Effects of Ram Waikhruu Muay Thai Training on Cognitive Function and Cardiovascular Endurance among the Elderly

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Objective: To examine the effects of Rum Waikhruu Muay Thai training on improving cognitive function and cardiovascular endurance of the elderly.

Material and Methods: A total number of 40 older adults, who lived in municipality area in Phetchabun province, volunteered to participate in the study. They were randomly divided into 2 intervention groups, including Rum Waikhruu Muay Thai and control group. There were 20 subjects (10 males, 10 females) in each group. They were trained as in each program about 50 minutes; 3 sessions per week for 16 weeks. Before and after experiment, the elderly in Rum Waikhruu Muay Thai and control group were measured cognitive function and cardiovascular endurance. The independent t-test was used to compare the difference between genders in Rum Waikhruu Muay Thai group and between intervention group and the control group.

Results: indicated that the elderly of Rum Waikhruu Muay Thai group had statistically significant higher mean scores of cardiovascular endurance and cognitive function in memory, attention and executive function when compared to those control group (p < 0.05), except Acetylcholinesterase activity. However, there was no significant difference in cardiovascular endurance and cognitive function mean scores between genders in Rum Waikhruu Muay Thai group (p>0.05).

Conclusion: The effectiveness of Rum Waikhruu Muay Thai training on memory, attention, executive function and cardiovascular endurance improvement in the elderly. However, the change of AChE activity was not clear. Thus, future study is needed.

Introduction

Aging is associated with a decrease in brain size and plasticity, especially in the cerebral
cortex and the limbic system which are directly related to cognition. Moreover, there is a decrease in the amount of neurotransmitters, especially Acetylcholine or Ach, which is vital for the central nervous system and the peripheral nervous system (1). It is found that there is a decrease in AChE activity in the temporal lobe of the cerebral cortex, hippocampus, and mammillary body in the brain of older persons and persons with Alzheimer’s disease (AD). The decrease of this enzyme has a relationship with cognitive loss in AD patients (2). It was also found that there is a relationship between the older adults of over 60 years and cognitive impairment (3), indicating that the decline of brain functions has resulted in a lower quality of life.

With regard to these issues, methods to slow down or decrease the rate of these problems are important. Some research suggested from aerobics exercise that improved cognitive function and blood circulation (4). This is in conjunction with McAuley, Kramer and Colcombe (5) which point out that exercises to increase circulatory endurance have beneficial effects on cognitive, brain and nervous functions in the elderly. The result here provides a research interest that led to the present study where the researcher would like to examine Rum Waikhruu Muay Thai, a part of Thai traditional cultures and the effects of training these sports as an alternative to decelerate or reduce cognitive decline in the elderly. Rum Waikhruu Muay Thai which possesses the characteristics of physical exercise in combination with memory practice, similar to aerobic exercise which have been widely adopted and used in research. Aside from Rum Waikhruu Muay Thai movements discussed earlier, requires concentration as well as skills in slow, continuous movements. The rhythm is similar to aerobics and it can practiced individually or as a group. The present study applied Rum Waikhruu Muay Thai in order to investigate its effect in decelerate or decrease the rate of the cognitive decline and improved cardiovascular endurance among the elderly.

**Material and Method**

The experimental protocol was approved by the Ethics Committee for Research Involving Human Research Subjects Health Science Group, Chulalongkorn University, Thailand. (Study Title No.128.1/53). The sample group consisted of 40 volunteers who are male and female elderly living in the municipal area of Phetchabun province. The participants were divided into the Rum Waikhruu Muay Thai group and the control group (20 participants each group; 10