The pathways study
dietary patterns and breast cancer survival
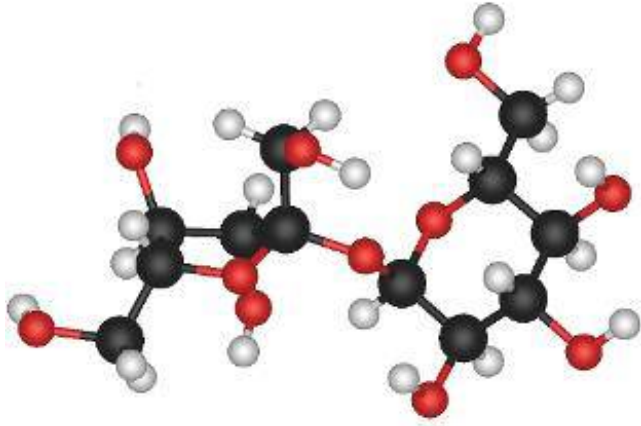

Pathways Study Forum

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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."

Nutrition Evidence Library, Technical Expert Collaborative on Study of Dietary Patterns

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	**Discouraged Foods**
Q1 = 1 point	Q1 = 5 points
Q2 = 2 points	Q2 = 4 points
Q3 = 3 points	Q3 = 3 points
Q4 = 4 points	Q4 = 2 points
Q5 = 5 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 <u>diet quality</u> matter when it comes to breast cancer outcomes?

At diagnosis

After diagnosis
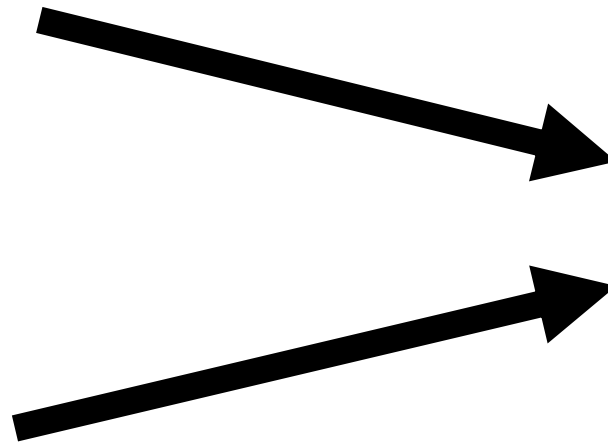
Breast cancer outcomes

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

American Cancer Society Nutrition Guidelines (ACS)

The Mediterranean Diet (MED)

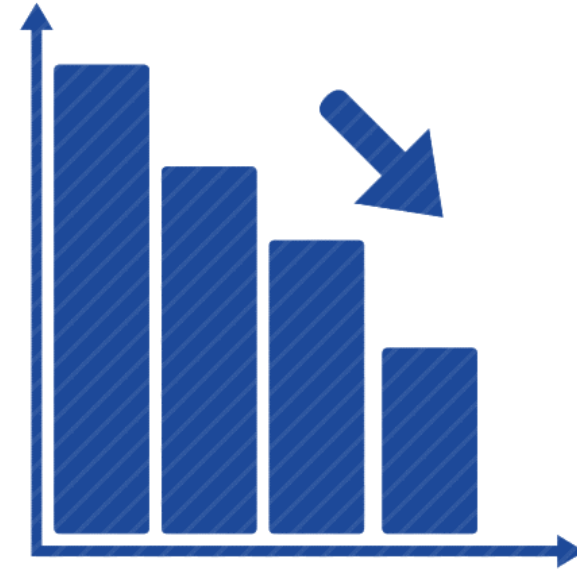**Dietary Approaches to Stop Hypertension (DASH)**

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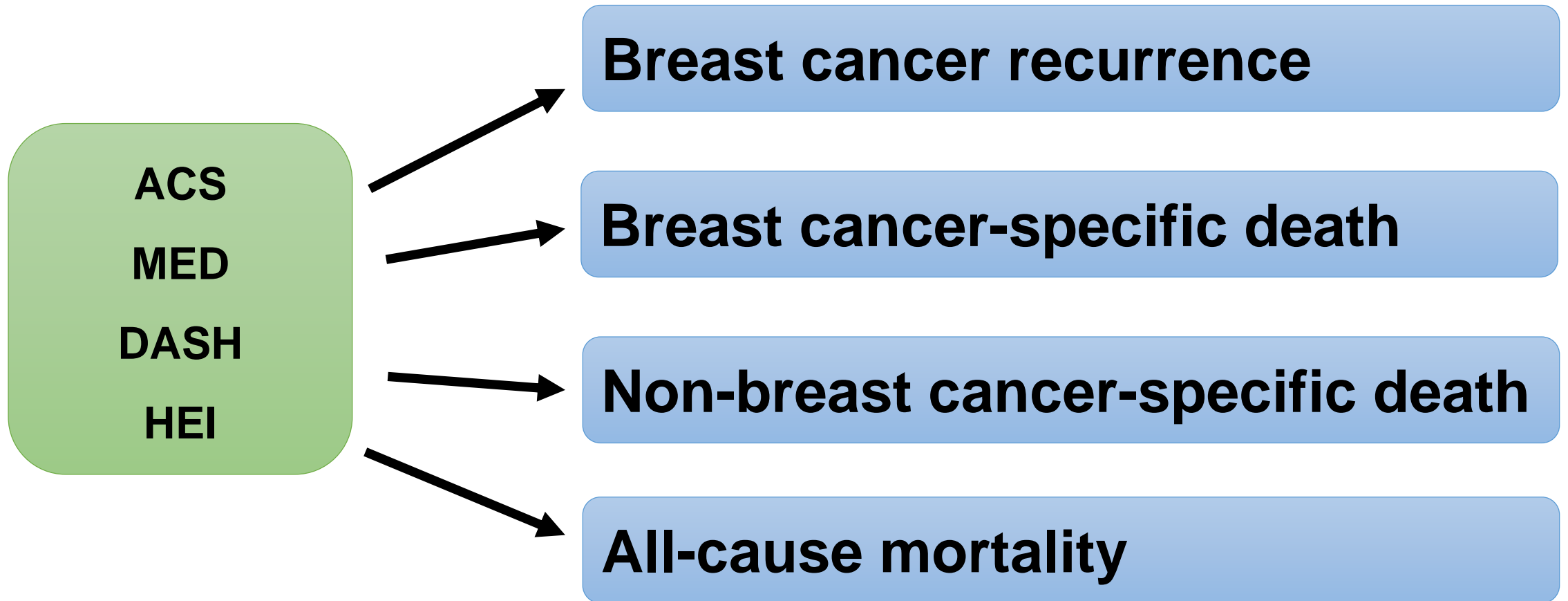
Diet quality around diagnosis was associated with all-cause and non-breast cancer-specific mortality

Hazard ratios and 95% confidence intervals comparing the highest to lowest quintiles
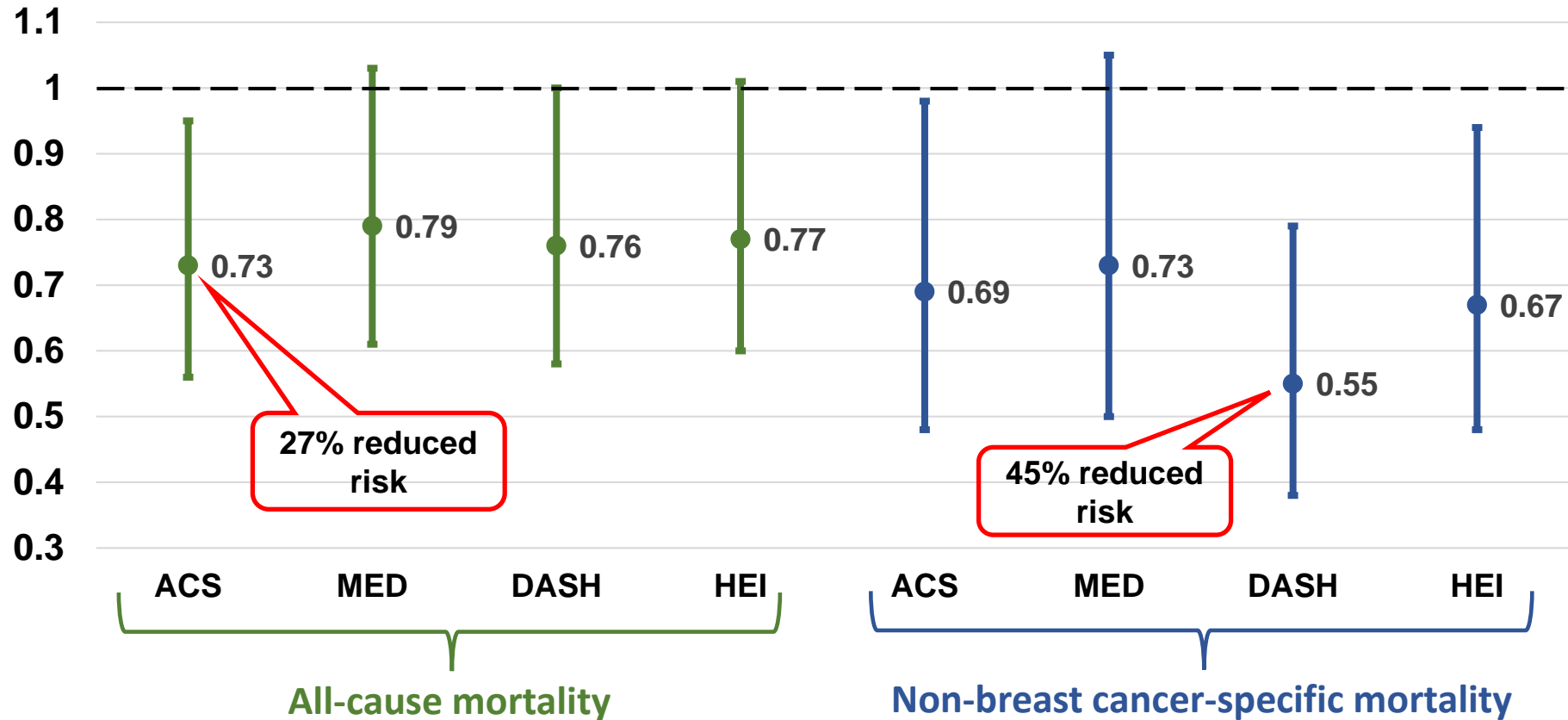
All indices, except for aMED, were statistically significant for test for trend at the p < 0.05

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

The question: does <u>diet quality</u> matter when it comes to breast cancer outcomes?

At diagnosis

After diagnosis
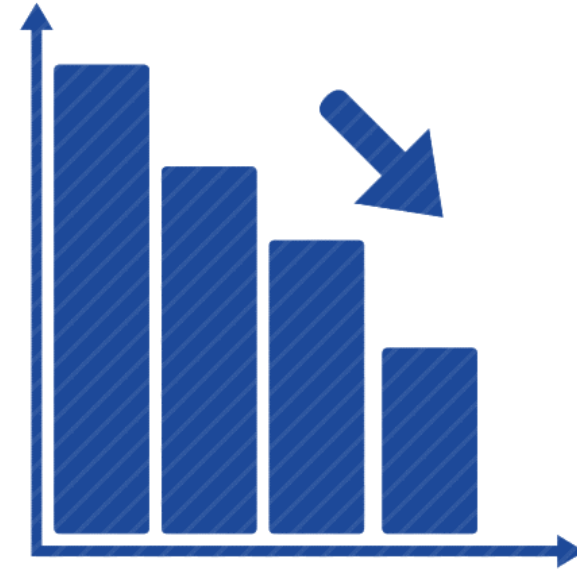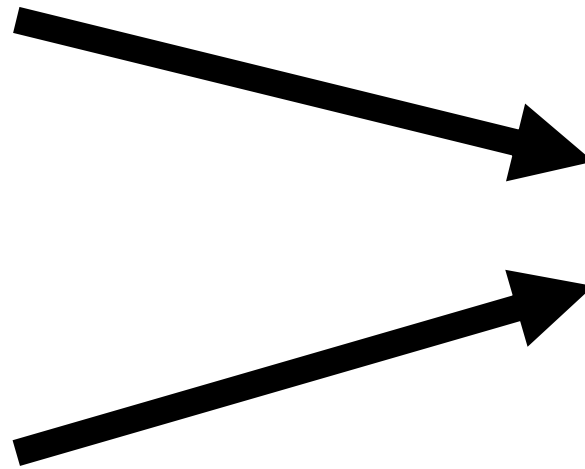
Breast cancer outcomes

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

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

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

[2]Physical 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

Risk ratios for all-cause mortality

Healthy plant-based diet score: ≥ 46 (0.96), ≥ 51 (0.92), ≥ 57 (0.85), ≥ 77 (0.64)

Physical activity (h/wk): ≥ 1 (0.98), ≥ 2.5 (0.95), ≥ 5 (0.9), ≥ 10 (0.76)

Smoke (0.94)

Combination: Mod (0.88) — 12% reduced risk; Extr (0.45) — 55% reduced risk
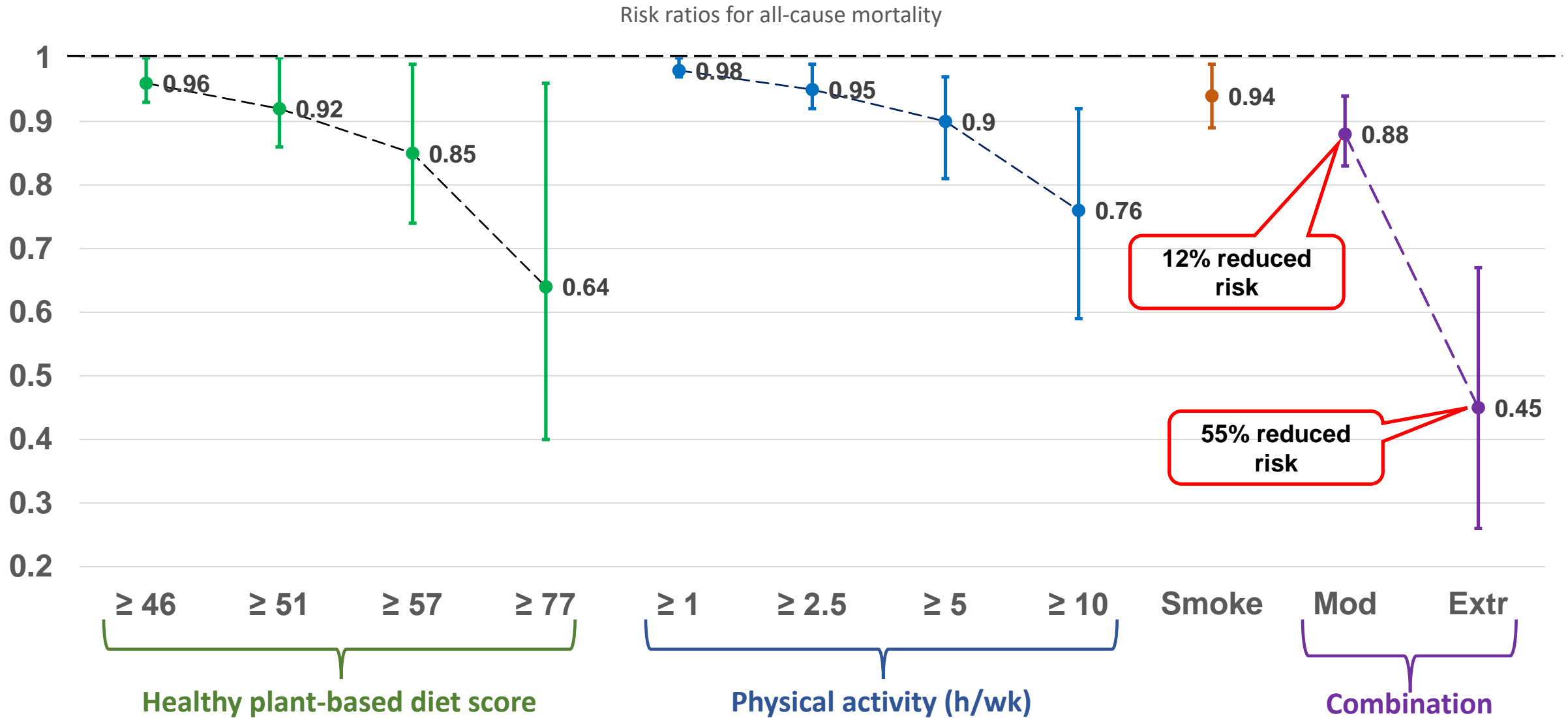
In summary, the quality of a person's diet is an important consideration for improving breast cancer prognosis

1. Higher diet quality around diagnosis was associated with a reduction in <u>all-cause</u> (esp. ACS) and <u>non-breast cancer specific mortality</u> (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 <u>increased physical activity</u> and <u>not smoking</u>.

Hippocrates advised physicians in 400 BC:

"Leave your drugs in the chemist's pot if you can heal your patient with food."