

Title: Badminton for Cardiovascular & Neuromuscular function among older adults with and without non-communicable disease

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Introduction: In UAE, the prevalence of non-communicable disease such as diabetes, hypertension, obesity and anxiety disorders are very high and physical inactivity is the major risk factor. The older adults are the most susceptible age group for developing cardiovascular, and neuromuscular disorders due to lack of physical activities. The engagement of older adults into Physical Activity such as Badminton sports can improve their neuromuscular function. In addition, for people suffering from non-communicable disease it could be useful to cease the course of the disease or could be reversed. Thus the study aims to analyze the effects of Badminton on Cardiovascular & Neuromuscular function among older adults with and without non-communicable disease in United Arab Emirates.

Methods: This research was conducted in Body & Soul Badminton court inside Gulf Medical University. A total of 80 participants were recruited and divided into two groups: 40 with non-communicable diseases, & 40 without non-communicable diseases. Both groups were engaged in badminton sports as per the specific inclusion and exclusion criteria. All participants played Badminton in an indoor court for 45-60 minutes per day. The protocol was followed for 3 days a week at mild to moderate intensity for 2 months duration. The comparative changes in the cardiovascular and neuromuscular parameters were done at baseline and after 2 months.

Results: The findings of the study indicated that there was significant improvement in cardiovascular and many neuromuscular variables within both groups. In between group analysis we notice that there was significant improvement while comparing the post assessment results, especially in participants with non-communicable diseases. They showed greater improvement in majority variables compared to the participants without non-communicable disease.

Discussion: Studies suggest that older adults are most susceptible age groups for morbidity and mortality related to physical inactivity. Thus, their engagement in Badminton can help to overcome the disease burden. The immediate impact can be seen at drawing attention of the authorities and changes in the status of non-communicable disease among UAE population with introduction of such physical activity program on larger scale. The findings would encourage people to engage themselves in badminton session and incorporate this in daily routine for better body functioning.

Conclusion: The engagement of physical activity through badminton could improve the neuromuscular functions among older adults. Since the improvement was seen much better in the participants with noncommunicable disease, it could help to reduce the burden of noncommunicable diseases.

References: Lawton, E., Brymer, E., Clough, P. and Denovan, A. The relationship between the physical activity environment, nature relatedness, anxiety, and the psychological well-being benefits of regular exercisers. *Frontiers in psychology*. 2017. 8, p.1058

David Cabello, Juan Angel et al: Play Badminton Forever: A Systematic Review of Health Benefits. *International Journal of Environmental Research & Public Health*.2022.

Stephen D Patterson, John Pattison, Hayley Legg, Ann-Marie Gibson, Nicola Brown. The Impact of Badminton on Health Markers in Untrained Females. *Journal of sports sciences*. 2016.

Stovba, Petozhak, Stoliarova. Effect of badminton on physical performance. *Journal of Physical Education and Sport*. 2020.