

Successful Plant-Based Nutrition Interventions at GEICO Worksites

Summary of Research Studies

PHYSICIANS COMMITTEE FOR RESPONSIBLE MEDICINE

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Due to the significant amount of time we spend at work day after day our nutritional habits are largely influenced by our work environments. The goal, of course, is to create an environment that promotes health.

Epidemiological studies have shown that low-fat, plant-based diets correlate with lower obesity prevalence¹ and with improvements in general health measurements including body weight, plasma lipid concentrations, and disease risk.^{2,3} Therefore, the Physicians Committee for Responsible Medicine (PCRM) conducted large scale nutrition intervention studies at a number of regional offices of the Government Employees Insurance Company (GEICO). The GEICO studies tracked the health and well-being of employees as they followed plant-based diets for a short intervention period. After significant results were seen in the initial 2007 pilot, the follow-up 2010 study encompassed ten regional offices, making it the largest intervention study of its kind. From the two studies, five different papers have been published in four different peer-reviewed nutrition journals. The high acceptance of these publications highlights the impact of these findings on the implications for improving employee wellness.

Study Design

Both studies included control worksites, where participants did not change their dietary habits, paired with intervention sites, where participants were instructed to follow a low-fat, plant-based diet consisting of whole grains, vegetables, legumes, and fruits. Participants were selected if they were overweight (BMI ≥ 25 kg/m²) and/or if they had type 2 diabetes. The intervention diet focused on obtaining 10 percent of energy from fat, 15 percent of energy from protein, and 75 percent of energy from carbohydrates.⁴ Participants were encouraged to minimize adding oils and to choose foods with a low glycemic index. No caloric or serving size

restrictions were imposed for those on the plant-based diet.

Weekly meetings led by a physician, a registered dietitian, and/or a cooking instructor were provided for the intervention groups, consisting of a short presentation followed by a group discussion or a cooking demo. Interactive tools such as a grocery store tour were available as well. During the intervention periods, GEICO sites provided about one breakfast item and four lunch items (2 entrees and 2 sides) that met the guidelines of the plant-based diet in their cafeterias.⁴

Health related measurements were taken at baseline and at program completion. These included biometrics such as weight, cholesterol, A1c levels, and lipid profiles, as well as measurements of nutrient intake. General acceptability of the intervention diet and assessment of disease risk were also measured. Adherence to the diet was analyzed by 24 hour diet recalls.⁵

A Success Story: By the Numbers

Employees on the intervention diet experienced remarkable health improvements compared with those in the control group, including significant weight loss and beneficial alterations in nutrient intake values.

2007 Results: A Two-Site Study

In the initial GEICO study, two regional offices were compared, with Chevy Chase, Md., as the intervention site and Fredericksburg, Va., as the control site. Researchers followed 65 participants in the intervention group and 44 participants in the control group for 22 weeks.

On average, participants of the intervention group lost 11.2 pounds,⁴ and at least two individuals lost over 40 pounds in the duration of the program. Waist circumference also decreased an average of 4.7

centimeters in the intervention group,⁵ while no improvements in weight or waist circumference were seen in the control group. Participants experienced a large reduction in total cholesterol and low-density lipoprotein (LDL) cholesterol levels. Employees who had diabetes at baseline saw a drop in their blood glucose at levels comparable to those expected from pharmaceutical intervention.

Changes in nutrient intake were also significant in the plant-based group. As a percent of energy intake, fat intake decreased from 35 percent to 21 percent, with saturated fat intake decreasing by six percentage points, versus no change in the control group.⁵ Meanwhile, fiber intake increased significantly (18 grams to 29 grams),⁵ along with levels of nutrients associated with disease prevention such as beta-carotene,⁶ folate,⁷ magnesium,⁸ vitamin C,⁹ and potassium.¹⁰

2010 Results: A Ten-Site Study

When PCRM expanded the investigation to 10 regional sites in 2010, researchers saw that results remained consistent with the initial findings. In these ten offices, (five intervention sites and five control sites), located all across the United States., 292 employees took part in an 18 week nutritional intervention program. This study was the largest plant-based nutrition intervention study to date.

Employees in the plant-based intervention groups decreased caloric intake, fat intake, and cholesterol intake, while increasing their levels of healthful nutrients such as fiber, beta-carotene, vitamin C, magnesium, and potassium. Participants lost an average of 9.5 pounds, lowered their LDL cholesterol by an average of 13 points, and lowered blood glucose by an average of 0.7 points.¹¹

Implications for Disease Prevention

Currently, more than one-third of American adults are obese,¹² making obesity prevention a top priority for today's society. Obesity is expensive for employers, as obesity-related expenditures cost workplaces \$13 billion annually,¹³ but more importantly, it is incredibly dangerous for health. Being obese or overweight is considered a risk factor for many other diseases, including cardiovascular disease, type 2 diabetes, and certain cancers. The low-fat, plant-based intervention diet used in the GEICO studies significantly lowered the BMI of participants, illustrating the potential of this diet to reduce the risk of obesity and related diseases.

Cardiovascular disease is the leading cause of death for both men and women in America.¹⁴ The decrease in fat intake as a percentage of total energy seen in both studies was low enough to reduce the risk of cardiovascular disease,¹⁵⁻¹⁷ and potentially the risk of cancer¹⁸ and diabetes.² The intervention diet also effectively lowered cholesterol and, therefore, can be a great tool for improving overall cardiovascular health.

Lessons from GEICO

The positive and consistent results of the initial pilot study and the 2010 study demonstrate that the workplace can be an effective site for individuals improving their physical well-being if they adopt a plant-based diet. In addition to individual benefits from physical health improvements, the company experienced benefits. Employees missed fewer hours of work, 16.7 hours missed in the intervention group versus 22.8 hours missed in the control group, and reported greater productivity at work.⁵

Moreover, employees were satisfied with the plant-based diet¹⁹ and enjoyed the cooking tips, lectures, and collaborating with colleagues from different departments to reach their health goals. Participants involved in the 2007 study even initiated a weekly support group after the study ended, which has been ongoing for over two years.

In these GEICO studies, PCRM was able to bring data from the laboratory and from epidemiological studies and apply it right where people work. In doing so, measurable results highlighting the health benefits of plant-based diets have been documented, strengthening the case for adopting a plant-based diet in the workplace in order to improve overall well-being.

References

1. Key TJ, Davey GK, Appleby PN. Health benefits of a vegetarian diet. *Proc Nutr Soc.* 1999;58:271-275.
2. Barnard ND, Cohen J, Jenkins DJ, et al. A low-fat vegan diet improves glycemic control and cardiovascular risk factors in a randomized clinical trial in individuals with type 2 diabetes. *Diabetes Care.* 2006;29:1777-1783.
3. Ornish D, Brown SE, Scherwitz LW, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. *Lancet.* 1990;336:314-319.
4. Levin SM, Ferdowsian HR, Hoover VJ, Green AA, Barnard ND. A worksite programme significantly alters nutrient intakes. *Public Health Nutr.* 2010; 13:1629-1635
5. Ferdowsian HR, Barnard ND, Hoover VJ, et al. A Multicomponent Intervention Reduces Body Weight and Cardiovascular Risk at a GEICO Corporate Site. *Am J Health Promot.* 2010;24:384-387.

6. Watson RR, Prabhala RH, Plezia PM, et al. Effect of beta-carotene on lymphocyte subpopulations in elderly humans: evidence for a dose-response relationship. *Am J Clin Nutr.* 1991;53:90-94.
7. Bazzano LA, Ile J, Ogden LG, et al. Dietary intake of folate and risk of stroke in US men and women: NHANES I epidemiologic Follow-up Study. National Health and Nutrition Examination Survey. *Stroke.* 2002;33:1183-1188.
8. Witte KK, Clark AL, Cleland JG. Chronic heart failure and micronutrients. *J Am Coll Cardiol.* 2001;37:1765-1774.
9. Joshipura KJ, Hu FB, Manson JE, et al. The effect of fruit and vegetable intake on risk for coronary heart disease. *Ann Intern Med.* 2001;134:1106-1114.
10. Aaron KJ, Sanders PW. Role of dietary salt and potassium intake in cardiovascular health and disease: a review of the evidence. *May Clin Proc.* 2013;88:987-95.
11. Mishra S, Barnard ND, onzaes J, Xu J, Agarwal U, Levin S. Nutrient intake in the GEICO multicenter trial: the effects of a multicomponent worksite intervention. *Eur J Clin Nutr.* 2013; advance online publication 14 August 2013; doi: 10.1038/ejcn.2013.149
12. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of Obesity in the United States, 2009-2010. NCHS data brief, no.82. Hyattsville, Md: National Center for Health Statistics. 2012.
13. Bachman KH. Obesity, weight management, and health care costs: a primer. *Dis Manag.* 2007;10:129-137.
14. Kochanek KD, Xu JQ, Murphy SL, Miniño AM, Kung HC. Deaths: final data for 2009. *National vital statistics reports.* 2011;60(3).
15. Ornish D, Brown SE, Scherwitz LW, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. *Lancet.* 1990;336:129-133.
16. Frattaroli J, Weidner G, Merritt-Worden TA, et al. Angina pectoris and atherosclerotic risk factors in the multisite cardiac lifestyle intervention program. *Am J Cardiol.* 2008;101:911-918.
17. Esselstyn CB Jr. Resolving the coronary artery disease epidemic through plant-based nutrition. *Prev Cardiol.* 2001;4:171-177.
18. Berkow SE, Barnard ND, Saxe GA, et al. Diet and survival after prostate cancer diagnosis. *Nutr Rev.* 2007;65:L391-403.
19. Katcher HI, Ferdowsian HR, Hoover VJ, Cohen JL, Barnard ND. A Worksite Vegan Nutrition Program Is Well-Accepted and Improves Health-Related Quality of Life and Work Productivity. *Ann Nutr Metab.* 2010;56:245-55.