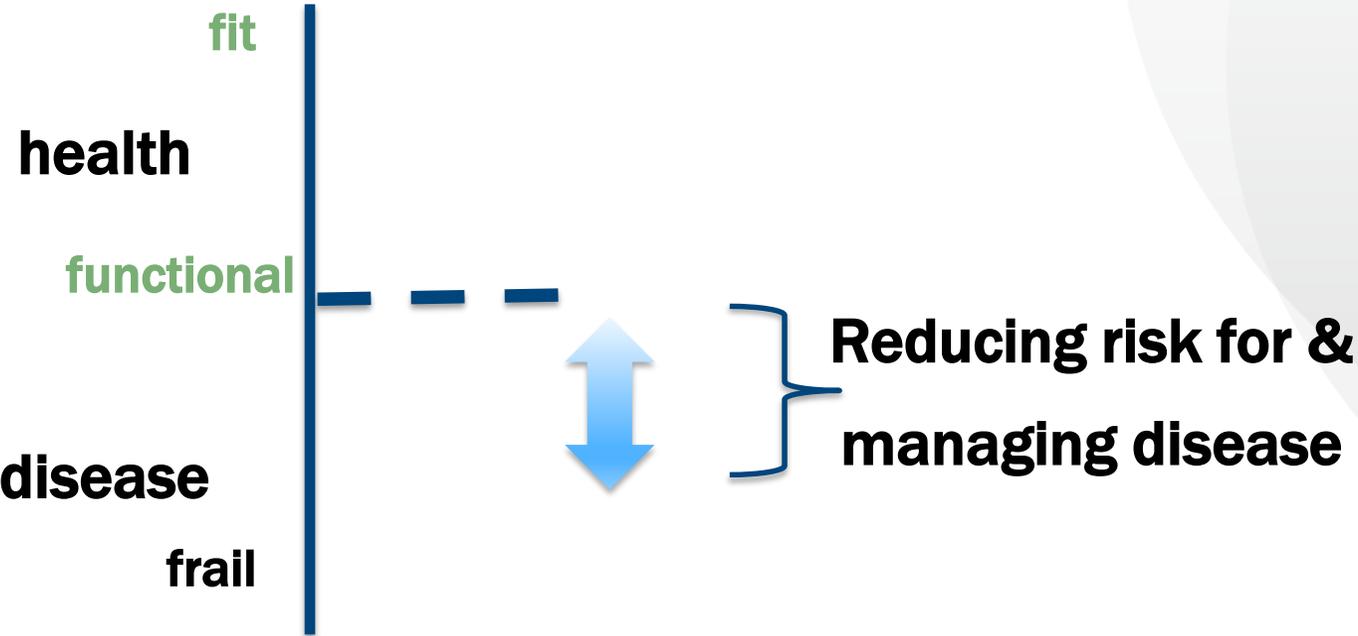


# Plant based dietary patterns, chronic disease risk & healthy longevity— An emerging paradigm for phytonutrients and health promotion

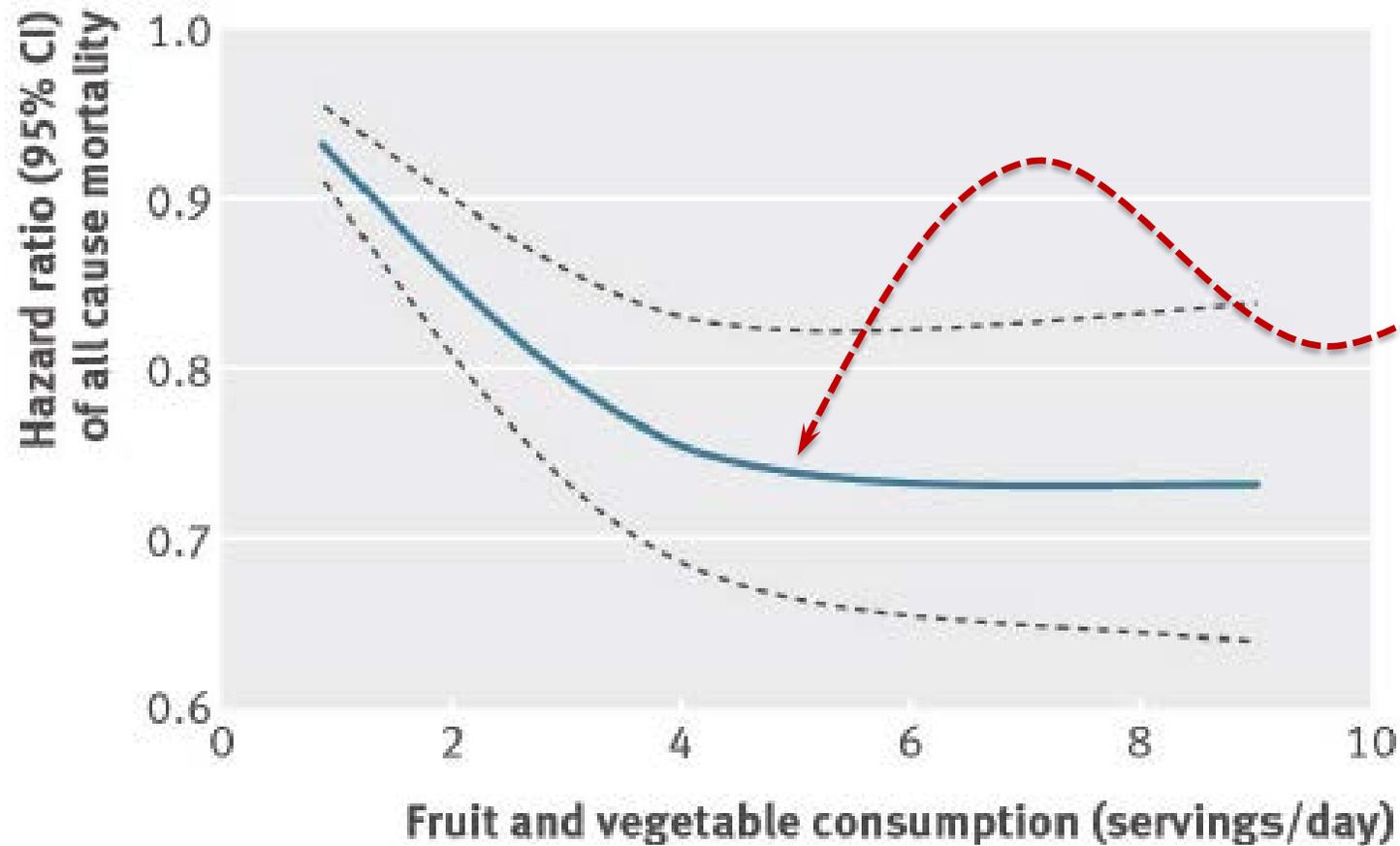
R Keith Randolph, PhD  
&  
Matthew K. Runyon, PhD  
December 2, 2016



# Nutrition Research Historical Focus



# Fruit & vegetable consumption and all cause mortality from chronic disease



**WHO**  
**Recommended**  
**Minimum intake**  
**400 g or**  
**5 servings/d**

# Fruit & vegetable consumption and risk of chronic diseases

**Table 3** Summary of the strength of evidence on the association between the consumption of vegetables and fruit and the risk of chronic diseases

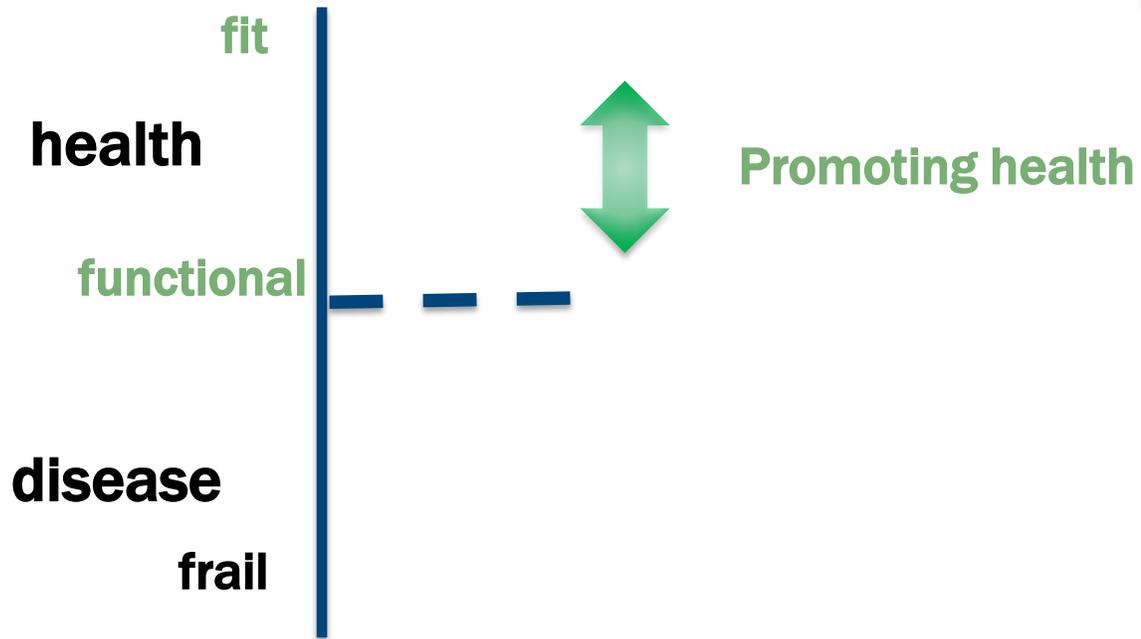
|  | Evidence judgement (strength of the evidence) |                |                |              |
|--|---|----------------|----------------|--------------|
|  | Convincing                                    | Probable       | Possible       | Insufficient |
| Obesity                                      |   | o <sup>a</sup> | ↓ <sup>b</sup> |              |
| Type 2 diabetes mellitus                     |   | o              |                |              |
| Hypertension                                 | ↓   |                |                |              |
| Coronary heart disease (CHD)                 | ↓   |                |                |              |
| Stroke                                       | ↓   |                |                |              |
| Cancer                                       |   | ↓              |                |              |
| Chronic inflammatory bowel diseases          |   |                |                | ~            |
| Rheumatoid arthritis (RA)                    |   |                | ↓              |              |
| Chronic obstructive pulmonary disease (COPD) |   |                | ↓              |              |
| Asthma                                       |   |                | ↓              |              |
| Osteoporosis                                 |   |                | ↓              |              |
| Eye diseases                                 |   |                |                |              |
| Macular degeneration                         |   |                | ↓              |              |
| Cataract                                     |   |                | ↓              |              |
| Glaucoma                                     |   |                |                | ~            |
| Diabetic retinopathy                         |   |                |                | ~            |
| Dementia                                     |   |                | ↓              |              |

↓ Risk reduction by increased vegetable and fruit consumption, o no association, ~ insufficient evidence

<sup>a</sup> Weight loss

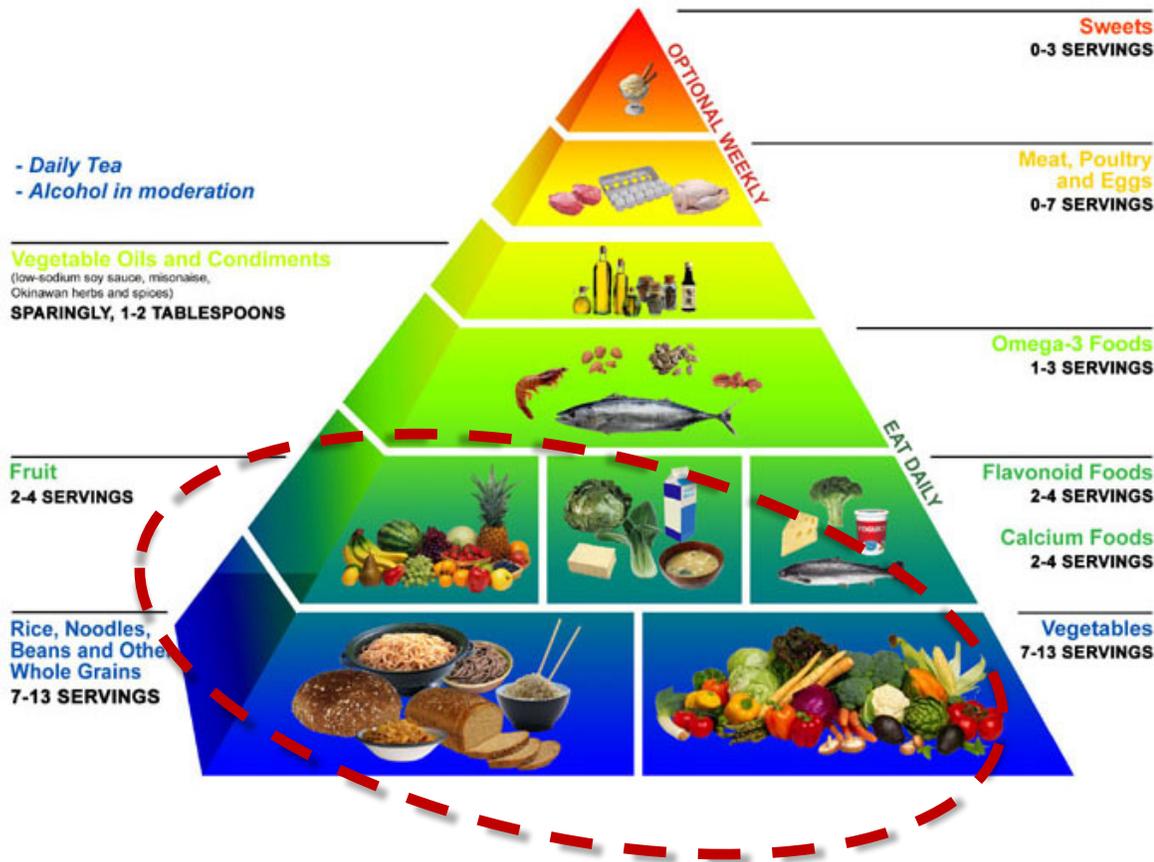
<sup>b</sup> Weight increase

# Nutrition Research **Emerging Focus**



- Plant food based dietary patterns in cohorts w healthy longevity
- Plant food based diets & wellness outcomes
- Advances in understanding biology of aging
- Phytonutrient interactions w aging mechanisms

# Common to Okinawan and Mediterranean dietary patterns—**plant foods**





**Loma Lina  
California**

**Sardinia  
Italy**

**Icaria  
Greece**

**Okinawa**

**Nicoya Peninsula  
Costa Rica**

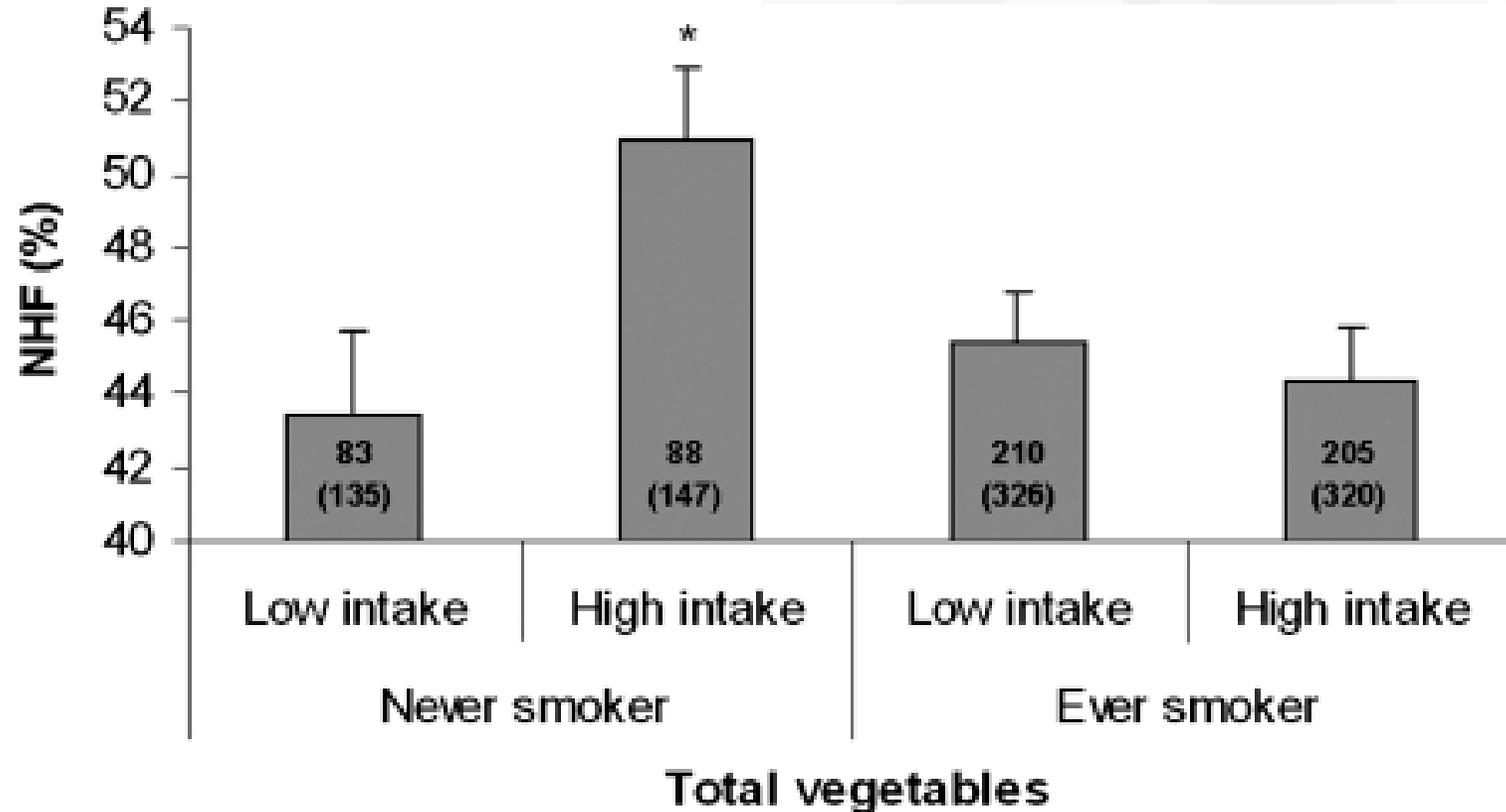
**Common to all “Blue Zones” is plant based dietary patterns**

- fruits**
- vegetables**
- whole grains**
- legumes**
- nuts**
- teas**

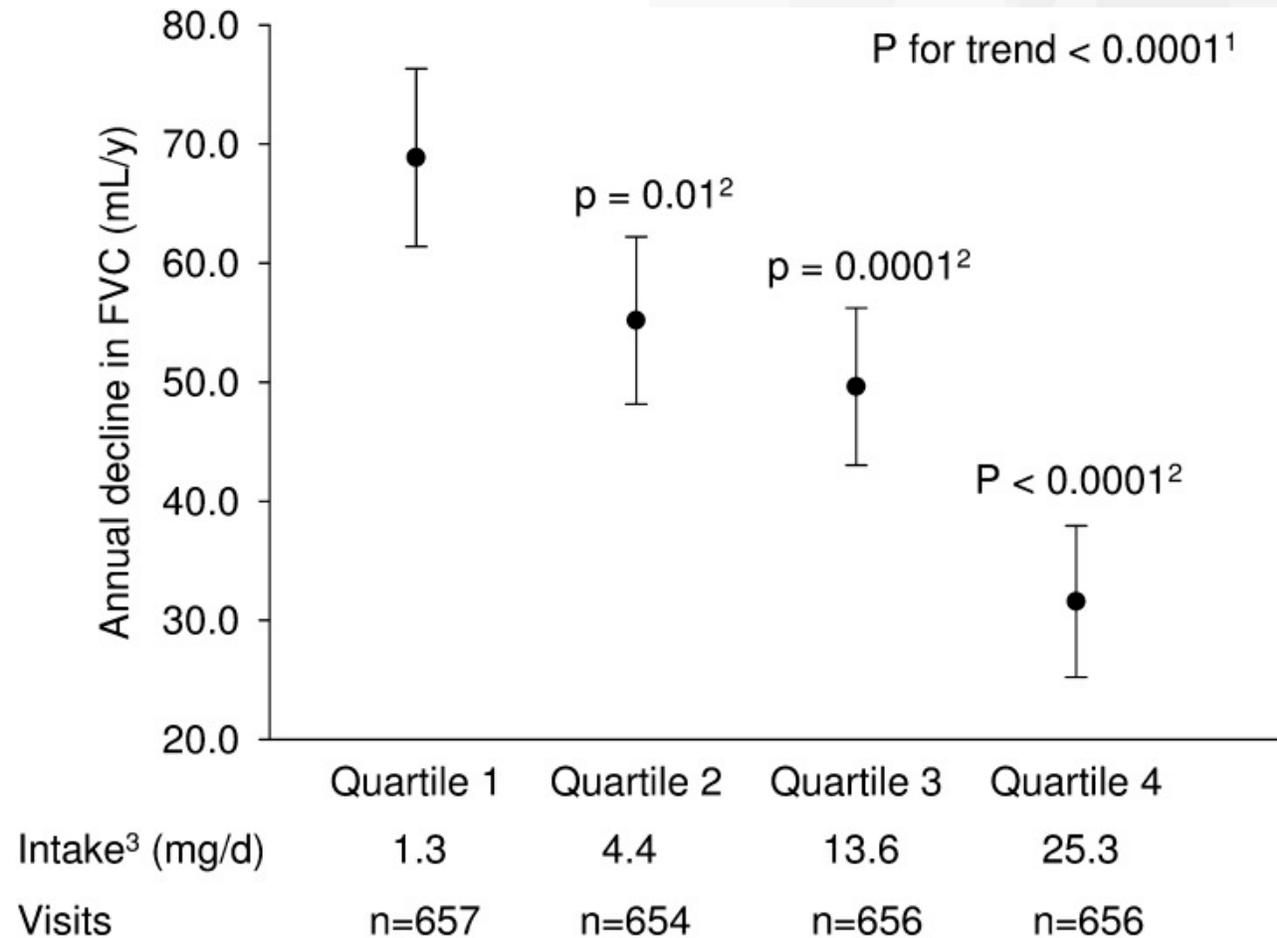
<https://www.bluezones.com/about-blue-zones/>



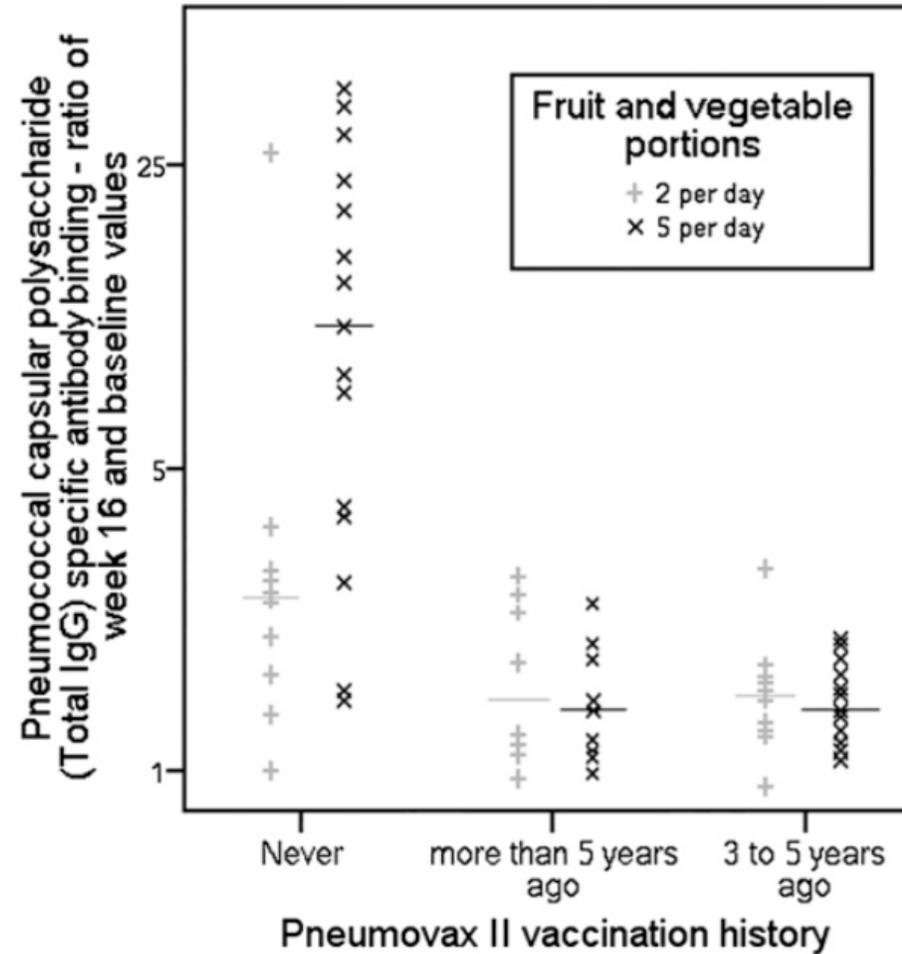
# Leafy green vegetable intake and cardiovascular function—heart rate variability



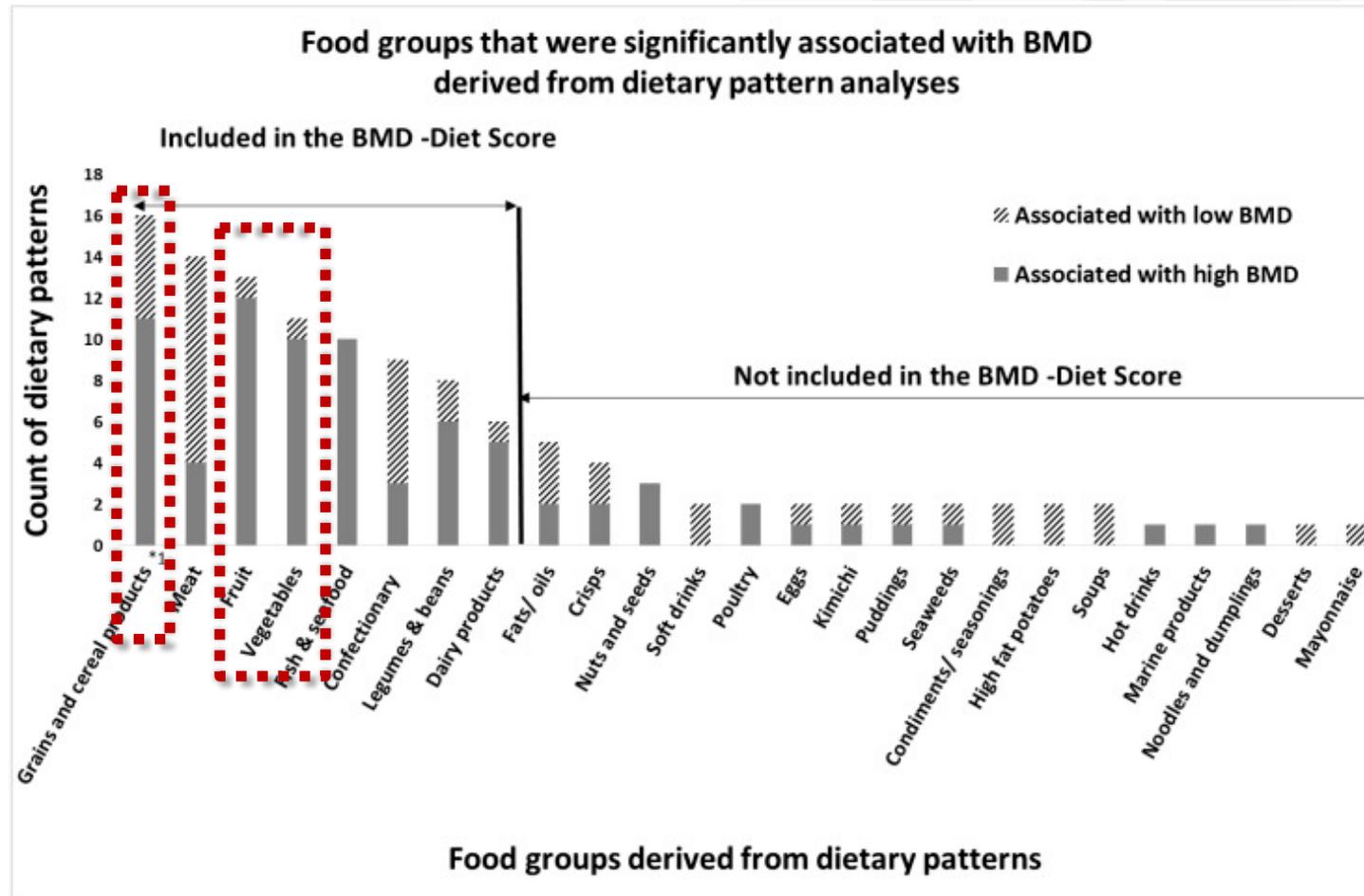
# Fruit & vegetable anthocyanin intake and pulmonary function—forced vital capacity



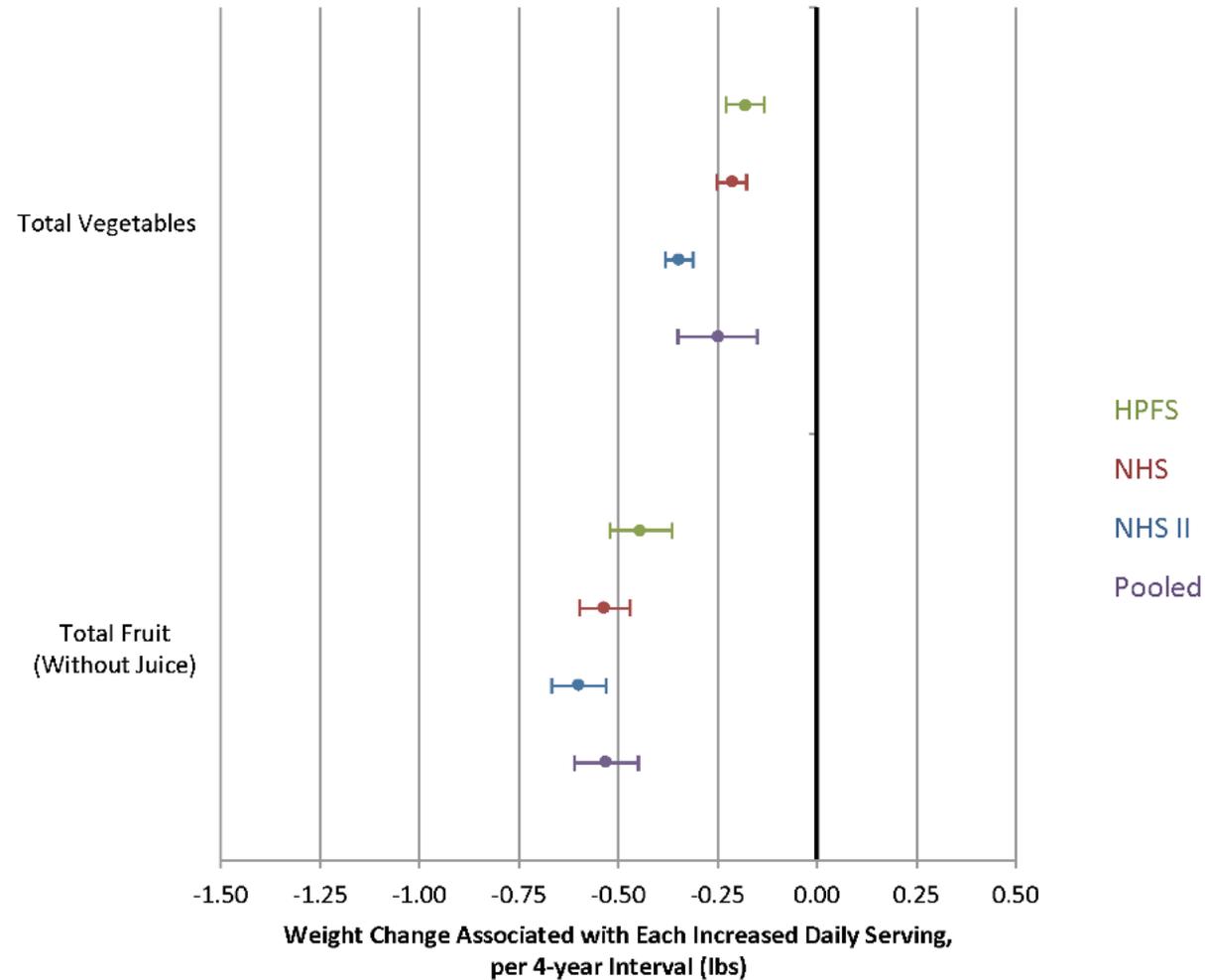
# Fruit & vegetable intake and immune function— vaccine response



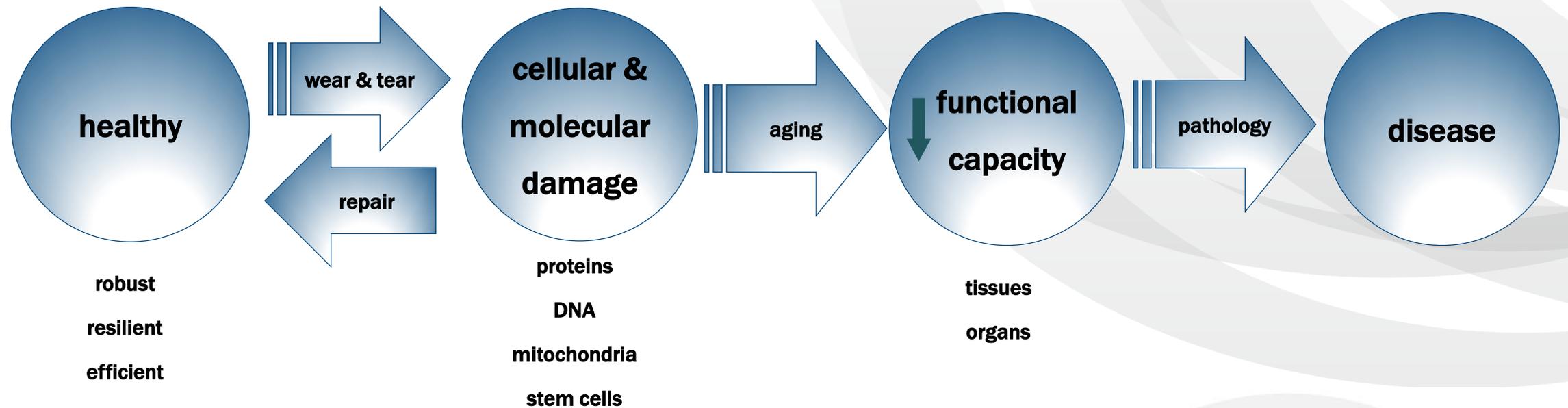
# Grains, fruit & vegetable intake and bone health—bone mineral density



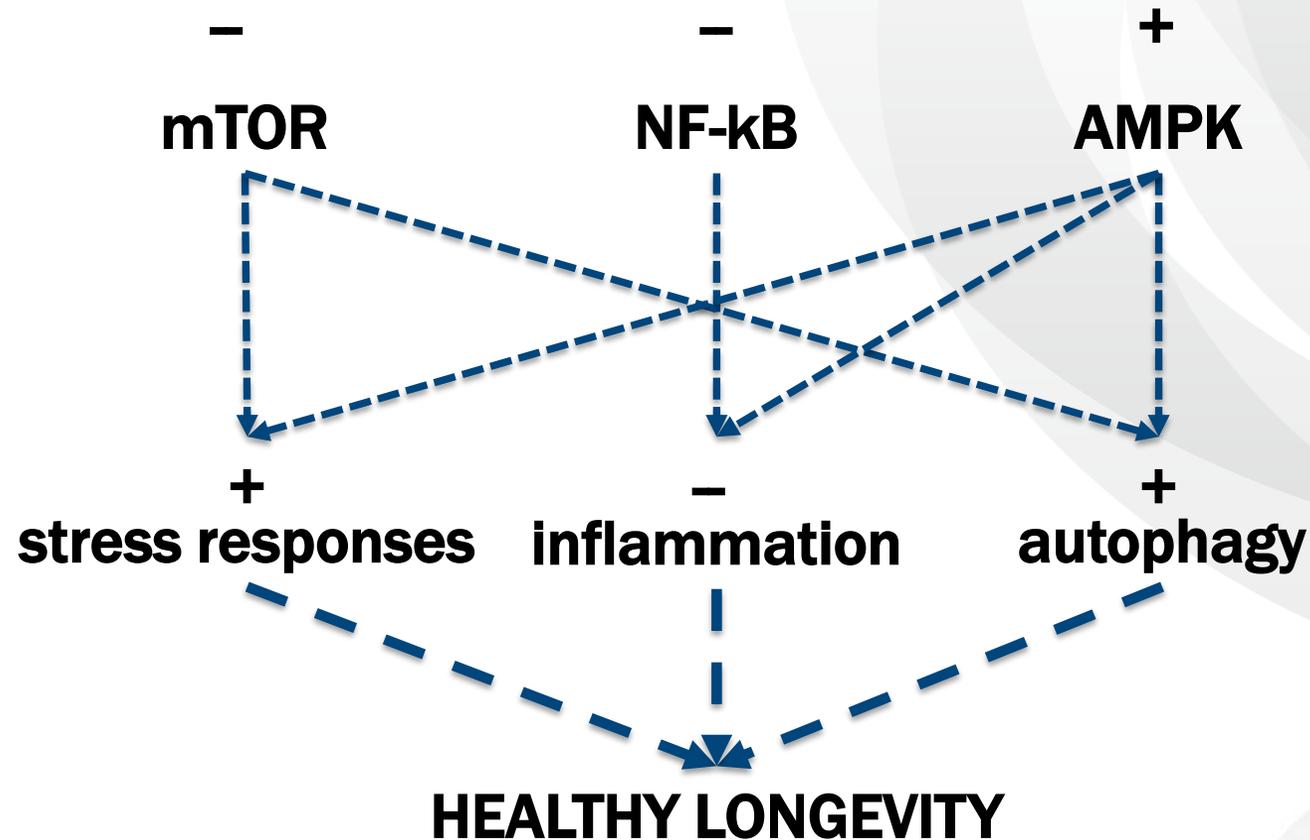
# Fruit & vegetable intake and body weight change



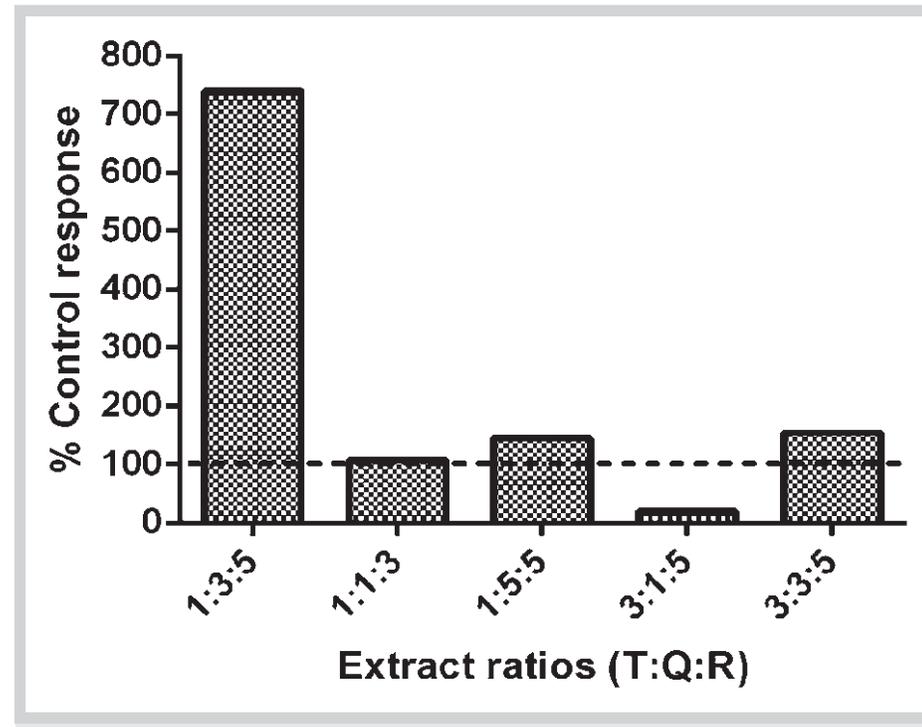
# Aging underlies declining functional capacity and chronic disease



# Phytochemicals influence molecular aging mechanisms with potential to promote healthy longevity



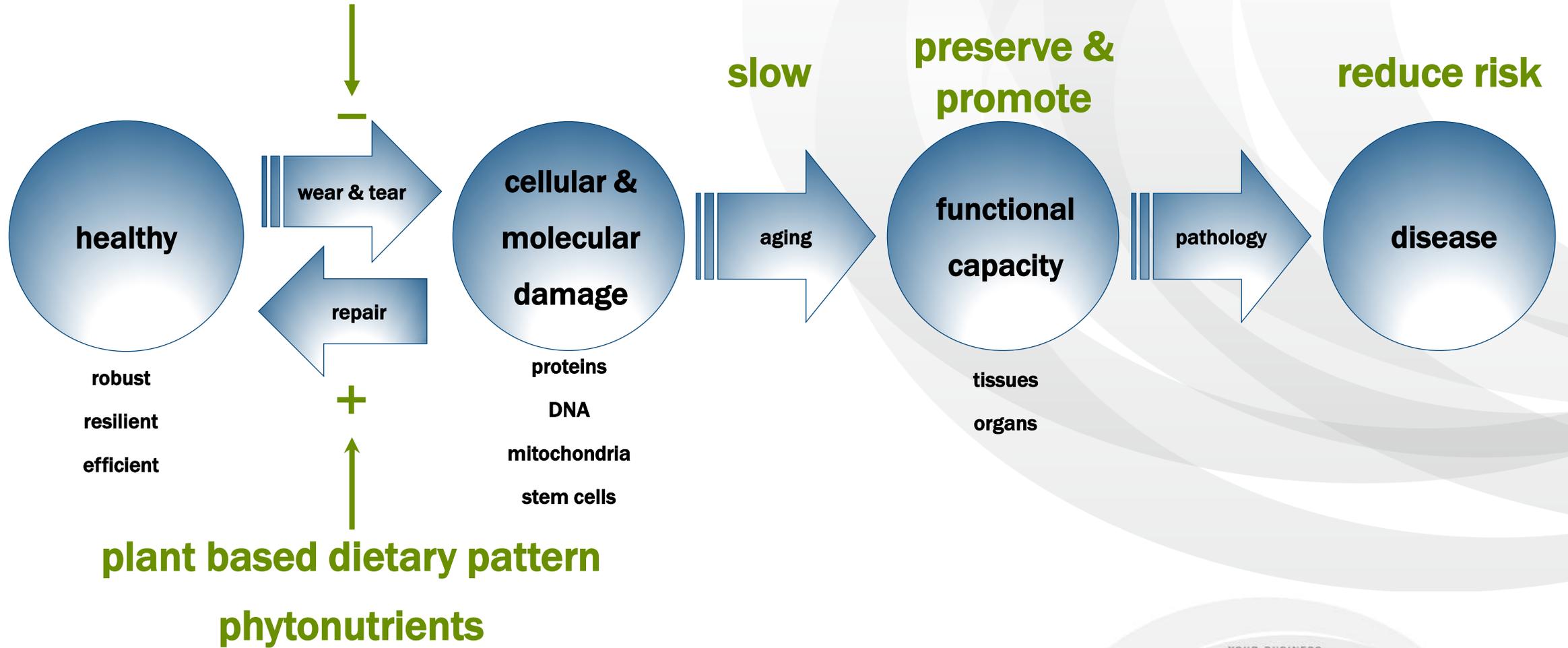
# Synergistic Activation of the Nrf2- ARE Oxidative Stress Response Pathway by a Combination of Botanical Extracts



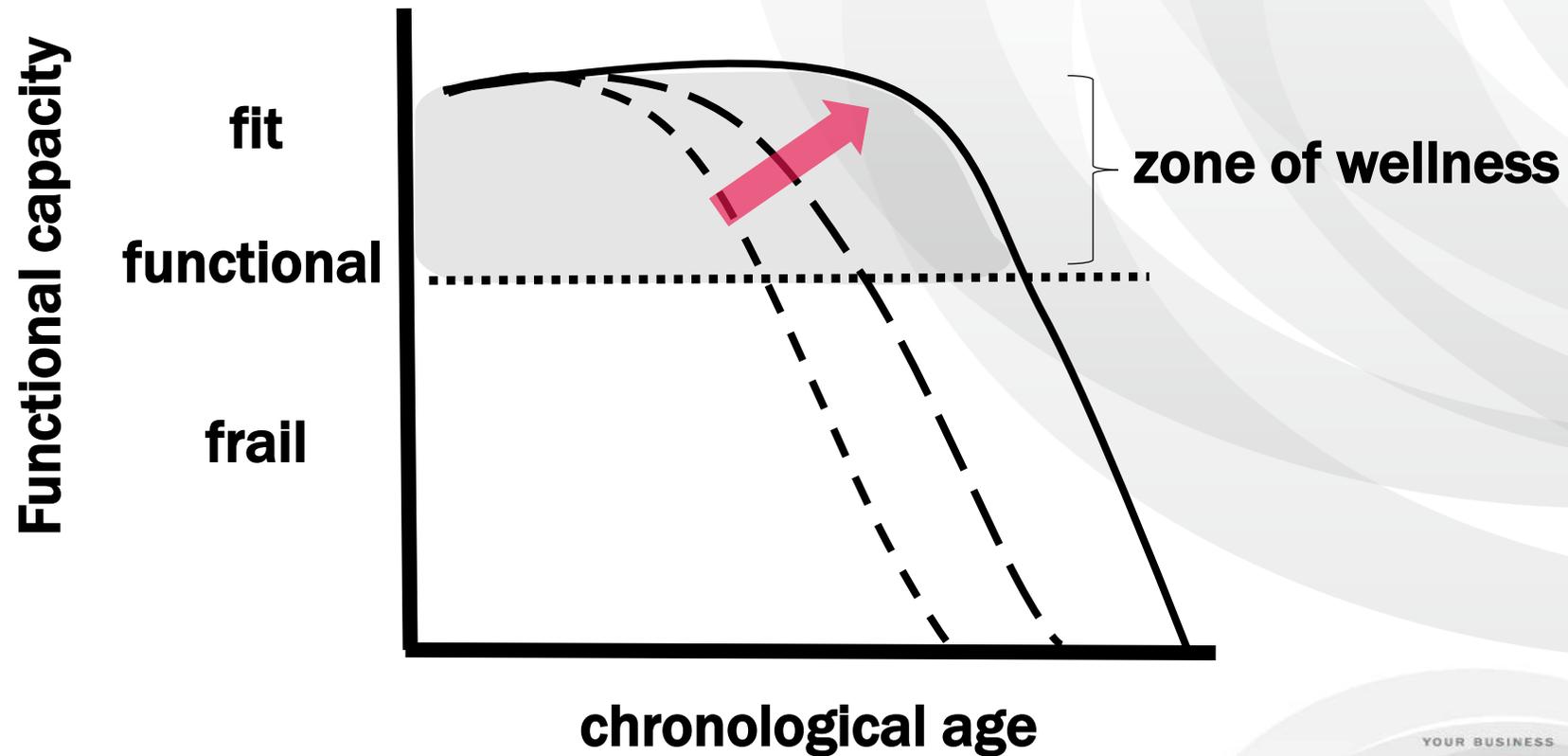
**T: turmeric**  
**Q: quercetin**  
**R: rosemary**

**plant based dietary pattern**

**phytonutrients**



# Plant based dietary patterns decrease risk of chronic disease hold potential to promote and extend wellness



# Considerations

- Plant food macro and micronutrient composition
- Dietary fiber
- Dietary patterns vs specific foods
- Physical activity
- Role of GI microbiome



# What's needed to advance the field?

- Increased funding
- Dietary pattern assessment methods validation
- Short term wellness/healthy aging biomarkers
- Long term studies with wellness outcomes



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WELL FOR LIFE





**OUR GOAL** is to improve health and wellbeing for ALL.

**WHY JOIN US?**  
Gain a better understanding on what impacts your wellbeing. Diet, exercise, and physical ability are all part of wellbeing, but so much more matters! Your environment, social relationships, spirituality, stress, and lifestyle all have an impact on your health. Wellbeing looks at all of these factors and more that capture an accurate picture of how well your life is.

**HOW CAN YOU JOIN US?** 3 simple steps!

- 1. Sign up**  
Take a few minutes to tell us who you are and electronically sign an informed consent form. It's easy.
- 2. Complete the survey**  
Answer a set of questions about your current health and lifestyle.
- 3. Check in regularly**  
Explore new features that help you better understand what impacts your wellbeing. Regular check-ins help you track changes to your wellbeing over time, and live a lifetime of wellbeing.

WELL for Life is inviting tens of thousands of people from the San Francisco Bay Area to join us in this exciting research. The Bay Area is one of the most diverse regions in the US and home to people of many cultures and income levels. Thousands of people from Hangzhou in China, and New Taipei City in Taiwan will also be invited to participate and contribute to improving our understanding of wellbeing.

In the Bay Area, WELL for Life has launched an online registry to enroll participants and track their wellness over time. The contributing information will allow for a deeper understanding of what makes lives better and will help change the wellness landscape worldwide.

Join our registry today!

PLEASE JOIN US!

[Register](#)

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Support for the Wellness Living Laboratory was provided by an unrestricted gift from Amway to Stanford University for the Nutrilite Health Institute Wellness Fund

<http://med.stanford.edu/wellforlife.html>





# WHO definition of Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

**Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.**

