REDUCING CANCER RISK:

THE ROLE OF LIFESTYLE AND PREVENTION

Jean McGinnis, PA-C, MPAS
Origins Health Des Moines
www.originshealthdsm.com

ENVIRONMENTAL EXPOSURES

Environmental Carcinogens

Air and water pollution, radiation, chemicals

Mechanism

Long-term exposure to carcinogens causes DNA damage and mutations that initiate tumor formation.[1]

OTHER ENVIRONMENTAL EXPOSURES

FACTORS ASSOCIATED WITH CANCER RISK

Factor	Approximate contribution
Genetics	5–10%
Environmental pollutants	2–5%
Tobacco	~30%
Diet	~30–35%
Obesity + inactivity	7–10%
Alcohol	4–6%
Infections	15–20%

LIFESTYLE-RELATED CHRONIC DISEASE STATISTICS FOR IOWA

- **Diabetes and Metobolic Syndrome:**

  Diabetes: **11% of adults**
  New diabetes diagnoses: **18,000 per year**
  Prediabetes: **34% of adults**
  Estimated metabolic syndrome: **35–40% of adults**

- **Weight:**

  Obese: 37%
  Overweight: 34%
  Normal Weight: 29%

- **Cardiovascular:**

  High Blood Pressure: 34.5%
  High Cholesterol: 37%

6 PILLARS OF LIFESTYLE MEDICINE

- **Whole-food plant-predominant nutrition**
- **Regular physical activity**
- **Restorative sleep**
- **Stress management**
- **Avoidance of harmful substances**
- **Social connection**


MOUNTAIN OF
EVIDENCE

EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

- Diets **high in meat and low in vegetables associated with up to 8× higher colorectal cancer risk**
- Red meat consumption ≥1 time/week associated with **~2× higher colon cancer risk**
- Grilled or smoked meat intake associated with **~47% higher breast cancer risk**
- Consumption of **very well-done meat associated with ~5× higher breast cancer risk**
- **Processed meat classified as a Group 1 carcinogen (WHO/IARC)**
- **Red meat (beef, pork, lamb) classified as Group 2A – probably carcinogenic**

EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

- Egg consumption associated with **~2× higher risk of prostate cancer** progression
- Poultry consumption in men with prostate cancer associated with up to **4× higher risk** of disease progression
- Poultry intake associated with **~72% higher pancreatic cancer risk** per 50 g/day consumed
- The EPIC study found that risk of blood cancers increased between **56 percent and 280 percent** for every 50 grams of poultry consumed daily (approximately ¼ of a chicken breast)

EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

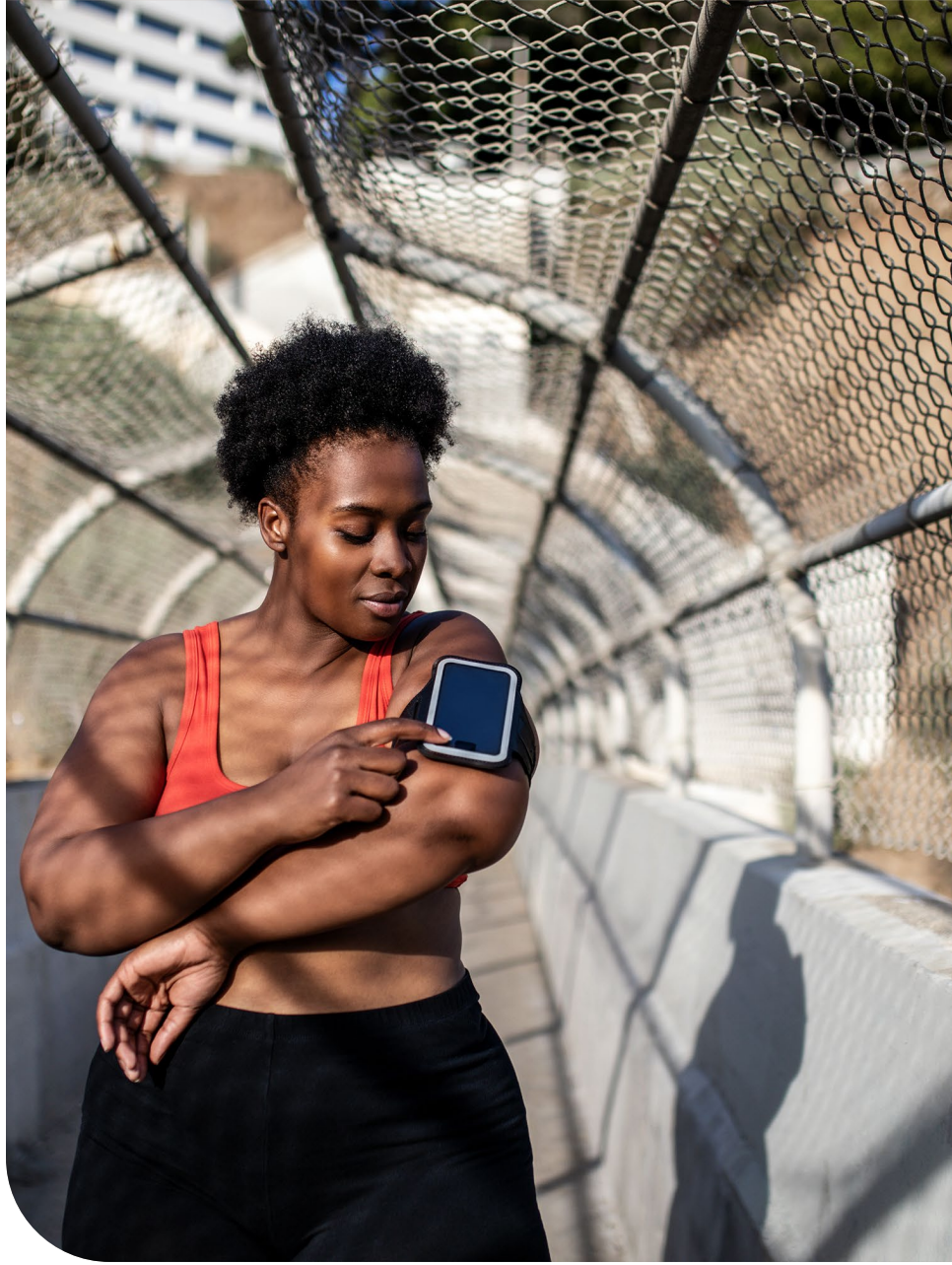
- Diets rich in cruciferous vegetables associated with **~18% lower risk of colorectal cancer** and **~23% lower risk of lung cancer** in pooled cohort analyses.
- Higher intake of leafy green vegetables associated **15–20% lower risk of gastrointestinal cancers**, including colorectal and stomach cancers.
- Each **10 g/day increase in fiber intake** associated with **~10% reduction in colorectal cancer risk**.
- High-fiber diets increase production of **butyrate**, which promotes **apoptosis of colon cancer cells and reduces tumor proliferation** in experimental and human studies.

EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

- Vegetarian diets were associated with **~34% lower colorectal cancer risk in some cohorts**
- Higher intake of whole grains associated with **~20% lower colorectal cancer risk**
- Each **200 g/day increase (~2.5 servings)** of fruits and vegetables associated with **~8–10% lower overall cancer risk**.
- Higher intake of legumes (about **¼–½ cup cooked per day**) associated with **~9–11% lower risk of colorectal cancer** in pooled cohort analyses compared with very low intake.
- Regular nut consumption (approx. 1 ounce) associated with **~15% reduction in cancer mortality** in large cohort studies.

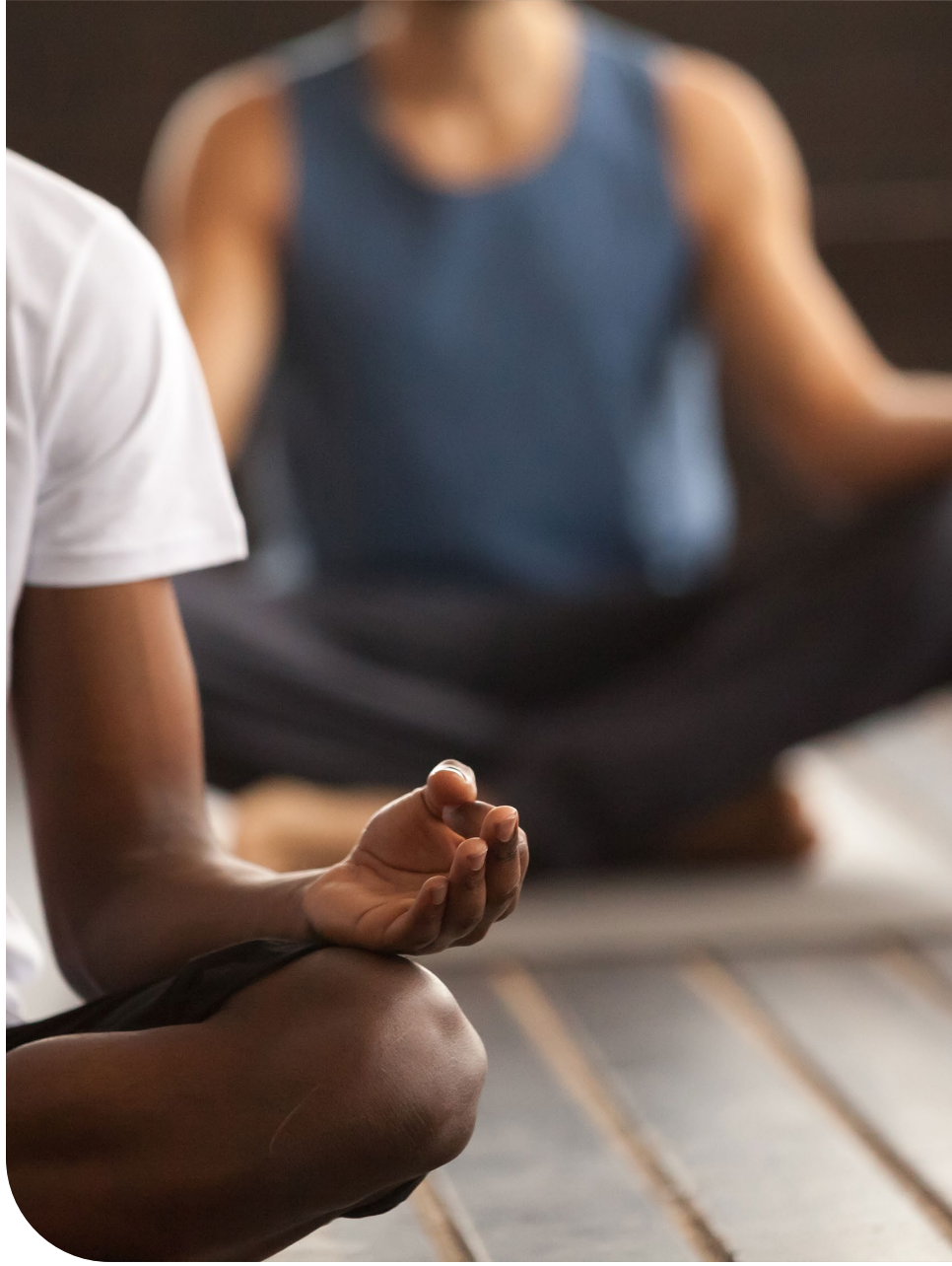
EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

- Greater adherence to plant-forward dietary patterns associated with **lower cancer incidence and mortality in large population studies**
- Diets emphasizing plant foods associated with **reduced inflammation markers linked to cancer risk**
- High fruit and vegetable intake associated with **lower oxidative stress and improved DNA repair capacity**
- Physical activity associated with **20–30% lower colon cancer risk**
- Regular exercise associated with **20% lower breast cancer risk**
- Physically active individuals have **20% lower risk of endometrial cancer**
- Regular exercise associated with **lower risk of prostate cancer progression**



EVIDENCE OF LIFESTYLE LINK TO CANCER RISK

- Higher physical activity levels associated with lower overall cancer mortality
- 30–60 minutes of moderate aerobic **exercise increases NK cell activity by ~20–50%** (involved in tumor suppression)
- 150 minutes/week of moderate exercise associated with **10–20% lower risk of several cancers**, including breast, colon, endometrial, kidney, and liver
- 150–300 minutes/week of moderate exercise **improves insulin sensitivity ~25–40%** and reduces circulating insulin levels linked to cancer growth pathways
- Weight loss and improved metabolic health associated with **lower risk of obesity-related cancers**
- Obesity associated with **increased risk of at least 13 different cancers**
- Maintaining healthy body weight associated with substantial reductions in cancer risk across multiple organ systems



PROSTATE CANCER STUDY

(Ornish et al.)

Lifestyle Intervention and Prostate Cancer Progression

Men with **early-stage prostate cancer** randomized to usual care vs. intensive lifestyle intervention

Lifestyle group: **whole-food plant-based diet, moderate exercise, stress management, and social support**

After **1 year**:
– PSA **increased ~6% in control group**
– PSA **decreased ~4% in lifestyle group**

0 patients in the lifestyle group required surgery or radiation, compared with **~10% of controls**

Lifestyle changes associated with **changes in expression of >500 genes** involved in cancer progression

Ornish D et al. *J Urol.* 2005;174:1065–1069
Ornish D et al. *Proc Natl Acad Sci USA.* 2008;105:8369–8374

HOW DO DIET AND LIFESTYLE AFFECT CANCER RISK

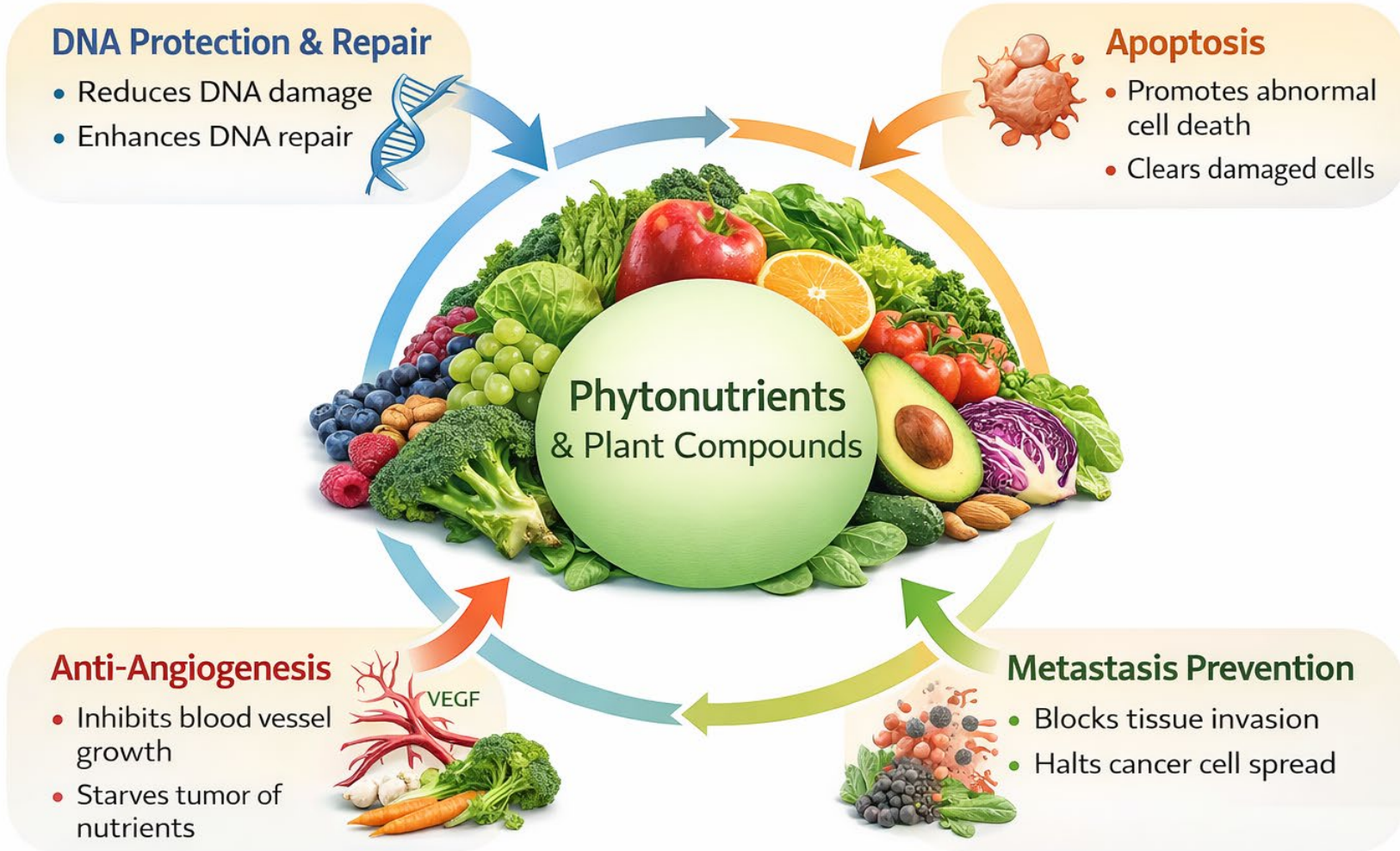
Microbiome and Cancer Risk
The gut microbiome influences cancer risk through effects on inflammation, immune signaling, and carcinogen metabolism. Diet-driven microbial changes can modulate cancer-related immune pathways.

Role of Chronic Inflammation
Persistent low-grade inflammation promotes DNA damage, cellular proliferation, and other biological changes that contribute to cancer development.

Cancer Immune Surveillance
Whole plant foods, regular physical activity, stress management, and adequate sleep support immune function and natural killer cell activity, improving the body's ability to detect and destroy abnormal cells.

Bioactive Compounds in Plant Foods
Polyphenols, flavonoids, and carotenoids exert antioxidant and anti-inflammatory effects that reduce carcinogenesis. Many of these compounds promote death of damaged cells while inhibiting tumor growth, angiogenesis, and metastasis.


ANTIOXIDANT
FREE RADICAL
NORMAL CELL
Defender!
Causes Damage!
Healthy & Happy!


DNA Protection & Repair
• Reduces DNA damage
• Enhances DNA repair
Apoptosis
• Promotes abnormal cell death
• Clears damaged cells
Phytonutrients
& Plant Compounds
Anti-Angiogenesis
• Inhibits blood vessel growth
• Starves tumor of nutrients
VEGF
Metastasis Prevention
• Blocks tissue invasion
• Halts cancer cell spread

IF THE SCIENCE IS CLEAR...

WHY DON’T PEOPLE KNOW THIS?

NUTRITION GUIDANCE IN HEALTHCARE

- Only about 12% of physician visits include nutrition counseling.
- Limited Nutrition Education in Medical Training
- Many physicians report feeling insufficiently trained to counsel patients about diet
- Limited Time in Clinical Visits--Average primary care visit length is about 15 minutes

NUTRITION GUIDANCE IN HEALTHCARE

Physicians Often Believe Patients Won’t Change

- Physicians frequently perceive patient motivation as a barrier.
- Many clinicians report **patient unwillingness to change lifestyle behaviors as a major obstacle**
- Physicians often **underestimate patients’ interest in receiving lifestyle guidance**

PATIENTS ARE LOOKING FOR ANSWERS

Most patients actively seek information about their health.

- Approximately **1 billion health-related questions are searched on Google every day**
- **Over 80% of internet users search for health information online**
- Nearly **72% of consumers use the internet to find healthcare information**

MISINFORMATION

- **Over half of Americans seek nutrition advice online**, often without verifying the information.
- **56% report getting nutrition information from friends and family**
- **45% of people are getting their information on nutrition from social media**.

Public nutrition beliefs often differ from the scientific literature.

WHAT HAPPENS WHEN PEOPLE ARE GIVEN THE TOOLS TO CHANGE?

- 240 participants
- 16-week course
- 1 hour/week medical education
- 1 hour/week culinary instruction
- Private chat for group
- Volunteers with knowledge of plant-based eating provided coaching and support

OWNING YOUR HEALTH PROGRAM
PRINCIPAL FINANCIAL
JANUARY 2025

PARTICIPANT RESULTS AFTER 16 WEEKS

Average total cholesterol reduction was 33 points; highest drop was 82 points.

Average LDL cholesterol reduction was 28 points; highest drop was 65 points.
Average LDL drop of 23% for the group; every person improved their LDL cholesterol reading
50% of the abnormal group came into the normal range

A1C average reduction for the abnormal group was 18%.
All diabetics improved. One person started with A1C of 13 and came down to 5.9
All of the pre-diabetics put their diabetes into remission.

Average weight loss was 13.7 pounds, largest amount lost was 53 pounds.

PRE AND POST PROGRAM SURVEY RESULTS

- The group went from 59% to 72% of participants getting an optimal 7-8 hours of sleep per night.
- There was a 42% decrease in daytime drowsiness and a 22% increase in ability to think clearly or focus/no more brain-fog.
- Twice as many participants are happy with their weight at the culmination of the program as compared to start of the program.
- Post-program, between 60-85% of participants no longer felt depressed, hopeless, nervous or anxious (up from 38-73% pre-program)
- 22% decrease in participants who worry excessively and now self-report that they no longer worry.

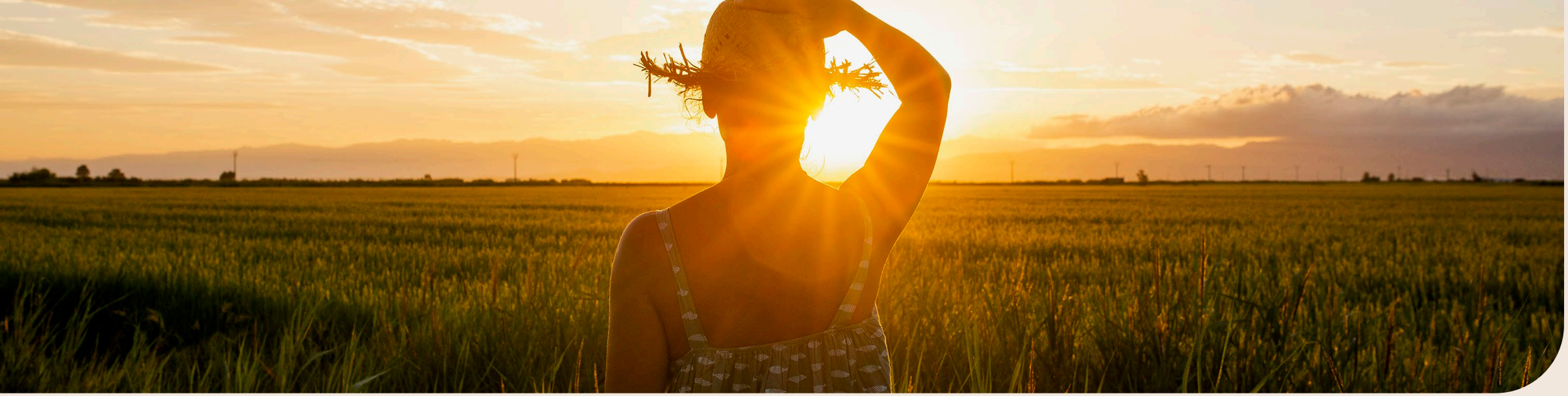
PRE AND POST PROGRAM SURVEY RESULTS

- The number of participants who do not eat fast food/sugary drinks/packaged foods more than quadrupled by the end of the program.
- The number of participants who ate 4 or more servings of fruit & vegetables daily nearly tripled post-program.
- Reported a very broad improvement in their knowledge, ability, and skillset surrounding living a healthy plant-based life.

SUSTAINABILITY

- Approximately **200 of the 240 participants** continue practicing the lifestyle in some form.
- Many remain engaged in:
  - continued education
  - community support
  - ongoing lifestyle practice

This suggests that **behavior change can be sustainable**.



KEY TAKEAWAYS

-We Can Reduce Our Cancer Risk Regardless of Exposure

-Lifestyle Matters – Eat More Plants, Chill Out, Move More, Get Some Sleep, Hang Out with the People You Love

-People/Patients Want More Information on How to Protect Themselves

-Education Works

THANK YOU!

CITATION LINK: HTTPS://ORIGINSHEALTHDSM.COM/SYMPOSIUM-CITATION-PAGE

Jean McGinnis, PA-C
jean@originshealthdsm.com
www.originshealthdsm.com