

Mangkorn Jammiansuk 2009: The Effect of Low Intensity Exercise in Morning and Evening on Fat Oxidation Rate in Obese Males. Master of Science (Sports Science),
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Assistant Professor Ratee Ruangthai, Ed.D. 85 pages.

Almost all living organisms on the earth are influenced by biological clock for regulating various in biological rhythm and chemical secretion. Physiological response in humans has different time of day. The purpose of this study was to compare the fat oxidation rate and the energy expenditure during low intensity exercise in the morning (6.00-7.30 h.) and evening (8.00-19.30 h.) in obese males. Twelve male volunteers who work at Kasetsart University, Kamphaengsaen Campus, body fat 30-40 % and aged 40-60 years were recruited. All volunteers performed a sub-maximal exercise test on a cycle ergometer for estimating VO_2max . Then, volunteers were performed constance workload cycling exercise corresponding to 40 % of VO_2max for 30 min in two periods of the day. There were recorded oxygen uptake, heart rate, blood pressure, and body temperature during low intensity exercise. The results were analyzed by using pair t-test.

The result showed that the fat oxidation rate during low intensity of exercise was not significantly difference between the morning and evening (0.12 ± 0.02 and 0.11 ± 0.02 gram per minute, respectively), while energy expenditure and carbohydrate oxidation were significantly ($P<.05$) higher during exercise in the evening (5.76 ± 0.40 and 5.45 ± 0.39 kilocalorie per minute, 1.20 ± 0.12 and 1.09 ± 0.12 gram per minute, respectively). These findings suggest that energy expenditure and carbohydrate oxidation during exercise in the evening were higher than during exercise in the morning. However, fat oxidation rate during low intensity of exercise was not significantly difference between the two periods of the day.

Student's signature

Thesis Advisor's signature