

Exercise and Glucose Control in Patients with Type 2 Diabetes

A combination of resistance and aerobic training was better than either one alone.

Aerobic exercise and resistance training often are recommended in combination in patients with type 2 diabetes mellitus, but the data supporting a combination, as opposed to either type alone, are scarce. In a randomized controlled trial, 262 sedentary patients (mean age, 56; mean body-mass index, 35 kg/m², mean glycosylated hemoglobin [HbA_{1c}] level, 7.7%) were assigned to resistance training alone, aerobic exercise alone, both exercises together, or usual activity. Aerobic exercise consisted of walking at a pace of about 3 miles per hour for about 2 hours weekly. Resistance training consisted of large-muscle weight training 3 days weekly. The combination consisted of about 80% of what the aerobic exercise–only group did plus about a third of what the resistance training–only group did.

The total calorie and time expenditures were roughly equal for all three intervention groups. Compared with the HbA_{1c} level in the control group, mean HbA_{1c} levels dropped nonsignificantly, by 0.16% and 0.24%, in the resistance and aerobic groups, respectively, and dropped significantly, by 0.34%, in the combination group at 9 months. Serious adverse events were similar across groups and mostly unrelated to exercise.

Comment: A combination of aerobic and resistance exercise is slightly more effective in lowering glucose levels in patients with type 2 diabetes than either type of exercise alone. These findings support a recent joint position statement by the American College of Sports Medicine and the American Diabetes Association that recommends combined aerobic exercise and resistance training based on prior cohort studies (level of evidence: B; [Diabetes Care 2010 33:2692](#)). However, any exercise is better than none, and all exercise groups improved. Also, this study, like most such studies, would be difficult to reproduce in usual clinical practice, so patients are probably best advised to exercise however they can, whenever they can, doing whatever they like, rather than trying to follow an overly prescriptive regimen.

— [Thomas L. Schwenk, MD](#)

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