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# REDUCING CANCER RECURRENCE WITH PLANT-BASED NUTRITION

## TODAY'S AGENDA:

- Introduction & Housekeeping
- Speaker Introduction
- Presentation
- Q&A
- Closing



## WEBINAR HOST:

**Keith Hine MS, RD**

VP of Healthcare, Sports & Professional Education  
Orgain, LLC



## WEBINAR PRESENTER:

**Alison Tierney, MS, RD, CD, CSO**

Founder, Wholesome LLC

# REDUCING CANCER RECURRENTENCE WITH PLANT-BASED NUTRITION

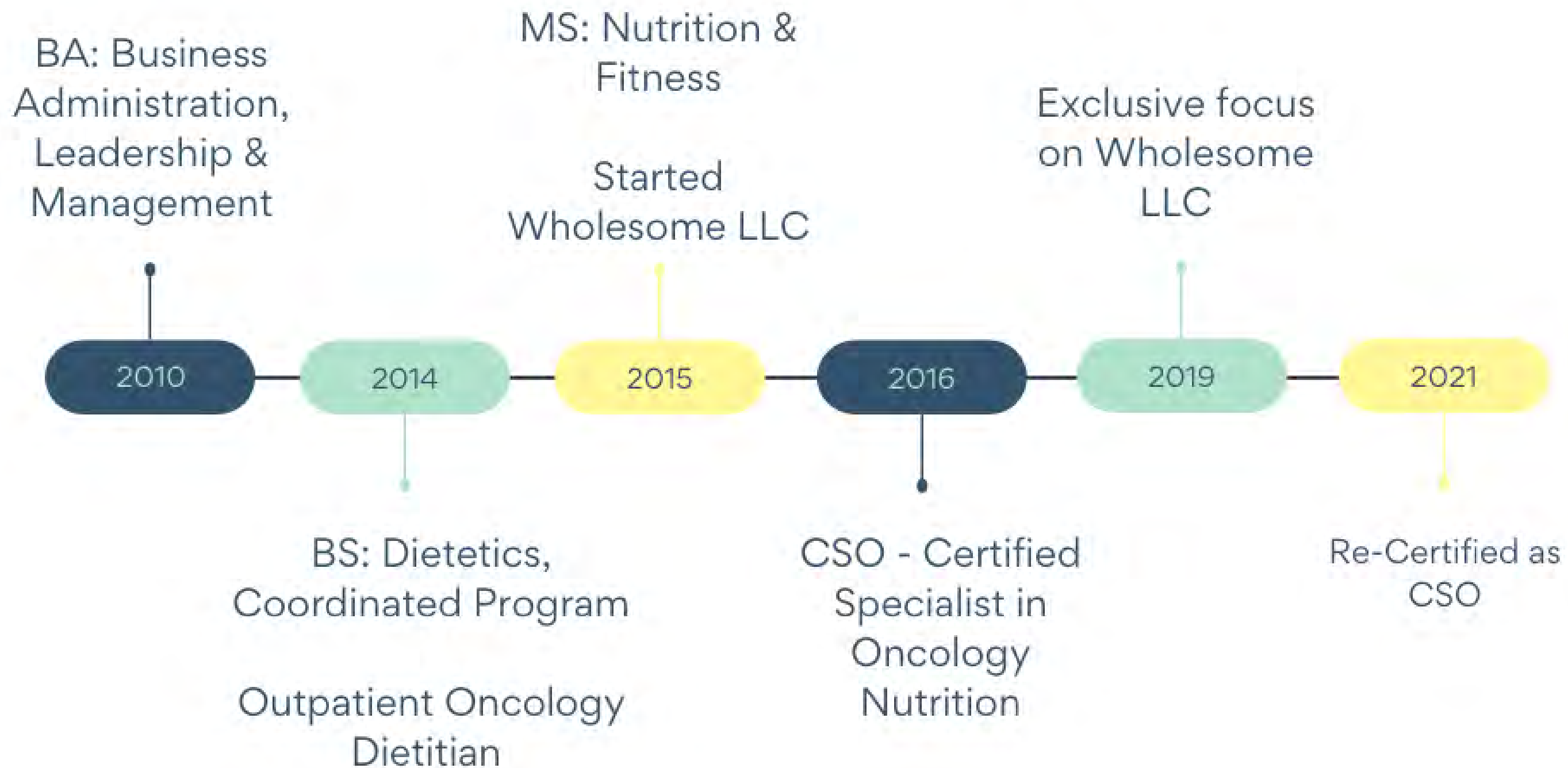
Alison Tierney, MS, RD, CD, CSO



# Objectives

- (1) To define the role of the oncology dietitian in both cancer treatment and in survivorship.
- (2) To review the nutrition recommendations set forth by national and international agencies to reduce the risk of cancer development. (AICR, WHO, Academy of Nutrition & Dietetics)
- (3) To examine the benefits of the plant-based diet and how it may reduce the risk of cancer development.
- (4) To investigate nutrients of concern and focused attention for patients who pursue a plant-based diet to ensure nutrition adequacy.
- (5) To provide recommendations to practitioners on how to discuss a plant-based nutrition approach for patients interested in adopting a plant-based diet.





# My Professional Path





1

In 2020, an estimated 1.8 new cases of cancer would be diagnosed in the United States and 606,520 people would die from the disease.(1)

2

Cancer deaths estimated to be related to (2):

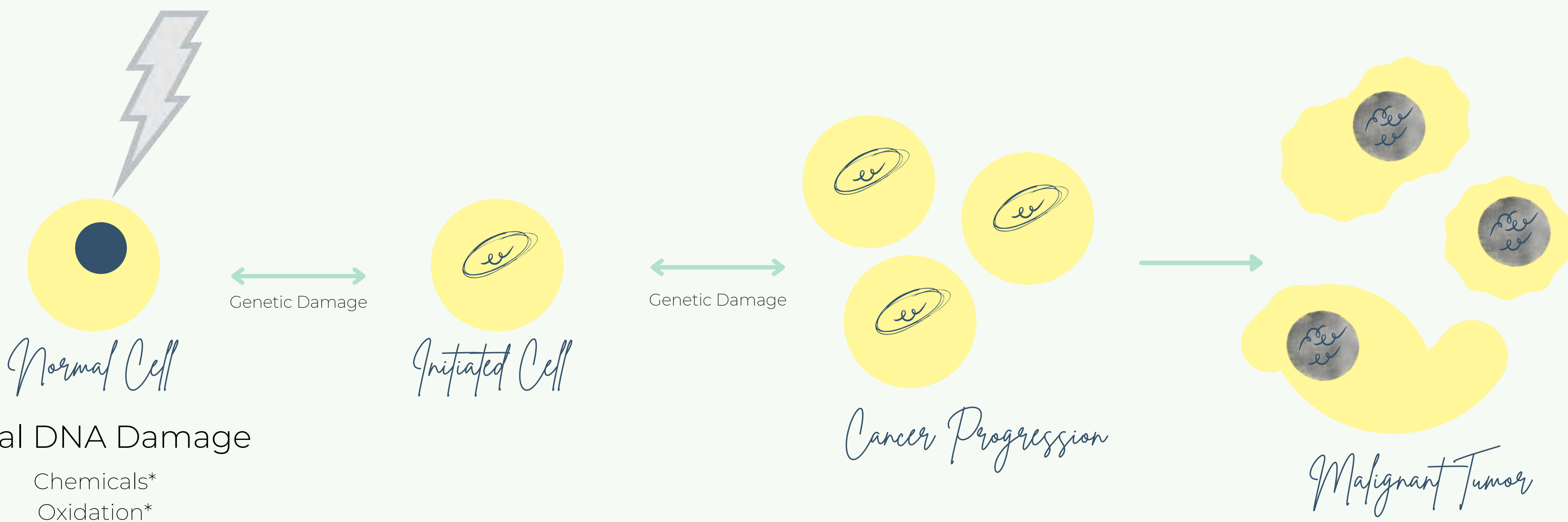
- 1/3 smoking
- 1/3 overweight, obesity, physical inactivity, and poor diet.

3

Nutrients can play different roles at different stages within the carcinogenesis process.

## Things to Know



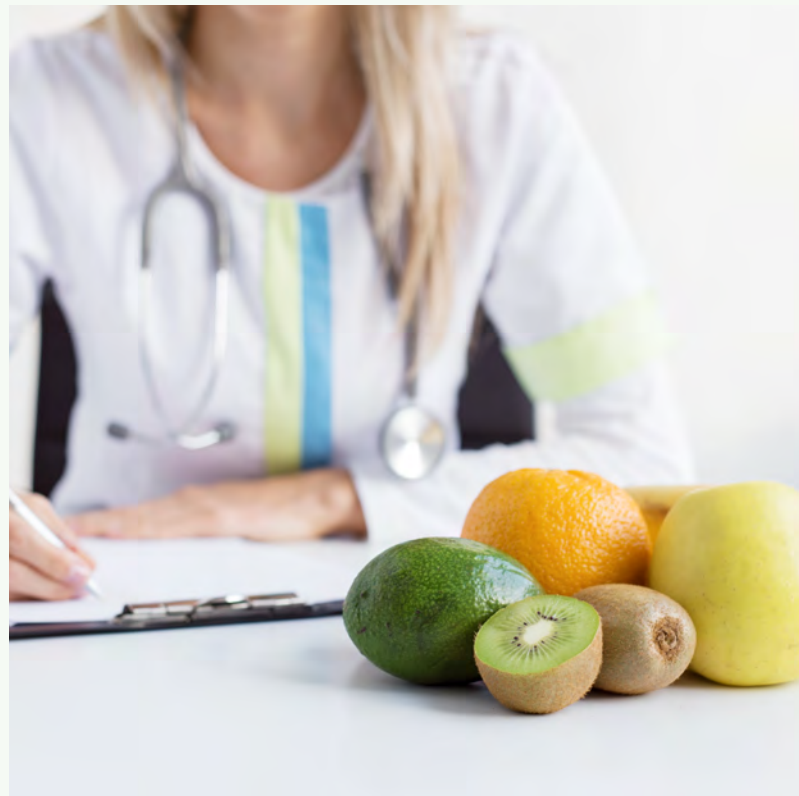


Initial DNA Damage

- Chemicals\*
- Oxidation\*
- Inflammation\*
- Viruses
- Radiation

\*Nutrition can play a vital role





# Role of Outpatient Oncology Dietitian

Nutrition intervention during cancer treatment is associated with fewer treatment-related side effects (3-6), fewer hospitalizations (5-7), and improved quality of life (3,4,8).





# Initial Treatment

## *Potential Nutrition-Related Concerns*

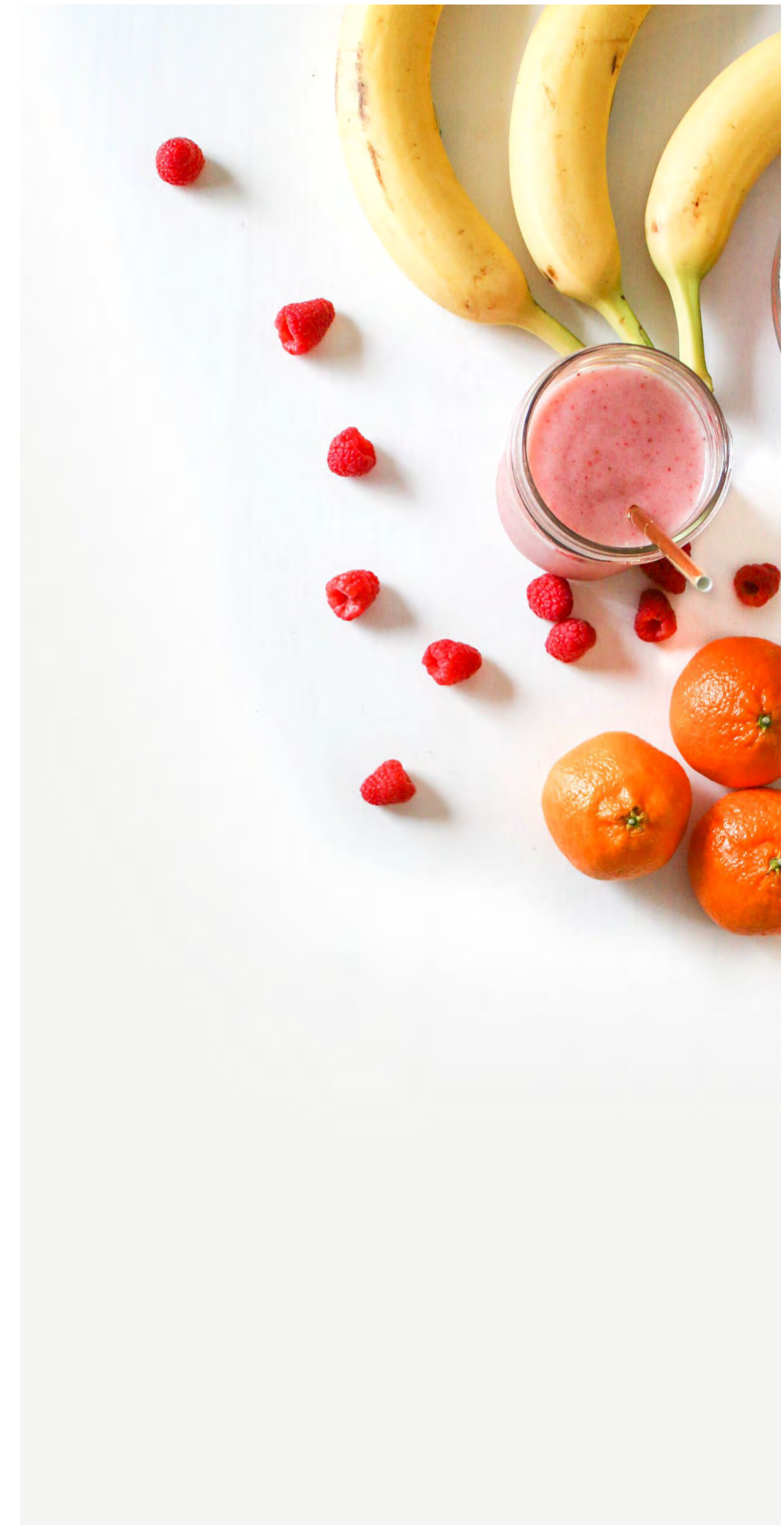
- Treatment side effects  
(e.g. nausea, vomiting, diarrhea, mucositis, taste changes, etc. )
- Fatigue
- Pain
- Anorexia (loss of appetite)
- Treatment-related cachexia
- Immunosuppression
- Weight or body-composition changes
- Drug-nutrient interactions



# Initial Treatment

## *Potential Outcomes*

- Ability to adhere to scheduled treatment
- Fewer infectious complications
- Improved weight and body composition
- Delay or prevention of disease progression
- Improved chances of survival
- Improved quality of life







# Post-Treatment

*Early and/or Long-Term Potential Nutrition-Related Concerns*

- Fatigue
- Pain
- Endocrine disorders
- Weight or body-composition changes
- Cognitive deficits
- Dental caries or complications
- Cardiovascular complications
- Decreased bone density

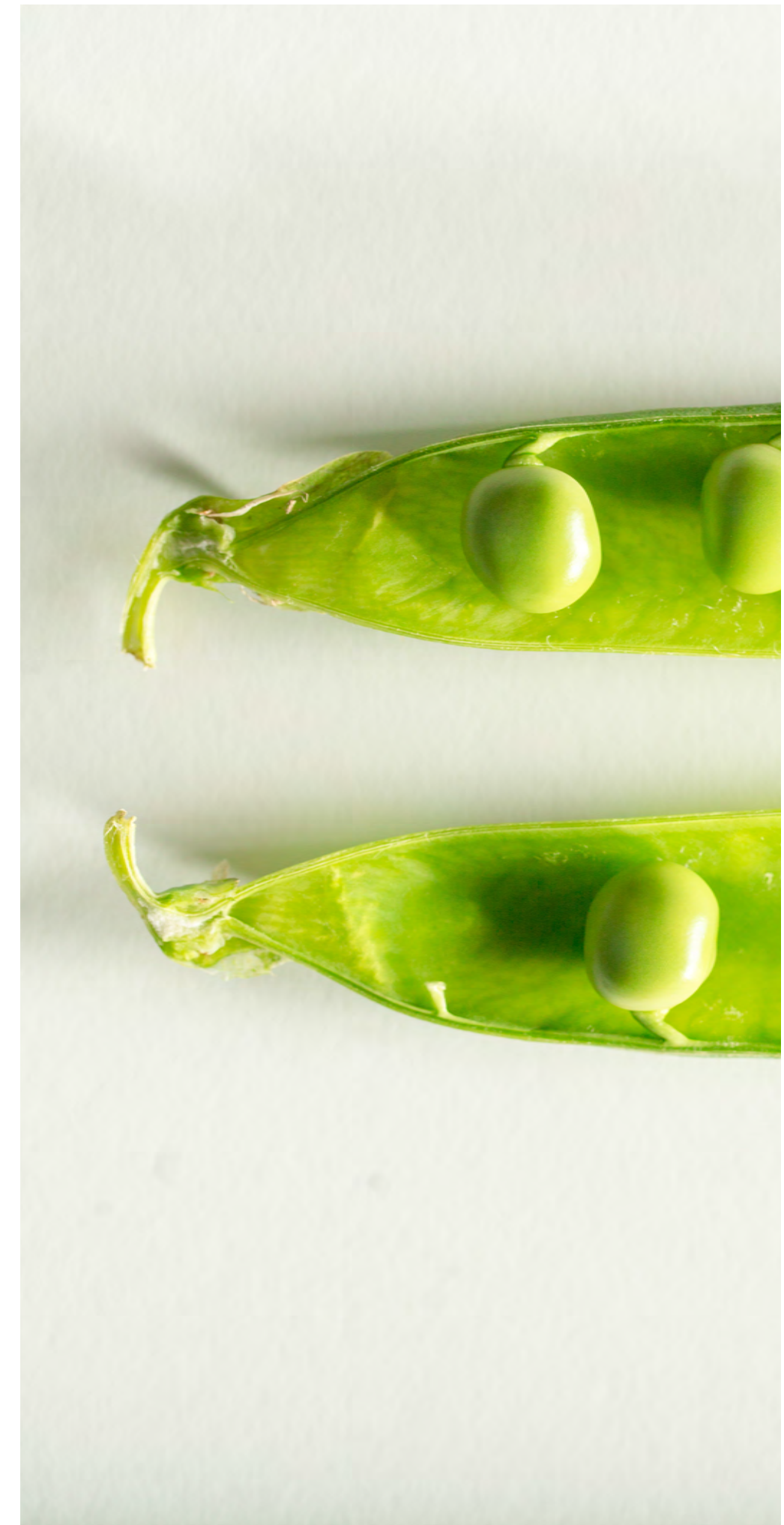


# Post-Treatment

*Early and/or Long-Term Potential Outcomes of Nutrition Interventions*

- Decreased fatigue
- Improved functional status
- More rapid recovery from treatment
- Improved weight and body composition
- Decreased risk for cancer recurrence and subsequent primary cancers
- Improved chances of survival
- Improved quality of life
- Decreased health care costs

(9)

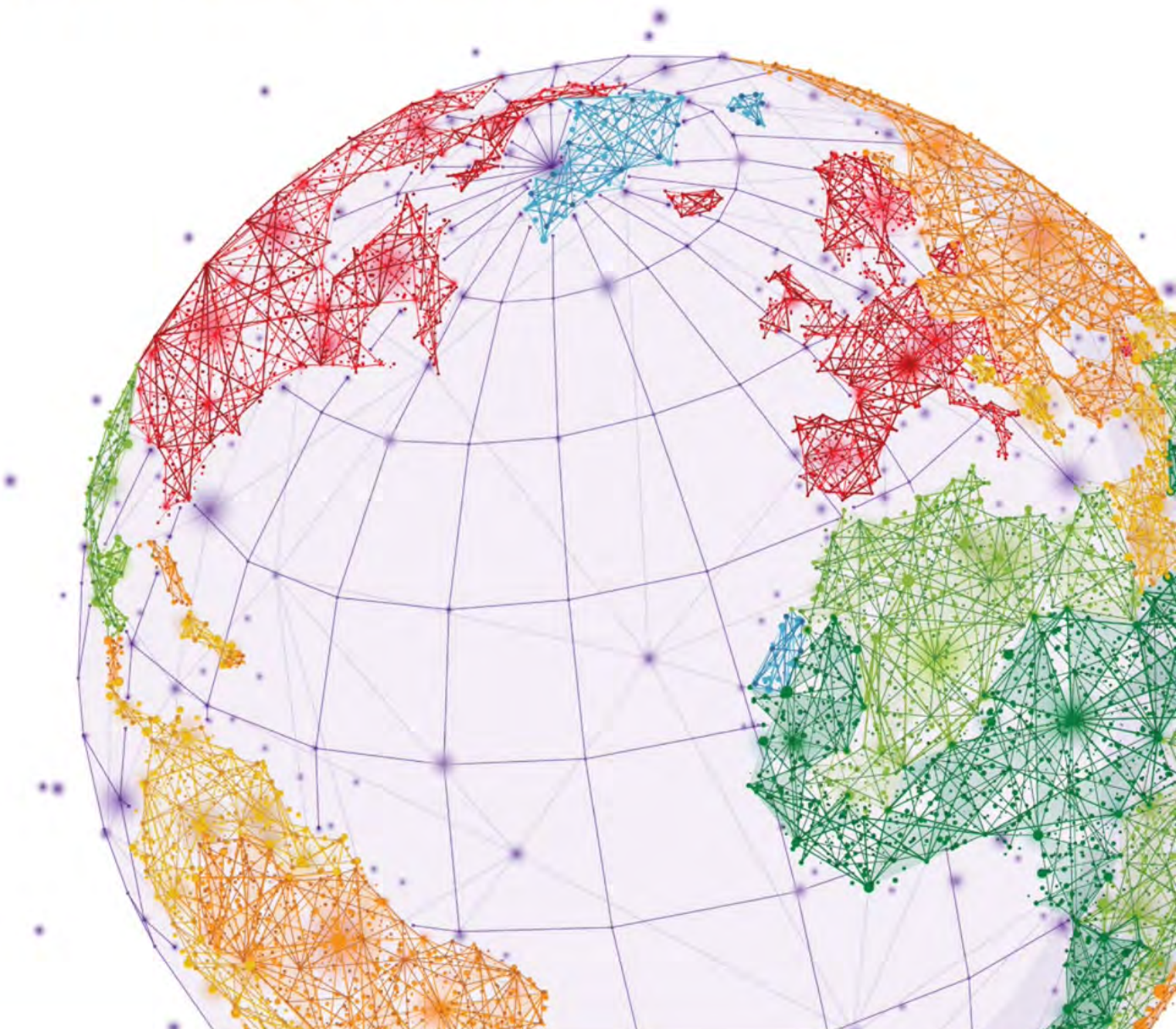




# Third Expert Report

## **Diet, Nutrition, Physical Activity and Cancer: a Global Perspective**

**A summary of the Third Expert Report**



Used comprehensive analysis, the most meticulous of methods, and the worldwide body of evidence on preventing and surviving cancer through diet, nutrition and physical activity, and presents the latest global Cancer Prevention Recommendations."

"Set out over 25 years ago to better define the relationship between diet, nutrition and physical activity, and cancer."





## RECOMMENDATION

# Be a healthy weight

Keep your weight within the healthy range<sup>1</sup> and avoid weight gain in adult life

- GOAL** Ensure that body weight during childhood and adolescence projects towards the lower end of the healthy adult BMI range
- GOAL** Keep your weight as low as you can within the healthy range throughout life
- GOAL** Avoid weight gain (measured as body weight or waist circumference)<sup>2</sup> throughout adulthood

1



## RECOMMENDATION

# Be physically active

Be physically active as part of everyday life – walk more and sit less

- GOAL** Be at least moderately physically active<sup>1</sup>, and follow or exceed national guidelines
- GOAL** Limit sedentary habits

<sup>1</sup> Moderate physical activity increases heart rate to about 60 to 75 per cent of its maximum.

2





## RECOMMENDATION

# Eat a diet rich in wholegrains, vegetables, fruit and beans

**Make wholegrains, vegetables, fruit, and pulses (legumes) such as beans and lentils a major part of your usual daily diet**

- GOAL** Consume a diet that provides at least 30 grams per day of fibre<sup>1</sup> from food sources
- GOAL** Include in most meals foods containing wholegrains, non-starchy vegetables, fruit and pulses (legumes) such as beans and lentils
- GOAL** Eat a diet high in all types of plant foods including at least five portions or servings (at least 400 grams or 15 ounces in total) of a variety of non-starchy vegetables and fruit every day
- GOAL** If you eat starchy roots and tubers as staple foods, eat non-starchy vegetables, fruit and pulses (legumes) regularly too if possible

<sup>1</sup> Measured by the AOAC method.





## RECOMMENDATION

# Limit consumption of 'fast foods' and other processed foods high in fat, starches or sugars

Limiting these foods helps control calorie intake and maintain a healthy weight

**GOAL** Limit consumption of processed foods high in fat, starches or sugars – including 'fast foods'<sup>1</sup>; many pre-prepared dishes, snacks, bakery foods and desserts; and confectionery (candy)

<sup>1</sup> 'Fast foods' are readily available convenience foods that tend to be energy dense and are often consumed frequently and in large portions.

4

5



## RECOMMENDATION

# Limit consumption of red and processed meat

Eat no more than moderate amounts of red meat<sup>1</sup>, such as beef, pork and lamb. Eat little, if any, processed meat<sup>2</sup>

**GOAL** If you eat red meat, limit consumption to no more than about three portions per week. Three portions is equivalent to about 350 to 500 grams (about 12 to 18 ounces) cooked weight of red meat.<sup>3</sup> Consume very little, if any, processed meat

<sup>1</sup> The term 'red meat' refers to all types of mammalian muscle meat, such as beef, veal, pork, lamb, mutton, horse and goat.

<sup>2</sup> The term 'processed meat' refers to meat that has been transformed through salting, curing, fermentation, smoking or other processes to enhance flavour or improve preservation.

<sup>3</sup> 500 grams of cooked red meat is roughly equivalent to 700–750 grams of raw meat, but the exact conversion depends on the cut of meat, the proportions of lean meat and fat, and the method and degree of cooking.





## RECOMMENDATION

# Limit consumption of sugar sweetened drinks

Drink mostly water and unsweetened drinks

**GOAL** Do not consume sugar sweetened drinks<sup>1</sup>

<sup>1</sup> Sugar sweetened drinks are defined here as liquids that are sweetened by adding free sugars, such as sucrose, high fructose corn syrup and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrate. This includes, among others, sodas, sports drinks, energy drinks, sweetened waters, cordials, barley water, and coffee- and tea-based beverages with sugars or syrups added. This does not include versions of these drinks which are 'sugar free' or sweetened only with artificial sweeteners.

6

7



## RECOMMENDATION

# Limit alcohol consumption

For cancer prevention, it's best not to drink alcohol

**GOAL** For cancer prevention, it's best not to drink alcohol





## RECOMMENDATION

# Do not use supplements for cancer prevention

**Aim to meet nutritional needs through diet alone**

**GOAL** High-dose dietary supplements<sup>1</sup> are not recommended for cancer prevention – aim to meet nutritional needs through diet alone

<sup>1</sup> A dietary supplement is a product intended for ingestion that contains a 'dietary ingredient' intended to achieve levels of consumption of micronutrients or other food components beyond what is usually achievable through diet alone.

8



## RECOMMENDATION

# For mothers: breastfeed your baby, if you can

**Breastfeeding is good for both mother and baby**

**GOAL** This recommendation aligns with the advice of the World Health Organization, which recommends infants are exclusively breastfed<sup>1</sup> for 6 months, and then up to 2 years of age or beyond alongside appropriate complementary foods

<sup>1</sup> 'Exclusive breastfeeding' is defined as giving a baby only breastmilk (including breastmilk that has been expressed or is from a wet nurse) and nothing else – no other liquids or solid foods, not even water [93]. It does, however, allow the infant to receive oral rehydration solution, drops or syrups consisting of vitamins, minerals, supplements or medicines [93].

9





## RECOMMENDATION

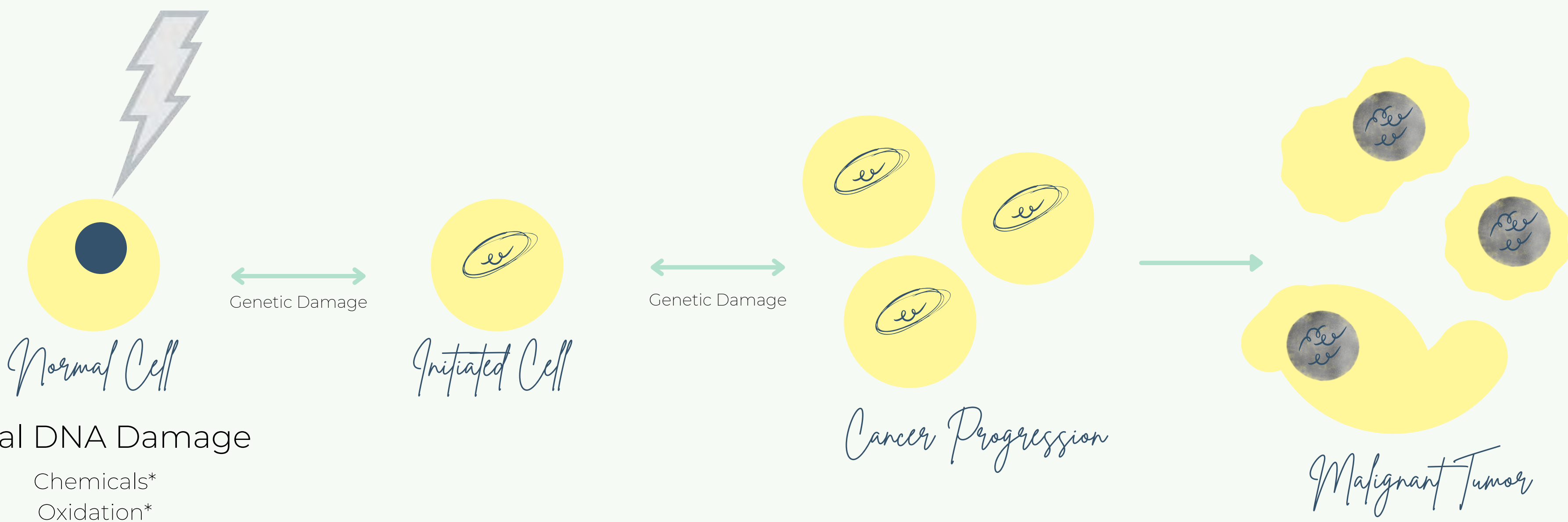
# After a cancer diagnosis: follow our Recommendations, if you can

**Check with your health professional what is right for you**

- GOAL** All cancer survivors<sup>1</sup> should receive nutritional care and guidance on physical activity from trained professionals
- GOAL** Unless otherwise advised, and if you can, all cancer survivors are advised to follow the Cancer Prevention Recommendations as far as possible after the acute stage of treatment

<sup>1</sup> Cancer survivors are people who have been diagnosed with cancer, including those who have recovered from the disease.





Initial DNA Damage

- Chemicals\*
- Oxidation\*
- Inflammation\*
- Viruses
- Radiation

\*Nutrition can play a vital role

**Table 2: Potential impact of diet, nutrition, physical activity and height in increasing susceptibility to cancer**

Exposure	Systemic Impact	Cell function	Hallmarks possibly affected
<b>Greater body fatness</b>	Hyperinsulinemia	mTOR/PI3K/AKT, MAPK	Reduced apoptosis; increased proliferation, genome instability
	Increased oestradiol	MAPK/ERK/PI3K	Increased proliferation in ER+ tissues; genome instability
	Inflammation	STAT3/NF-κB	Reduced apoptosis, increased cell division, altered macrophage function, etc.; genome instability
		E.g. WNT, P53	E.g. cellular energetics, etc.
<b>Lower fruit and vegetable intake</b>	Folate deficiency	DNA uracil misincorporation	Genome instability
	Low dietary fibre intake	Low butyrate	Reduced apoptosis; increased proliferation
	Low levels of carotenoids, vitamin A, C, E	Oxidative stress, inflammation	Increased inflammation, genomic instability, reduced apoptosis; increased proliferation
<b>Greater intake of red and processed meat</b>	Elevated exposure to nitrites; endogenous N-nitroso compound formation	DNA adduct formation -> mutations in p53, KRAS, etc.	Reduced apoptosis; increased proliferation; genomic instability
		Oxidative stress, inflammation	Increased inflammation, genomic instability
<b>Greater intake of dairy foods</b>	Higher IGF-I	mTOR/PI3K/AKT, MAPK	Reduced apoptosis; increased proliferation
<b>Greater alcohol intake</b>	Elevated acetaldehyde	Oxidative stress, lipid peroxidation	Increased inflammation, genomic instability
	Increased oestradiol	MAPK/ERK/PI3K	Increased proliferation in ER+ tissues
	Inflammation	STAT3/NF-κB	Reduced apoptosis, increased cell division, altered macrophage function, etc.
	Folate deficiency; interference with 1-carbon metabolism	DNA uracil misincorporation	Genome instability
<b>Greater physical activity</b>	Reduction in insulin	mTOR/PI3K/AKT, MAPK	Increased apoptosis; reduced proliferation, less genome instability
	Reduction in oestradiol and testosterone	MAPK/ERK/PI3K	Reduced proliferation in ER+ tissues; reduced genome instability
	Reduced inflammation (long term); improved immune function	STAT3/NF-κB	Increased apoptosis, increased cell division, altered macrophage function etc; reduced genome instability
		E.g. WNT, P53	E.g. cellular energetics, etc.
<b>Greater height</b>	Higher IGF-I	mTOR/PI3K/AKT, MAPK	Reduced apoptosis; increased proliferation

**Abbreviations:** AKT, also known as protein kinase B; DNA, deoxyribonucleic acid; ER+, oestrogen receptor positive; ERK, extracellular signal-regulated kinases; IGF-I, insulin-like growth factor 1; KRAS, please see glossary; MAPK, mitogen-activated protein kinase; mTOR, mechanistic/mammalian target of rapamycin; NF-κB, nuclear factor kappa-light-chain-enhancer of activated B cells; P53, tumour protein p53; PI3K, phosphoinositide 3-kinase; STAT3, signal transducer and activator of transcription 3; WNT, Wingless-related integration site.



## Position of the Academy of Nutrition and Dietetics: Vegetarian Diets

### ABSTRACT

It is the position of the Academy of Nutrition and Dietetics that appropriately planned vegetarian, including vegan, diets are healthful, nutritionally adequate, and may provide health benefits for the prevention and treatment of certain diseases. These diets are appropriate for all stages of the life cycle, including pregnancy, lactation, infancy, childhood, adolescence, older adulthood, and for athletes. Plant-based diets are more environmentally sustainable than diets rich in animal products because they use fewer natural resources and are associated with much less environmental damage. Vegetarians and vegans are at reduced risk of certain health conditions, including ischemic heart disease, type 2 diabetes, hypertension, certain types of cancer, and obesity. Low intake of saturated fat and high intakes of vegetables, fruits, whole grains, legumes, soy products, nuts, and seeds (all rich in fiber and phytochemicals) are characteristics of vegetarian and vegan diets that produce lower total and low-density lipoprotein cholesterol levels and better serum glucose control. These factors contribute to reduction of chronic disease. Vegans need reliable sources of vitamin B-12, such as fortified foods or supplements.

J Acad Nutr Diet. 2016;116(19):1970-1980.

### POSITION STATEMENT

It is the position of the Academy of Nutrition and Dietetics that appropriately planned vegetarian, including vegan, diets are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases. These diets are appropriate for all stages of the life cycle, including pregnancy, lactation, infancy, childhood, adolescence, older adulthood, and for athletes. Plant-based diets are more environmentally sustainable than diets rich in animal products because they use fewer natural resources and are associated with much less environmental damage.

"It is the position of the Academy of Nutrition & Dietetics that appropriately planned vegetarian, including vegan, diets are healthful, nutritionally adequate, and may provide health benefits for the prevention and treatment of certain diseases."

**V**EGETARIAN AND VEGAN dietary patterns can be quite diverse because of the variety of food choices available and the different factors that motivate people to adopt such patterns. People choose to adopt a vegetarian diet for many reasons, such as compassion toward animals, a desire to better protect the environment, to lower their risk of chronic diseases, or to therapeutically manage those diseases. A well-planned vegetarian diet containing vegetables, fruits, whole grains, legumes, nuts, and seeds can provide adequate nutrition. Vegetarian diets are devoid of flesh foods (such as meat, poultry, wild game, seafood, and their products). The most commonly followed vegetarian diets are shown in Figure 1. The adoption of a vegetarian diet may cause a reduced intake of certain nutrients; however, deficiencies can be readily avoided by appropriate planning.

### VEGETARIAN DIETS IN PERSPECTIVE

#### Trends among Vegetarians

According to a nationwide poll in 2016, approximately 3.3% of American adults are vegetarian or vegan (never eat meat, poultry, or fish), and about 46% of vegetarians are vegan.<sup>1</sup> The same poll revealed that 6% of young adults (18 to 34 years) are vegetarian or vegan, while only 2% of those 65 years or older are vegetarian. Sales of alternative meat products reached \$553 million in 2012, an 8% increase in 2 years. It was observed that 36% of survey responders sought vegan meat alternatives, largely from among the 18- to 44-year-old age group.<sup>2</sup> While whole plant foods serve best as dietary staples, some processed and fortified foods, such as nondairy beverages, meat analogs, and breakfast cereals, can contribute substantially to the nutrient intake of vegetarians.

Plant-based diets, including vegetarian and vegan diets, are becoming well accepted, as further evidenced by many nonprofit and government institutions highlighting this dietary choice. The American Institute for Cancer Research encourages a plant-based diet, suggesting Americans consume two-thirds of their dietary

intake from vegetables, fruits, whole grains, and beans.<sup>3</sup> In the 2015-2020 Dietary Guidelines for Americans, vegetarian diets are recommended as one of three healthful dietary patterns, and meal plans are provided for those following lacto-ovo-vegetarian and vegan diets.<sup>4</sup> The National School Lunch Program, while not requiring vegetarian options per se, requires schools to increase availability of fruits, vegetables, and whole grains in current meal patterns in the school menu.

Those following a vegetarian diet now have technological support. To date, while no online nutrition food tracker exists strictly for vegetarian diets, some allow clients to select vegetarian and vegan plans. These applications for mobile devices allow vegetarians to discover nutritional needs, track intake, and locate restaurants and markets where vegan foods are available. The online tracking tool at [www.SuperTracker.usda.gov](http://www.SuperTracker.usda.gov) is a part of the US Department of Agriculture Choose My Plate program.<sup>5</sup>

### NUTRITION CONSIDERATIONS FOR VEGETARIANS

#### Protein

Vegetarian, including vegan, diets typically meet or exceed recommended

## Vegetarian Diets and the Incidence of Cancer in a Low-risk Population

Yessenia Tantamango-Bartley<sup>1</sup>, Karén Jaceldo-Siegl<sup>1,2</sup>, Jing Fan<sup>1</sup>, and Gary Fraser<sup>1</sup>

### Abstract

**Background:** Cancer is the second leading cause of death in the United States. Dietary factors account for at least 30% of all cancers in Western countries. As people do not consume individual foods but rather combinations of them, the assessment of dietary patterns may offer valuable information when determining associations between diet and cancer risk.

**Methods:** We examined the association between dietary patterns (non-vegetarians, lacto, pesco, vegan, and semi-vegetarian) and the overall cancer incidence among 69,120 participants of the Adventist Health Study-2. Cancer cases were identified by matching to cancer registries. Cox proportional hazard regression analysis was conducted to estimate hazard ratios, with "attained age" as the time variable.

**Results:** A total of 2,939 incident cancer cases were identified. The multivariate HR of overall cancer risk among vegetarians compared with non-vegetarians was statistically significant [HR, 0.92; 95% confidence interval (CI), 0.85–0.99] for both genders combined. Also, a statistically significant association was found between vegetarian diet and cancers of the gastrointestinal tract (HR, 0.76; 95% CI, 0.63–0.90). When analyzing the association of specific vegetarian dietary patterns, vegan diets showed statistically significant protection for overall cancer incidence (HR, 0.84; 95% CI, 0.72–0.99) in both genders combined and for female-specific cancers (HR, 0.66; 95% CI, 0.47–0.92). Lacto-ovo-vegetarians appeared to be associated with decreased risk of cancers of the gastrointestinal system (HR, 0.75; 95% CI, 0.60–0.92).

**Conclusion:** Vegetarian diets seem to confer protection against cancer.

**Impact:** Vegan diet seems to confer lower risk for overall and female-specific cancer than other dietary patterns. The lacto-ovo-vegetarian diets seem to confer protection from cancers of the gastrointestinal tract. *Cancer Epidemiol Biomarkers Prev*; 22(2); 286–94. ©2012 AACR.

### Introduction

Cancer is the leading cause of death worldwide (1) and the second leading cause of death in the United States, exceeded only by heart disease. According to the American Cancer Society, about 1,638,910 new cancer cases are expected to be diagnosed in 2012 and about 577,190 Americans are expected to die of cancer, more than 1,500 people a day (2).

It is estimated that more than half of all cancer cases and deaths worldwide are potentially preventable. Diet and nutrition are estimated to account for approximately 30% of all cancers in developed countries and 20% in developing countries (3). Dietary patterns allow estimates of

disease associations beyond those for single food items or nutrients and include the total diet (4). Several studies (5–11) have been published that address the relationship between dietary factors and total cancer risk. It has been suggested that vegetarian diets are inversely related to overall cancer incidence (9), although not all studies agree. In addition, many results for specific cancers are inconsistent between studies. This lack of clarity may result from the heterogeneity of vegetarian diets between subjects and in different countries, as they may range greatly in the ratio of animal to plant food eaten, the quality of food, cooking methods, the limitations of measures used to quantify dietary intake, as well as other associated lifestyle factors that may produce an impact on the risk of cancer (10, 12).

To our knowledge, there are no prospective studies that have examined the association of more specific vegetarian subtypes (lacto-ovo-vegetarian, pesco-vegetarians, and vegans), semi-vegetarian and non-vegetarian diets, and overall cancer incidence. Thus, we sought to investigate the association of dietary patterns and cancer incidence in a low-risk population of men and women who participated in the Adventist Health Study-2 (AHS-2). Adventists comprise a study population with a large range of

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## Cancer Specific - AND Position Paper

Vegetarian diets associated with lower overall cancer risk, especially gastrointestinal cancer. (11, 12)

A vegan diet appears to have a greater protection against overall cancer incidence than any other dietary pattern. (11, 12)

Meta-analysis of 7 studies reports vegetarians have an 18% lower overall incidence than nonvegetarians. (11,13)





# Phytonutrients

*Disease Fighting Nutrients*

- Found only within plants
- "Natural" chemicals
- Beneficial to human health
- Demonstrate anti-cancer effects in laboratory studies
- Known to interfere with a number of cellular processes involved in the progression of cancer (14)



# Phytochemicals (15,16)

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## Sulforaphane



Primarily found in cruciferous vegetables such as broccoli, cauliflower, brussel sprouts, and cabbage.

## Ferulic Acid



Found in a number of foods including whole grains, fruits, and coffee.

## Genistein



Best known sources include soy products, such as edamame, tofu, tempeh, and soy milk.

## Curcumin



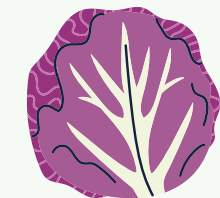
A powerful anti-inflammatory commonly used in traditional Indian dishes.

## Quercetin



Found in a wide variety of foods, but especially citrus fruits, apples, onions, and parsley.

## Indole-3-Carbinol



Commonly found in vegetables such as broccoli, cabbage, cauliflower, kale, mustard greens. (The power of cruciferous veggies!)

# Laboratory Study Findings

## Phytochemicals (17)

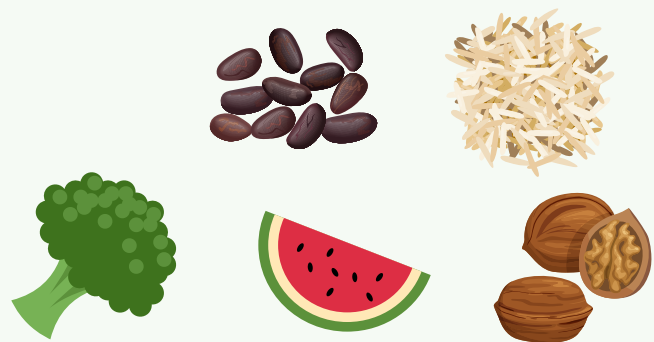
- ✔ Stimulate the immune system
- ✔ Block substances we eat, drink, and breathe from becoming carcinogens
- ✔ Reduce inflammation that makes cancer growth more likely
- ✔ Prevent DNA damage and help with DNA repair
- ✔ Reduce oxidative damage
- ✔ Slow the growth rate of cancer cells
- ✔ Trigger apoptosis
- ✔ Help to regulate hormones





## Plant-Based Diet

- ✓ Whole-food focus
- ✓ Fruit, veggies, whole grains, legumes, nuts & seeds
- ✓ May or may not be 100% plant-based
- ✓ Minimizes refined foods such as refined flour and sugar
- ✓ High in fiber, phytochemicals, vitamins, minerals, etc.
- ✓ Choice likely motivated by health, environment, and/or animal advocacy



## Vegan Diet

- ✓ Avoids all animal-based products typically in diet & lifestyle
- ✓ Not necessarily focused on whole foods
- ✓ May include high amounts of processed and/or meat analog options
- ✓ Ranges greatly in nutrient composition
- ✓ Choice more likely motivated by animal advocacy





## Most Americans...

...don't get enough vitamins A, C, and E, the minerals magnesium and potassium, and of course fiber (18).

- 93% don't get enough vitamin E (18)
- 97% don't get enough fiber (19)
- 98% don't get enough potassium (20)

## But a whole-food plant-based diet...

...is naturally high in vitamins A, C, E, and magnesium, potassium, and fiber! (18)

# What about deficiencies?





But just like any dietary approach, there are some considerations and nutrients to pay closer attention to.



# Nutrients of Consideration

## Plant-Based Diets (11)

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### Protein

Needs are typically met or exceeded when calorie intakes are adequate.

### Zinc

Compared to non-vegetarian control groups, adult vegetarians have similar or somewhat lower intakes and lower, but within normal range, serum zinc concentrations.

### Omega-3s

Intakes tend to be lower in vegan/vegetarians. Important to emphasize plant sources (flax, chia, hemp, walnuts, etc.). An algae-based supplement may be appropriate.

### Iodine

Can be low in iodine if vegans do not consume sea vegetables or iodized salt. Vegan women of childbearing age should supplement with 150 mcg/day.

### Iron

Vegetarians generally consume as much iron as, or slightly more than omnivores. Consider optimizing bioavailability

### Calcium

Professional should assess dietary intake for bioavailability of calcium from plant-foods (i.e. oxalate). Aim to emphasize high-calcium rich foods and when necessary, fortified and/or calcium supplements.

### Vitamin D

Status depends on sunlight exposure and intake of vitamin D fortified foods and supplements. Deficiencies are not exclusive to vegans/vegetarians.

### Vitamin B12

Vegans must regularly consume a reliable source of vitamin B12 - whether a supplement or sufficient fortified foods (e.g. nutritional yeast, plant-milks).



# Recommendations for Implementation







# First Considerations

## As the Practitioner

- Plant-based doesn't have to mean restriction!
- Seek to understand your patient's goals & values
- Intuitive eating can meet plant-based eating
- Evaluate current intake and suggest slow, gradual changes



# The New American Plate | AICR

## Stage 1:

### The Old American Plate

The typical American meal is heavy on red meat, fish and poultry. Take a look at this plate. Fully half is loaded with a huge (8–12 oz.) steak. The remainder is filled with a hearty helping of buttery mashed potatoes and peas. Although this meal is a home-style favorite, it is high in calories and low in phytochemicals and fiber. A few changes, however, will bring it closer to the New American Plate.



## Stage 2:

### A Transitional Plate

This meal features a more moderate (4–6 oz.) serving of meat. A large helping of green beans prepared with your favorite herbs and the addition of a filling whole grain (seasoned brown rice) which increases the proportion of nutritious, plant-based foods. This plate is on the right track, but doesn't yet take advantage of all the good-tasting foods the New American Plate has to offer.



## Stage 3:

### The New American Plate

The modest 3-ounce serving of meat (fish, poultry, or red meat) pictured here fits AICR guidelines for cancer prevention. This plate also features a wider variety of foods, resulting in a diverse assortment of cancer-fighting nutrients. Two kinds of vegetables increase the proportion of plant-based foods, and a healthy serving of a tasty whole grain (brown rice, barley, kasha, bulgur, millet, and quinoa) completes the meal.



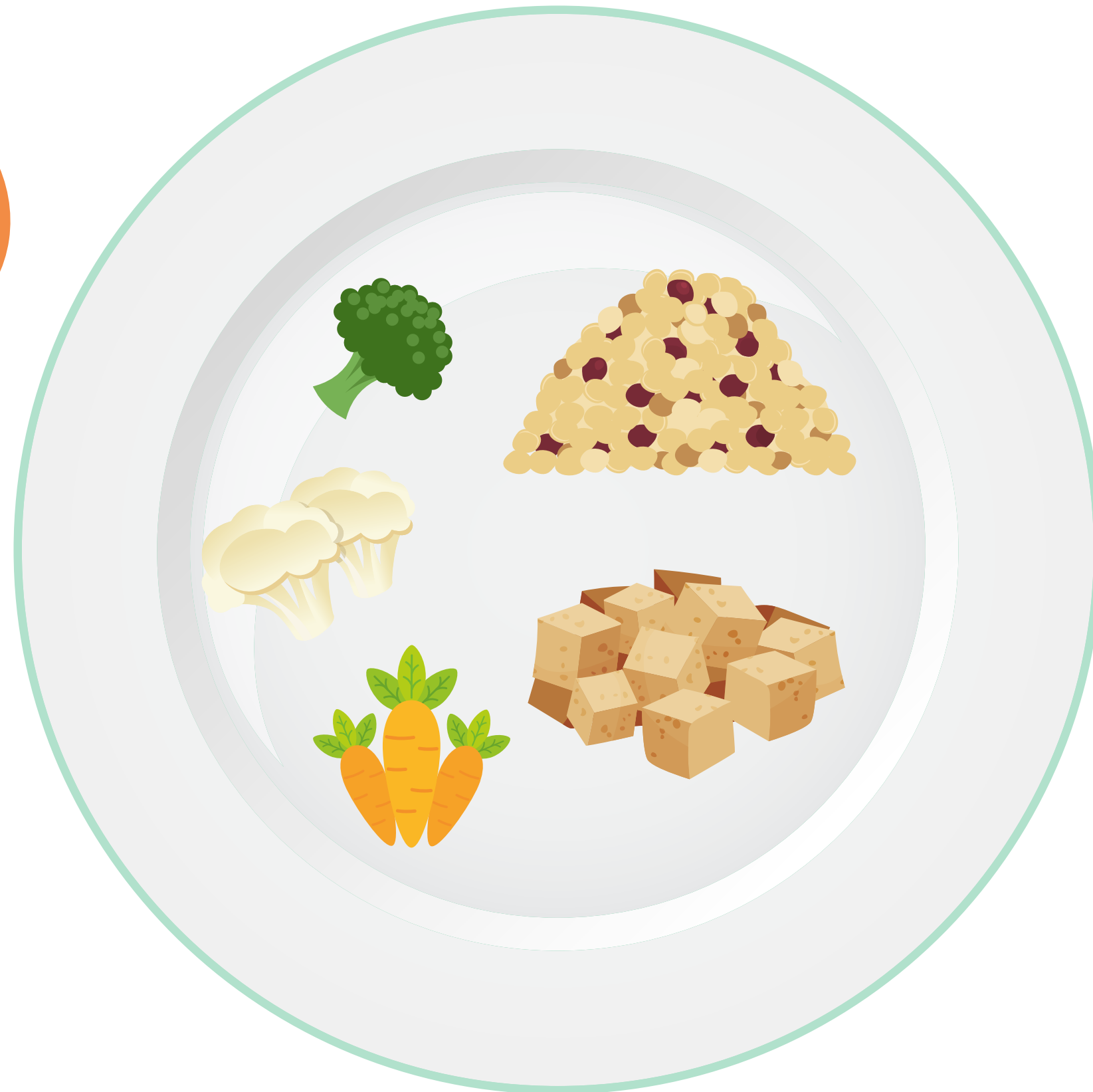
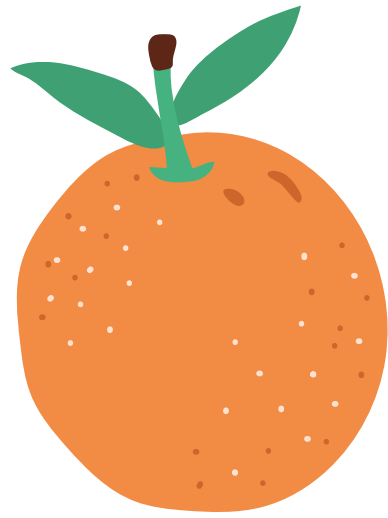
## Stage 4:

### Another Option

In a one-pot meal – like this stir-fry – you can reduce the animal foods and increase the plant-based ingredients without even noticing. This plate is bursting with colorful vegetables, hearty whole grains, cancer-fighting vitamins, minerals, and phytochemicals. Fish, poultry, or occasionally red meat is used as a complement, adding a bit of flavor and extra substance to the meal.



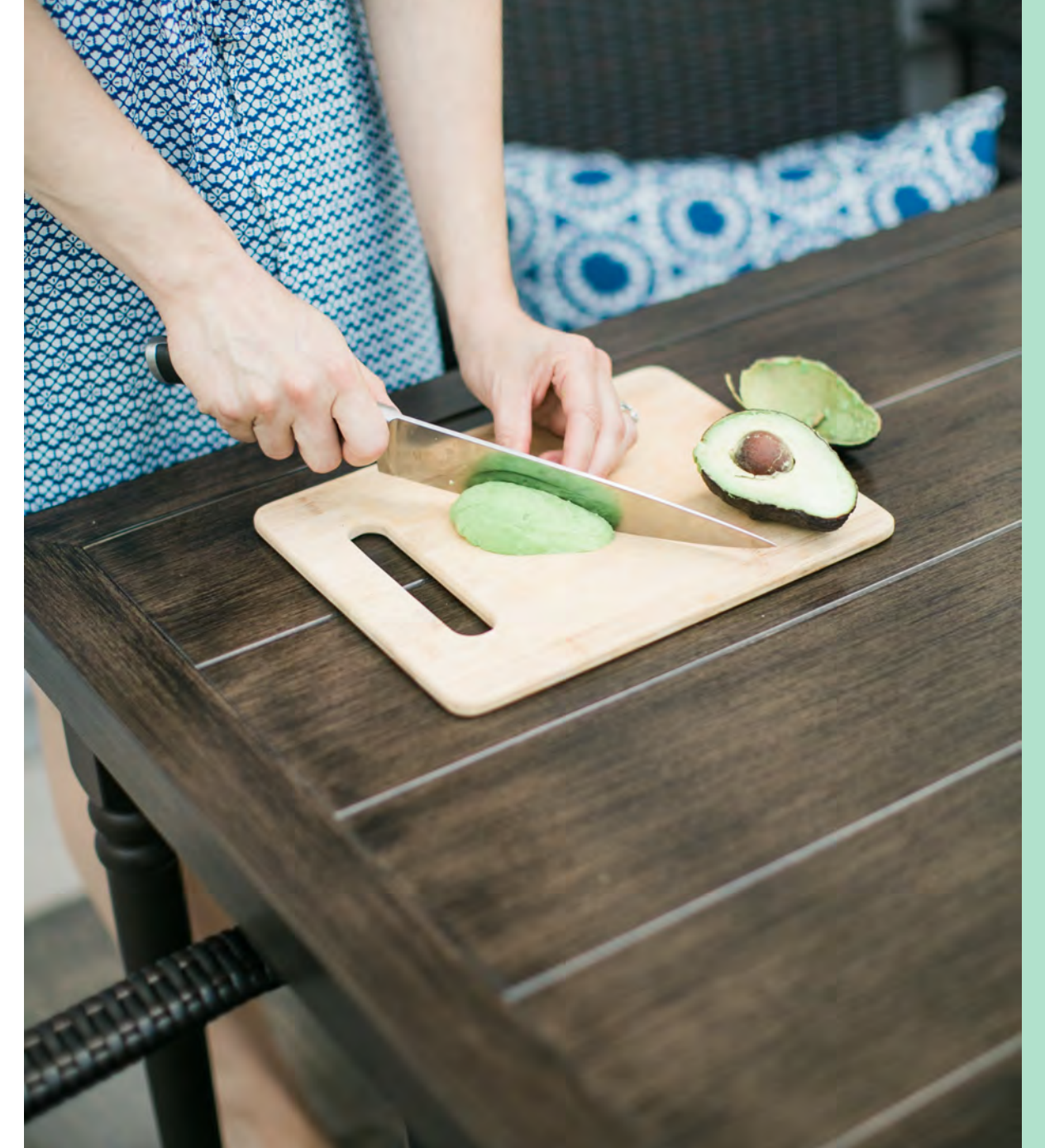
# Or, Perhaps Another Option





# Final Thoughts

- Plant-based diets can provide significant health benefits compared to non-vegetarian diets - especially heart disease, T2DM, hypertension, certain types of cancer, and obesity. (11)
- Ensure energy balance, nutritional adequacy, with a focus on fruits, vegetables, whole grains, legumes, nuts & seeds to maximize health benefits.
- Supplementation or specific food focus may be necessary - but this is like any other dietary pattern. **With the exception of vitamin B12 - this is necessary.**
- Further considerations in environment and animal advocacy are also an important piece.



# Favorite Professional Resources

- American Institute for Cancer Research ([AICR](#)).
- Physicians Committee for Responsible Medicine ([PCRM](#))
- [Cook for Your Life](#)
- [DPG Vegetarian Nutrition, AND](#)
- [World Cancer Fund - The Third Expert Report](#)
- [Oncology Nutrition for Clinical Practice, 2nd Ed.](#)





# Key Take Aways

A diet and lifestyle focused on whole, plant-based foods rich in fiber and phytonutrients - appears to have a greater protection against overall cancer incidence than any other dietary pattern. (11, 12)



## WHAT ELSE?

- A registered dietitian and nutrition intervention can play a powerful role in all stages of cancer treatment.
- A plant-forward or exclusively plant-based diet can be nutritionally adequate and reduce the risk of cancer and other chronic diseases.
- As with any dietary pattern, it must be appropriately planned to ensure nutritional adequacy.







*Thank You*

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