

# Understanding Acceptability and Adherence to a High Chlorophyll Dietary Intervention Aimed at Reducing Colon Cancer Risk in Adults: The Meat and Three Greens (M3G) Feasibility Trial

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## BACKGROUND

Preclinical models indicate dietary chlorophyll, which gives gr leafy vegetables their color, binds and stabilizes heme in the lun preventing genotoxicity. Additionally, data from previous randomi controlled weight loss trial indicate increasing red meat consump has deleterious effects on the gut microbiome, which is implicated in colon cancer etiology. Because heme-containing for are the richest sources of bioavailable iron and several other vitar and minerals, mitigating their potential risks may be more benef than eliminating meat, poultry, fish and seafood in their entirety the diet for risk reduction.

## **METHODS**

We completed a 12-week, two-arm crossover study in w participants were randomized to immediate or delayed intervent Each study period lasted four weeks with a four week washout pe between.

During the intervention period, participants were:

 provided with recipes, frozen greens of their choice, and instruct to eat one cup of cooked greens per day; contacted weekly monitor adherence and provide guidance on how to meet goals

At each study visit, participants:

- provided stool and saliva samples, underwent phlebotomy, and anthropometric assessments
- completed validated survey instruments to assess physical act over the past week, acceptability of the dietary intervention, beliefs regarding dietary habits and risks for colon cancer.

The purpose of this poster is to report the preliminary outcomes M3G:

- Accrual and Retention goal: 50 adults recruited in 9 months; retained at crossover; 80% retained at completion
- Adherence: 2x weekly self-report; meeting 1 cup/day intake g 90% of days
- Acceptability: 10 question Food Acceptability Questionnaire (FA rated on a 7-point Likert scale, administered after 4 and 12 week

## RESULTS

During the intervention period, participants achieved 73 adherence of daily goal (1 cup GLV). Participants consumed amount of GLV 88.8% of days, with an average daily intake of ( cups. The intervention resulted in lower total FAQ scores compare control periods for all participants (p=0.011) and overall acceptat in the delayed group was positively associated with repo adherence days (p=0.001). Adherence and acceptability were b higher in the delayed intervention group.

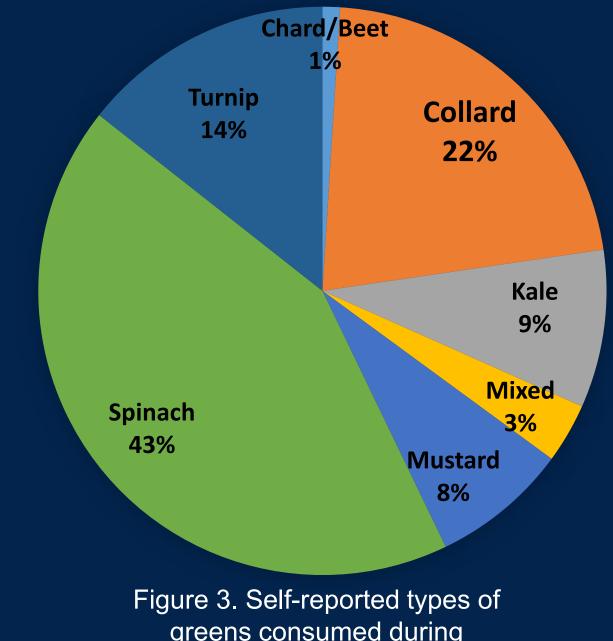
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#### RESULTS

Table	Table 2. Responses to Food Acceptability Questionnaire by Intervention Group							
	Immediate				Delayed			
	Intervention	Control	Change from		Intervention	Control	Change	
	Period	Period	Control		Period	Period	from Contro	
	mean (sd)			Ρ		mean (sd)		
QI	5.08 (1.35)	6.00 (1.09)	-0.83 (1.03)	0.001	5.17 (1.49)	5.42 (1.21)	-0.25 (1.917)	
Q2	5.04 (1.46)	5.88 (1.33)	-0.87 (1.325)	0.005	5.04 (1.73)	5.46 (1.22)	-0.42 (2.145)	
Q3	4.5 (1.41)	5.42 (1.50)	-0.92 (1.53)	0.007	4.42 (1.53)	5.21 (1.25)	-0.79 (1.817)	
Q4	4.58 (1.72)	5.08 (1.69)	-0.50 (1.956)	0.223	4.25 (1.62)	4.71 (1.68)	-0.46 (2.536)	
Q5	6.04 (1.2)	5.71 (1.23)	0.33 (1.129)	0.162	5 (1.67)	5.29 (1.16)	-0.29 (2.095)	
Q6	6.42 (1.21)	6.25 (1.03)	0.17 (1.239)	0.517	6.3 (0.97)	5.63 (1.21)	0.65 (0.982)	
Q7	4.46 (1.82)	5.04 (1.68)	-0.58 (1.932)	0.153	3.38 (1.5)	4.92 (1.72)	-1.54 (2.322)	
Q8	4.71 (1.4)	5.21 (1.25)	-0.50 (1.414)	0.097	4.13 (1.51)	5.25 (1.48)	-1.13 (2.252)	
Q9	5.71 (1.12)	6.13 (0.61)	-0.42 (1.1)	0.076	5.5 (0.89)	5.46 (1.18)	0.04 (1.517)	
Q10	5.46 (1.25)	6.00 (0.93)	-0.54 (1.25)	0.045	5.25 (1.33)	5.17 (1.13)	0.08 (2.083)	
Total	51.79 (8.72)	56.46 (8.40)	-4.67 (7.545)	0.006	48.17 (9.18)	52.50 (9.73)	-4.33 (15.024	

Table 3. Food Acceptibility Questionnaire			
QI	How well do you like these foods?		
	How well do you like the taste of these		
Q2	foods?		
	How appealing or unappealing do you find		
Q3	the appearance of these foods?		
Q4	How boring are these foods?		
	How easy or difficult has it been for you to		
Q5	prepare these food?		
	How easy or difficult has it been for you to		
Q6	purchase these foods?		
	How easy or difficult has it been for you to		
Q7	maintain your current diet at restaurants?		
	How much effort does it take for you to stay		
Q8	on this diet?		
	How satisfied or dissatisfied do you feel after		
Q9	eating a meal on this diet?		
	Overall, how satisfied or dissatisfied are you		
Q10	with this diet?		



greens consumed during intervention period, by frequency.

#### CONCLUSION

This 12-week crossover RCT aimed to increase GLV consumption, though the primary adherence target of 1 cup GLV per day was not achieved. However, average daily consumption was acceptable. Spinach was the preferred green, possibly due to minimal flavor and texture. Acceptability varied between groups. Adherence and acceptability were both higher in the delayed intervention group which may moderate secondary aims related to inflammatory markers and oxidative DNA damage.

Future Directions: Biological specimens are being analyzed to determine if secondary aims were achieved. We will submit an NIH R15 application in June 2019 which will be comprised of two semi-controlled feeding studies, in order to investigate quantity and frequency of GLV necessary for reducing deleterious effects of RM.

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