

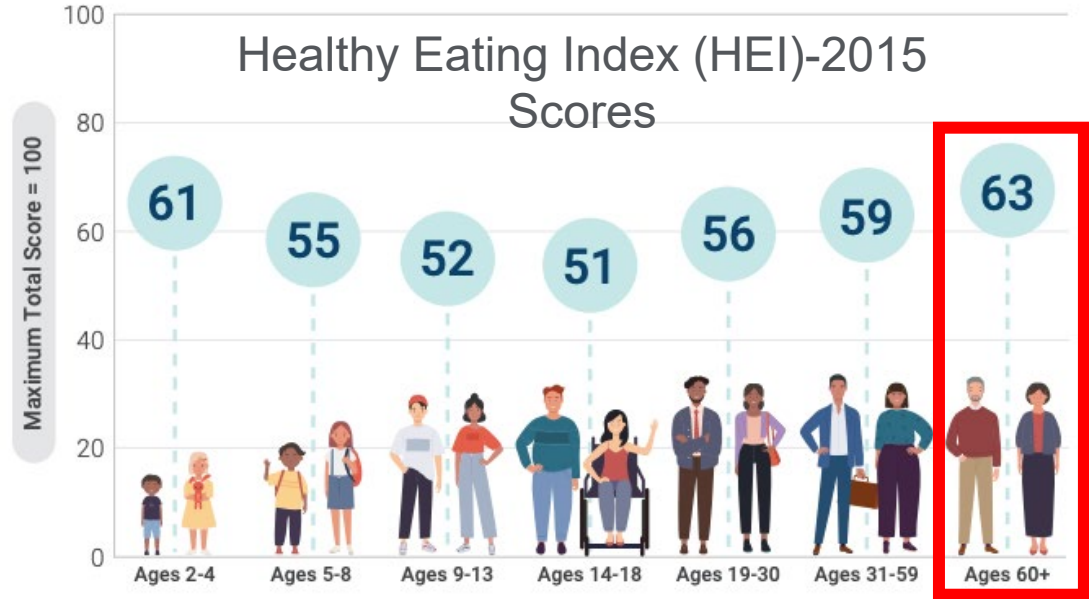
# Interface between Nutrition Science and Medicine

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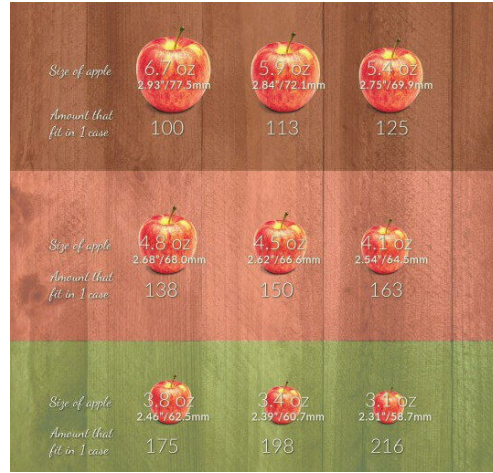


# The American Diet gets a Failing Grade

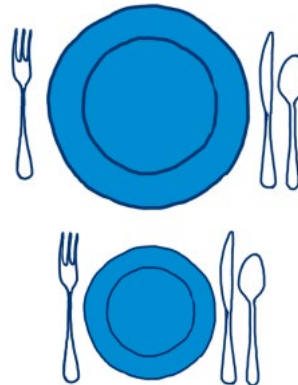
Average adult 60+  
Healthy Eating Index  
score:  
**63** out of 100



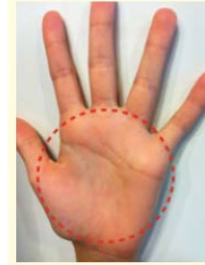
# Assessing diet is complicated



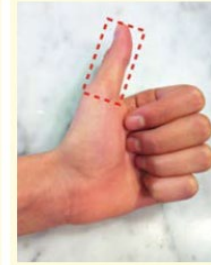
<https://www.smarta-as.com/en/impachetarea-3-8#images-1>



## Hands and Serving Size



About 3 ounces



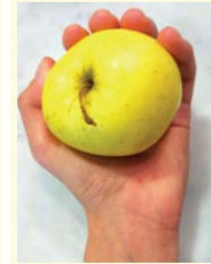
About 1 tablespoon



About 1 teaspoon



About 1 cup



1 serving of fruit



About 1/4 cup



# What do we need to know about nutrition in the older adult?



What are older adults eating?

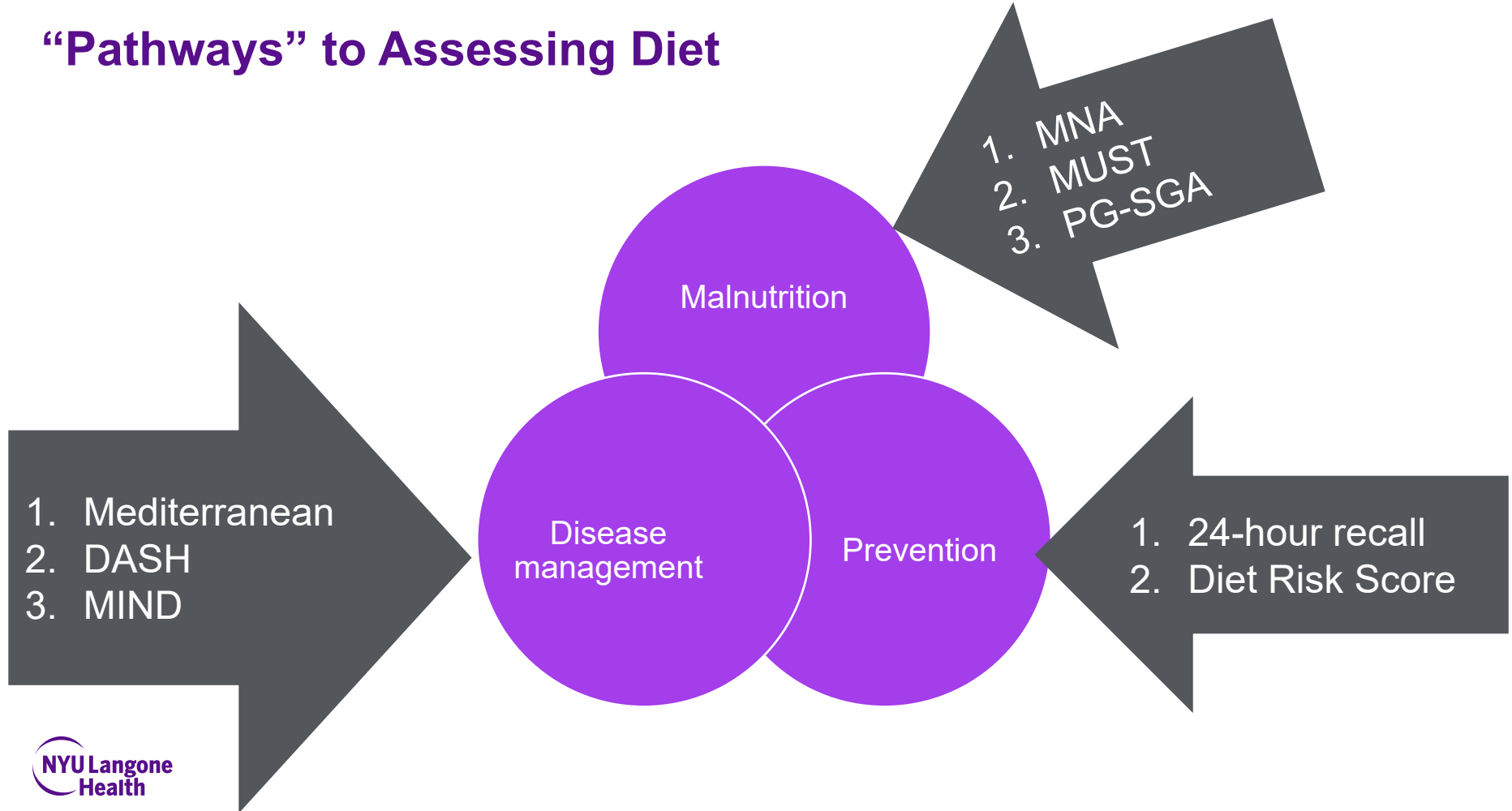


How do we identify older adults at dietary/nutritional risk?



How do we support older adults to improve their dietary choices/nutritional status?

# “Pathways” to Assessing Diet



# Prevention

1. How often do you eat 5 or more fruits/vegetable servings a day?
2. How often do you consume sugary food/drinks? Examples are dessert, candy or sweetened drinks.

## Diet Risk Score (DRS)

How often do you consume these foods?	
Fast food 🍷	<a href="#">Never ▾</a>
Bread, rolls 🍞	<a href="#">Never ▾</a>
Chips, salty snacks, pretzels 🍟	<a href="#">Never ▾</a>
Hot dogs, sausages 🌭	<a href="#">Never ▾</a>
Sweet drinks 🥤	<a href="#">Never ▾</a>
Peanuts, seeds, nut butter 🥜	<a href="#">Daily ▾</a>
Fish, shellfish 🐟	<a href="#">Daily ▾</a>
Vegetables 🥕	<a href="#">Daily ▾</a>
Fruit 🍎	<a href="#">Daily ▾</a>

<https://www.omnicalculator.com/health/diet-risk-score>

Johnston, EA, et al. BMJ Nutrition, Prevention & Health, 3(2), p.263.

## Dietary screening tool

### Whole fruit and juice

- How often do you usually eat fruit as a snack?
- How often do you eat fruit (not including juice)?
- How often do you drink some kind of juice at breakfast?

### Vegetables

- How often do you eat carrots, sweet potatoes, broccoli, or spinach?
- How many different vegetable servings do you usually have at your main meal of the day?

### Total and whole grains

- How often do you usually eat whole-grain breads?
- How often do you usually eat whole-grain cereals?
- How often do you eat hot or cold breakfast cereal?

### Lean proteins

- How often do you eat chicken or turkey?
- How often do you eat fish or seafood that is *not* fried?

### Added fats, sugars, and sweets

- How often do you usually eat candy or chocolate?
- How often do you eat crackers, pretzels, chips, or popcorn?
- How often do you eat cakes or pies?
- How often do you eat cookies?

How often do you eat ice cream?

- Do you usually add butter or margarine to foods such as bread, rolls, or biscuits?

Powell HS, Greenberg DL.  
Preventive medicine reports.  
2019 Jun 1;14:100816.

Am J Clin Nutr. 2009 Jul; 90(1): 177–183. doi: 10.3945/ajcn.2008.27268

# Disease management

## Mediterranean–Dietary Approaches to Stop Hypertension (DASH) Intervention for Neurodegenerative Delay (MIND) diet

Question	Frequency
1. How many tablespoons of olive oil do you consume <b>per day</b> (including that used in salad dressings and sautéing)?	_____ T per day
2. How many servings of green leafy vegetables do you eat <b>each day</b> , such as spinach, kale, greens, romaine? (1c for leafy, 1/2c for cooked/raw chopped)	_____ per day
3. How many servings (1/2c) of other types of vegetables do you eat <b>each day</b> (e.g. broccoli, carrots, peas, onions, green/red peppers, celery, string beans, tomatoes, yams, squash, eggplant) ?	_____ per day
4. How many servings (1/2c) of berries do you eat <b>each week</b> (e.g. strawberries, blueberries, raspberries)?	_____ per week
5. How many servings of red meat (steak, ham, roast), hamburger, hot dogs or sausages do you consume <b>each week?</b> (3 oz)	_____ per week
6. How many servings of fish (not fried and not including shellfish) do you consume <b>each week?</b> (3 oz )	_____ per week
7. How many servings of chicken (not fried) do you consume <b>each week?</b> (3 oz)	_____ per week
8. How many servings of whole fat or regular cheese or cream cheese do you consume <b>each week?</b>	_____ per week
9. How many servings of butter or cream (half & half) do you consume <b>each day?</b> (serving = 1 T)	_____ T per day
10. How many servings of beans (1/2c) do you consume <b>each week?</b>	_____ per week
11. How often do you eat <u>whole grain</u> breads, pasta, or cereals <b>each day?</b> (1 slice bread, 3/4c pasta/cereal)	_____ per day
12. How often do you consume sweets, candy bars, pastries, cookies or cakes <b>per week?</b>	_____ per week
13. How many servings of nuts do you eat <b>each week?</b> (handful or 1/4 - 1/3c)	_____ per week
14. How many times <b>per week</b> do you consume food from a fast food restaurant such as McDonald's, Burger King, Denny's, Domino's, Popeyes, Kentucky Fried Chicken?	_____ per week
15. How many servings of alcohol (5 oz wine, 12 oz beer, 1 oz hard liquor) do you drink <b>each day?</b>	_____ per day

# Malnutrition

## Mini Nutritional Assessment

### Mini Nutritional Assessment

MNA<sup>®</sup>

Nestlé  
Nutrition Institute

Last name:	Broccoli	First name:	Rob						
Sex:	M	Age:	68	Weight, kg:	85.0	Height, cm:	172	Date:	29.09.2022

Complete the screen by filling in the boxes with the appropriate numbers. Total the numbers for the final screening score.

Screening	
<b>A</b> Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? 0 = severe decrease in food intake 1 = moderate decrease in food intake 2 = no decrease in food intake	<input type="text" value="1"/>
<b>B</b> Weight loss during the last 3 months 0 = weight loss greater than 3 kg (6.6 lbs) 1 = does not know 2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs) 3 = no weight loss	<input type="text" value="0"/>
<b>C</b> Mobility 0 = bed or chair bound 1 = able to get out of bed / chair but does not go out 2 = goes out	<input type="text" value="2"/>
<b>D</b> Has suffered psychological stress or acute disease in the past 3 months? 0 = yes      2 = no	<input type="text" value="0"/>
<b>E</b> Neuropsychological problems 0 = severe dementia or depression 1 = mild dementia 2 = no psychological problems	<input type="text" value="1"/>
<b>F1</b> Body Mass Index (BMI) (weight in kg) / (height in m) <sup>2</sup> <input type="text" value="29"/> 0 = BMI less than 19 1 = BMI 19 to less than 21 2 = BMI 21 to less than 23 3 = BMI 23 or greater	<input type="text" value="3"/>
IF BMI IS NOT AVAILABLE, REPLACE QUESTION F1 WITH QUESTION F2. DO NOT ANSWER QUESTION F2 IF QUESTION F1 IS ALREADY COMPLETED.	
<b>F2</b> Calf circumference (CC) in cm 0 = CC less than 31 3 = CC 31 or greater	<input type="text" value=""/>
<b>Screening score</b> (max. 14 points)	<input type="text" value="7"/>
<b>12-14 points:</b> <input type="checkbox"/>	Normal nutritional status
<b>8-11 points:</b> <input type="checkbox"/>	At risk of malnutrition
<b>0-7 points:</b> <input checked="" type="checkbox"/>	Malnourished

*Routinely screen for malnutrition\**

\*Volkert D, et al. ESPEN guideline on clinical nutrition and hydration in geriatrics. Clinical nutrition. 2019 Feb 1;38(1):10-47.

# Food Insecurity

*The Hunger Vital Sign™ identifies households as being at risk for food insecurity if:*

1. Within the past 12 months we worried whether our food would run out before we got money to buy more.
2. Within the past 12 months the food we bought just didn't last and we didn't have money to get more.

*Are 'often true' or 'sometimes true' (vs. 'never true').*



<https://childrenshealthwatch.org/public-policy/hunger-vital-sign/>

*U.S. Household Food Security Survey Module: Six-Item Short Form includes 6 questions (examples below)*

“The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?  Often true  Sometimes true  Never true  DK or Refused

HH4. “(I/we) couldn't afford to eat balanced meals.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?  Often true  Sometimes true  Never true  DK or Refused

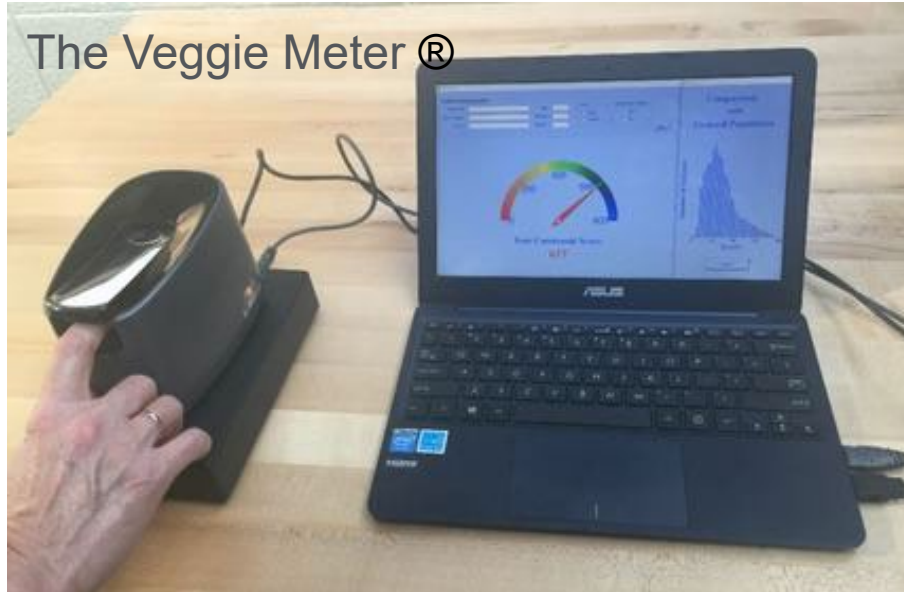
AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?  Yes  No/DK (Skip AD1a)

<https://www.ers.usda.gov/media/8282/short2012.pdf>

# What if we just focus on fruits and vegetables?



# Spectroscopy-Based Skin Carotenoid Measurements

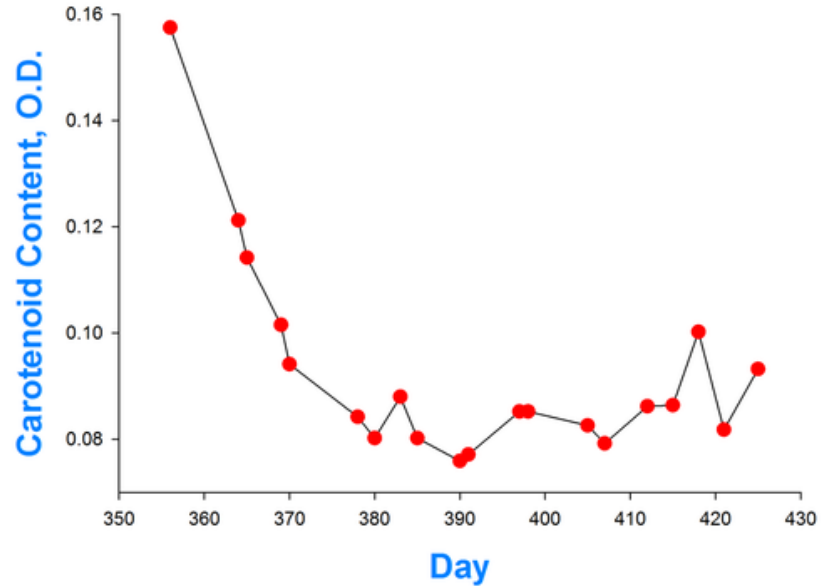
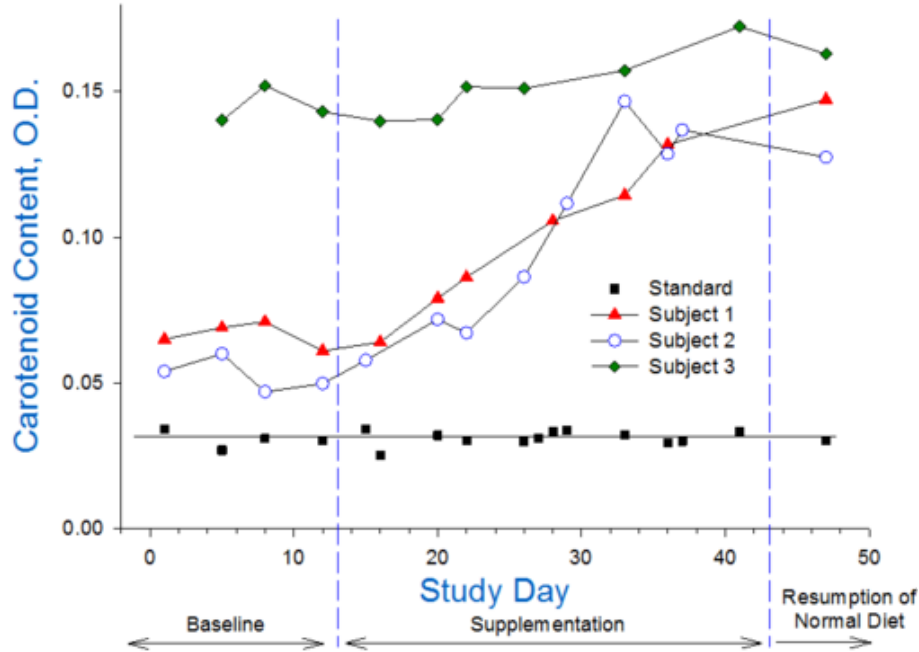


# Veggie Meter score



*Every 100 points  
~1 cup of fruit/  
vegetables?\**

# Responsive to supplementation and depletion



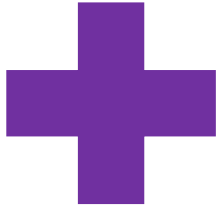
Ermakov IV, et al. J. Biophotonics 5, 559-570 (2012)

Jahns, L. et al., AJCN. (2014)

# Role of Diet in Dementia Prevention

Funding: Alzheimer's Association New to the Field Grant (23AARG-NTF-1030375)

Mediterranean–Dietary Approaches to Stop Hypertension (DASH) Intervention for Neurodegenerative Delay (MIND) diet

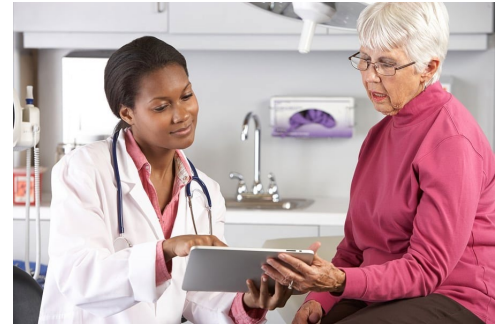


Reflection spectroscopy (Veggie Meter)  
Supplement question

Question	Frequency
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2. How many servings of green leafy vegetables do you eat <b>each day</b> , such as spinach, kale, greens, romaine? (1c for leafy, 1/2c for cooked/raw chopped)	__ / day
3. How many servings (1/2c) of other types of vegetables do you eat <b>each day</b> (e.g. broccoli, carrots, peas, onions, green/red peppers, celery, string beans, tomatoes, yams, squash, eggplant) ?	__ / day
4. How many servings (1/2c) of berries do you eat <b>each week</b> (e.g. strawberries, blueberries, raspberries)?	__ / week
5. How many servings of red meat (steak, ham, roast), hamburger, hot dogs or sausages do you consume <b>each week</b> ? (3 oz)	__ / week
6. How many servings of fish (not fried and not including shellfish) do you consume <b>each week</b> ? (3 oz )	__ / week
7. How many servings of chicken (not fried) do you consume <b>each week</b> ? (3 oz)	__ / week
8. How many servings of whole fat or regular cheese or cream cheese do you consume <b>each week</b> ?	__ / week
9. How many servings of butter or cream (half & half) do you consume <b>each day</b> ? (serving = 1 T)	__ T/ day
10. How many servings of beans (1/2c) do you consume <b>each week</b> ?	__ / week
11. How often do you eat <b>whole grain</b> breads, pasta, or cereals <b>each day</b> ? (1 slice bread, 3/4c pasta/cereal)	__ / day
12. How often do you consume sweets, candy bars, pastries, cookies or cakes <b>per week</b> ?	__ / week
13. How many servings of nuts do you eat <b>each week</b> ? (handful or 1/4 - 1/3c)	__ / week
14. How many times <b>per week</b> do you consume food from a fast food restaurant such as McDonald's, Burger King, Denny's, Domino's, Popeyes, Kentucky Fried Chicken?	__ / week
15. How many servings of alcohol (5 oz wine, 12 oz beer, 1 oz hard liquor) do you drink <b>each day</b> ?	__ / day

# Gaps/room for growth

- How do we meaningfully bring diet into the conversation in clinical care?
- Testing diet assessment tools not just for validity but IN patient care and with diverse populations
- Addressing food insecurity
- Other biomarkers or objective measures of diet to help us accurately measure dietary intake
- Diet/lifestyle + Rx





# Thank you



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<https://www.eajnutrition.com/ebook>

NYU Langone Health

