

Adopting the Blue Zones Lifestyle: The New Solution to Diabetes

How does adopting a Blue Zones inspired lifestyle/diet improve life longevity of middle-aged adults who have type II diabetes?

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Abstract

The prevalence of type II diabetes has been an ongoing global health crisis affecting more than 37 million Americans. An exponential growth is predicted in the prevalence of type II diabetes in future generations. Endless factors are responsible for the increase in diabetes incidence including sedentary lifestyles, access to cheap fast-food options, and lack of community encouragement to maintain an active, healthy lifestyle. These deeply rooted habits can make change difficult. Furthermore, an individual's social determinants of health can create barriers such as the access and affordability of healthcare services, resources such as gyms and community cooking classes, and ability to purchase healthy food options. A pharmacologic approach such as oral medications or insulin seems like an easy solution to the growing epidemic of diabetes in the modern world; however, with patience and diligence, a new solution is easily accessible to all members of society. Though unbeknownst to most, the Blue Zones lifestyle is a new opportunity for change that is affordable and capable of being the permanent solution to decreasing diabetes and increasing life longevity around the world.

Introduction

In the United States alone, more than 37 million Americans have diabetes (about 1 in 10), and nearly 90% of them have type II diabetes.¹ Type II diabetes most often develops in people over age 45, but more children, teens, and young adults are also developing it.¹ Moreover, “the economic burden of type II diabetes contributes to approximately 12% of global health expenditure from diabetic treatment and its complications”.² The main question is what can be done to slow disease progression and reverse diabetes. There are many pharmacotherapeutic interventions available; however, a handful of people with type II diabetes cannot afford medication, and this number is assumed to be more significant in rural communities. The solution of healthy eating based on the Blue Zones lifestyle became a popular solution to improving the quality of life through diet, exercise, and community.

The Blue Zones Project is a community-focused health initiative based on the premise of emulating healthy habits from the world's longevity hot spots: Ikaria, Greece; Okinawa, Japan; Sardinia, Italy; Nicoya, Costa Rica; and Loma Linda, California.³ People living in these zones were found to live over 100 years old – with lower rates of chronic disease. Incorporating their lifestyle into a comprehensive approach to treating diabetes is not only cost-effective but yields long-lasting results.

Healthy People 2030 outlines general health and community-oriented goals for disease prevention and lowering the prevalence of disease, injury, and premature death for all age groups. The goal is to promote healthy choices by making nutritious foods available at worksites as part of an

employee health promotion program.⁴ It addresses nutrition and physical activity as interventions, through diabetic prevention programs and positive workplace transformation, to improve the lives of those living with type II diabetes.

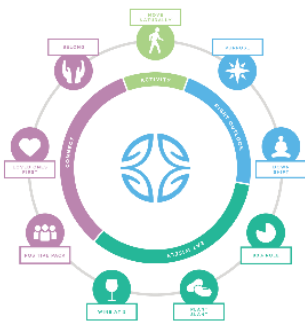
Though some people may be hesitant to radically adopt a new lifestyle due to cost, resources, and support, the Blue Zones Project provides the right tools to make substantial, positive change. People living with diabetes can live longer, happier, and healthier lives by incorporating the lessons of those living in Blue Zones worldwide. Minor changes such as eating healthy plant-based diets, incorporating daily physical activity, and having a supportive community are solutions to decreasing diabetes burden and increasing life longevity.

Target Audience with Evidence

Douglas County is ranked among the least healthy counties in Oregon with a 31% prevalence of obesity.⁵ With 41.2% of the population living in rural areas and 50% of those lacking access to exercise opportunities, this disparity contributes to the increase in the incidence of diabetes cases.⁵ As aforementioned, the Center for Disease Control (CDC) says 1:10 Americans have diabetes – if this statistic is generalized, then ~11,230 Douglas County residents are projected to be diagnosed with type II diabetes.^{6, 14}

The Power 9: The Quintessential Structure of Blue Zones

Better known as the “Power 9”, Buettner and his research team identified “nine aspects of those living in Blue Zones that contribute to their longevity”.³ It is more than just diet and exercise; rather, it is a whole lifestyle integrated into the community. In addition to incorporating daily movement and eating wisely, there is an emphasis on having the right outlook and the importance of connecting to a positive community of family, friends, and colleagues who foster a sense of belonging, purpose, and accountability.



Analyzing the “Power 9”, the first habit is to move naturally, which promotes daily physical activity and cardiovascular health. Purpose and down-shifting are the second and third listed habits that require mental focus which is vital to building routines, habits, and mental fortitude. This leads right into the fourth and fifth habits, which are the “80% rule” and “plant slant”, with balance and self-control as the main takeaway. Incorporating an 80/20 split in one’s diet will help one adhere to their diet while honoring their cravings. Habits 6-9 are social aspects revolving around culture, community, religion, and family – showing that a firm foundation of support can be a major convicting factor to success via the Blue Zones lifestyle.

What is a Blue Zones Diet: A Health-Conscious Approach to Diabetes

The Blue Zones diet can vary by culture and geographical region but shares one commonality: eating primarily plant-based and having well-rounded meals with lean proteins, vegetables, fruit,

nuts/seeds, and low-fat dairy. This diet is like the Mediterranean, DASH, and American Diabetes Association (ADA)-recommended diet.

In a 2020 umbrella review, Toi et. al. concluded that the Mediterranean and DASH diets, with or without exercise intervention, significantly reduced the risk of type II diabetes, especially in the high-risk population.⁷ They compared the Mediterranean and DASH diets to high glycemic index and glycemic load diets, high consumption of red and processed meat, and sugar or artificial sugar-sweetened beverages significantly increases the risk of type II diabetes.⁷ Several systematic reviews and meta-analyses of randomized controlled trials indicated that interventions that modify diet can delay or prevent the onset of type II diabetes. However, the studies focused on the prediabetic and obese populations – thus, considerations should also be made for applications of the Blue Zone lifestyle to healthy individuals as well.

Understanding that this diet may not suit everyone’s caloric and dietary needs, the recommendation can be tailored to the individual. Foreseeable barriers can include “access to dietetic/health care professionals, high meat intake, pervasive processed foods, and fast-food outlets.”⁸ For Western countries to promote a Blue Zones diet, there needs to be government, state, and city-wide involvement needed to ensure the healthiest choice is the easiest choice. As the Blue Zones project seeks to identify ways to eliminate barriers, they have tried to partner with local farmers to provide fresh produce deliveries to workspaces that welcome fruit baskets and healthy snacks in their breakrooms. Other solutions have included plans for the maintenance of walking trails in the city, starting community gardens, and hosting free cooking events.

Influence on Diabetes Prognosis: Longevity & Blood Glucose Control

There is existing evidence in scientific literature that has concluded that non-pharmacologic approaches to the treatment of type II diabetes have yielded success. The success of non-pharmacologic treatment is measured by the reduction of A1c levels, baseline fasting blood glucose, life longevity without chronic disease, and a decrease in morbidity and mortality.

In the article, *Implementing a Mediterranean-Style Diet Outside the Mediterranean Region*, authors Murphy and Parletta highlight historical studies, such as the Seven Countries Study (performed in 1960), that identified dietary characteristics among Mediterranean populations that were associated with increased longevity and healthy aging.⁸ The PREDIMED study subsequently validated these findings by demonstrating a reduction in mortality related to cardiovascular diseases when following the Mediterranean Diet.⁸ Additionally, a meta-analysis involving a vast sample of over 4.7 million individuals indicated a lower overall mortality rate, decreased cardiovascular disease-related mortality, and a reduced risk of developing Parkinson's and Alzheimer's diseases.⁸ Ongoing research continues to provide support for the advantages of the Mediterranean Diet in managing various chronic conditions, including type 2 diabetes, metabolic syndrome, cancer, liver disease, depression, and anxiety.

When it comes to analyzing the incidence of type 2 diabetes based on adherence to the Mediterranean diet, these studies revealed a 20% reduction in the risk of developing type 2 diabetes.² Furthermore, in 2017, a systematic review and meta-analysis involving approximately 1.5 million participants compared different dietary patterns. Authors Jannasch et. al. found that both the Mediterranean diet and other heart-healthy diets decreased the risk of diabetes.⁹

To summarize, there is compelling evidence indicating that following the Mediterranean diet has a protective effect on glycemic control, leading to reduced HbA1c levels, lower fasting glucose levels, decreased insulin resistance, and improved survival rates. Sleiman et al. suggest in their review that this protective effect may be attributed to the diet's ability to reduce oxidative stress, inflammation, and insulin resistance.^{2,9}

In conclusion, there is consistent evidence showing that adherence to either a Mediterranean or DASH diet is inversely associated with the incidence of type 2 diabetes. Moreover, the Mediterranean diet has been shown to lower HbA1c levels in comparison to control groups, with reductions ranging from 0.32 to 0.53 percentage units.² Adhering to the Mediterranean diet may impact mechanisms related to type 2 diabetes, including anti-inflammatory and antioxidant actions, glucagon-like peptide agonist compounds, and alterations in gut microbiota.²

Learning to Eat like a Blue Zones Centenarian

In 2004, Dan Buettner, author and founder of the Blue Zones Project, partnered with National Geographic, the National Institute on Aging, and leading experts in the field of longevity research to pinpoint regions worldwide where residents experienced extended lifespans.¹³ A correlation was found between the holistic, healthy lifestyles of those living in these “blue zones” and life longevity – even life without chronic disease.

The Blue Zone way of eating emphasizes eating plant-based meals 80% of the time. This allows for flexibility to enjoy meals without wanting to break a diet plan. The purpose is to build long-lasting habits rather than a short-term diet.

To eat like a Blue Zone Centenarian may require careful planning and creativity in the kitchen. In the article, *Implementing a Mediterranean-Style Diet Outside the Mediterranean Region*, authors Murphy and Parletta mentioned that the best recipes are ones that are simple, palatable, and affordable – which are all factors that can help with adherence to a diet.⁸ When one signs up for the newsletters, there will be weekly meal ideas and recipes to follow – to make it easier to start eating a Blue Zones diet. There are also community cooking classes that can help those who are starting out learn to cook with plant-based alternatives like tofu, tempeh, and other soy-based products.

In the article, *Eating a Balanced Diet: Age of Longevity*, Lim discusses guidelines for eating a balanced diet that can reduce the risk of obesity and obesity-related diseases. To eat a balanced

diet, there must be a fixed ratio of carbs, protein, and fats. A plate is to contain complex carbohydrates “such as brown rice, whole grains bread, or pasta”.¹⁰ Furthermore, one is to maintain the recommended calorie intake for a healthy diet based on one’s metabolism and energy expenditure.¹⁰

Incorporating Daily Movement: An Active Lifestyle

Humans are designed to live active lifestyles – however, with the advent of sedentary jobs, the prevalence of chronic disease has been proven to be correlated with a lack of daily physical activity. The Blue Zones lifestyle does not subscribe to the idea that everyone must have a gym membership to be healthy; rather, increasing movement in day-to-day activities is recommended. For example, taking the stairs at work, parking the car farther away from the entrance, using a standing desk, and going on walks after big meals are popular practices of those living in the Blue Zones. Notice how the suggestions are cost-effective, and there are minor changes that can be integrated into daily habits. To make healthy habits, one must be mindful of creating change and adhering to a routine – this may be the hardest hurdle for those who want to start living the Blue Zones lifestyle.

According to a 2020 umbrella review conducted by Toi et al., it was determined that physical activity can decelerate or postpone the advancement of type 2 diabetes.⁷ This effect is achieved through a direct enhancement of insulin sensitivity and an indirect reinforcement of weight management. Engaging in physical activities of moderate to vigorous intensity has been found to improve the functioning of beta cells and enhance the regulation of glucose levels, irrespective of an individual's obesity status. The American Diabetes Association (ADA) recommends that individuals at risk of developing type 2 diabetes should aim to increase their physical activity to a minimum of 150 minutes per week, involving activities of moderate intensity, such as brisk walking.⁷

Importance of Community: Building a Support Structure

The literature on communities modeled after Blue Zones proves that support can be from peers, coworkers, and friends – not just within the family unit. Communities, such as the Blue Zones meetings, community cooking classes, and group fitness, can offer emotional, informational, and practical support to individuals with diabetes. It can empower them to better manage their condition, lead healthier lives, and advocate for changes that improve the overall quality of diabetes care and education.

Many Americans dedicate half of their waking hours to their jobs, highlighting workplaces as a significant avenue for promoting healthier lifestyles. The Blue Zone Project's strategy for reshaping work environments involves introducing a Blue Zones Approval program. This program incorporates a substantial array of initiatives aimed at encouraging employees to engage in more physical activity, consume fewer unhealthy foods, foster meaningful connections with their colleagues, and assist individuals in discovering and fulfilling their life purpose.¹¹

Introducing new communities and a social structure can feel overwhelming to some individuals leading to increased anxiety or pressure to leave everything behind. Easing into the program by having people who practice the “Power 9” speak and share experiences about their journey. Many new followers will have to consider every facet of what the future upholds and that can be an arduous task.

Implementing Blue Zones in the Community: A Practical Approach

The mission of the Blue Zones Project is to “promote holistic health, improve health outcomes, reduce costs, and increase civic pride, all of which support healthy economic development”.¹¹ The project is designed to change the way people experience the world around them. They use the “Power 9” as the infrastructure to create change in the way people eat, move, and connect. As an organization, they are partnering with small communities to implement community gardens, healthy options at grocery store checkout aisles or local restaurants, and walking paths or group fitness classes.

Though the Blue Zones Project as a whole has not been evaluated in validated research studies or published in peer-reviewed journals, there is significant scientific evidence to support that a healthy diet (modeled after the Mediterranean or DASH diets), increased physical activity, and community positively affect one’s life and longevity. One of the recommendations of the “Power 9” is ‘wine at 5’. In a 2016 systematic review and meta-analysis about alcohol consumption and all-cause mortality, Stockwell et. al., concludes that “low-volume alcohol consumption has no net mortality benefit compared with lifetime abstinence or occasional drinking”.¹⁵ This means that moderate, or nightly, alcohol consumption – as alluded to in the Blue Zones recommendations – does not improve life longevity.

When teaching about the Blue Zones Project and using the “Power 9” as a framework healthy decision-making, one must take this information with a grain of salt – keeping in mind that anecdotes and testimonies, though popular and impactful, are individual and do not take into consideration confounding comorbidities. Therefore, reverting to evidence-based guidelines, such as diet and exercise as the core pillars, will yield the highest impact to reducing disease.

Presenting to Adult Learners: Effective Methods

Learning is a unique experience for people of all ages and backgrounds. In order to best communicate to a diverse audience, it has been shown that “lectures are one of the most frequently used methods for teaching medical knowledge”.¹⁶ Furthermore, Palis and Quiros in their article, *Adult Learning Principles and Presentation Pearls*, allude to how emotion helps to captivate one’s attention and enhancing retention. It is generally agreed upon that people who care about a topic are more likely to pay attention, actively use their existing knowledge, and learn something new. Lastly, Palis and Quiros discuss the instructional design principles about how to set up presentations to have the most impact. To sum up their findings, keeping presentation slides brief

with less words and use more visuals or videos, outlining the objectives and ‘road map’ of the talk, and utilizing both active and reflective learning methods yields the best learning outcomes.

Using clinical pearls outlined above, Blue Zones Project does an excellent job at providing physical handouts like pamphlets and infographics, videos, oral presentations, and activities (like cooking classes, exercises classes, etc.) that help people practice those healthy habits in real time.

Conclusion

The Blue Zones Project has transformed small communities throughout the United States into miniature Blue Zone hot spots – to increase the population lifespan, lower healthcare burdens, and improve health outcomes. It has impacted millions of people by helping address decreased trends in obesity, smoking, morbidity, and mortality for those with type II diabetes.

Since the introduction of the pilot program, the Blue Zones Project has extended its reach to 51 communities throughout North America, positively affecting millions of individuals.³ This initiative has notably reduced the prevalence of health issues linked to obesity and brought about various enhancements in overall health and well-being.

The Blue Zones lifestyle is one that closely represents the non-pharmacologic recommendations of treatment for those with type II diabetes. By utilizing the framework of the “Power 9” as resource, healthcare providers can educate their patients on the importance of these lifestyle changes including diet, exercise, and community – which in turn can improve their disease prognosis. Overall, the Blue Zones project has strengths that include being inclusive, holistic, and impactful.

The limitation of how effective the Blue Zones lifestyle is dependent on the effort and willingness of the patient to apply these methods. Self-control, motivation, and inspiration is crucially important to the foundation of this initiative. Utilizing the community for help and resources can be extremely valuable though there are still potential barriers which include: access to healthy produce, gym memberships or space to exercise, and a lack of community support.

With the ongoing success of Blue Zone Projects across America, Blue Zones should be implemented in more communities and be recommended to those living with type II diabetes as a non-pharmacological treatment by their healthcare providers. The Blue Zones movement can help propel Americans towards the Healthy People 2030 goal of achieving life longevity and improving overall population health.

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