



Nutrition in MPN

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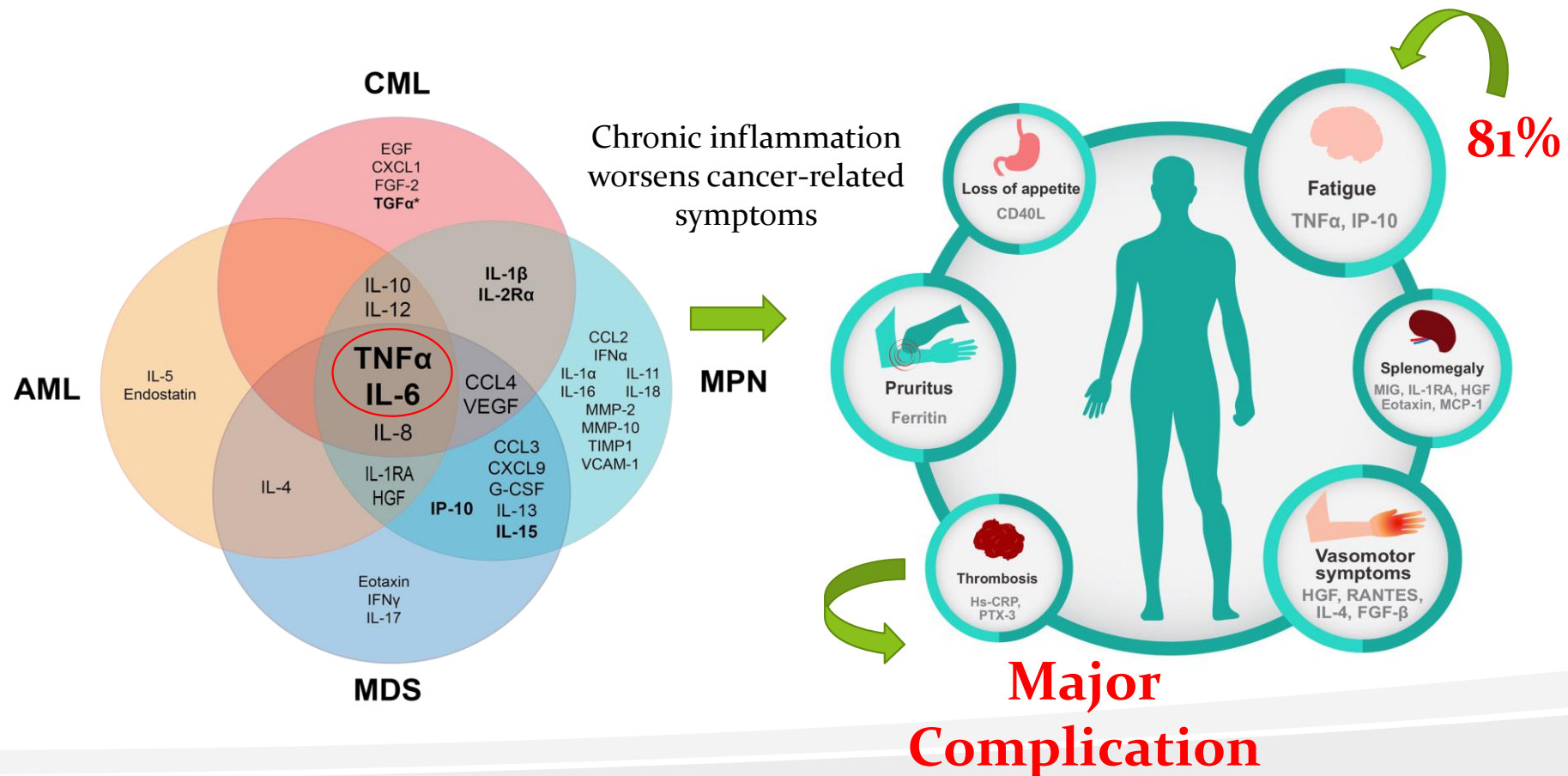
University of California, Irvine



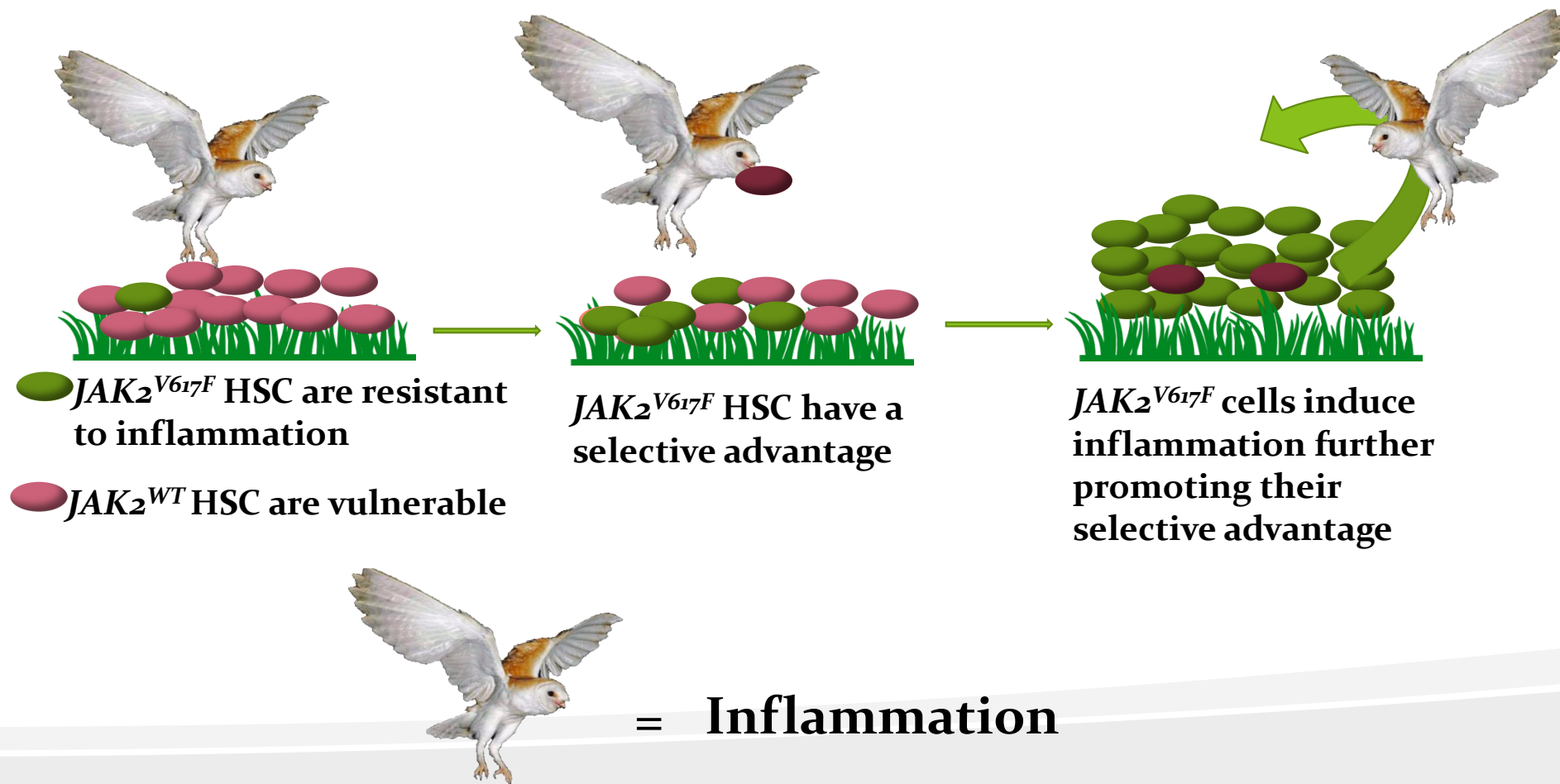
MPN is a chronic inflammatory condition



Inflammation's impact in MPN



Inflammation as a driver of expansion of the $JAK2^{V617F}$ clone in MPN





- Low risk
- Low cost
- Reduce inflammation



Using diet to manage MPN

Using “medicinal” properties
of foods



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Using diet to manage MPN

Using “medicinal” properties of foods

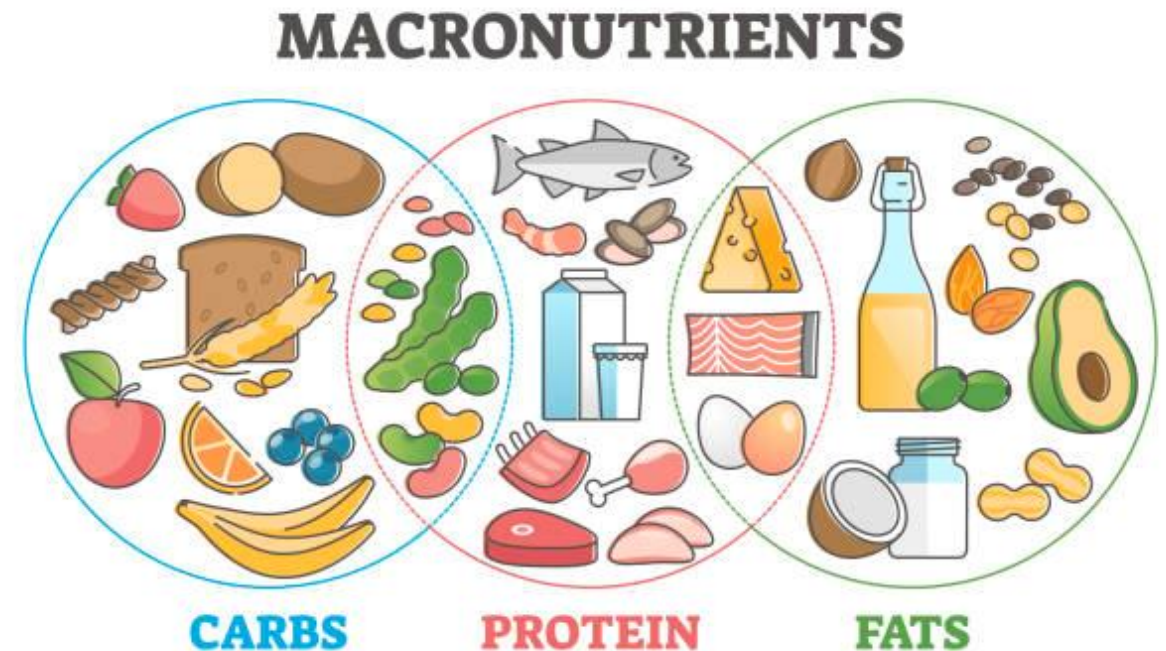
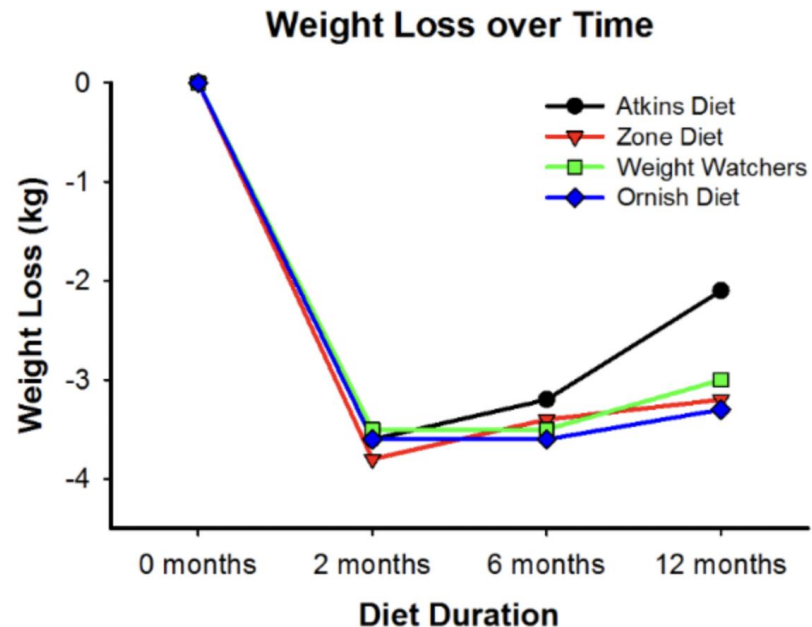


Nutrition as way to optimize health



Prevention and Healthy Lifestyle

- Should we focus on carbohydrates, fats and proteins?
 - Atkin's diet (South Beach diet), Zone, Weight Watcher's, Ornish, etc...
- Which is most important to cut out?
- **QUALITY** >> regular dieting



Adherence to a Mediterranean Diet and Survival in a Greek Population

Antonia Trichopoulou, M.D., Tina Costacou, Ph.D., Christina Bamia, Ph.D., and Dimitrios Trichopoulos, M.D.

- 22,000 Greek participants were followed closely to see how their diet influenced their risk of coronary disease and cancer
- Diet was scaled on a Mediterranean diet score: 0-9





Anti-inflammatory diet: Mediterranean Diet

- The Mediterranean diet has proven to be beneficial in metabolic diseases, which are characterized by chronic subclinical inflammation.

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Primary Prevention of Cardiovascular Disease
with a Mediterranean Diet

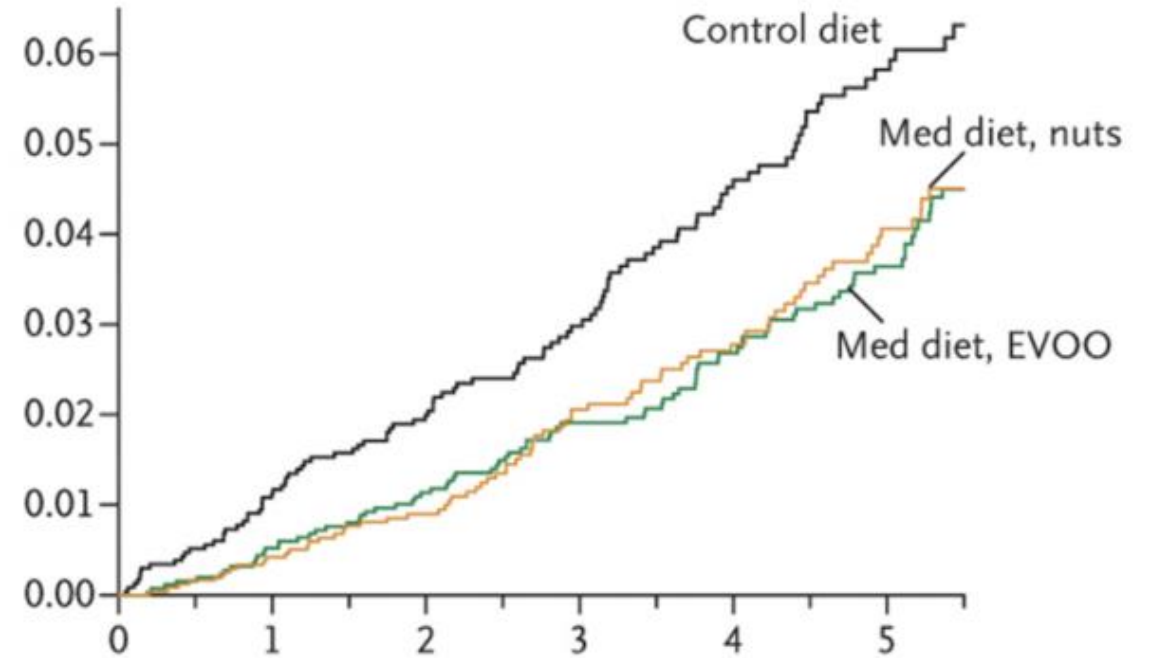
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for the PREDIMED Study Investigators*

Mediterranean Diet Reduced Cardiovascular Events

- PREDIMED Trial (Prevención con Dieta Mediterránea)



death from cardiovascular causes)



Mediterranean Diet - What is it?

A food pattern shared by countries around the Mediterranean Sea

- No specific rules or restrictions
- Focus on whole, plant foods and healthy fats
- Can use foods from many cultures (not just those around the Mediterranean)



The Mediterranean Pyramid

Mediterranean Diet Pyramid

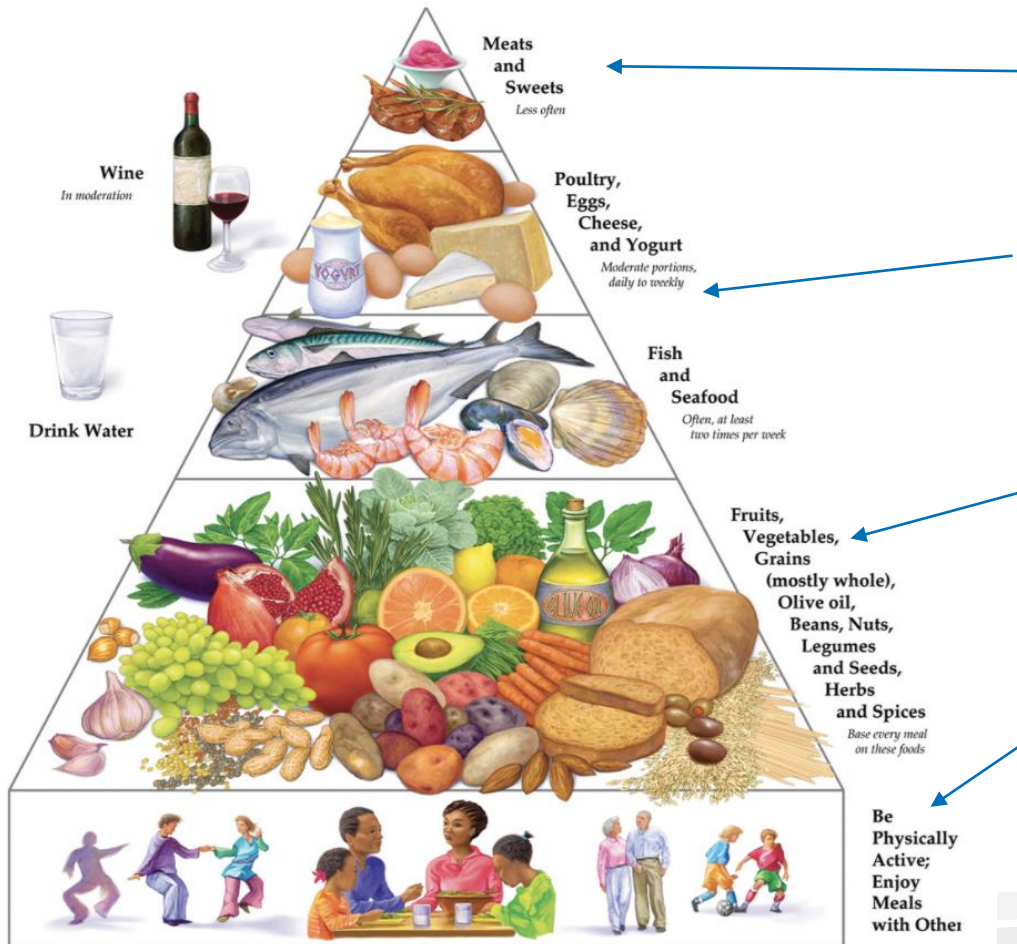


Illustration by George Middleton

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www.oldwayspt.org

LESS: Red meat, sweets, processed foods

IN MODERATION: Lean protein such as fish and poultry, dairy, wine

MORE: Vegetables, greens, fruits, whole grains, beans, nuts, legumes

Also incorporate physical activity/exercise and enjoy meals with family and friends.



Mediterranean Eating Pattern Guidelines

1. Vegetables	2-3 cups/day	Leafy greens, carrots, celery, peppers, squash, mushrooms, cauliflower
2. Legumes	2-3 servings/week	Beans, lentils, peas, chickpeas, snap beans, tofu
3. Fruits & Nuts	1-2 servings/day	Whole fruit (including tomatoes, avocado), nuts (including salted nuts)
4. Whole Grains + Cereals	2-3 servings/day	Whole grain/whole wheat; corn/popcorn, brown/wild rice, corn tortillas, quinoa
5. Seafood	2-3 servings/week	Fatty fish, shrimp, clams, crabs, scallops, other lean fish (white fish)

Examples: Healthy Fats and Proteins

High in rich, unsaturated fats (liquid at room temperature)

- Olive oil, grapeseed oil, sesame oil
- Avocados, nuts, seeds, seafood
- May help lower bad cholesterol and raise good cholesterol

High in lean meats

- Salmon, tuna, and chicken
- Fish high in good fats





Can Diet Impact MPN?





Dietary Intervention Studies in MPN we've performed so far

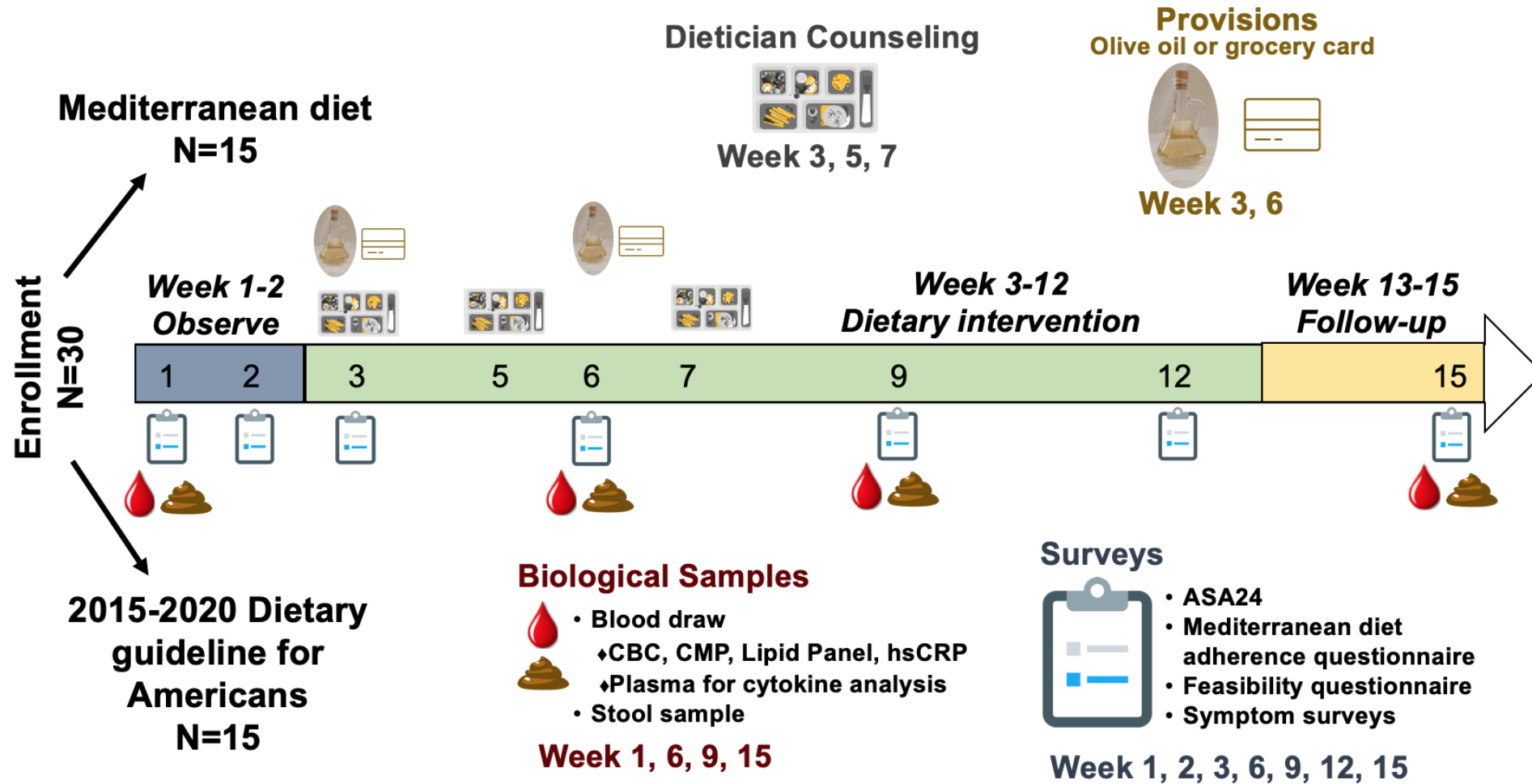
Initial Pilot Study

- MED vs USDA diet
- 28 participants
- In person dietitian counseling, weekly curriculum sent via email
- CBC, CMP, hsCRP, plasma cytokines, gut microbiome

E-intervention

- MED vs DASH diet
- 28 participants
- Zoom dietitian counseling, written curriculum

Initial Pilot Study Design



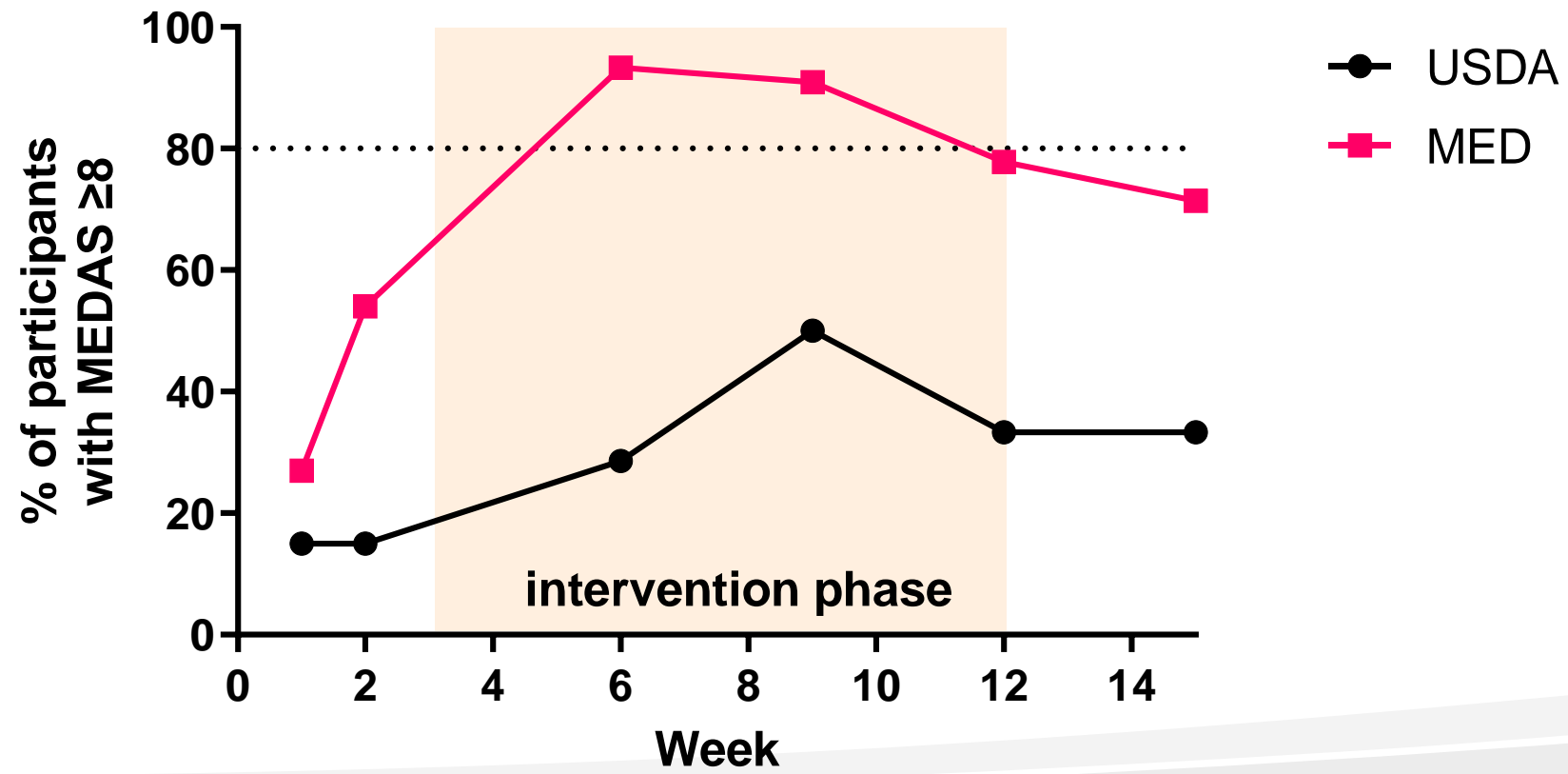


Main point of study



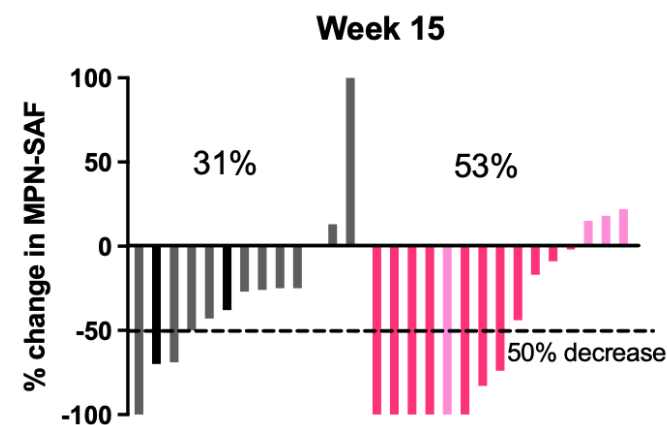
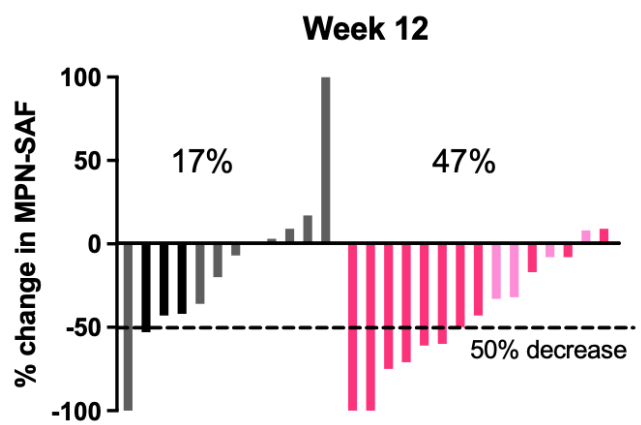
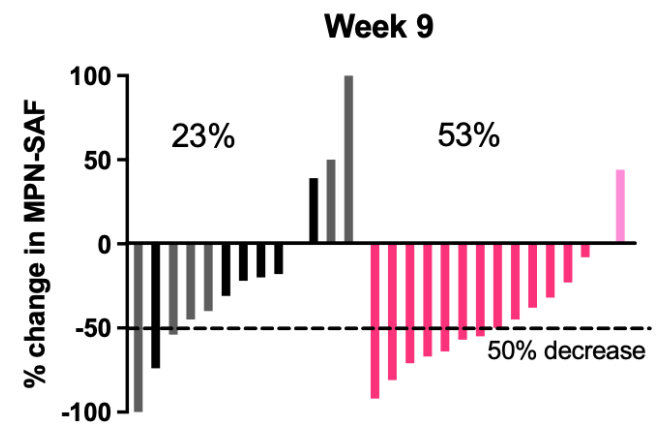
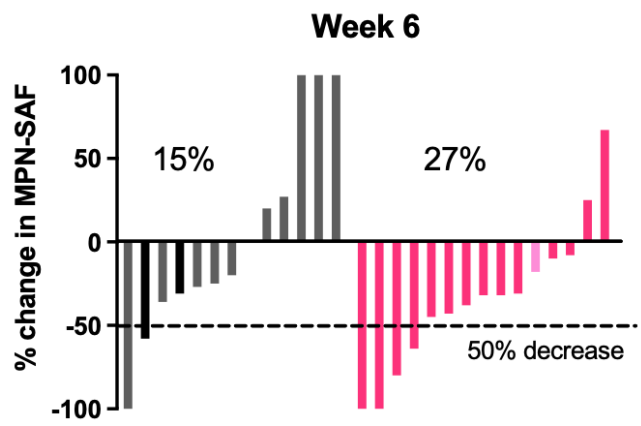
Can MPN patients change their diet with dietician counseling and curriculum?

MPN patients can adopt a Mediterranean Diet





Impact of diet on MPN symptoms



USDA
MED

Lighter shade = Med Adh.Score <8
Darker shade = Med Adh. Score \geq 8



Other things we measured in the study

Blood counts

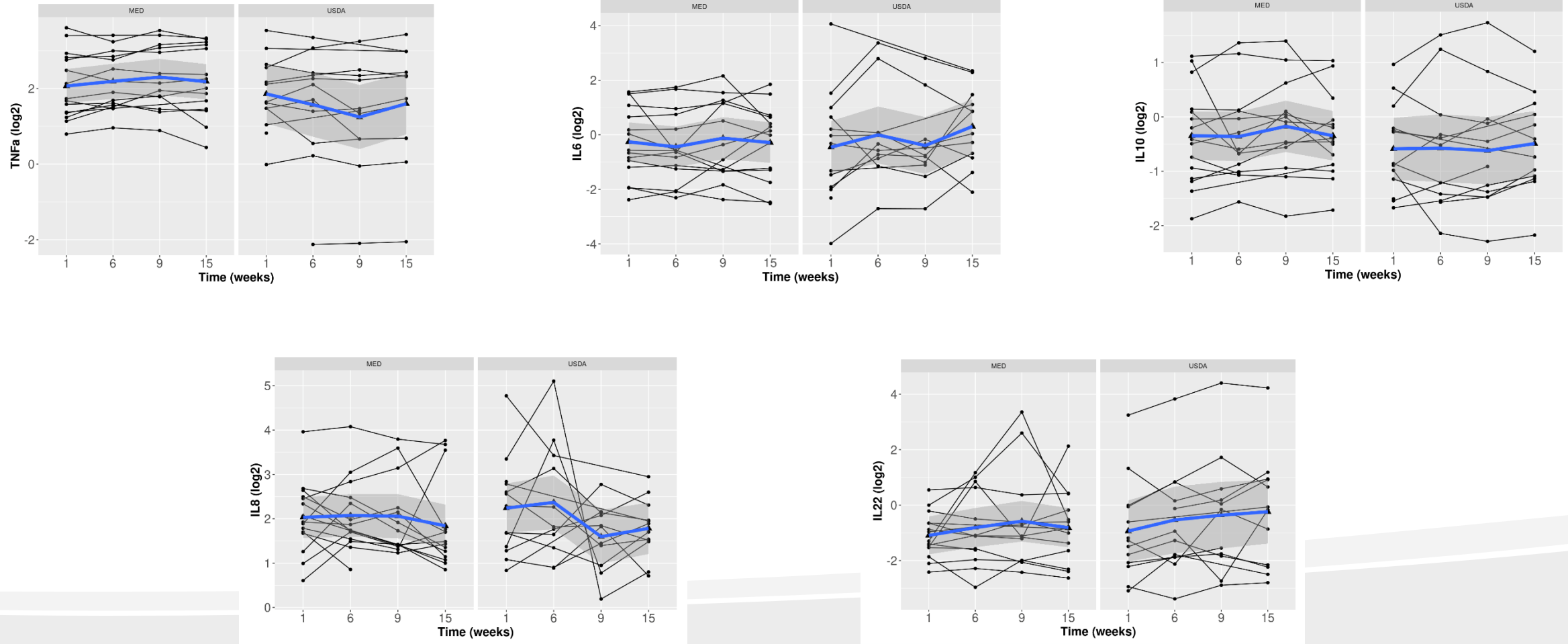
Cholesterol

hsCRP

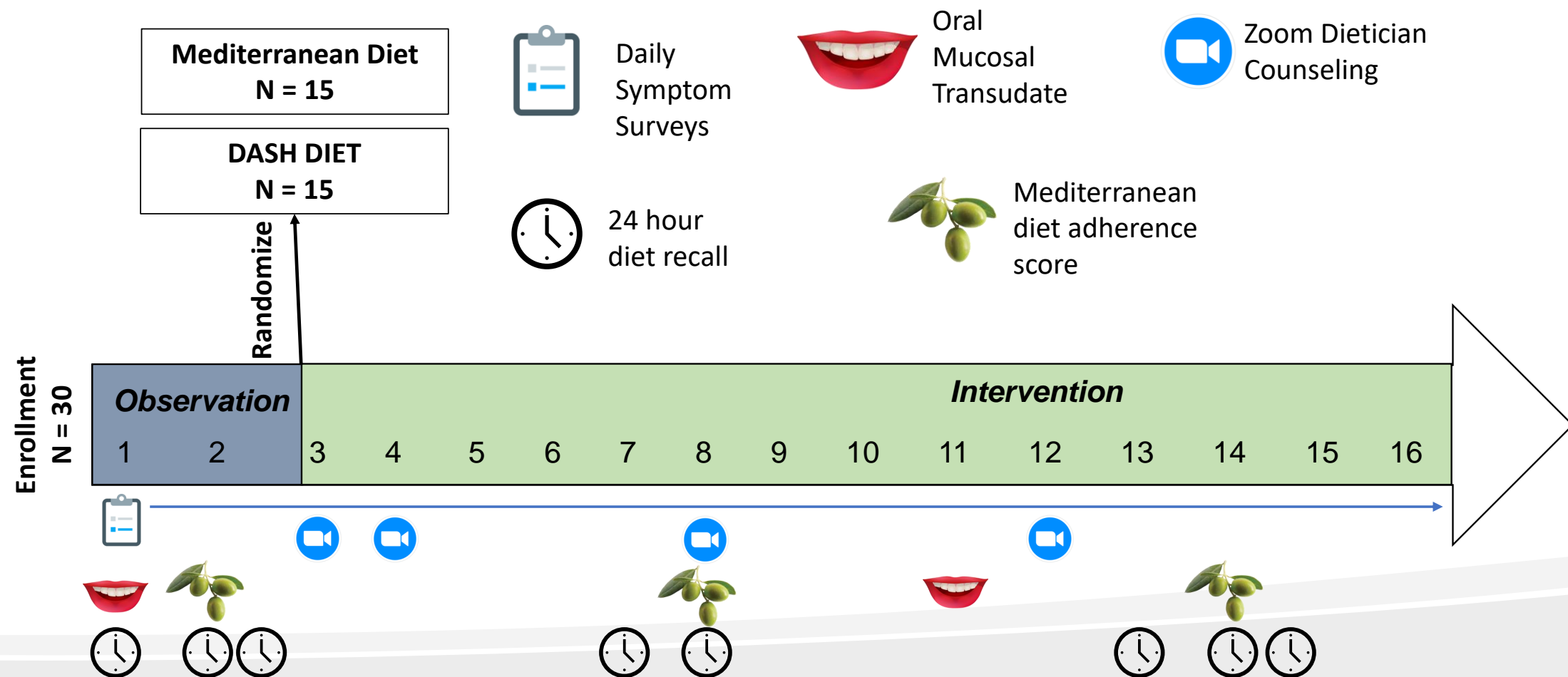
Inflammatory proteins in the blood

Gut microbiome

Impact of Diet on Plasma Cytokines



E-intervention diet study design





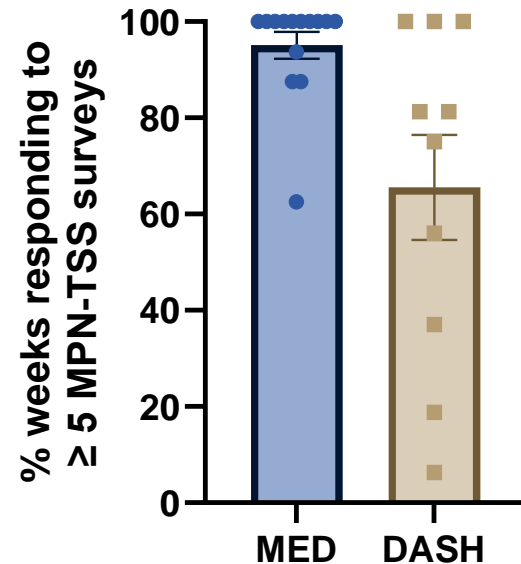
Primary Objectives for e-intervention - Feasibility

- Symptom Survey Completion
- ASA₂₄
- MEDAS
- Dietician Visits

Completion of MPN symptom surveys

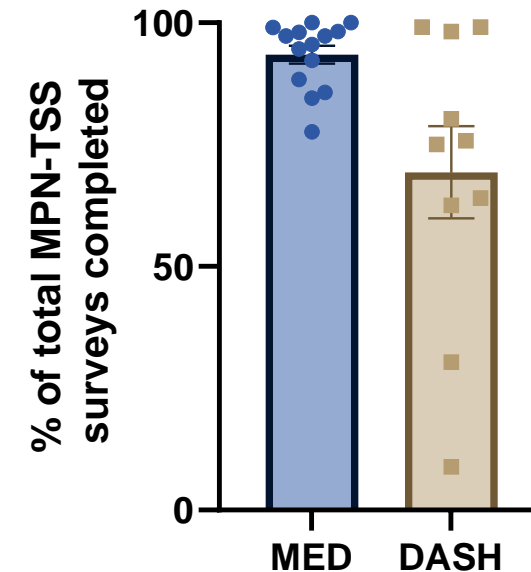
A

% weeks completing ≥ 5 MPN-TSS surveys



B

% of total MPN-TSS surveys complete



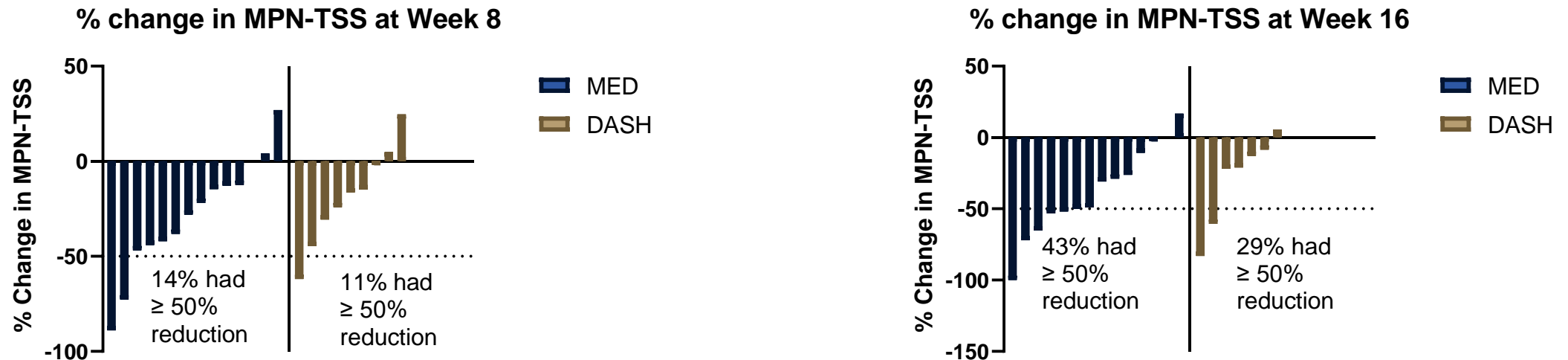
Participants were sent daily texts or emails with a link to complete a symptom survey for 16 weeks (112 days)

A. Percentage of weeks that participants completed at least 5 surveys

B. Percentage of total surveys completed

Percent Change in MPN-TSS at Weeks 8 and 16 Versus Baseline

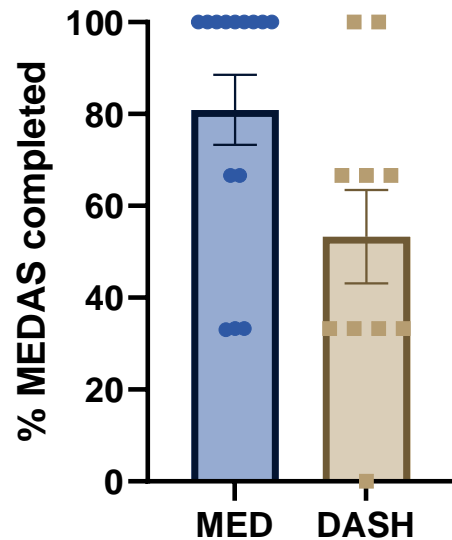
THIS GRAPH SHOWS ALL PARTICIPANTS, EVEN IF HAD < 5 SURVEYS



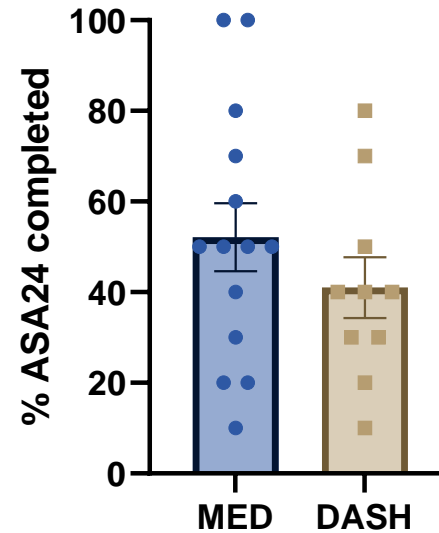
The baseline was calculated by taking the mean of MPN-TSS scores at week 2. Weeks 8 and 16 were calculated by taking the means of the scores from weeks 8 and 16

Completion of Diet Surveys and Dietician Visits

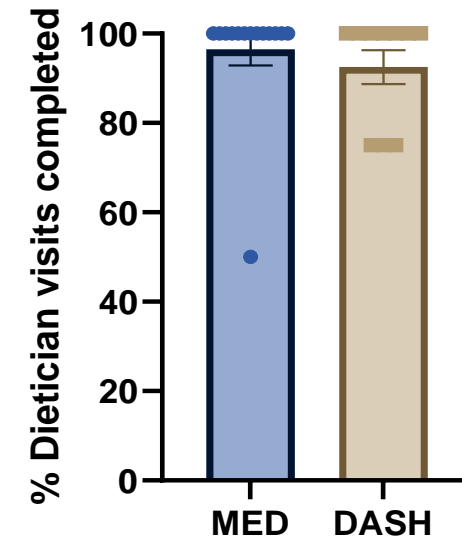
% MEDAS Completed



% ASA24 Completed



% Dietician Visits Completed



Next Steps



- Develop much larger study utilizing an online curriculum to teach Mediterranean diet concepts, group classes, one on one dietitian counseling





Acknowledgments



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