



THE MEDITERRANEAN WAY: CHANGING DIETS TO EXTEND LIFESPANS

DR ALICE AMMERMAN



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NEXT GENERATION

The Mediterranean way: changing diets to extend lifespans

A poor diet can significantly shorten a person's life expectancy and quality of life, but switching to a healthy diet is easier said than done. Based at the **University of North Carolina at Chapel Hill**, **Dr Alice Ammerman** is tackling this in Southeastern USA, through a multi-pronged approach to provide high-quality meals and inspire healthier lifestyles, all based on robust scientific evidence.



Dr Alice Ammerman

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Founder, Equiti Foods and Good Bowls

Fields of research

Nutrition, Health Promotion and Disease Prevention

Research project

Good Bowls: empowering communities to achieve good food access and health equity

Funders

US Centers for Disease Control and Prevention (CDC), US National Institutes of Health (NIH), US Department of Agriculture (USDA)

TALK LIKE A ... HEALTH PROMOTION AND DISEASE PREVENTION RESEARCHER

Blood pressure — the force of circulating blood on artery walls. High blood pressure is associated with increased risk of heart disease

Chronic disease — health conditions that typically last over a year and require ongoing medical attention and/or negatively affect a person's quality of life

High-quality fats — polyunsaturated and monounsaturated fats from vegetables, nuts and fish, as opposed to unhealthy trans fats, found in processed foods, and 'neutral' saturated fats, found in meat, dairy products, and some oils such as palm oil

Mediterranean diet — a diet traditional to Mediterranean countries, typically involving high consumption of vegetables, whole grains, nuts and olive oil, and moderate consumption of protein

Type II diabetes — a disease caused when the body produces insufficient insulin or does not respond to insulin. It is often associated with obesity and older age

Whole grains — grains used in food that still contain fibre and other essential components, considered healthier than processed or refined grains

Leading a healthy lifestyle is not always easy, and a person's ability to do so is heavily affected by their environment. "In the US, chronic diseases such as type II diabetes, heart disease and obesity are more common among low-income, minority and rural populations," says Dr Alice Ammerman, the Director of the University of North Carolina at Chapel Hill's Center for Health Promotion and Disease Prevention (HPDP). "Limited access to healthy food is a significant contributor to this trend." Healthier foods are often more expensive or harder to find, which poses barriers when promoting a healthier lifestyle.

There are no straightforward solutions to this issue. To change this trend, it is essential to make healthier foods more accessible and to encourage

behavioural changes in those people with unhealthy diets. The Med-South Lifestyle Program (MSLP), developed and tested by researchers at HPDP, aims to do exactly that, promoting behavioural and structural changes that make living a healthy lifestyle less of a burden on people's time or money.

The Mediterranean diet

Research from many different sources suggests that the typical diet found in Mediterranean regions is one of the healthiest out there. "A Mediterranean diet is linked to reduced risk of many chronic diseases and a longer lifespan," explains Alice. A Mediterranean diet involves decent quantities of high-quality fats, vegetables, nuts and whole grains. "Contrary to popular belief, higher fat diets are not associated with weight

gain," says Alice. "In fact, high-quality fats, such as those found in vegetable oils, fish and nuts, reduce the risk of many chronic diseases."

Equiti Foods and Good Bowls

Based on these principles, Alice founded Equiti Foods, which has begun producing Good Bowls: healthy frozen meals based on the Mediterranean diet, adapted to incorporate seasonal, locally-sourced food in the Southeastern US. "We work with local food organisations – Happy Dirt and Farmer Foodshare – who help us identify and purchase seasonal surplus and 'cosmetically challenged' products that might otherwise go to waste," says Alice. "We are also working with farmers who have the capacity to freeze excess products, so they can be available later in the year."



Product photo of Piedmont Pesto Bowl

Alice’s team has worked hard to make Good Bowls as accessible as possible. The use of local surplus ingredients keeps the price down, and the team has also taken measures to make it truly convenient – for instance, introducing Good Bowls vending machines into worksites. Adapting the Mediterranean diet to the Southeastern US palate has also paid dividends. “It is so rewarding to see our work bring real benefits to people’s quality of life,” says Alice. “This is especially true when people enjoy this way of eating; ‘it doesn’t even taste healthy’ is our favourite compliment!”

A community-based approach

While providing access to a healthy diet is a key piece of the puzzle, there are other pieces also in need of attention. “It’s important to understand the health priorities of communities, so that solutions are designed to address them directly,” explains Alice. “This includes understanding the health problems found in the community, as well as identifying the specific factors that influence change.” These drivers of change might include involving particular people such as faith leaders, community-based organisations, and local farms and food production businesses. An approach that engages these points of influence and encourages them to facilitate change in the community is often more effective than a broad-stroke approach.

The MSLP has been tailored with this in mind. “The MSLP is an evidence-based, behaviour-change intervention that promotes the Mediterranean diet alongside broader behavioural changes,” says Alice. “It includes support for increased physical activity, as well as optional support to help with taking medication.” Participants receive a manual and cookbook written in easy-to-understand English or Spanish, which goes over the principles of the Mediterranean diet. “Participants also receive sessions with a health counsellor, who helps them set personal goals for behaviour change, and introduces problem-solving and self-monitoring skills to make changes to diet and physical activity levels more achievable,” says Alice.

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Results

The principles of the MSLP are now well-established and have been tested in many studies. “In one study, led by Dr Carmen Samuel-Hodge and involving 360 MSLP participants, we found participants were, on average, eating nearly one more serving of fruit and vegetables per day, and 0.4 servings fewer sugar-sweetened drinks,” says Alice. “They also performed moderate-intensity physical activity for an average of 43 minutes more per week.” Participants also had healthier blood pressure at the end of the study. While these changes might seem small, they demonstrate how behaviours can be changed over a period of just a few months. With continued support, these changes can magnify into healthy habits that can stay with participants for life.

Now, the team has its sights set on further research and action. “We want to test the MSLP with young children and pregnant women, to see how it can improve particular aspects of health including birth outcomes and dental disease,” says Alice. “We also want to take Good Bowls further, adapting them to different cultural preferences, and developing medically tailored Good Bowls to address specific health issues.”



Alice in the newly wrapped Good Bowls delivery van

About *health promotion and disease prevention*

H health promotion and disease prevention are direct applications of research with the explicit aim of improving people's lives. This can make careers in the area extremely fulfilling. Alice explains more about her field of work.

"There are many areas of my work I find rewarding. Addressing health equity and reducing health disparities is a priority for me, especially focusing on approaches to prevent people suffering from health issues in the first place, rather than just treating the disease when it appears. I also love working with people from other disciplines and having the freedom to test innovative ideas."

"The rapid pace of technological advancement is opening new doors for our researchers. We are starting to use artificial intelligence to

'nudge' people towards healthier choices via their mobile phones. More integrated systems mean we can identify and use food that would otherwise be wasted. Public health methods can become more precise, as we are able to collect more precise data about individuals and communities. There is also a growing body of research understanding how the economics of our food systems affects public health, and how we can change these systems to help us become healthier."

"I recommend getting experience outside of academia before committing to a career in research. This might include working with local communities, or volunteering with relevant organisations. Broadening your horizons at an early stage can help you pinpoint what you want to do in the future."

Pathway from school to *health promotion and disease prevention*

- Subjects such as biology, chemistry and mathematics are likely to support further education in the field. Other subjects such as psychology, economics and geography – which explore behaviour, attitudes and social interactions – may also prove useful.
- At college or university, Alice suggests courses or modules in epidemiology, biology, chemistry, behavioural psychology, systems science and communications.

Explore careers in *health promotion and disease prevention*

- The University of North Carolina at Chapel Hill's Center for Health Promotion and Disease Prevention (HPDP) offers various opportunities for students, including internships with community health programmes. Find out more: hdpd.unc.edu/about-us/student-opportunities
- The Centers for Disease Control and Prevention have a diverse array of resources for high school students, including independent learning materials and information on work experience and summer camps. Find out more: www.cdc.gov/stem/student_resources_k-12
- The American Public Health Association's Student Assembly is dedicated to furthering the development of the next generation of public health professionals. It provides opportunities to gain leadership experience, further your education and develop networks. Find out more: www.apha.org/APHA-Communities/Student-Assembly
- According to Glassdoor, the average salary for a public health professional in the US is around \$53,000 per year.



Product photo of Vegetable Curry Good Bowl



Meet Alice

Community engagement and social entrepreneurship have shaped my career. My work with local communities has been a pathway to funded research and publication, while Good Bowls has enabled me to take a sustainable approach to social justice.

The worst advice I have received is to only focus on my own research. It's important to be open to new opportunities, even if they might seem like a distraction at the time.

I have a range of methods for overcoming obstacles. Approaching a challenge from different directions and asking for advice or collaboration from others can show solutions you might otherwise miss. Don't give up, and seek 'win-wins' in tricky situations.

Becoming the Director of HPDP was a big moment for me. I'm also hugely proud of the students I have mentored, as well as my work to address health disparities and equity. My business, Equiti Foods, is also really valuable to me because of its social mission.

Alice's top tips

1. Say yes to opportunities but learn which opportunities will be a good use of your time and will help others.
2. Always be kind. Help people.
3. Quoting Ms Frizzle from the Magic School Bus: "Take chances, make mistakes, get messy!"



Alice cutting vegetables for a homemade Good Bowl in her back garden

Health promotion and disease prevention

with Dr Alice Ammerman

Talking points

KNOWLEDGE

1. What is a Mediterranean diet?
2. What is a chronic disease? Give examples.

COMPREHENSION

3. Why is teaching people about healthy food not necessarily sufficient for changing lifestyles?
4. Why can an unhealthy diet lead to chronic disease?

APPLICATION

5. What questions would you ask Alice to understand the evidence base behind the Med-South Lifestyle Program (MSLP) and Good Bowls?

ANALYSIS

6. Advice on what constitutes a healthy diet varies a lot. Why do you think this is?
7. Many people adopt new year's resolutions to eat healthier, and many of these resolutions fail. Considering behavioural psychology, what do you think may be the reasons behind these failures, and how does the MSLP potentially address these?

SYNTHESIS

8. Alice mentions the importance of community leaders in influencing lifestyle changes. If you were a researcher on her team, how might you approach these people and organisations? What might you ask of them, and what tools might you give them to help promote change? In return, what might you learn from them?

EVALUATION

9. Today, over 60% of US adults are considered overweight or obese, a percentage that has been rising for forty years. What do you think has led to this trend, despite an ever-growing evidence base about what constitutes a healthy lifestyle? What measures might stop or reverse this trend? How would you also address concerns about weight stigma?

Activity

The Centers for Health Promotion and Disease Prevention are examining the effects of the MSLP on many different aspects of people's health. For instance, Alice mentions she will investigate the effects of MSLP on incidence of dental disease in children.

Think about other specific health issues the team might be able to assess and measure, such as:

- Incidence/severity of chronic diseases
- Body weight
- Physical capabilities
- Lifestyle changes
- Mental health

Choose two, and design a study to test the effects of the MSLP on these aspects.

1. Define your research question. What exactly are you investigating?
2. Define what measurements you will take. Consider in advance how you could analyse these.
3. Decide on your methodology:
 - a. How will you carry out your experiment? What resources will you need?
 - b. What sample size of people will you study?
 - c. What variables are you measuring, and what variables do you need to control?
 - d. How can you ensure the health, safety and privacy of participants are protected?
4. Present your proposal to a 'funder' (a classmate). You will need to demonstrate:
 - a. Why this research question is important.
 - b. That your methodology is robust and results will be meaningful.
 - c. What level of funding/resourcing you will need.
5. Imagine you have carried out the experiment. Design a presentation to communicate your results to a group of community leaders. What key messages are you aiming to convey? What actions do you hope they will take in response to your presentation?

More resources

- You can find out more about the Med-South Lifestyle Program, including the evidence behind it and the results it has achieved, on the HPDP's website: hdpd.unc.edu/med-south-lifestyle-program

- You can find out more about Good Bowls, including their recommendations for healthy diets and the work they do with communities, on the project website: www.eatgoodbowls.com/about
- This video from Mayo Clinic gives an overview of how a Mediterranean diet may benefit brain health: www.youtube.com/watch?v=2TqNV2Aodew



Product photo of the Big Al's Big BBQ Bowl



Photo montage

Top row: Tych Cowdin and his staff at Communities in Schools Chatham County receive a delivery of 450 meals from a recent Pay-It-Forward campaign

Middle row: left: Pay-It-Forward volunteers seal meals so they can be frozen and donated to community partners and distributed to families in the area

Centre: Two local high school students interested in a career in nutrition volunteer to make Good Bowls to donate to food insecure college students through CJ's Pantry

Right: PIF: Dr Alice Ammerman (in brown shirt) makes meals during our most recent Pay-It-Forward campaign at The Sycamore in Pittsboro, NC. The Good Bowls and volunteer teams cooked over 850 meals for food insecure families in the community as part of this campaign.

Bottom: The Good Bowls vending machine at the Redeye Worldwide worksite in Hillsborough. This vending machine was a pilot for other worksites that are currently having vending machines installed as part of the NIH-funded Eat Well at Work Study, making subsidised Good Bowls available in manufacturing plants.

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