling. In nursing, there are various certifications and specialties that allow for further education with specific patients, for example, the diabetic educator.

Every older adult is different and their learning needs and ability. Education should be accommodated to their needs. Technology is becoming more prevalent and there are some older adults who can use a computer but there are others who still prefer their education in writing.
During an education session, the environment should be conducive to learning, for example, lights should be on and distractions and noise should be limited. The nurse needs to be aware of any barriers to learning like loss of hearing or decline of vision, and should tailor his or her education for that specific patient. It is also important that medical jargon is not used to explain anything related to the patient’s diagnosis; any medical terms should be put into laymen’s terms. One more tip that will help when educating the older adult is making the information relevant by building on previous experiences. This allows the older adult to build on the knowledge they already have (Centeno, 2011; Speros, 2009).

**Personal Experience** In my clinical experience as a student, I observed wellness classes with mainly older adults and the underserved population. The nurse and dietician worked together to show exercise programs they could do at home as well as how easy it can be to cook for themselves and their families. In a study by De Moraes et al. (2011), a systematic, or well organized exercise program was more effective than the patient trying to exercise on their own, in keeping patients compliant to the exercise program and reducing the risk of falls. When I and the other members of the health care team talked to the clients, most the patients wanted to be there and get involved with their families to be healthier. When support was offered, the patients were more receptive to the information.

**Conclusion**

In the ongoing, 90+ study conducted by researchers at the University of California-Irvine, the secret to longevity of adults ages 90 and up is being explored. This study started in 1981 in an exercise and activity based retirement home, Leisure World. Although the research continues, some prominent findings have been reported. One finding indicated that those who engage in physical activity at least 45 minutes per day decrease their mortality upwards of 25%. Also, in the younger elderly, physical activity was linked to decreased risk of dementia, however,
the findings were not congruent with those already 90+ in age (Kawas, 2008; Kawas and Corrada, 2017).

To conclude, physical activity should be one of the highest priorities for preventing and treating disease and disablement in older adults (Nelson et al., 2007). Exercise can help in the prevention or slow the disease progression in chronic disease such as cardiovascular disease, diabetes, and dementia. Exercise programs are more successful in group setting and when the program is tailored specifically per patient. When the program is easy to follow, and can be easily done on a regular basis, the older adult is more inclined to follow the direction of their health care team. Nurses play a role in assessment, education, and provide various resources for the older adult related to their ability to perform daily exercise. Nurses also encourage and advocate for their patients when referrals for home health and possible physical therapy is needed.
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