

# Benefits of the DASH diet: Going beyond high blood pressure

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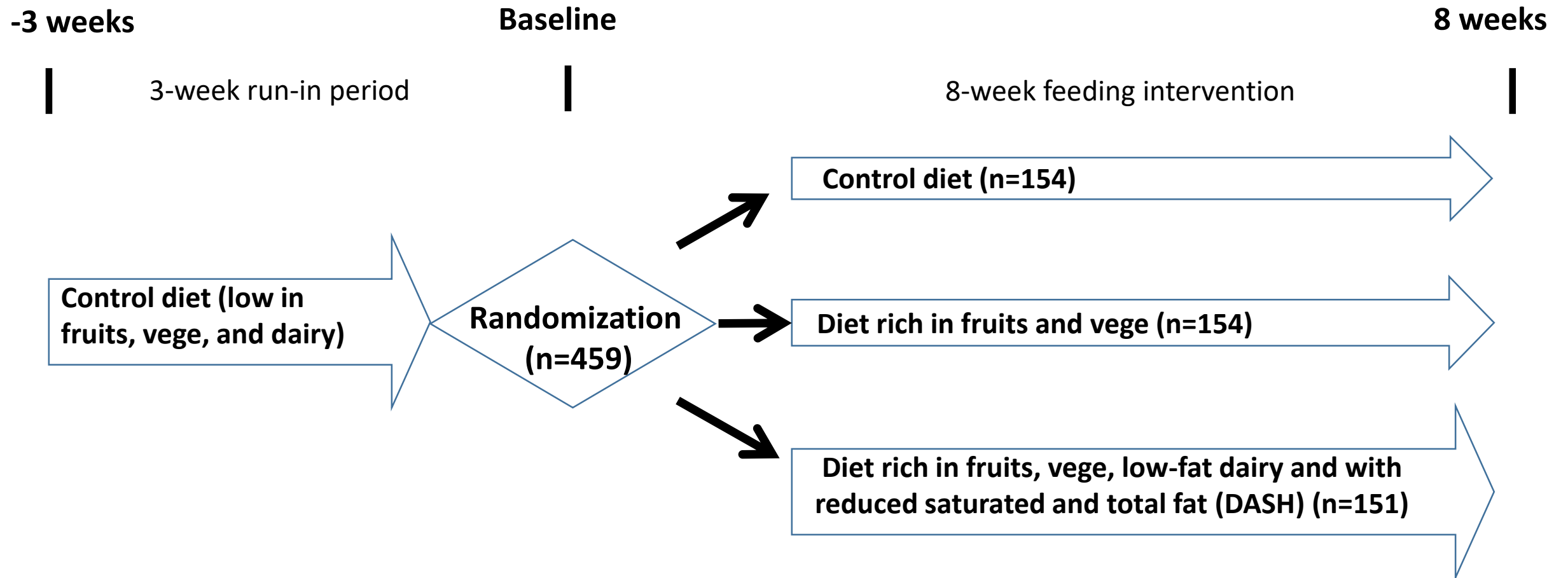
# The DASH Diet for Healthy Blood Pressure

Follow these DASH (Dietary Approaches to Stop Hypertension) guidelines for a healthier, more balanced diet

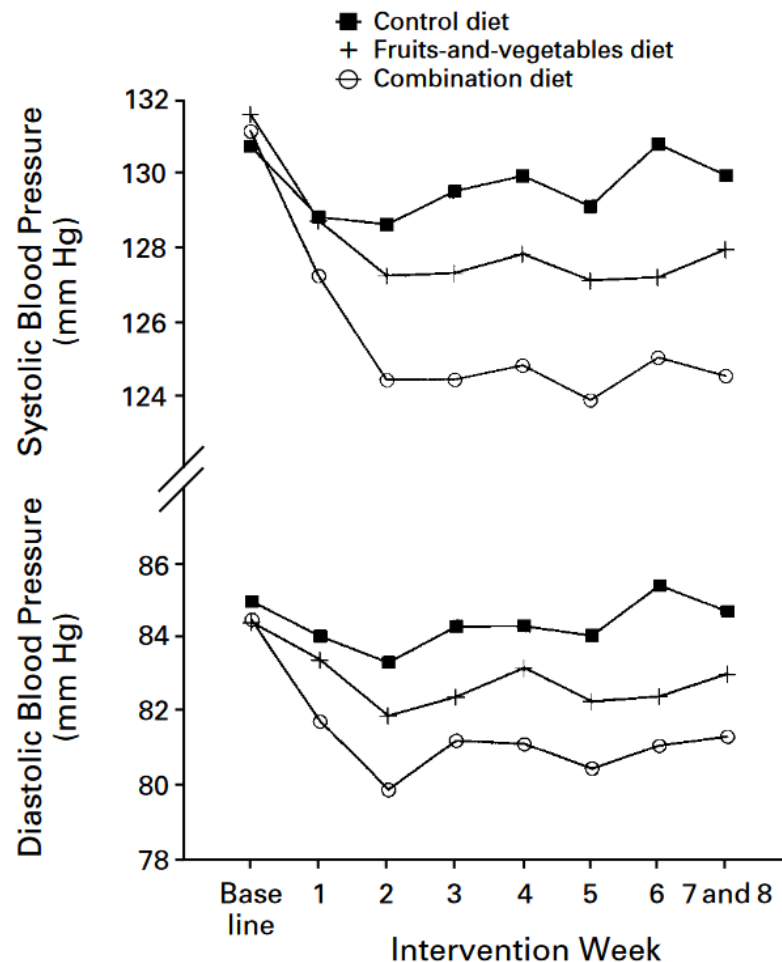


Discover how the DASH Diet can help you manage your blood pressure at [blog.ohiohealth.com](http://blog.ohiohealth.com)

# DASH Trial: Multisite, randomized feeding study



# DASH diet lowered BP more than control and fruit-and-veggie diets, overall and across subgroups



**TABLE 4.** COMPARISONS OF MEAN CHANGES IN BLOOD PRESSURE BETWEEN DIETS IN ALL SUBJECTS AND IN SUBGROUPS DEFINED BY SEX, MINORITY STATUS, AND HYPERTENSIVE STATUS.\*

CATEGORY†	CHANGE IN COMBINATION GROUP MINUS CHANGE IN CONTROL GROUP (97.5% CI)	P VALUE	CHANGE IN COMBINATION GROUP MINUS CHANGE IN FRUITS-AND-VEGETABLES GROUP (97.5% CI)	P VALUE	CHANGE IN FRUITS-AND- VEGETABLES GROUP MINUS CHANGE IN CONTROL GROUP (97.5% CI)	P VALUE
	mm Hg		mm Hg		mm Hg	
Systolic pressure						
All subjects (n=459)	-5.5 (-7.4 to -3.7)	<0.001	-2.7 (-4.6 to -0.9)	0.001	-2.8 (-4.7 to -0.9)	<0.001
Men (n=234)	-4.9 (-7.3 to -2.5)	<0.001	-1.6 (-4.0 to 0.8)	0.13	-3.3 (-5.6 to -0.9)	0.002
Women (n=225)	-6.2 (-9.2 to -3.3)	<0.001	-3.9 (-6.9 to -1.0)	0.003	-2.3 (-5.3 to 0.7)	0.08
Minority (n=303)‡	-6.8 (-9.2 to -4.4)	<0.001	-3.2 (-5.6 to -0.8)	0.003	-3.6 (-6.1 to -1.2)	0.001
Nonminority (n=156)‡	-3.0 (-5.9 to -0.1)	0.02	-1.9 (-4.8 to 1.0)	0.13	-1.1 (-3.9 to 1.7)	0.38
Nonhypertensive (n=326)§	-3.5 (-5.3 to -1.6)	<0.001	-2.7 (-4.5 to -0.8)	0.001	-0.8 (-2.7 to 1.1)	0.33
Hypertensive (n=133)	-11.4 (-15.9 to -6.9)	<0.001	-4.1 (-8.6 to 0.3)	0.04	-7.2 (-11.4 to -3.0)	<0.001
Diastolic pressure						
All subjects (n=459)	-3.0 (-4.3 to -1.6)	<0.001	-1.9 (-3.3 to -0.6)	0.002	-1.1 (-2.4 to 0.3)	0.07
Men (n=234)	-3.3 (-5.1 to -1.5)	<0.001	-1.3 (-3.2 to 0.5)	0.10	-2.0 (-3.7 to -0.2)	0.01
Women (n=225)	-2.7 (-4.8 to -0.7)	0.003	-2.5 (-4.6 to -0.5)	0.006	-0.2 (-2.3 to 1.9)	0.83
Minority (n=303)‡	-3.5 (-5.2 to -1.8)	<0.001	-2.1 (-3.8 to -0.4)	0.007	-1.4 (-3.2 to 0.3)	0.07
Nonminority (n=156)‡	-2.0 (-4.2 to 0.2)	0.04	-1.6 (-3.8 to 0.5)	0.09	-0.4 (-2.5 to 1.7)	0.70
Nonhypertensive (n=326)§	-2.1 (-3.6 to -0.5)	0.003	-1.8 (-3.4 to -0.3)	0.009	-0.3 (-1.9 to 1.3)	0.71
Hypertensive (n=133)	-5.5 (-8.2 to -2.7)	<0.001	-2.6 (-5.4 to 0.1)	0.03	-2.8 (-5.4 to -0.3)	0.01

# DASH diet particularly effective in Blacks and people with hypertension

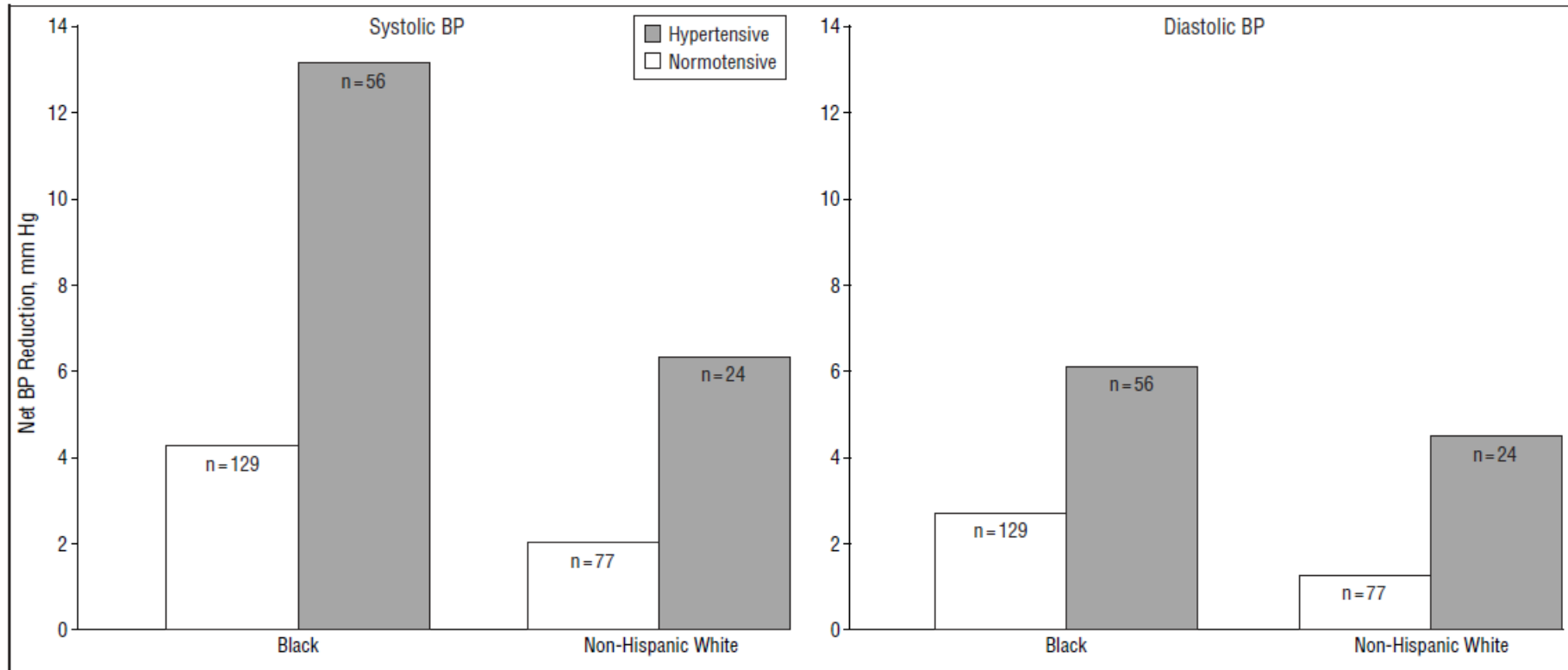
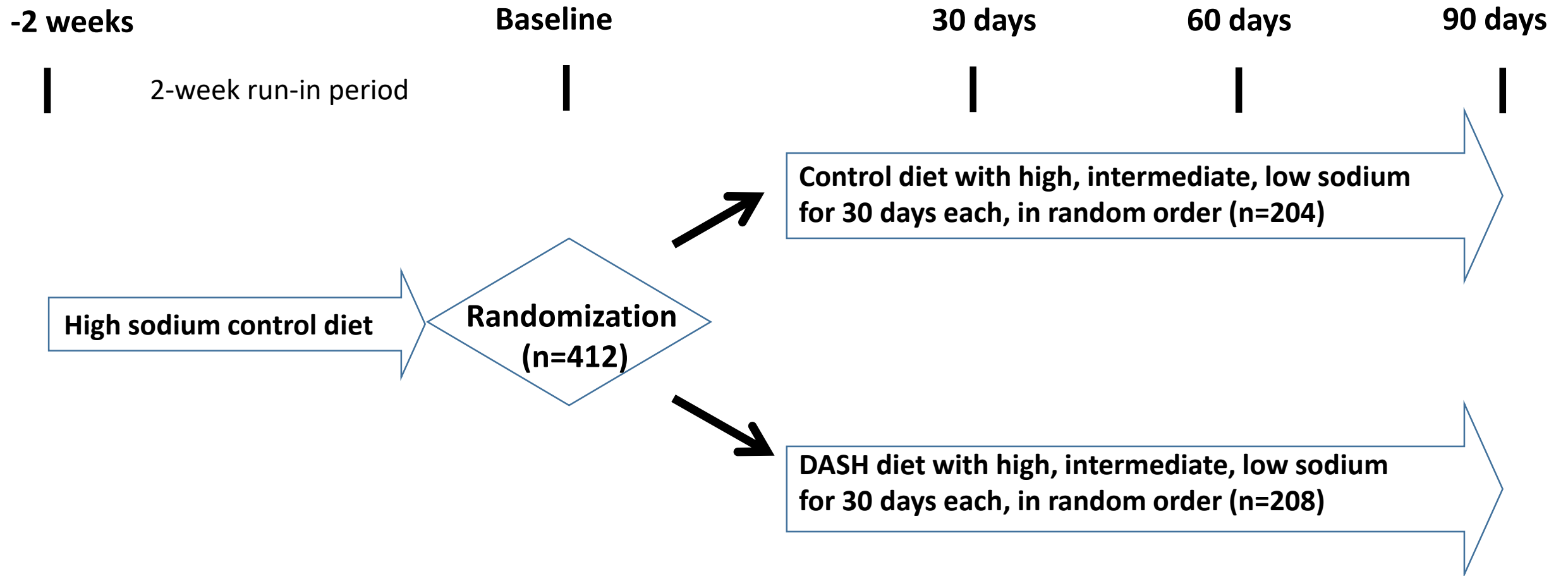
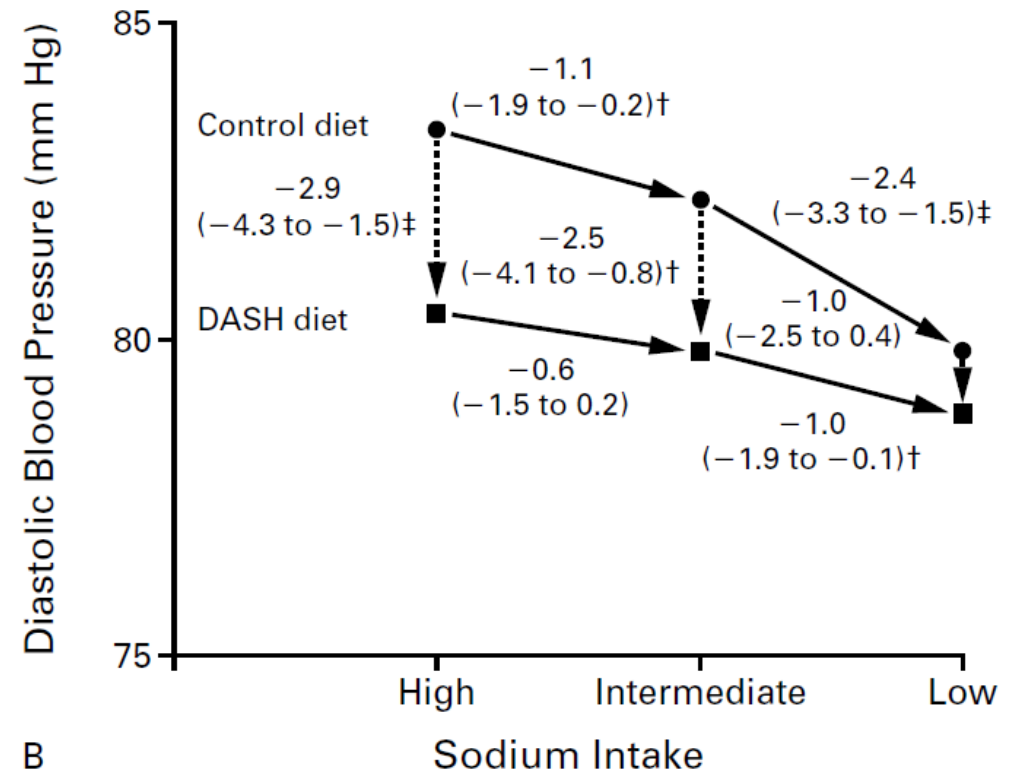
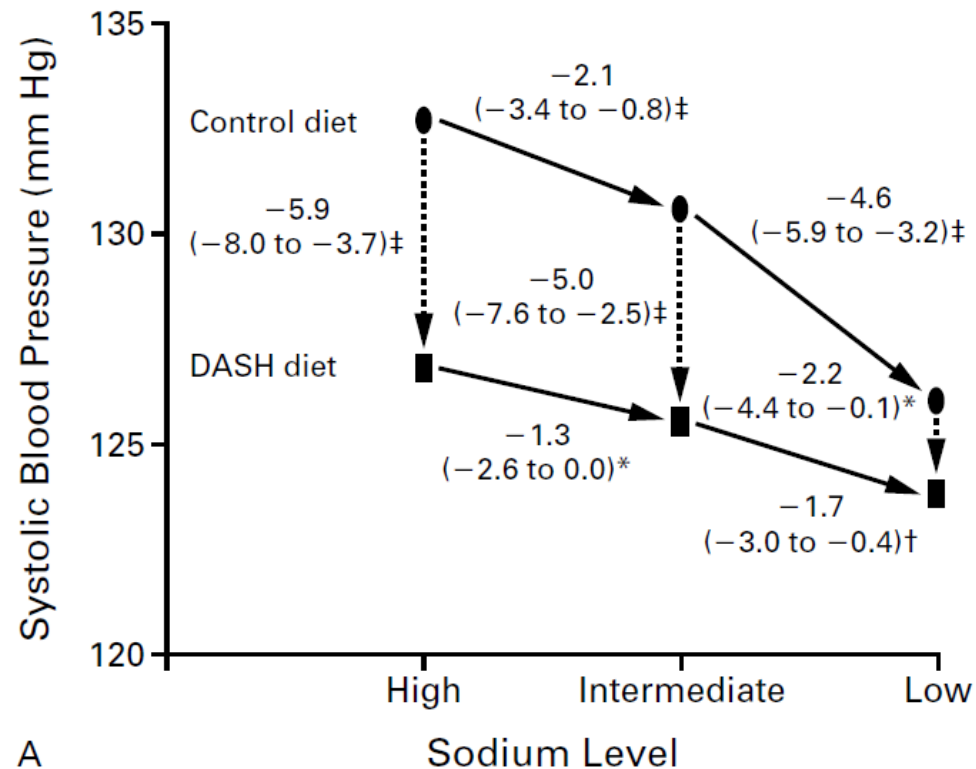


Figure 3. Joint effect of race and hypertension status on blood pressure (BP) response to Dietary Approaches to Stop Hypertension (DASH) combination diet.

# DASH–Sodium Trial: Multisite, randomized crossover feeding study

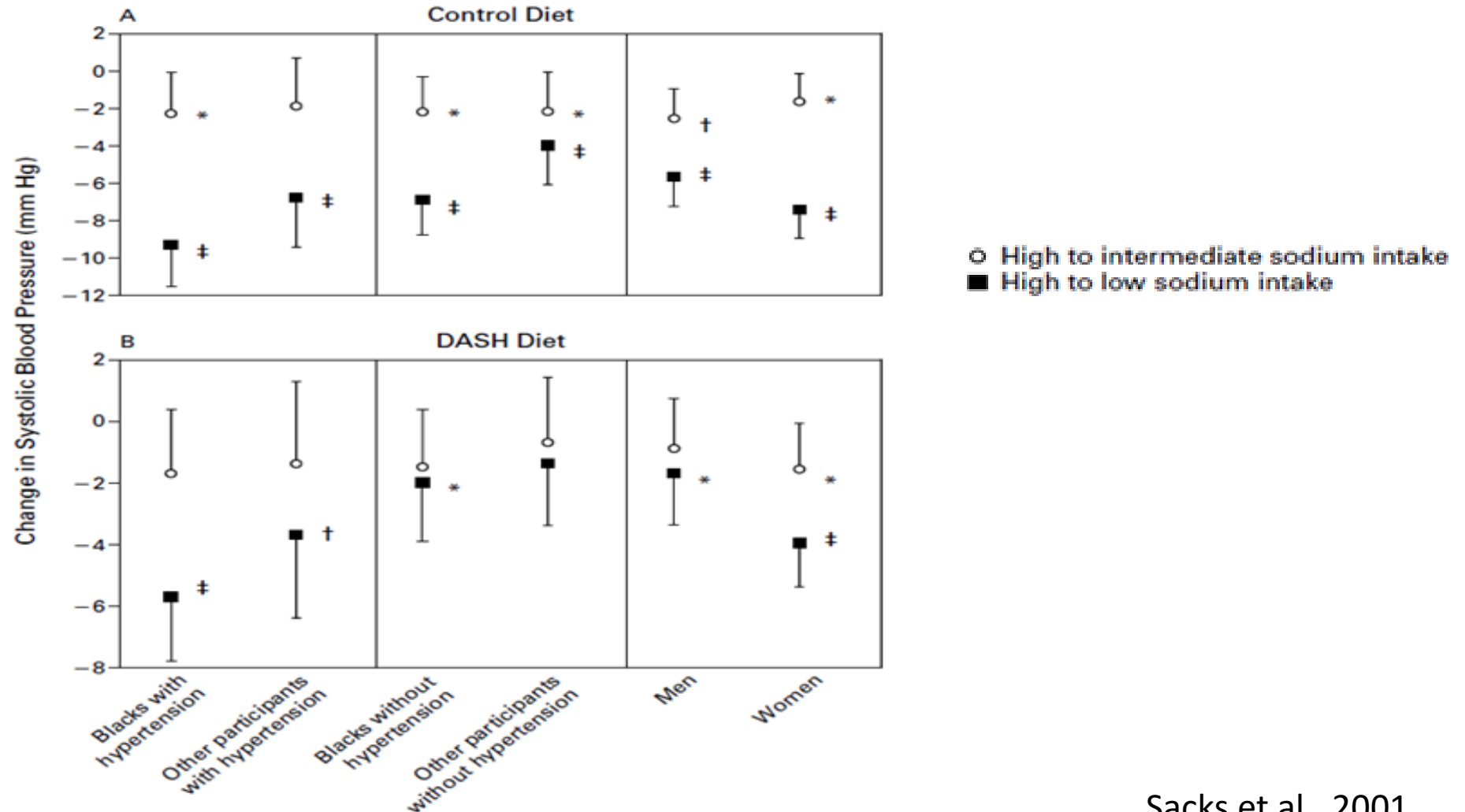


Low sodium intake (<100 mmol/day) and DASH diet both lowered BP, with greater effects in combination than singly



\*  $P < 0.05$ , †  $P < 0.01$ , ‡  $P < 0.001$

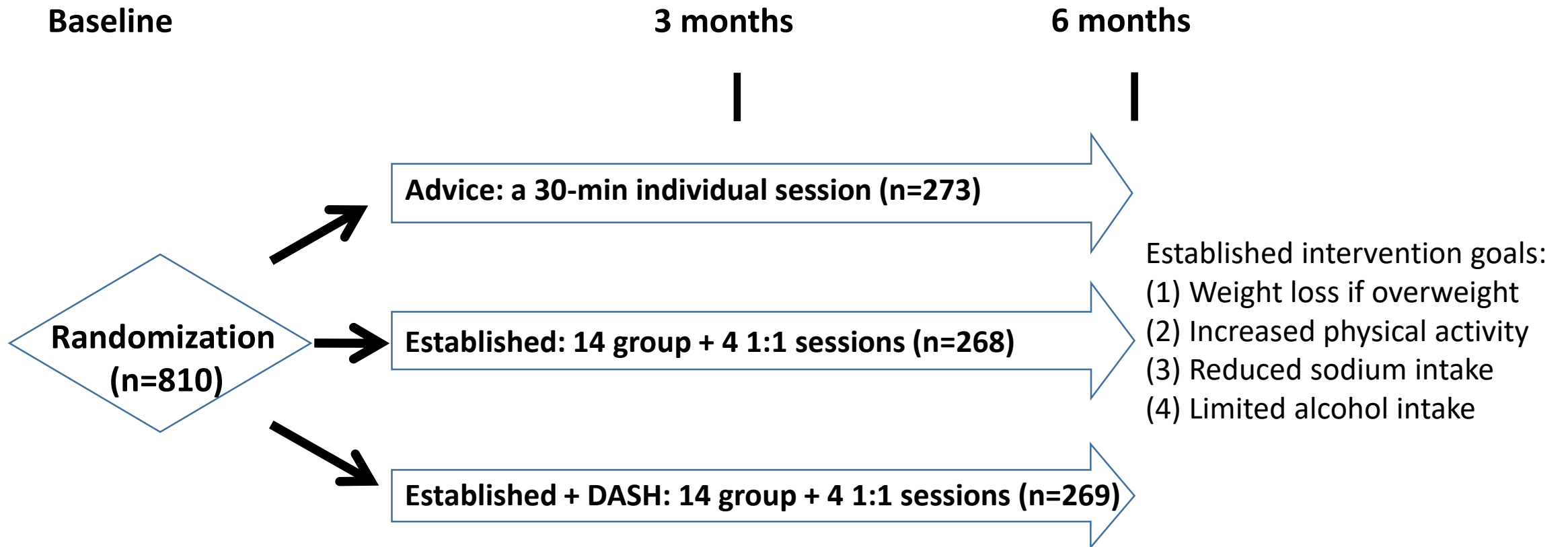
# Greater BP lowering in Blacks, people with hypertension, and women



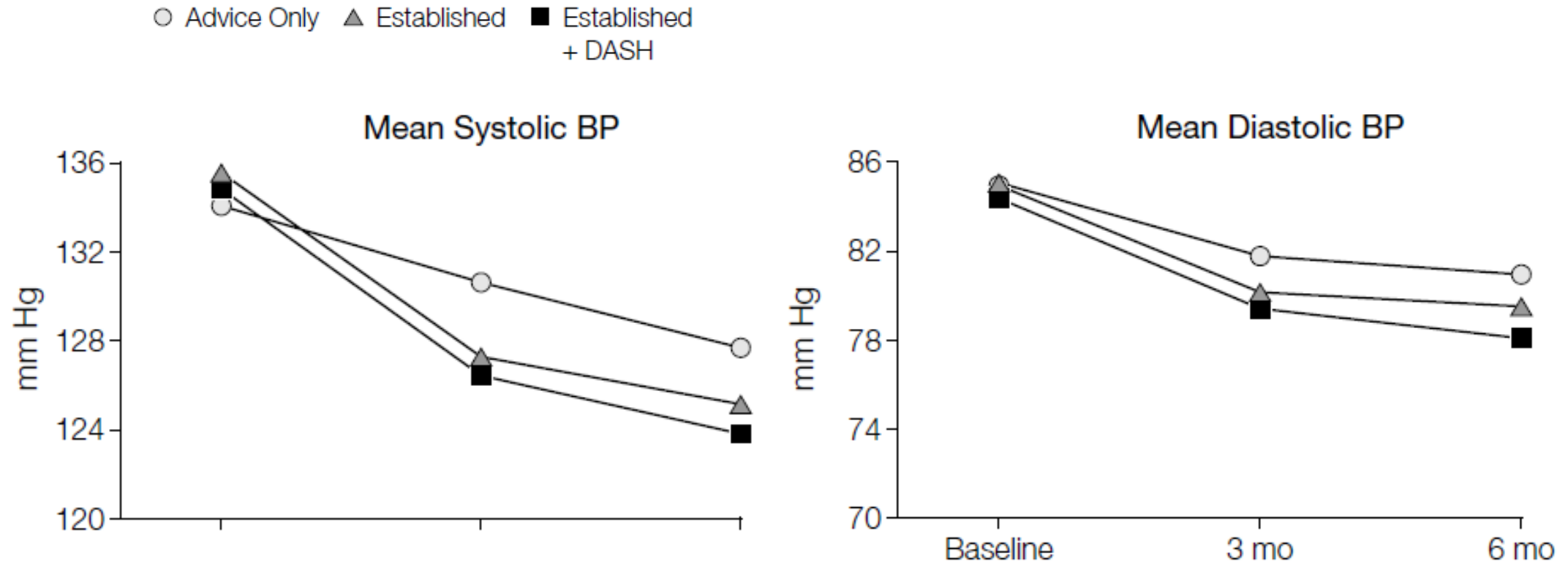
\*  $P \leq 0.05$ , †  $P < 0.01$ , ‡  $P < 0.001$

Sacks et al., 2001

# PREMIER Trial: Multisite, randomized high-intensity behavioral intervention study



Both intervention groups reduced BP more than advice only; No significant difference between two intervention groups



# 130 is the new 140 – New BP guideline

## **2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults**

### **BP Classification (JNC 7 and ACC/AHA Guidelines)**

<b>SBP</b>		<b>DBP</b>	<b>JNC 7</b>	<b>2017 ACC/AHA</b>
<b>&lt;120</b>	<b>and</b>	<b>&lt;80</b>	<b>Normal BP</b>	<b>Normal BP</b>
<b>120–129</b>	<b>and</b>	<b>&lt;80</b>	<b>Prehypertension</b>	<b>Elevated BP</b>
<b>130–139</b>	<b>or</b>	<b>80–89</b>	<b>Prehypertension</b>	<b>Stage 1 hypertension</b>
<b>140–159</b>	<b>or</b>	<b>90–99</b>	<b>Stage 1 hypertension</b>	<b>Stage 2 hypertension</b>
<b>≥160</b>	<b>or</b>	<b>≥100</b>	<b>Stage 2 hypertension</b>	<b>Stage 2 hypertension</b>

- Blood Pressure should be based on an average of  $\geq 2$  careful readings on  $\geq 2$  occasions
- Adults being treated with antihypertensive medication designated as having hypertension

# Prevalence of Hypertension By ACC/AHA 2017 Versus JNC7

	SBP/DBP $\geq$ 130/80 mm Hg or Self-Reported Antihypertensive Medication†		SBP/DBP $\geq$ 140/90 mm Hg or Self-Reported Antihypertensive Medication‡	
Overall, crude	46%		32%	
	Men (n=4717)	Women (n=4906)	Men (n=4717)	Women (n=4906)
Overall, age-sex adjusted	48%	43%	31%	32%
Age group, y				
20–44	30%	19%	11%	10%
45–54	50%	44%	33%	27%
55–64	70%	63%	53%	52%
65–74	77%	75%	64%	63%
75+	79%	85%	71%	78%
Race-ethnicity§				
Non-Hispanic white	47%	41%	31%	30%
Non-Hispanic black	59%	56%	42%	46%
Non-Hispanic Asian	45%	36%	29%	27%
Hispanic	44%	42%	27%	32%

**Annals of Internal Medicine**

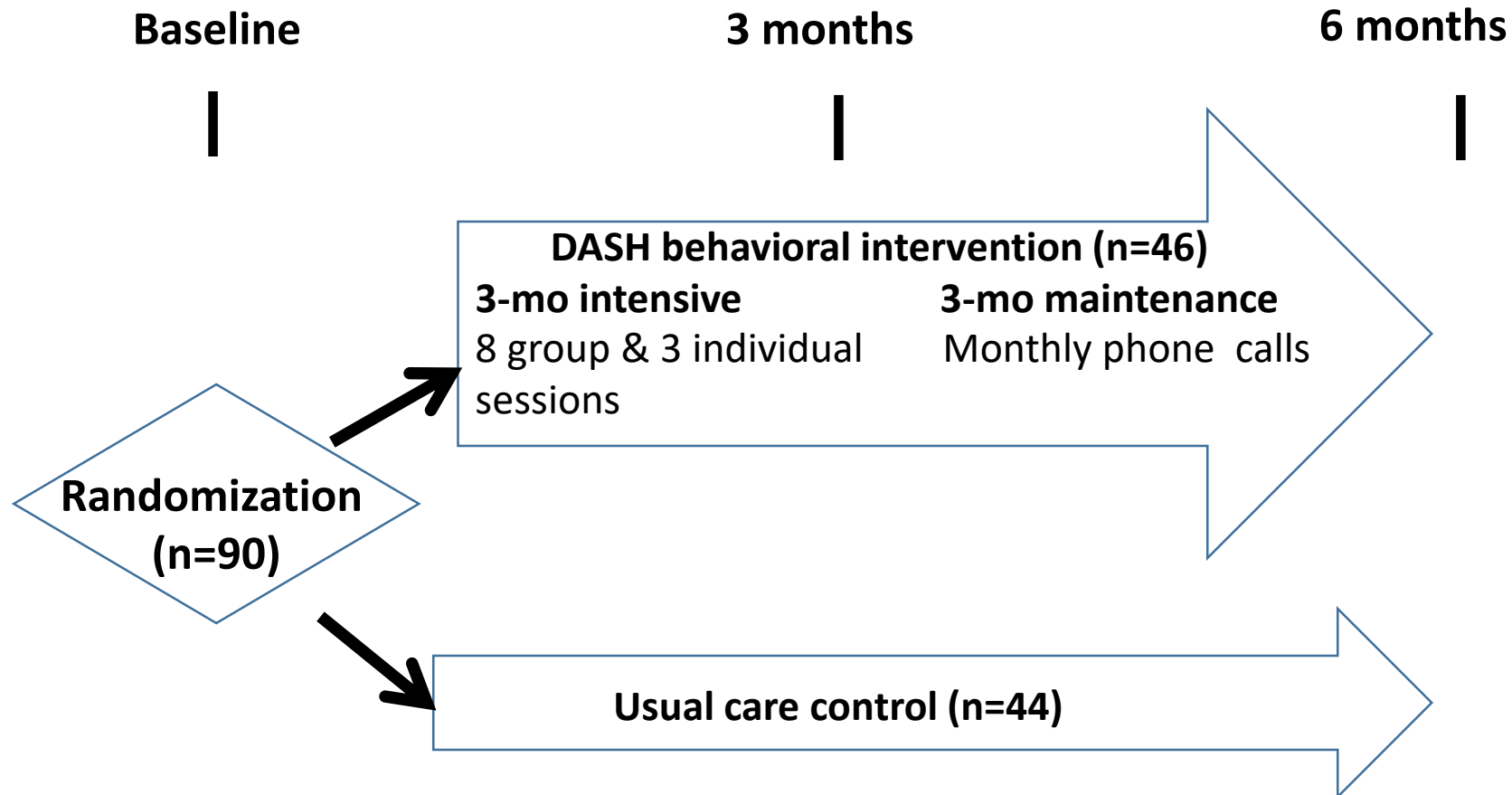
IDEAS AND OPINIONS

# Beyond Pharmacotherapy: Lifestyle Counseling Guidance Needed for Hypertension

**E. Amy Janke, PhD; Caroline Richardson, MD; and Kristin L. Schneider, PhD; on behalf of the Society of Behavioral Medicine Executive Committee\***

*Ann Intern Med.* 2019;170:195-196. doi:10.7326/M18-2361

# DASH for Asthma Trial: Single-site, randomized pragmatic behavioral intervention pilot study



# Specific aims

- To examine potential intervention efficacy

➤ Outcome measures:

- Primary: Juniper Asthma Control Questionnaire (ACQ)
- Secondary: Mini Asthma Quality of Life Questionnaire (MiniAQLQ)
- Secondary: Diet quality based on multiple pass 24-hour dietary recalls

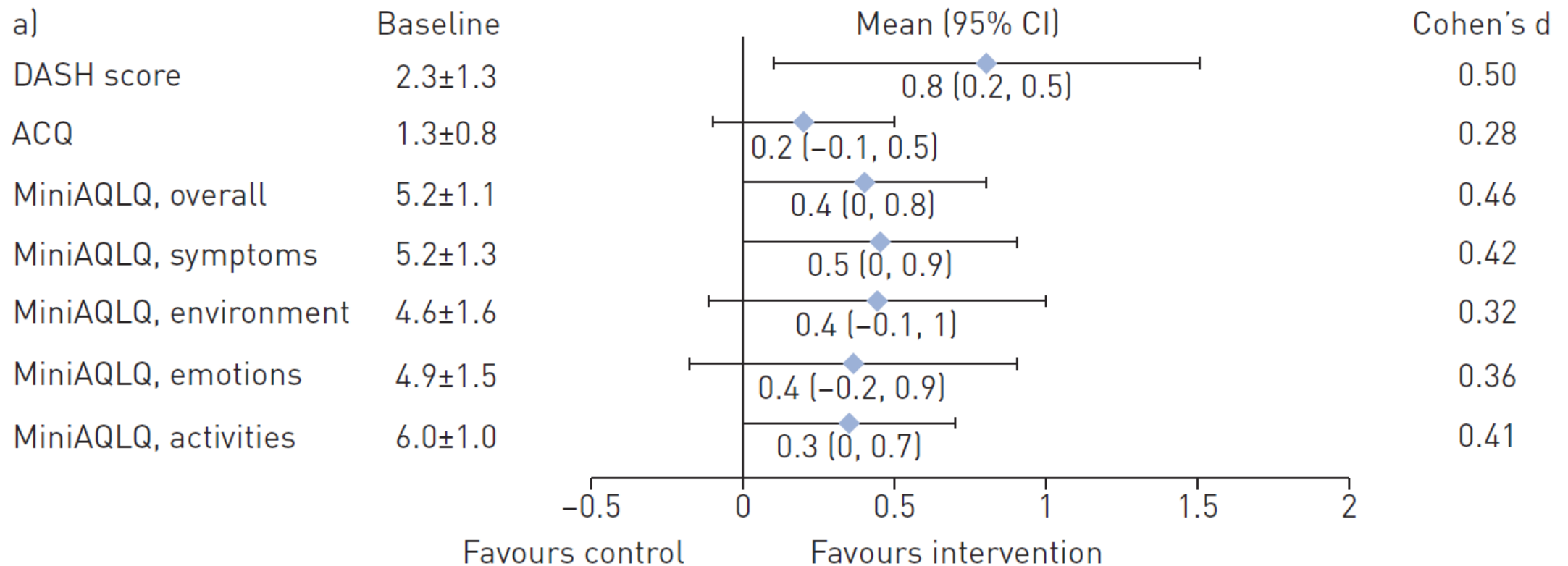
- To assess intervention feasibility and acceptability

# Baseline characteristics

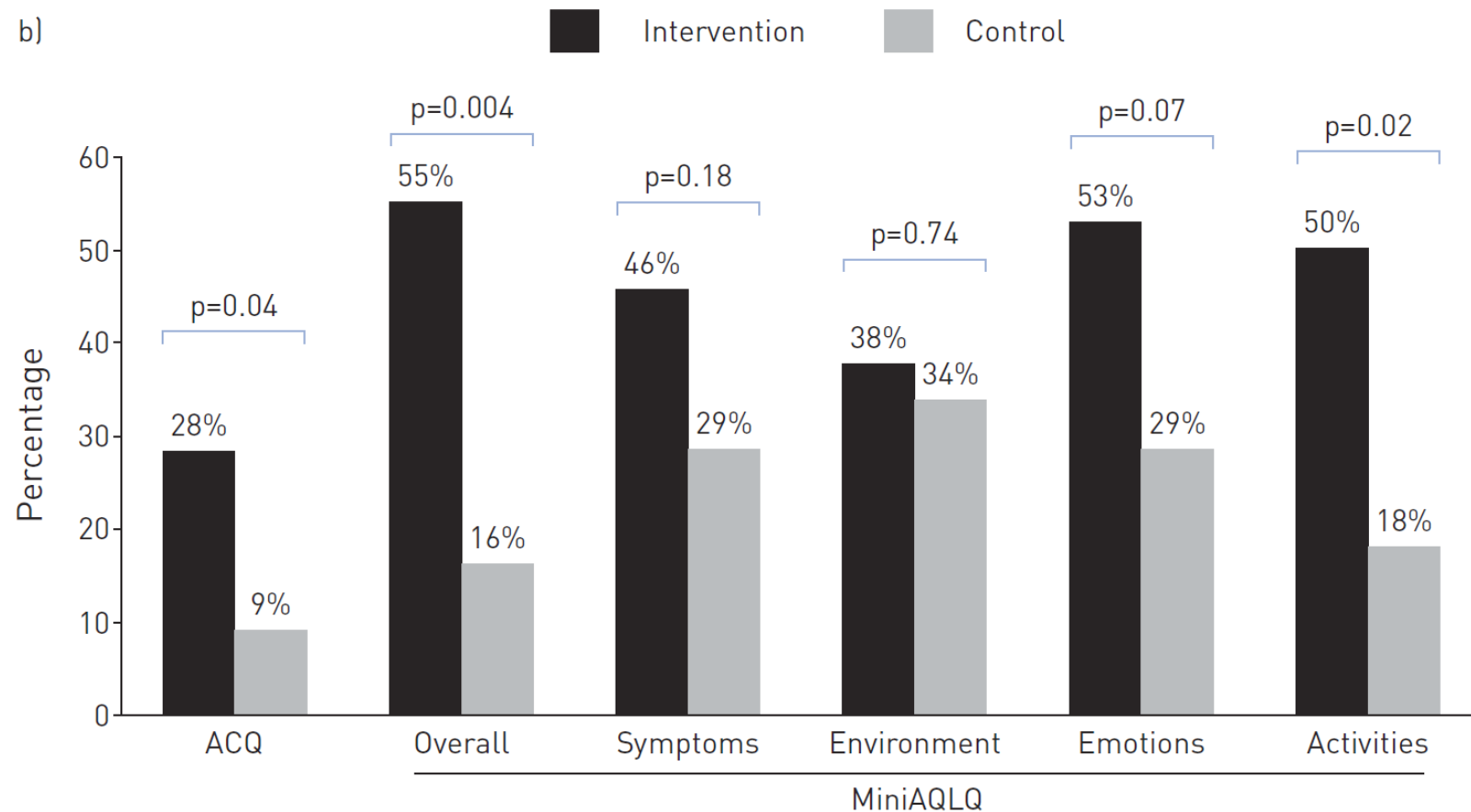
Age, mean $\pm$ SD, years	51.8 $\pm$ 12.4
Female, %	67
Race/ethnicity, %	
Non-Hispanic White	43
Non-Hispanic Black	11
Asian/Pacific Islander	31
Hispanic/Latino	14
Education, %	
High school graduate or less	9
Some college	38
College graduate or above	53
Employment status, %	
Full time	59
Part time	10
Unemployed/retired/disabled	31

Family annual income, %, n=87	
< \$55,000	30
\$55,000-<\$100,000	36
\$100,000+	34
Smoking status, %	
Never	74
Current smokers	6
Former smokers	20
DASH score, mean $\pm$ SD	2.3 $\pm$ 1.3
ACQ, mean $\pm$ SD	1.3 $\pm$ 0.8
FEV1/FVC, mean $\pm$ SD, %, n=88	68.5 $\pm$ 11.3

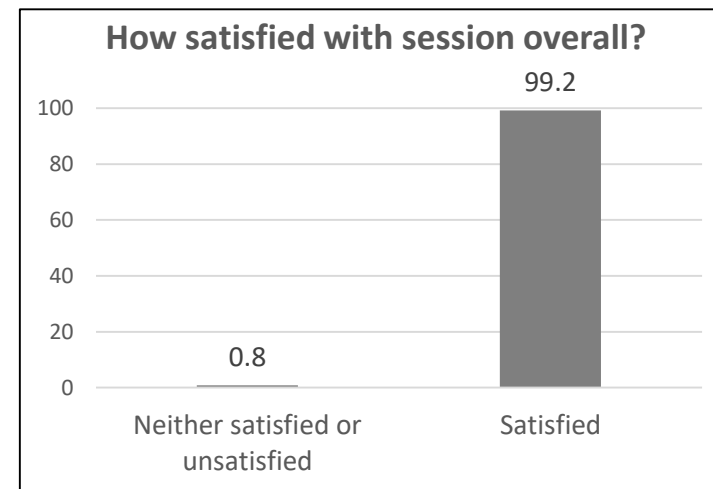
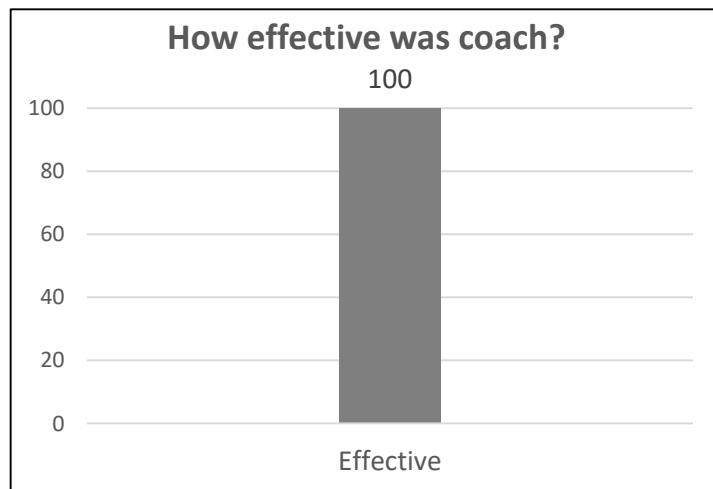
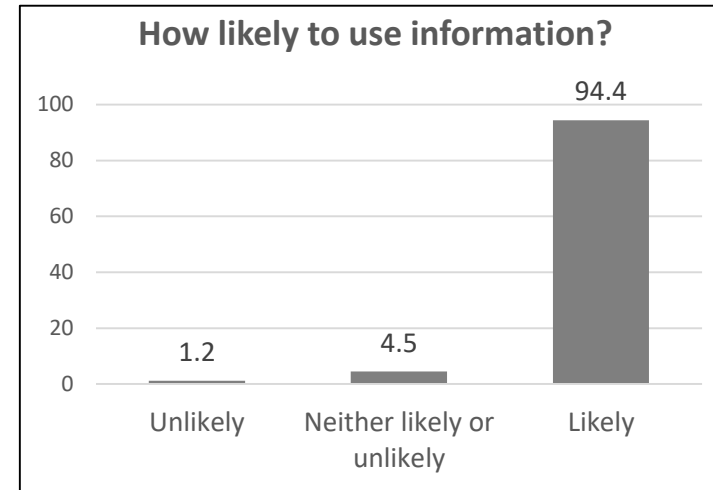
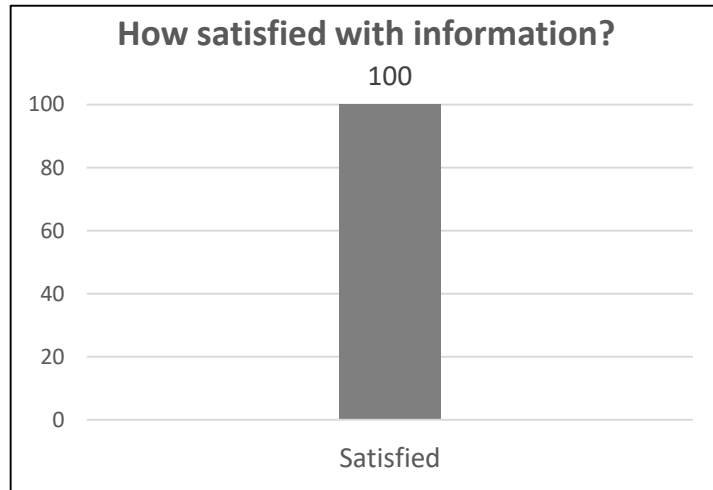
Compared with controls, intervention participants had significantly improved diet quality and consistently favorable improvements in ACQ and miniAQLQ



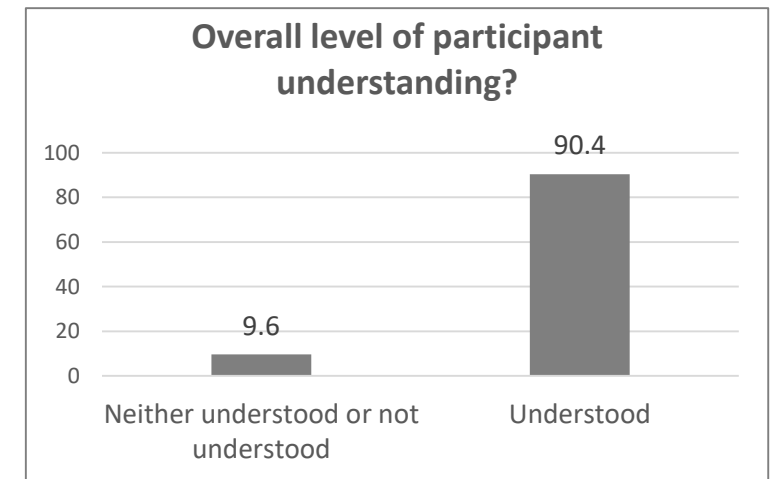
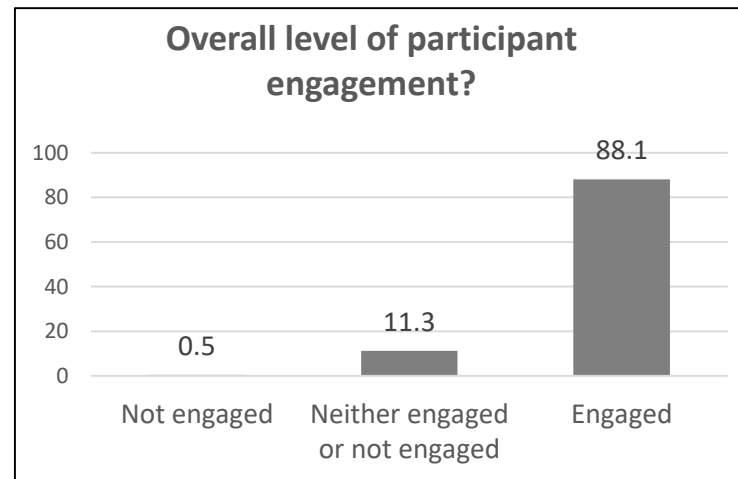
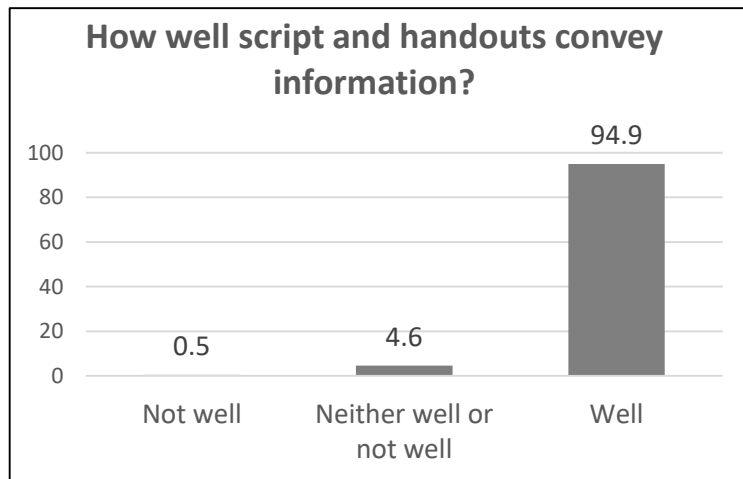
Significantly higher percent of intervention participants than controls achieved clinically important improvements in ACQ and miniAQLQ ( $\geq 0.5$ )



# Participants ratings of intervention sessions



# Coach ratings of intervention sessions

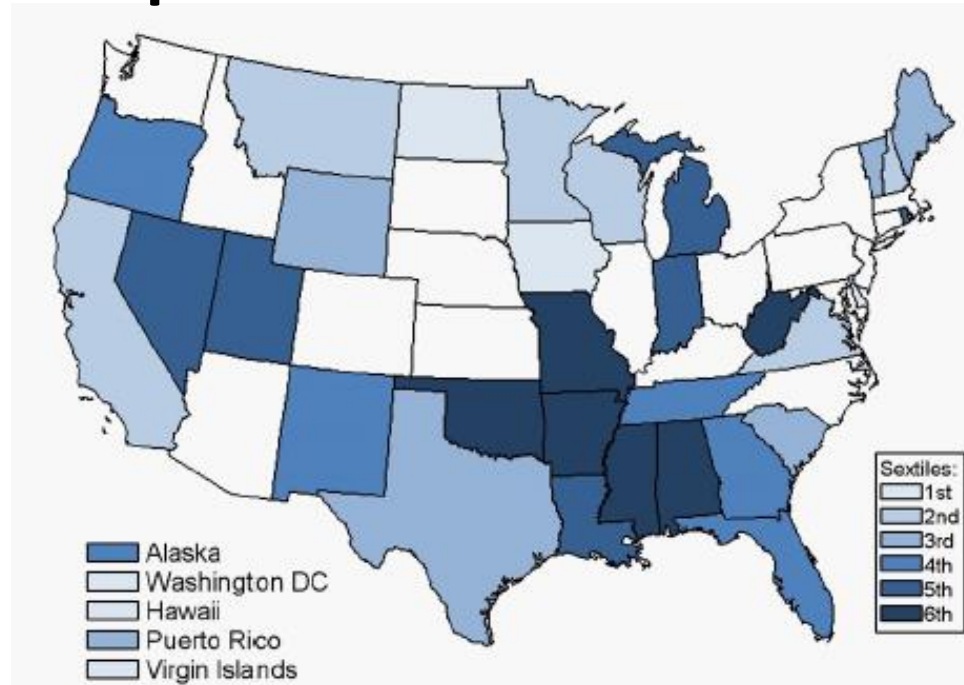


# Sleep health

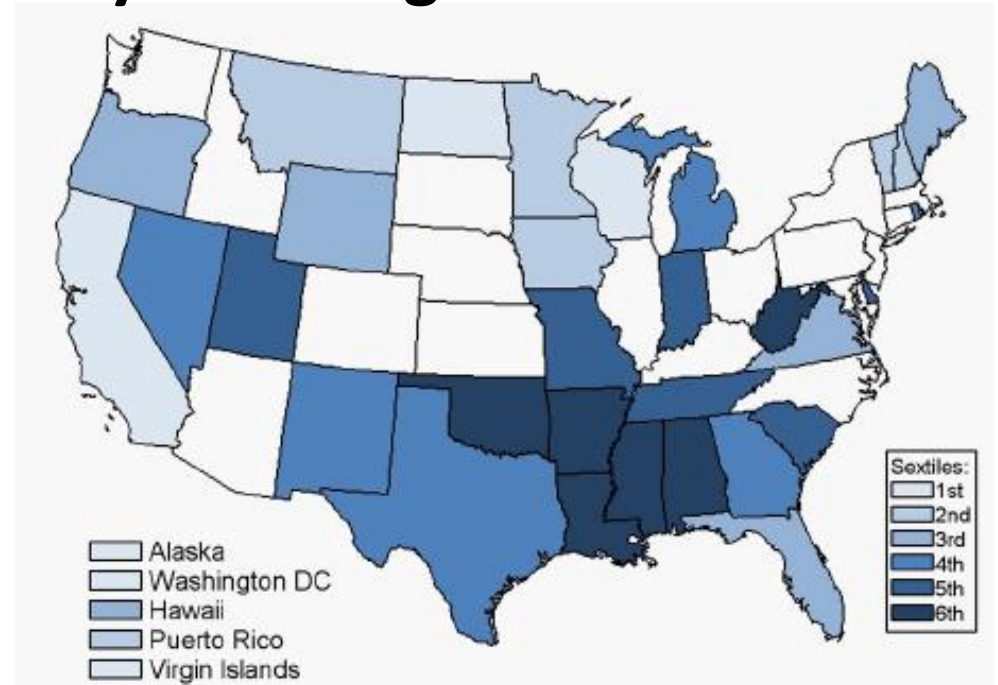


- National prevalence of sleep disturbance and daytime fatigue are high: 18.5% (SD 3.3%) and 21.8% (SD 3.4%)

## Sleep disturbance



## Daytime fatigue



# High adherence to DASH diet associated with lower odds of insomnia compared with those with lowest adherence

Quintiles of DASH score (ranged from 0 to 40)						
	Q1 (n:98)	Q2 (n:97)	Q3 (n:97)	Q4 (n:98)	Q5 (n:98)	<i>P</i> trend <sup>a</sup>
Insomnia						
Crude	1.00	0.81 (0.45–1.44)	0.86 (0.46–1.62)	0.5 (0.25–1.01)	0.51 (0.26–1.00)	0.02
Model I	1.00	0.83 (0.46–1.48)	0.89 (0.47–1.69)	0.52 (0.26–1.04)	0.53 (0.27–1.07)	0.03
Model II	1.00	0.8 (0.44–1.43)	0.91 (0.48–1.73)	0.5 (0.25–1.01)	0.54 (0.27–1.08)	0.03
Model III	1.00	0.81 (0.45–1.45)	0.88 (0.46–1.68)	0.5 (0.25–1.02)	0.54 (0.27–1.09)	0.03

Model I: adjusted for age and menstruation; Model II: additionally, adjusted for physical activity and passive smoking; Model III: further adjustments for percentile of BMI



# Delicious Heart Healthy Eating

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## Heart-Healthy Cooking



Chicken Picadillo

## Delicious Weeknight Recipes

Heart healthy cooking on the DASH eating plan is easy. Watch how to make a delicious [Chicken Picadillo](#) and transform the leftovers into [Wiki \(Fast\) Rice](#). End this heart-healthy menu on a sweet note with a refreshing Mango Shake.

[Learn More about DASH](#)

## DASH Eating Plan: Tools and Resources

DASH is a heart healthy approach that has been scientifically proven to lower blood pressure and have other health benefits. With this flexible and balanced eating plan, you can enjoy plenty of fruits and vegetables, fish, poultry, lean meats, beans, nuts, whole grains and low-fat dairy. There are no special foods or hard-to-follow recipes required.



### Getting Started on DASH

Even small changes made gradually lead to significant benefits. Follow these steps to begin a healthy lifestyle for a lifetime.



### Making the Move to DASH

Moving to heart healthy eating doesn't have to be difficult.

## Heart Disease is Largely Preventable

Smoking, being overweight, or having diabetes, high cholesterol levels, high blood pressure, or a family history of heart disease all increase your chances of getting heart disease. But you can help prevent it with healthy eating and other heart healthy lifestyle changes.

<https://healthyeating.nhlbi.nih.gov/>



**Thank you!**

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