Effect of Exercise Program on Elderly Patient with Osteoarthritis of Knee

Noor-ul-Ain¹ Mahwish Shamim²

ABSTRACT
This study was designed to evaluate, the effects of a physical activity program incorporating aerobic, strength, and stretching exercises in individuals with osteoarthritis of the knee. Studies on exercise in knee osteoarthritis was focused on elderly subjects. Thirty elderly people (23 women, 7 men) were diagnosed with osteoarthritis of knee. The mean age of the patient was 58.3 years. The patients pain was assessed through visual analog scale and physical function through following variables such as walking, limping, squatting, and stair climbing was counted. The overall results suggest that this program is effective for elderly persons with osteoarthritis of knee and that it could contribute to reduce pain and improve their physical function. The overall effects of exercise improve ranges 2.03 after exercise. Aerobic resistance and flexibility exercises was found to be effective in reducing arthritic pain and physical disability. Physical training program is a nonmedical intervention that is safe and efficient for improving the patient with knee osteoarthritis and included in the treatment plan of knee osteoarthritis.

Key words: Osteoarthritis of knee, physical disability, strengthening exercise.

INTRODUCTION:
Osteoarthritis, degenerative arthritis or degenerative joint disease is a group of mechanical abnormalities involving degradation of joints, including articular cartilage and subchondral bone. Symptoms may include joint pain, tenderness, stiffness, locking and sometimes an effusion. It is a chronic degenerative joint disorder having a significant economic impact on individual health¹. The joint most frequently affected is the knee joint ², where pathological joint impact and shear forces as well as post traumatic risk factors cause early cartilage degeneration and joint ageing³. Among elder people this chronic disease of the musculoskeletal system is one of the most frequent causes of loss of independence⁴ and may lead to physical disability⁵. The symptoms of Osteoarthritis usually appear in middle age. Almost everyone has some symptoms by age 70. However, these symptoms may be minor. Before age 55, Osteoarthritis occurs equally in men and women. It is however more common in women after age 55. Knee OA is a leading contributor to disability in the elderly population. The risk of disability secondary to osteoarthritis of the knee is as great as cardiovascular disease and greater than any other medical condition⁶. In knee osteoarthritis pain limits the use of the lower extremities which adversely affects the physical capacity, muscle strength and flexibility. The Symptoms are pain, a decreased joint range of motion (ROM) and stiffness, muscle weakness and atrophy, joint effusion and swelling and physical disability. Osteoarthritis is commonly characterized by structural changes of the entire joint. Partial to full thickness, loss of articular cartilage, subchondral bone sclerosis, osteophyte formation and thickening of the capsule are the typical clinical and radiological sign⁷. Osteoarthritis cannot be cured. It will also most likely become worse over time. However, symptoms can be controlled. Treatment generally involves a combination of exercise, lifestyle modification, and analgesics. If pain becomes debilitating joint replacement, surgery may be used to improve the quality of life. The American College of Rheumatology recommends exercise as a non-pharmacological tool for the management of osteoarthritis of the knee⁸.

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Physical therapy can help improve muscle strength and the motion of stiff joints, as well as sense of balance. Moderate exercises lead to improved functioning and decreased pain in people with osteoarthritis of the knee. It increases the aerobic capacity, maintains or restores range of movement and flexibility and increase muscle strength and endurance. The program for knee osteoarthritis patient is composed of aerobic resistance or flexibility exercises, with some containing a mixture of two types of exercises. The main objective of the present study is to evaluate, the effects of a supervised physical activity exercise program several aspects of the individuals with osteoarthritis of knee.

MATERIAL AND METHOD:
The study consist of 30 elderly people (23 women, 7 men) diagnosed with osteoarthritis of knee. The mean age of the patient was 58.3 year old. For women, the average mean age is 58.4 year and in men it was 58.2 year.

Individual of 50 year of age or above, and suffering from pain on most days in 1 or both knees, were included in this study who have difficulty in performing daily activities.

Individual below 50 years of age, suffering from cardiac or epileptic disease were excluded.

ASSESSMENT:
For the assessment of the patients included in the study the visual analog scale was used to assess the intensity of pain. A visual analogue scale (VAS) is a psychometric a response scale that was used in questionnaires. It is a measurement instrument for subjective characteristics or attitudes that cannot be directly measured.

0-10 VAS Numeric Pain Distress Scale

<table>
<thead>
<tr>
<th>No pain</th>
<th>Moderate pain</th>
<th>Unbearable pain</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
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<tr>
<td>3</td>
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<td>5</td>
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<td>6</td>
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<td>9</td>
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RESULT:
This program is effective for elderly persons suffering from osteoarthritis of knee. It could contribute to reduce pain and improve their physical function. Overall effects of exercise improves ranges 2.03 after exercise. In males it was noted to be 2.85 after exercise while in females 2.00. The exercise has been shown to improve pain and physical function in osteoarthritis of knee.

<table>
<thead>
<tr>
<th>TREATMENT SESSIONS</th>
<th>MEAN</th>
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<tbody>
<tr>
<td>Overall pre treatment</td>
<td>7.00</td>
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<tr>
<td>Over all post treatment</td>
<td>2.03</td>
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<tr>
<td>Post treatment (in men)</td>
<td>2.85</td>
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<tr>
<td>Post treatment (in women)</td>
<td>2.00</td>
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</tbody>
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DISCUSSION:
Knee osteoarthritis is one of the most common conditions effecting elders often leading to pain and decrease. Exercise is a commonly prescribed treatment for this disease and mobility. We observe that after exercise such as walking, climbing, squatting and stair climbing, pain is improved. Studies have investigated the effect of exercise on function and pain in individual with knee osteoarthritis although outcomes have been promising, consistently positive results have not been demonstrated. That the sample contains a greater percentage of women than men. It does reflect the distribution by sex of this disease, However it is more difficult to generalize the result to a male population. Although effect of exercise on patient with osteoarthritis of knee decreases pain and improve physical function. People who suffer from osteoarthritis experience regular pain and functional disability. Although significantly greater improvement was observed in the experimental group, participants displayed the following variables i.e. walking and arthritic pain subscales, aerobic capacity, hamstrings and low back flexibility, quadriceps isometric strength,
hamstring isometric and isokinetic strength. The perception of a positive change with regard to the knee osteoarthritis and general condition was clearly noted.

CONCLUSION:
An aerobic resistance, flexibility and strengthening exercises are effective in reducing arthritic pain and physical disability. Physical training program is a nonmedical intervention that is safe and efficient for improving the global health of patients with osteoarthritis and included, in the treatment plan of the knee osteoarthritic.

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