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Importance and Implementation of Exercise Programs in the Geriatric Population

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Honor's Project

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In the United States today, people over 65 years of age comprise the fastest growing population with approximately 12.9% or 1 in 8 Americans in this age category (Administration on Aging, 2010). Americans life expectancy has increased in the past century, but more older adults (OA) are experiencing pain because people are able to live longer with chronic conditions. Although many OA have chronic diseases, many of which that cause pain, it is not part of the normal aging process. It is estimated between 50 and 70% of people over age 65 have two or more chronic conditions. These conditions lead to pain, immobility, decreased cognitive function and physical disabilities. According to recent research, exercise has helped to prevent chronic diseases, improve memory, and reduce depressive symptoms in OA (Singh, 2002). The purpose of this paper is to demonstrate how exercise has the potential to reduce pain, prevent cognitive diseases and decrease depressive symptoms in older adults.

It is estimated that by 2030, OAs will make up 14.4% of the population (Potter and Perry, 2013). However, since the geriatric population is growing so rapidly, there are also more people living with pain and other symptoms caused by chronic diseases. Approximately 47% of people over the age of 75 have chronic pain. Persons' experiences of pain will partially determine their activities of daily living (ADL), especially for older adults (Lansbury, 2000, p. 2). Pain can decrease an individuals' motivation to exercise and can cause immobility leading to numerous other health problems. Exercise can assist to prevent chronic pain and immobility. Overall, exercise has been shown to have many therapeutic effects such as reducing pain from chronic diseases, decreasing the probability of developing cognitive conditions, and reducing the risk of developing depression.

Exercise Decreases Chronic Pain

While many health conditions are preventable with exercise, many physiological changes occur as the human body ages which impact a person's ability to exercise. Some examples of these age-associated changes that impact one's ability to exercise are: decreased cartilage in joints, decalcification of bones, intermittent claudication, neuropathy, and muscle rigidity and stiffness (Potter & Perry, 2013). These physiological changes result in a decrease in maximal aerobic capacity and muscle strength (Drewnowski, 2001). Even though age makes one more susceptible to develop diseases, exercise has shown to decrease the prevalence of developing numerous diseases that can prevent one from exercising. According to Singh (2002), exercise can minimize the physiological changes stated previously, increase longevity, reduce side effects of medications, as well as possibly prevent diseases and disabilities that would have resulted in chronic pain.

One condition that is debilitating to many OA is osteoarthritis. Yip et al. (2007), conducted a randomized control trial (RCT) with 149 participants with joint pain from osteoarthritis. The experimental group participated in small group exercise sessions once a week with a registered nurse who focused on strengthening joints. In addition, both the control and experimental groups attended a class on osteoarthritis self-management strategies. There were no statistically significant differences in age or ethnicity between the two groups. Data were collected on the individual's self-efficacy, self-management, and pain. After sixteen weeks, the experimental group showed statistically significant improvements in their pain rating, whereas, the control group showed little to no improvements. The experimental group showed a 12 point reduction in pain where the control only showed a two point reduction using a 0 to 100 scale. Some important limitations to this study are response bias and a high dropout rate (Yip et al.,

2007). Overall, exercise can prevent many pain-associated conditions from occurring. Physical activity can reduce pain even if an exercise regimen is started during later stages of life.

Reduction in Cognitive Changes

Although exercise has shown to reduce many physical painful diseases, it can also enhance mental status in OA. Since the geriatric population is growing, so is the rate of dementia and Alzheimer's (the most common type of dementia). Approximately one in three OA die with a type of dementia (Alzheimer's Association, 2016, para. 1). Although dementia is a common cognitive impairment, it is not a normal part of aging. "Dementia is a generalized impairment of intellectual functioning that interferes with social and occupational functioning" (Potter and Perry, 2013, p. 179). Persons with dementia have problems with memory loss, confusion, personality changes and eventually loss of muscle function, including speech. Currently there is no pharmacological cure or treatment to slow the progression of dementia (2016, Help End Alzheimer's, para. 1).

One method to improve cognitive abilities in OA is by applying an exercise regimen. Langlois et al. (2012) conducted a RCT in 83 individuals aged 61 to 89 years old. The experimental group exercised three times a week for 12 weeks. There were 36 out of 43 participants who completed the study in the experimental group and 36 out of 40 participants in the control group. Many participants were unable to continue the study due to illness. The control group had no intervention, but believed they were on a waiting list for an exercise course. The experimental group showed a significant improvement in working memory, executive functions, and processing speed. The experimental group not only demonstrated an increase in cognition, but also an increased physical capacity and quality of life. Some limitations to this study were the small sample size and the large dropout rate (Langlois et al., 2012). Overall, this

study demonstrates that implementing an exercise even after old age (>61), can improve cognitive capacity.

Research on Depression in Older Adults

Not only does exercise improve cognition but it can also reduce depression in OA. Singh (2001) conducted a RCT to test the effects of exercise on OA with depression. In this study, the experimental group conducted intense exercise routines for 20 weeks and the control had an education course for the same amount of time. There was a sample size of 32 participants between the ages of 70 and 73. Results showed that the experimental group had significantly less depressive symptoms after 20 weeks when compared to the control group (Singh, 2001). There was also a follow-up concerning their mental health 26 months after the treatment. The follow up showed that 33% of the experimental group were still exercising but none of the control group was exercising. A limitation of the study is the small sample size. In conclusion, Singh, N. suggests that physical activity has statistically shown to decrease depressive symptoms in OAs and that the benefits lasted over time.

Although some research suggests that exercise can reduce depression, not all studies support this evidence. For example, Underwood et al. (2013) conducted a cluster-randomized control trial in a sample size of 751 older adults residing in nursing homes. At the start of the study there were 891 but they experienced a large dropout rate because this was a done in nursing homes. Of 73 total nursing homes in the study, there were 35 nursing homes and 300 participants in the experimental group that were able to continue the study after 12 months. In the control group, there were 43 nursing homes and 263 participants. The experimental nursing homes had exercise courses available to residents in which the residents attended a nurse lead exercise session once a week on average. The control group did not have an intervention. Results

on depressive symptoms were gathered after 12 months of exercise. The results showed an increase of depression in both the experimental and control groups. Again, this study had a large dropout rate and was done in nursing homes where many people are depressed. Thus, exercise may not impact depression in certain populations of OA's.

Even though there is some contradicting research regarding exercise and depression in OA, exercise has shown to provide many benefits especially to OA. Exercise is very individualized and has the potential to decrease some depressive symptoms in OA. Research supports that exercise can aid to reduce chronic painful conditions, cognitive impairments, and depressive symptoms.

Conclusion

In summary, research supports that implementing exercise later in life can still reduce pain, lower risk of cognitive impairments, and may aid to lower depressive symptoms. Exercise can prevent many age-associated changes, especially if an exercise regimen is implemented earlier in life. The studies previously stated have demonstrated that exercise has the ability to decrease pain with the example of osteoporosis. Next, exercise can also enhance mental status in older adults. Finally exercise may even help reduce depressive symptoms. According to recent research, exercise can prevent not only physical diseases and impairment, but also cognitive conditions.

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Reflection on Exercise Program with Older Adults

There were many ups and downs to this experience but overall I learned a lot about what it takes to motivate people to exercise. One positive experience was when we walked around the building after we were done doing our indoor exercises. One of the residents claimed that he had never felt this good in years. He said he wanted to attend every session and that we had motivated him to get up and get moving. However, the following week he said he did not want to exercise. Another participant who came to almost all the sessions said that exercising had helped her with her peripheral artery disease. She said she exercised three to four times a week and really enjoyed when my partner and I came to exercise and do activities.

For this project, I was specifically in charge of coordinating the activities to promote learning about exercise. I wanted to increase the knowledge about the benefits of exercise to this population, whereas, my partner was teaching the exercises at each session. I really enjoyed working with my partner because I felt a lot more confident teaching this material when I had a partner to attend with me. Although I enjoyed having a partner, at times it made the project more difficult to coordinate times for the exercise session. Our conflicting schedules added a challenge to our availability to meet. Overall, my partner and I worked really well together to help each other out to answer questions and build our confidence.

My favorite part was watching them participating in the activities that I put together. It took me a lot of time to think of the activities and create the props needed for each activity. It was all worth it because I could tell they really enjoyed each activity. The activities also served as an ice breaker to get to know people. Their favorite activity was a big ball that had questions on it. As we passed it around, they answered the question their hand landed on. I was surprised

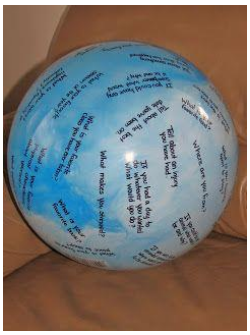
by how much they loved this activity and how simple it was to put together. Our participants would at least smile or even laugh during all of my and my partner's activities.

My hope for their future is that they at least continue to stay active. I know I have done what I can for the six short weeks we were teaching. Although I hope they learned about some of the benefits of exercise, I would really like them to continue to exercise in the future. Teaching these exercise activities taught me that this is a vulnerable and sedentary population. Older adults with a low socioeconomical status are at risk for developing many conditions from decreased accessibility to healthy foods and knowledge about health. I also learned that it is challenging to motivate people to exercise. I know my partner and I did the best we could to teach our participants about exercise and its benefits. I hope that these older adults both learned about exercise will continue to exercise in the future.

Week 2

Objective: Teach older adults on ways that exercise can reduce their pain

- Teaching Strategy: beach ball questionnaire
- Visual Aid: Blow up beach ball with questions regarding pain and exercise
- Participants pass the beach ball from one to another and answer the question where your right hand lands
- Questions on the ball
    - Where is your pain the worst for you?
    - What would you rate your pain on a scale of 0 to 10 with 0 being no pain and 10 being the worst pain imaginable?
    - How many days a week should adults over 55 exercise?
    - Can you show us your favorite stretch?
    - Does your pain sometimes limit your ability to complete your tasks that day?
    - Is it too late to start exercising at an older age?
    - Can being physically active lower pain?
    - What is your favorite physical activity?
    - What is one of the ways that you try to lower your pain?



Week 3

Objective: Demonstrate the benefits on exercise on cognitive abilities

- Teaching strategy: skit regarding how exercise can prevent cognitive impairments
- Skit (Ashley: PT and Denise: older adult with dementia) Participation is accepted
    - Ashley: Hi Denise how are you?
    - Denise: Good…..uh what's your name?
    - Ashley: My name is Ashley and I am here to help you with ways to improve your memory
    - Denise: Yeah I keep trying to remember my appointments and common sayings but people say I say them wrong. Cow jumps over the cheese, two pods in a pea, and deaf as a bat.
    - Ashley: No No I think its cow jumps over the (points to audience for participation-moon), two peas in a (audience-pod), blind as a (audience-bat)

  - Ashley: Yeah some people lose their memory more than others but this is actually not a normal part of aging.
  - Denise: oh ok
  - Ashley: Actually memory can improve with moderate physical activity.
  - Denise: What counts at moderate physical activity?
  - Ashley: It depends what is right for you some people it is jogging and other people it is walking at a decent pace or even arm exercises. You can also do exercises with weights or therabands.
  - Denise: What does exercising have to do with your memory?
  - Ashley: Well scientist believe that exercising will improve the oxygen that gets to your brain. Blood carries oxygen and the heart pumps the blood. Exercise will improve your blood flow and it is believed that this can help your memory and even decrease the risk of dementia. Dementia is a common condition that effects your memory.
  - Denise: Well I've never exercised much before, is it even worth it to start now that I'm 65?
  - Ashley: Yes
  - Denise: Well I guess I better get exercising so I can be fast as thunder
  - Ashley: I think you meant lighting
  - Denise: Oh yeah
- After the skit we will ask if there is any questions and if any of this applies to their lives.

Week 4

Objective: Discuss with residents effects of exercise on depression

- Teaching Strategy: Popsicle stick game
- Participants raise the popsicle stick depending on if the statement is true or false for them.
  - Note: Some have answers and others are subjective
- Questions
  - Depression is not very common in adults over 55 **False**
  - Depression is defined as a "reduction in happiness and well-being that contributes to physical and social limitations and complicates the treatment of concomitant medical conditions." (Potter & Perry, 2010) **True**
  - Exercise can raise your energy level **True**
  - Exercise has no effect on depression **False**
  - Walking three times week for thirty minutes can improve my mood**True**
  - I often feel better and more motivated if I exercise
  - Some symptoms of depression are lack of interest, loss of appetite, tiredness, and lowered motivation **True**
  - These symptoms can improve with physical activity **True**
  - Depression not serious as other conditions **False**

- I want to exercise more to increase my mood

Week 5

Objective: Review the importance of an exercise regimen and the concepts previously covered such as how exercise can improve the following: reduce pain reduction, improve cognitive functioning, and decreasing symptoms of depression

- Teaching strategy: Bingo
- Participants with have a list of words on the Bingo sheet that will be the answer to each fill in the blank question.
- I made one Bingo sheet below but I will make multiple variations with the same words just in different spaces but all will have the same two bingo spots
- We are only going to play one round until everyone wins at least once which I think will take about 20 to 25 minutes.
- Once the participant wins they can pick out a bag of trail mix. We will play till everyone wins at least once.
- Questions
    1. Exercise can help improve memory. One condition that causes someone to forget a lot is called_____? **Dementia**
    2. Running, walking, weights, therabands, jumping, and sports are all types of ____? **Exercise**
    3. What organ pumps the blood to rest of the body? **heart**
    4. Physical activity may lower many depression symptoms. Exercise can help someone feel less_____or more energized throughout the day even for someone who has depression: **tired**
    5. For adults over 55, exercise is suggested how many times a week? **3-5**
    6. Exercise can helps improve memory by getting more oxygen up to what part of the body? **Brain**

7. Do older adults need to do easy or moderate exercises to get the best results? **Moderate exercise**
8. Exercising can make a person feel more motivated or have more **energy** during the day?
9. Exercise can prevent what part of your body from getting osteoporosis? **Bones**
10. Physical activity can help to raise or **lower** pain?
11. Exercise can help people to remember or improve your what? **Memory**
12. Exercise can improve both what and mental health? **Physical**
13. This condition causes lack of interest, motivation and constant tiredness? **Depression**
14. Even if you cannot run, _____can still improve your mental and physical functioning? **Walking**

Week 6

- Objective: Encourage participants to exercise in the future and make goals on how to continue their exercise goals

For our final week, I want to talk to our participants about ways that they can continue to exercise after we are gone. We are going to have them fill out this worksheet on the next page. Then we are going to talk about their goals and how they want to overcome their obstacles. Afterward, we are going to have them say their goal then they make a shot with homemade bean bags (rice in sandwich bags with encouraging sayings) into the bowls as shown below. I have three bowls similar to the ones in the picture. I won't add the points because all goals are equal and individualized but I want everyone to be able to make it. This should hopefully be a fun way to end our time with our participants while making goals to continue exercise in the future.

Name: _____

My goal is:

_____

_____

_____

My plan for reaching my goal:

1. _____
2. _____
3. _____

An obstacle might be:

_____

_____

People who can help me are:

_____

_____

Exercise Bingo

Walking	Bones	Exercise	**Bingo**
Brain	Physical	Heart	Tired
Depression	**Bingo**	Lower	3 to 5
Dementia	Energy	Memory	Hard Exercises