

The Effects of Water and Land Exercise Programs on Functional Fitness Factors in Elderly Men

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Abstract

The goal of this investigation was to compare functional fitness factors following water and land exercise in elderly men. Thirty elderly men aged 63-70 were randomly selected and divided into two groups. Pre- and post-intervention tests of lower limb muscle's strength, walking ability, lower limb flexibility, static and dynamic balance were conducted. Measures included 30-second chair stand, eight-feet time up and go, chair sit-and-reach test, the Sharpened Romberg Test, Functional Reach Test (FRT), Functional Reach Right (FRR) and Functional Reach Left (FRL) Tests. Next, both groups participated in a water or land exercise program. At pre-test there was no significant difference between the two groups' functional fitness factors ($p < 0.05$); however, at post-test, the groups differed on their functional reach left test with the water exercise group showing better performance than the land exercise group ($p < 0.05$). There was also significant differences between pre- and post-test results of the water exercise group on all the tests ($p < 0.05$). The land exercise group showed significant differences from pre- to post-tests on muscle strength, walking ability, static balance with open and closed eyes, FRT, FRR, and FRL ($p < 0.05$). Although the results support the positive effects of water and land exercise on functional fitness factors for male elders, water exercise proved to be more beneficial than land exercise in improving the elders' physical capability to maintain their body balance.

Keywords: Older adult men, water exercise, land exercise, functional fitness factors

Introduction

Old age is a critical period in life and paying attention to the requirements and problems of elders is a social necessity [1]. Today, the goal is not to reach an older age but the final years of human life must be accompanied with physical and mental peace. Moreover, providing the means for elderly activities has been a common global concern [2].

Within the next 20 years, %10 of the Iranian population will be old. Aging is associated with many changes in different systems of the body; for example, muscles and the nervous system, which are the main parts for walking degenerate, causing a fundamental problem for older adults [3].

After the age of 65, %10 of the older adults lose their independence to do one or more daily tasks [4]. Between the ages 65-75, one out of nine, between the ages 75-85, one out of four and, from 85 upward, three out of five people face difficulty doing basic life tasks [4,5]. As a result of aging, muscles loose their strengths along with other parts

of the body; reduced muscle strength is an important factor of disability and a main reason for one's ability for balance and walking properly [6]. Eight percent reduction of strength in the third decade of life begins in arms and feet muscles; in the 7th and 8th decades of life, reduction of isometric strength of different muscles of the body amounts to 20 to 40 percent [6].

Therefore, old age can be considered as a collection of unfavorable structural and functional changes in organs that, especially in the advanced stages of life, could be pervasive. Such changes interfere with motor skill mechanisms and reduce the adaptability of the individual with environment [7]. Loss of muscle strength in skeletal muscle system initiates from the age of 25-30 due to various factors and adversely affects the flexibility of all joints [8,9]. Reduced flexibility and muscle strength in older adults has a negative impact on their balance, posture and functional components, which, in turn, increases the risk of falling; causes breathing problems; reduces walking speed; and interferes with the elders' daily activities [10].

Older adults are usually advised to participate, three days a week, in strength activities to improve

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