Establishment of a predicitive model of serum glucose change under different exercise intensities and durations among patient with type 2 diabetes mellitus

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摘要

Abstract

Regular exercise is regarded as one of necessary elements in treating diabetes mellitus (DM). The purpose of this study was to investigate the influence of different exercise intensities and durations on serum glucose changes after exercise in type 2 DM patients and to establish a predictive model of changes in serum glucose under different exercise intensities and durations. Thirty-seven type 2 DM patients were recruited from four teaching hospitals. A total of 12 exercise sessions were scheduled according to the results of a graded treadmill exercise test. The 12 exercise sessions were designed on the basis of different exercise intensities (40%, 60%, and 80% maximal workload) and exercise durations (10, 20, 30, and 40 min). Serum glucose level was measured before and after exercise. The findings indicate that the main effect of exercise intensity and duration was significant, but there was no interaction effect. All four variables, including exercise intensity, exercise duration, pre-exercise serum glucose levels, and gender, explained 37% of the variance in serum glucose changes after exercise. In conclusion, a dose-response relationship between exercise amount and serum glucose changes was demonstrated. This is helpful for health professionals to teach type 2 DM patients how to predict serum glucose response in different exercise situations