

## **The impact of Badminton on health markers in sedentary females.**

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### **Introduction**

The benefits of exercise and physical activity are well established, yet a large number of individuals do not meet the recommended guidelines, especially females (Talbot et al., 2000). Fun and enjoyment are important predictors of participation in physical activity, thus the use of sport may be beneficial in increasing physical activity engagement. Badminton is one of the most popular sports in the world with 200 million players worldwide across a range of ages and skill levels. Due to the fun and social aspects, alongside the physical demands of the game, badminton may be a strategy to improve health markers in untrained females. Thus the purpose of the study was to examine the effect of regular participation in recreational badminton in untrained women during an eight week intervention and compare it with a similar period of running and a sedentary control group.

### **Methods**

Thirty-six healthy women took part in this study. Participants were assigned to a badminton group (n = 14) or a running group (n = 14) and compared with a matched control group performing no physical training (n = 8). The participants in the badminton and running groups exercised for 8 weeks, whereas those in the control group continued their daily activities. The training consisted of 3 x 1h sessions per week at 75% of maximal heart rate for both badminton and running groups. The participants in all groups were tested before and after the 8 week training period. The testing protocol consisted of resting blood pressure, fasting capillary blood samples, body composition, maximal power, submaximal and progressive maximal treadmill tests and psychological wellbeing questionnaires. Repeated measures ANOVAs were used to assess any differences for pre and post measurements. A significance level of  $p < 0.05$  was set.

### **Results**

In the badminton group  $VO_{2max}$  was 16% higher after 8 weeks, 14% higher in the running group and no change in the control group. Running performance was 19% longer for the badminton group and running group and no change was observed in the control group. In the badminton group maximal power output was increased by 13% after 8 weeks but was unchanged in both the running and control groups. Following training, mean arterial, systolic and diastolic blood pressure were reduced in the badminton and running groups, but not in the control group. Resting heart rate was lower in both badminton and running groups. In the badminton and running groups, heart rate during submaximal running was lower following the intervention, with no changes observed in the control group. Blood lipids and body composition were unaltered in all three groups across the 8 week intervention. Psychological wellbeing measures for conditioning was increased in the badminton and running groups. An increase in the revitalisation construct was demonstrated across all three groups. Affiliation was higher for the badminton group with no changes observed in both the running and control groups. The health avoidance construct was improved in the running group only with no changes observed for the badminton or control group.

### **Discussion**

The main finding of the current study was that 3 sessions of recreational badminton, for 8 weeks, improved health and psycholigical measures in previously sedentary females. Badminton increased  $VO_{2max}$ , running performance and muscle power over an 8 week period. It also led to reduced blood pressure and improved psychological wellbeing. This fun, yet

physically demanding game should be considered as an alternative strategy to improving the health and wellbeing of individuals who are currently not meeting the required physical activity guidelines and is as effective as alternative strategies such as running.

### **Conclusion**

In conclusion, badminton improved aerobic markers of fitness, lowered blood pressure and increased wellbeing measures, in previously untrained females. Larger scale studies should be carried out to assess the viability of badminton as a tool to improve physical activity and health markers across a range of populations and disease states.

### **References**

Talbot, L.A., Metter, E.J., & Fleg, J.L. (2000). Leisure time physical activities and their relationship to cardiorespiratory fitness in healthy men and women 18-95 years old. *Medicine and Science in Sport and Exercise*, 32, 417-425