

Diet and diabetes: lessons from the ruby red slippers

Caroline Trapp

The 1939 film *The Wizard of Oz* provides an interesting metaphor for a discussion on type 2 diabetes. In the story, Dorothy, a young girl, is knocked unconscious during a tornado. She and her dog Toto are swept up in the storm and dropped into the Land of Oz, where she is told that to get back home, she must follow the Yellow Brick Road and seek out the magical wizard. Along the way, she meets the Scarecrow, the Tin Man and the Cowardly Lion, who join her, hoping to receive what they lack themselves (a brain, a heart, and courage, respectively). Together, they seek out the wizard, only to learn that he has no answers. Ultimately, they are rescued when Glinda the Good Witch of the North points out that all along they had possessed exactly what was needed for happiness. It seems that those dedicated to eradicating type 2 diabetes are on a similar journey. Caroline Trapp explains why.

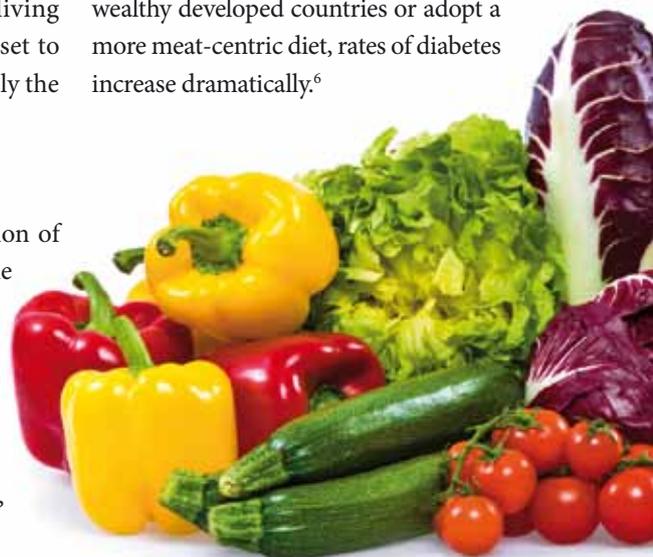
Like Dorothy and her fellow travelers, we are seeking a road that will lead us to what is needed: prevention and reversal of obesity and diabetes. Yet the road we have long been traveling has not offered a cure. Increased access to medical care and education, new medications and bariatric surgery (now approved as a treatment option for morbidly obese people with diabetes¹ and currently one of the most common surgical procedures in the USA²) have brought us no closer to curing diabetes – or preventing it from occurring in the first place. According to the latest figures from the International Diabetes Federation, more than 300 million people worldwide are living with diabetes, a number that is set to reach half a billion by 2030. If only the Wizard could save us.

No place like home's kitchen

But we may have our own version of Dorothy's ruby red slippers. In the story, after a long and dangerous journey, Dorothy comes to find out that she only needs to click her heels together and say, "There's no place like home." And for us, we might heed the same,

slightly more focussed lesson: there's no place like home's kitchen.

A PubMed search on vegetarian or vegan diets and diabetes shows an increasing amount of research has been devoted to this intervention, with noteworthy results. Reducing or eliminating animal products from the diet is an option that has always been available, yet is just beginning to be recognized for its potential in lowering rates of obesity,³ heart disease⁴ and certain cancers.⁵ Population studies confirm that around the globe diabetes was rare among those who ate largely plant-based diets.⁶ Furthermore, when people from those cultures and countries migrate to wealthy developed countries or adopt a more meat-centric diet, rates of diabetes increase dramatically.⁶



The Adventist Mortality Study demonstrated that vegetarian men in the USA had half the risk of developing diabetes, compared to non-vegetarian men.⁷ In 2009, a study of 60,903 people showed that the more animal protein in a diet – whether from dairy and eggs, fish, fowl or beef – the higher the risk of diabetes, with an almost 3-fold difference in risk between strict vegetarians and non-vegetarians.⁸ Processed meat intake (such as hotdogs and lunchmeats) has been found to increase diabetes risk by 40%.⁹

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Research published in *Diabetes Care* provides evidence on the effectiveness of a dietary shift for those with diabetes.¹⁰ Compared to people following a commonly prescribed, low-cholesterol, portion-controlled diet, those who consumed unrestricted amounts of whole grains, vegetables, legumes and fruit (a vegan or plant-based diet) lost twice as much weight. Among those in both groups who had no medication change, those in the vegan group had a drop in HbA_{1c} that was three

times greater; 43% of those in the vegan group were able to reduce their

diabetes medications. Furthermore, the vegan diet was found to be surprisingly acceptable to those who were randomized to it, largely because there were no portion or caloric restrictions and high fibre foods promote satiety.

Based on this research, a low-fat plant-based diet has been determined to be effective for people with type 2 diabetes, according to the 2010 American Diabetes Association's Clinical Practice Recommendations: Standards of Medical Care for Type 2 Diabetes.¹¹ The American Dietetic Association has stated that properly managed vegan diets have been shown to be nutritionally adequate, safe across the lifespan, and effective for preventing and treating many chronic diseases.⁵

Dietary change is often difficult and many barriers must be overcome for individuals or groups to make and sustain any change in diet, including to a plant-based diet. Clinicians, educational institutions, NGOs and governments can begin by simply promoting information about the effectiveness of this approach. They can encourage people to consume a diet of plant foods and warn of the dangers of consuming animal fat and protein.

Home kitchens stocked with the right foods offer real hope. Educational resources of special interest are available to help (see below).

With the knowledge already available to us, we can find a better path. The solution to diabetes is not somewhere “over the rainbow.” It may be found in an effective, safe, affordable, and ecologically sustainable nutritional approach: a diet comprised of whole grains, fruits, vegetables, and legumes.

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The Physicians Committee for Responsible Medicine (PCRM) is a USA-based not-for-profit organization. It offers support for healthcare professionals and the general public who want to learn more about or use plant-based nutrition for diabetes, heart disease, weight control, and other health concerns.

Diabetes education materials are available at www.PCRM.org/Diabetes.

References

- Standards of medical care in diabetes – 2009. *Diabetes Care* 2009; 32 Suppl 1: S13-61.
- Anstett P. Experience in bariatric surgery lessens problems. *Detroit Free Press*. July 28, 2010; A: 5.
- Berkow SE, Barnard N. Vegetarian diets and weight status. *Nutr Rev* Apr 2006; 64: 175-88.
- Ornish D, Scherwitz LW, Billings JH, et al. Intensive lifestyle changes for reversal of coronary heart disease. *JAMA* 1998; 280: 2001-7.
- Craig WJ, Mangels AR. Position of the American Dietetic Association: vegetarian diets. *J Am Diet Assoc* 2009; 109: 1266-82.
- Campbell TC, Campbell TM. *The China study: the most comprehensive study of nutrition ever conducted and the startling implications for diet, weight loss and long-term health*. 1st BenBella Books. Dallas, 2005.
- Snowdon DA, Phillips RL. Does a vegetarian diet reduce the occurrence of diabetes. *Am J Public Health* 1985; 75: 507-12.
- Tonstad S, Butler T, Yan R, Fraser GE. Type of vegetarian diet, body weight, and prevalence of type 2 diabetes. *Diabetes Care* 2009; 32: 791-6.
- Aune D, De Stefani E, Ronco A, et al. Meat consumption and cancer risk: a case-control study in Uruguay. *Asian Pac J Cancer Prev* 2009; 10: 429-36.
- 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: 1777-83.
- Standards of medical care in diabetes – 2010. *Diabetes Care* 2010; 33 Suppl 1: S11-61.

Editor's note:

Users of any restrictive diet should check that they are consuming sufficient essential nutrients, especially true for children, and pregnant and lactating women. Pure vegan diets may need fortification or supplements to ensure adequate intake of calcium, selenium, iodine, B12, Vitamin D and perhaps riboflavin.

