

Sturdy Solar Oven May Help Fight Diabetes In Poor Areas

University of New Mexico



Eating baked foods instead of fried foods is a good way to manage diabetes or reduce the risk of developing this life-threatening disease. However, for poor families living in rural areas without power, frying may be the only option. To help combat the growing problem of diabetes among Native Americans in northwestern New Mexico, Jeannie Martinez-Welles, a professor at the department of health careers at the University of New Mexico-Gallup (UNM-Gallup), invented a unique solar oven that doesn't require electricity to operate.

In 2004 Martinez-Welles and John Welles redesigned an earlier prototype to include a smaller door opening, sturdy bent-metal base, metal flashing and tempered glass for security and temperature. The plans were disclosed and copyrighted in 2006. About \$32,000 in funding was provided by a strategic planning grant from UNM-Gallup and the Centers for Disease Control.

Energy from the sun creates a greenhouse effect inside the closed solar box, which can heat food and water at temperatures of 200-250 degrees Fahrenheit (93-121C). A variety of foods can be baked, such as roasts, turkey breasts,

bread, quiche and rice.

“ *The solar oven performs better than traditional solar ovens because its triangular shape captures sunlight in all seasons, all day long, without having to rotate the oven.* ”

The beehive door prevents heat loss and allows the oven to accommodate large items, such as turkey roasters and pizza pans. Its sturdy construction with a large base makes it stable in windy conditions and “dog proof.”

The oven can be constructed with a few basic tools and \$30 of materials; plans can be downloaded from stc.unm, the university technology transfer office Web site. Workshops have been presented to Native American audiences and ovens have been distributed to Navajo families who are living without electric power. The solar oven will be a cost-effective way to improve the quality of life in poor areas around the world.

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