

SCIENCE & EDUCATION Impact

Benefits from USDA/Land-Grant Partnership

Skip the Fries, Add the Salad

Changing diets to save lives.

Heart disease, diabetes and osteoporosis. Diet can make a difference in preventing and reducing the effects of these and other chronic ailments. Nationwide, Land-Grant Universities are collaborating with the USDA in teaching Americans to make better food choices and health choices that can help reduce the near epidemic levels of these diseases. Researchers are focusing on ways to reduce cholesterol, increase bone mass, lower blood pressure and reduce obesity through diet, while Cooperative Extension delivers this research-based information to Americans young and old.

Payoff

- **Better blood sugar.** Complications from diabetes can lead to blindness, kidney failure, limb amputations and even early death. Obesity hastens these problems. **West Virginia** Extension developed 30 Dining with Diabetes cooking schools that reached more than 1,200 people in 2001 to help clients slim down and manage their diabetes. **Delaware** Extension adopted the program, with 117 participants reporting changes in their cooking and eating habits. **Louisiana State** conducted diabetes education workshops for more than 6,500 people and reached an estimated 250,000 more through media outreach and exhibits. Designed for Hispanics, African-American and American Indians, **Nevada** Extension's An Ounce of Prevention program offered diabetes prevention lessons in English and Spanish. More than 30 community health representatives from American Indian communities and volunteers from African-American churches were trained to deliver this program in their communities. By helping prevent diabetes in 650 clients, the program saved more than \$4.8 million in medical costs.
- **No bones about it.** Osteoporosis affects 35 million Americans - nearly four times as many women as men. From 1999 to 2001 **Arizona** Extension's collaborative Bone Builders program taught 40,000 people about osteoporosis risk and prevention, and it reached 1 million people altogether through workshops, displays and the media. To encourage calcium intake in preventing osteoporosis, **California's** Central Valley LEAN campaign targeted ads to Hispanic mothers. A post-campaign survey at four grocery stores showed a significant

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- increase in sales of 1 percent milk, which is higher in calcium than whole milk, according to California dairy industry standards. A county school district switched to calcium-fortified orange juice after a **Nevada** study showed that 11- to 14-year-olds need more low-fat, calcium-rich foods. **Texas A&M** developed an interactive Web site, Clueless in the Mall, to interest teens in calcium. Since its launch in 1998, the site has recorded more than 349,000 hits. One student said, "I had no idea that the most important time for my bone development was now." Setting the standards, studies at **Purdue** and the Indiana University School of Medicine determined a new level of calcium intake to offer maximum bone growth for girls ages 12 to 15. Findings were instrumental in developing the new Recommended Dietary Allowance for calcium adopted by the National Academy of Sciences in 2001.
- **Heart healthy.** More than half of Americans have high cholesterol levels that put them at risk of heart attack or stroke. Eating foods lower in saturated fat and higher in fiber can reduce the risk. **Iowa State** researchers found that a single daily dose of plant sterols, the plant version of cholesterol, added to lean ground meat lowers blood cholesterol. Plant sterol-supplemented lean ground meat reduced LDL, or so-called bad cholesterol, by 15 percent when eaten once a day. Eighty-six percent of the 156 seniors participating in **Georgia's** Take Charge of Your Health workshops increased the amount of fiber they eat daily. Eighty-four percent plan to increase their consumption of fruits and vegetables to the five servings recommended daily. Evaluations from nutrition education programs at **Arkansas-Pine Bluff** show that 80 percent of the more than 27,500 participants who completed six or more lessons are baking and boiling foods more often than frying and using knowledge gained to select healthy snacks. Through **Nevada** Extension's Health at Work nutrition program, more than 80 percent of participating employees reported an improved ability to maintain healthy lifestyle choices.

- **Going nuts on research.** A **New Mexico State** pecan consumption study showed that eating about three-quarters of a cup of pecans daily lowered LDL, or so-called bad cholesterol, by 10 percent after four weeks and 6 percent after eight weeks. Total cholesterol also dropped. **Georgia** food scientists have designed reduced-calorie fat substitutes containing fish oil and medium chain fatty acids that lowered cholesterol by half in mice. Georgia studies also found that including peanuts in the diet can improve the ratio of good to bad cholesterol, which lowers heart disease risk. Consuming conjugated linoleic acid (CLA) and related products can decrease the incidence of cancer and possibly heart disease in humans. **South Dakota State** dietary formulations for cows that contained fish oil and fat sources containing large amounts of linoleic acid, such as soybeans or sunflower seeds, caused a 3- to 5- fold increase in CLA concentrations in milk fat. When butter made from these milks was fed to laboratory rats challenged with cancer-causing agents, there was a 50 percent decrease in the incidence of cancer. **Nevada** scientists reduced human colon cancer growth in mice by 90 percent by feeding them a diet rich in omega-3 fatty acids, compared to a conventional high-fat diet rich in omega-6 fatty acids. Similarly, colon cancer growth was reduced by 75 percent when mice were fed a high fish oil diet compared with 24 percent corn oil fed controls.



**Cooperative State Research, Education,
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