

**Title of Intervention:** Community-based exercise and weight control to promote diabetes risk reduction and glycemic control

**Intervention Strategies:** Group Education, Supportive Relationships, Environments and Policies

**Purpose of the Intervention:** To promote weight loss and a decrease in fasting blood glucose values; to reduce the use of hypoglycemic medications

**Population:** High school aged youth, 16-18 years old and general population of Zuni Indians

**Setting:** High schools and community sites on the Zuni Indian reservation in western New Mexico; school-based, community-based

**Partners:** School districts, university, community organizations

**Intervention Description:**

- **Group Education:** For students, diabetes education was incorporated with existing high school curriculum. The curriculum included diabetes education workshops and presentations as well as the development of individual diabetes education units for biology, geometry, home economics and computer classes. For food service staff, a three-hour workshop was held to discuss new recipes and alternate local food vendors. Cooks had an opportunity to taste the modified recipes.
- **Supportive Relationships:** Three distinct supportive social networks were developed: community, school faculty and youth.
- **Environments and Policies:** A diabetes education resource center and wellness center were created. The Zuni Teen Wellness Center was created in a space within the high school and included a variety of exercise equipment. The center was used for physical education classes throughout the day and was also open to students during lunch breaks and after school until 8:00 p.m. A variety of physical activity opportunities were sponsored: hiking, rock climbing, biking and swimming trips, dances, aerobics marathons and basketball tournaments. The intervention worked to modify the school food supply by changing the snacks and meals available to students. Snacks included frozen fruit bars, fresh fruit and pickles. Only sugar-free beverage options were available.

**Theory:** Not mentioned

**Resources Required:**

- **Staff/Volunteers:** Parents, students, teachers, school staff, certified community fitness instructors
- **Training:** Training for fitness equipment, safe exercise, first aid
- **Technology:** Not mentioned
- **Space:** Wellness Center
- **Budget:** Not mentioned
- **Intervention:** Climbing wall, mirrors, rubber flooring, free weight equipment previously owned by the high school, cardiovascular workout machines, boxing equipment, roller blades, bikes, exercise mats, recipes, education curriculum, recipes, food vendors with healthy food items
- **Evaluation:** Questionnaires, materials to test blood glucose and insulin, materials to gather weight and height

**Evaluation:**

- **Design:** Cohort
- **Methods and Measures:**
  - Insulin/glucose values were measured from blood samples.
  - Pulse rates were measured as an indicator for fitness.
  - Weight and height were measured to determine body mass index.
  - Questionnaires gathered dietary intake information.

**Outcomes:**

- **Short Term Impact:** Not measured

- Long Term Impact: Zuni high school students had decreased body mass index, decreased consumption of sugared beverages, increased consumption of fiber, decreased sitting pulse rates and increased insulin/glucose rates.

**Maintenance:** Not mentioned

**Lessons Learned:** Not mentioned

**Citation(s):**

Teufel, N. I. and C. K. Ritenbaugh (1998). "Development of a primary prevention program: insight gained in the Zuni Diabetes Prevention Program." *Clin Pediatr (Phila)* 37(2): 131-41.

Heath, G. W., R. H. Wilson, et al. (1991). "Community-based exercise and weight control: diabetes risk reduction and glycemic control in Zuni Indians." *Am J Clin Nutr* 53(6 Suppl): 1642S-1646S.

Ritenbaugh, C., N. I. Teufel-Shone, et al. (2003). "A lifestyle intervention improves plasma insulin levels among Native American high school youth." *Prev Med* 36(3): 309-19.