

# Impact of physical activity on heart rate variability in children with type 1 diabetes

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## Abstract

**Objective** Children with type 1 diabetes are usually associated with cardiovascular autonomic neuropathy. The present study explored the influence of physical activity on their autonomic nervous function by measuring the heart rate variability (HRV). **Materials and methods** A total of 93 type 1 diabetic children and 107 healthy control subjects were enrolled. The Physical Activity Questionnaire for Children (PAQ-C) was adopted to determine the physical activity level as low, moderate, or high activity. HRV was determined by frequency analysis and measured in both resting and active states. **Results** Children with type 1 diabetes had significantly lower HRV than that of healthy control subjects in resting state but not in active state. The decreased HRV in diabetic children was observed only in subjects with low physical activity. The HRV in diabetic children with moderate to high physical activity, however, was not different from that of their healthy controls. **Conclusions** Diabetic children should be encouraged to engage in physical activity with more intensity, which can benefit their autonomic nervous function. Nevertheless, the potential risk of vigorous activity still needs our concern.