

The pathways study

dietary patterns and breast cancer survival



Pathways Study Forum

February 6th, 2023

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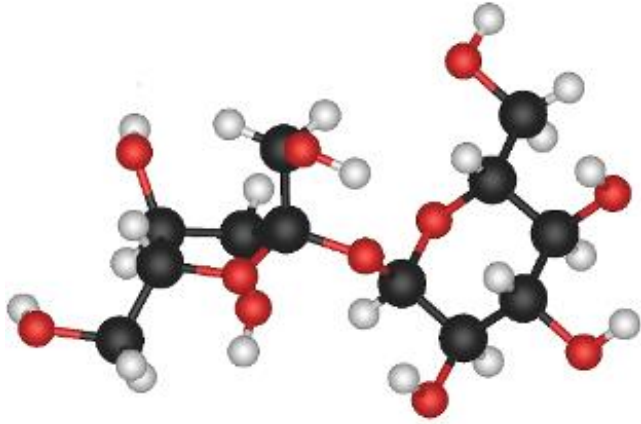
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UCDAVIS



There are different ways in which we can study diet



Nutrients

Protein
Carbohydrates
Fats
Vitamins
Minerals

Specific foods

Meat
Milk
Carrots
Bananas
Bread

Dietary patterns

















Vegetarian
Gluten-Free
Western
DASH
Healthy Eating Index

Dietary patterns the quantities, proportions, variety or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are consumed.”

We can measure how **similar** a person's diet is to a dietary pattern by creating an **index score**

DASH Eating Plan

The Benefits: Lowers blood pressure & LDL "bad" cholesterol.

 Eat This	 Limit This
 Vegetables	 Fatty meats
 Fruits	
 Whole grains	 Full-fat dairy
 Fat-free or low-fat dairy	
 Fish	 Sugar sweetened beverages
 Poultry	
 Beans	 Sweets
 Nuts & seeds	
 Vegetable oils	 Sodium intake

www.nhlbi.nih.gov/DASH

Encouraged Foods

Q1 = 1 point
 Q2 = 2 points
 Q3 = 3 points
 Q4 = 4 points
 Q5 = 5 points

Discouraged Foods

Q1 = 5 points
 Q2 = 4 points
 Q3 = 3 points
 Q4 = 2 points
 Q5 = 1 point

vegetables + ... + sodium = **DASH SCORE**

Q = Quintile

Why use a diet index score?

They help inform and validate **dietary guidelines**.



They can assess **diet quality** (healthfulness).



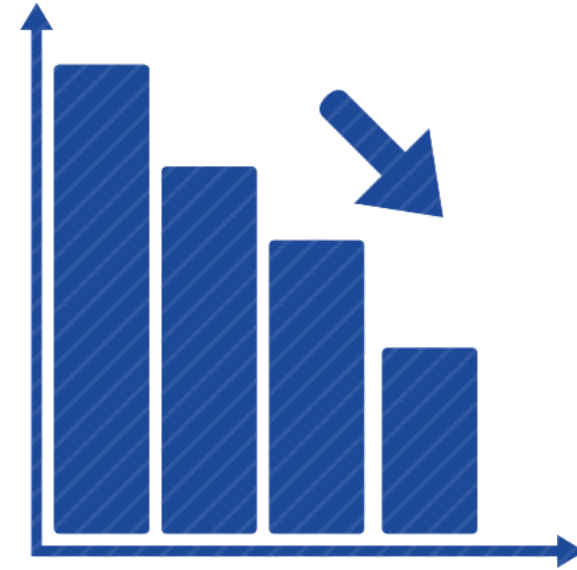
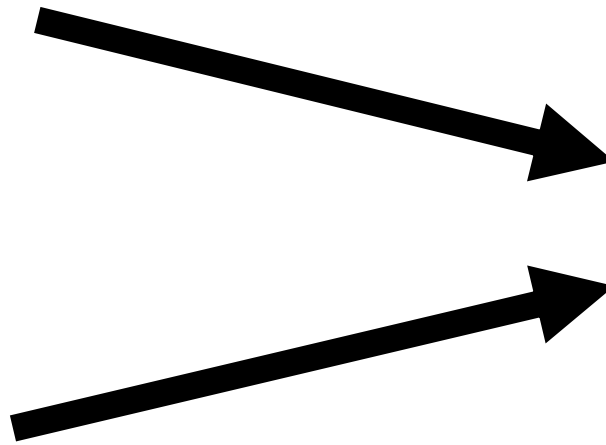
The question: does diet quality matter when it comes to breast cancer outcomes?



At diagnosis



After diagnosis



Breast cancer
outcomes

We looked at 4 diet quality indexes consistent with healthy eating recommendations



American Cancer Society Nutrition Guidelines (ACS)



The Mediterranean Diet (MED)



Dietary Approaches to Stop Hypertension (DASH)

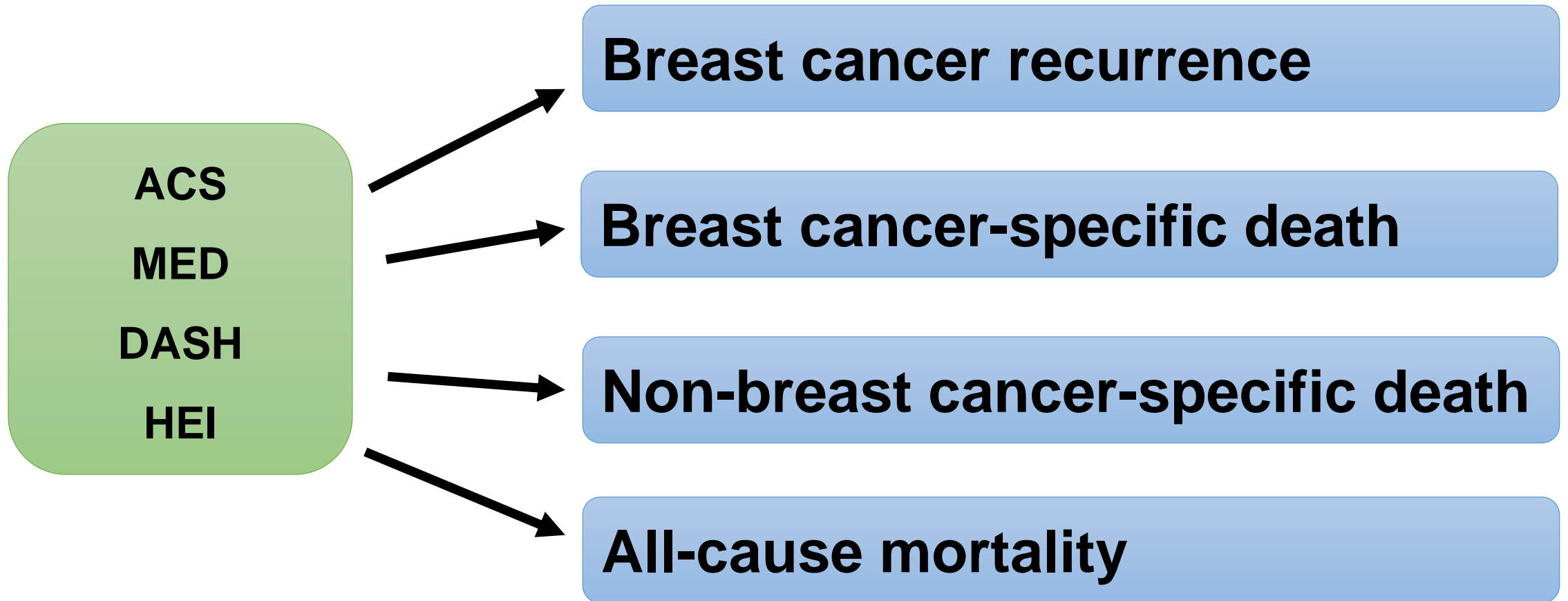


Healthy Eating Index (HEI)

Each index is unique

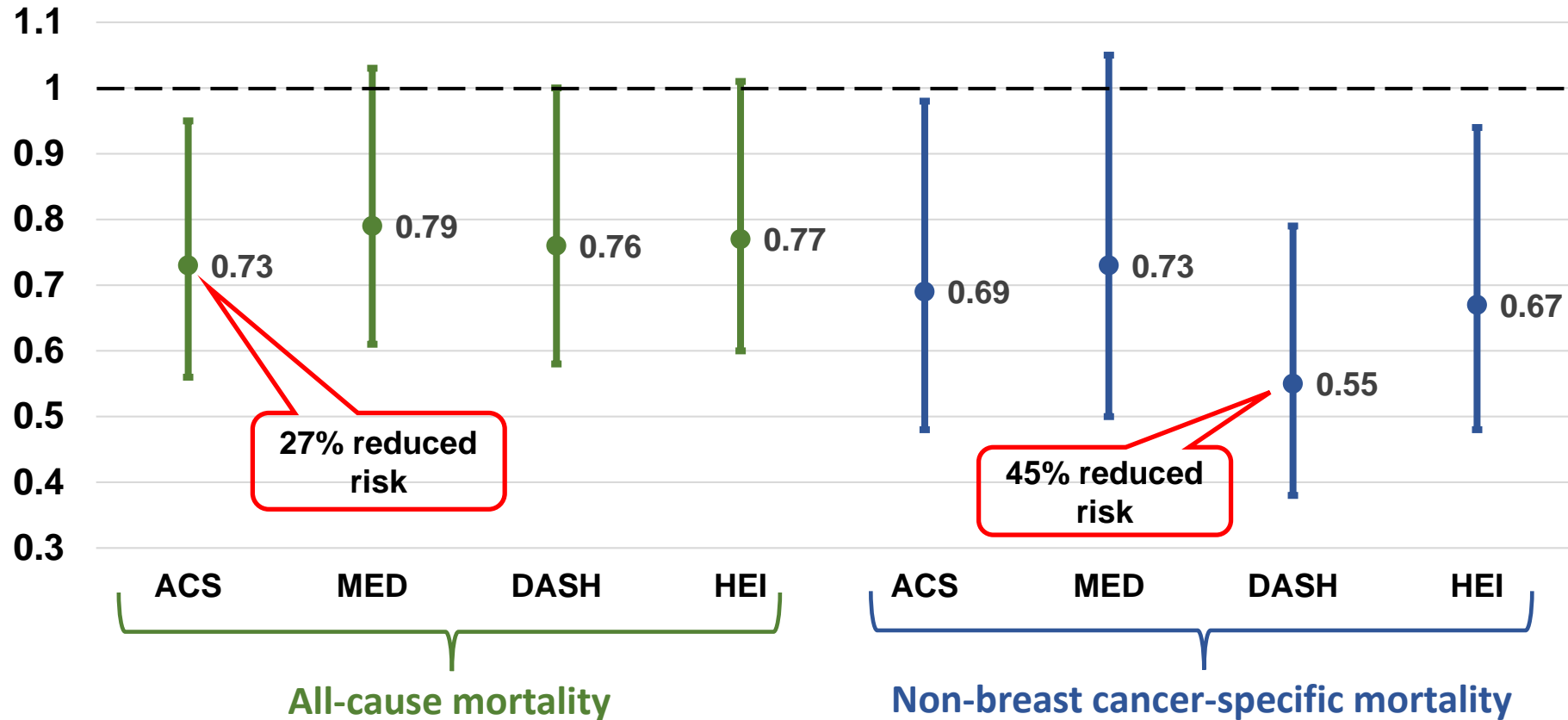
	ACS	MED	DASH	HEI
Score range	(0-9)	(0-9)	(8-40)	(0-100)
Encourages	Fruits (variety) Vegetables (variety) Whole grains	Fruits Vegetables Whole grains Fish Legumes Nuts Unsaturated fats	Fruits Vegetables Whole grains Low-fat dairy Nuts & Legumes	Fruits Vegetables Greens and beans Whole grains Diary Protein Seafood Unsaturated fats
Discourages	Red meats Processed meats	Red meats Processed meats High/no alcohol	Red meats Processed meats Sodium Sweet beverages	Refined grains Saturated fats Sodium Added sugar

Is there an association between diet quality **around diagnosis** and breast cancer outcomes?



Diet quality around diagnosis was associated with **all-cause** and **non-breast cancer-specific** mortality

Hazard ratios and 95% confidence intervals comparing the **highest to lowest** quintiles



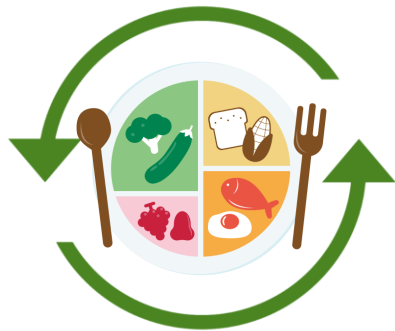
All indices, except for aMED, were statistically significant for **test for trend** at the $p < 0.05$

No evidence of associations between diet quality and **recurrence** or **breast-cancer specific mortality**.

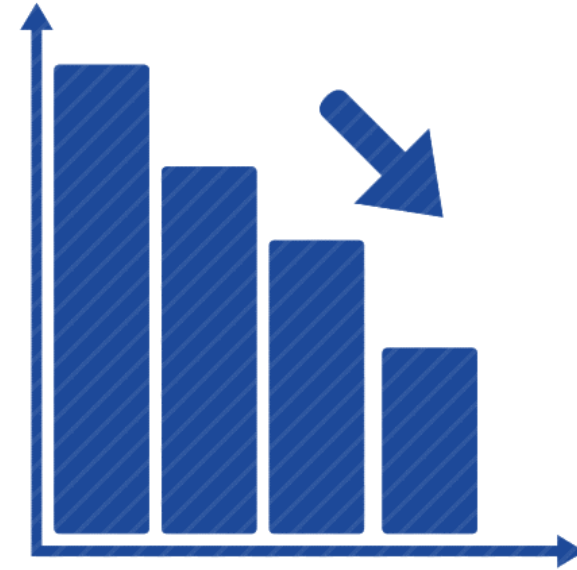
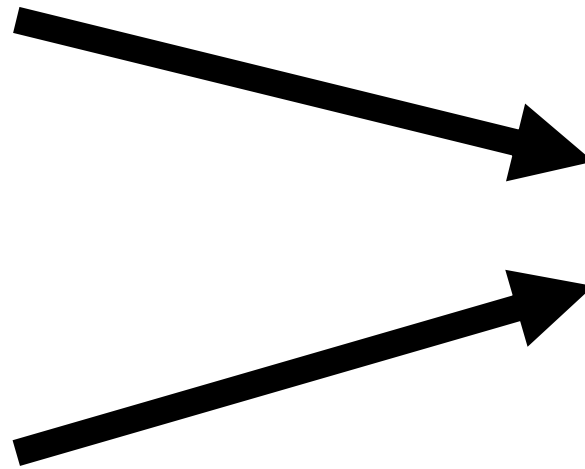
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The **healthy plant-based dietary index** discourages intake from animal and unhealthy food sources

hPDI (range: 17-85)	
Encourages	Discourages
Whole fruits Non-starchy vegetables Whole grains Legumes Nuts Vegetable oils Teas and coffees	All meats Seafood and fish Animal fats Dairy Eggs Fruit juices Starchy vegetables Refined grains Sweetened beverages Sweets

+ Physical activity
(moderate-vigorous hrs/wk)

+ Smoking
(cumulative pack-years)

All-cause mortality

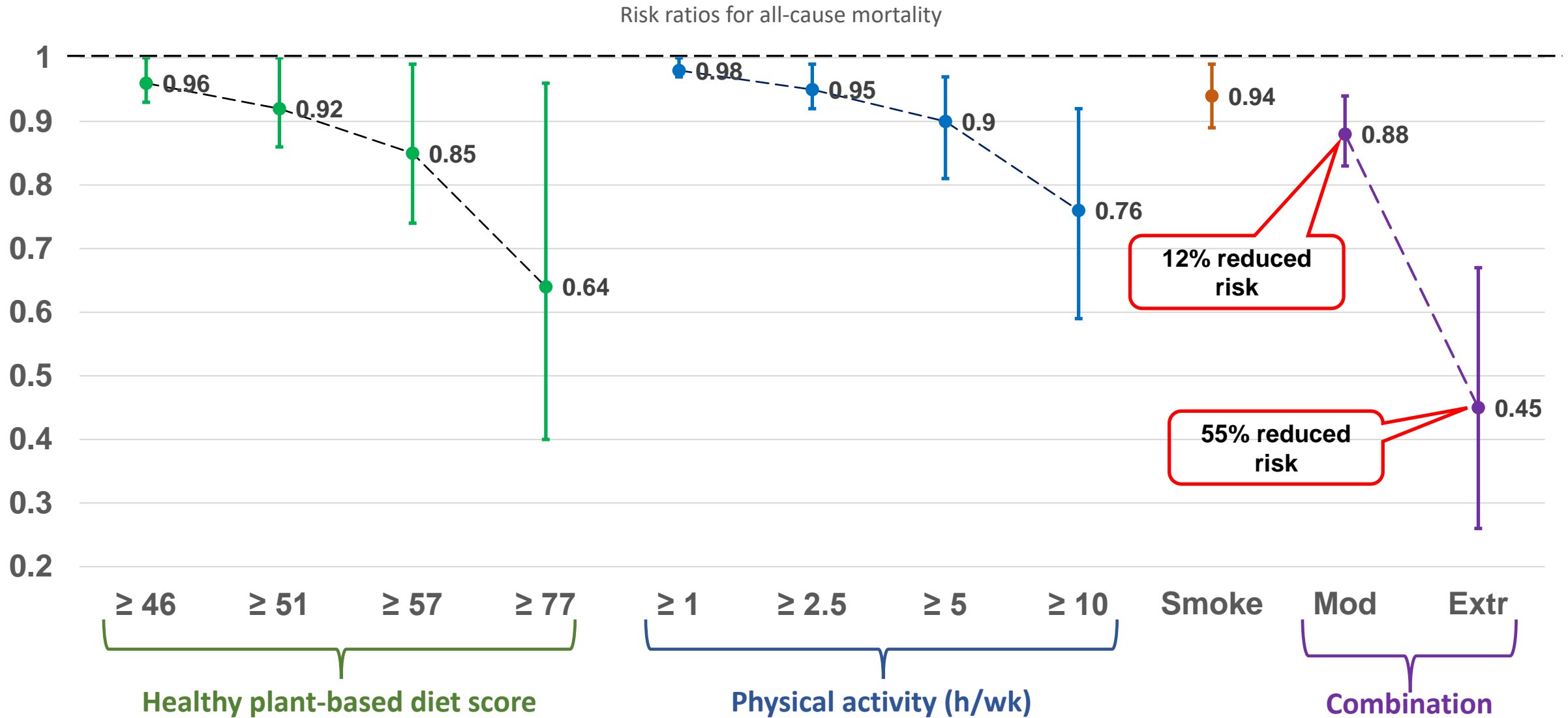
What if... participants increased hPDI, physical activity and did not smoke after diagnosis?

		Intensity of change			
Reference		Moderate	Mod-Hi	Ext-Low	Extreme
hPDI (17-85)¹	No change	≥ 46	≥ 51	≥ 57	≥ 77
PA (h/wk)²	No change	≥ 1	≥ 2.5	≥ 5	≥ 10
Smoke (pk/y)	No change	Smokers quit & non-smokers never start			

¹hPDI cutoffs based on 25th, 50th, 75th and 100th hPDI percentiles from Pathways.

²Physical activity cutoffs based on United States Physical Activity Guidelines for Americans.

Increasing diet quality, physical activity and not smoking after diagnosis is associated with **5-year risk of all-cause mortality**



In summary, the **quality** of a person's diet is an important consideration for **improving** breast cancer prognosis

1. Higher diet quality **around diagnosis** was associated with a reduction in all-cause (esp. ACS) and non-breast cancer specific mortality (esp. DASH), but not for breast cancer-specific outcomes.
2. Increasing diet quality (hPDI) **after diagnosis** could reduce the risk of death, especially when combined with increased physical activity and not smoking.

Hippocrates advised physicians in 400 BC:

“Leave your drugs in the chemist’s pot if you can heal your patient with food.”

