Welcome to the COPE Webinar Series for Health Professionals!

March 29, 2017

Plant-based possibilities: Use of plant-based diets for weight loss

12 noon – 1 PM EDT
Moderator: Lisa Diewald, MS, RD, LDN
Program Manager
MacDonald Center for Obesity Prevention & Education

Slides of the slides are posted on: www.villanova.edu/COPE

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Slides may be found by going to www.villanova.edu/COPE and clicking on Turner-McGrievy webinar description page.

MacDonald Center for Obesity Prevention and Education (COPE) Goals

- Nursing/College Student Education
- Continuing Education Programming
- Participate in research
Plant-based possibilities: Use of plant-based diets for weight loss

Objectives:
1. Describe what is known about interrelationships between obesity, weight loss, and plant-based diets.
2. Discuss the pros and cons of plant-based diet approaches to weight loss.
3. Educate patients about the state of the evidence for plant-based diets in the management of obesity.

CE Credits

Notice:
• Villanova University College of Nursing is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center Commission on Accreditation
• Villanova University College of Nursing Continuing Education/COPE is a Continuing Professional Education (CPE) Accredited Provider with the Commission on Dietetic Registration
• The American College of Sports Medicine’s Professional Education Committee certifies that Villanova University College of Nursing Continuing Education, Center for Obesity Prevention and Education (COPE) meets the criteria for official ACSM Approved Provider status (2015-December, 2018). Providership #698449

Credits:
• This webinar awards 1 contact hour for nurses and 1 CPEU for dietitians
• Suggested CDR Learning Need Codes: 2000, 4040, 4110, 5370
Plant-based possibilities: 
Use of plant-based diets for weight loss

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Assistant Professor
Arnold School of Public Health
Department of Health Promotion, Education and Behavior
University of South Carolina

DISCLOSURE

Neither the planners or presenter have any conflicts of interest to disclose.

Accredited status does not imply endorsement by Villanova University, COPE or the American Nurses Credentialing Center of any commercial products or medical/nutrition advice displayed in conjunction with an activity.
Overview

• My research background
• What is a vegan or vegetarian diet?
• Research examining plant-based diets in the prevention and treatment of obesity, diabetes, and cancer
  – Observational and intervention work
• Benefits of and barriers to adoption of plant-based diets for chronic disease prevention and treatment
• Working with your patients and clients
Diet Terms

- **Omnivorous**: No limits on food groups.
- **Semi-vegetarian**: Includes all foods but red meat and poultry is limited.
- **Pesco-vegetarian**: Excludes all meat and poultry. Can include fish, eggs, and dairy products.
- **Vegetarian diet**: Excludes all meat, fish, and poultry. Can include eggs and dairy products.
- **Vegan diet**: Based on grains, beans, fruits, and vegetables. Excludes all animal products (excludes meat, poultry, fish, eggs, and dairy).

Does transitioning to a plant-based diet produce more weight loss than a standard low-fat diet?

- 64 overweight (BMI 26-44 kg/m²), postmenopausal women
- Randomly assigned to a low-fat vegan or control diet
- Exercise levels held constant
- 14-week study
- **Low-Fat, Vegan Diet**
  - <10% fat, >15% protein, >75% carbohydrates
- **Control Diet (NCEP Step II)**
  - Meat ≤6 oz/d
  - Fat ≤60 g/d
  - <30% fat, >15% protein, >55% from carbohydrates

Does adoption of a plant-based diet assist with weight loss maintenance?

- Objective: To assess the effect of a low-fat, vegan diet compared with the Step II diet on weight loss maintenance at 1 and 2 years.

Results: Median weight loss at 1 and 2 years

- Vegan Diet (N=29): -3.6 ± 3.2 kg (8 lbs)
- Step II Diet (N=30): -1.8 ± 3.3 kg (4 lbs)

P=0.02 for 1 year
P=0.02 for 2 years


Obesity, Diabetes, and Cancer

RECENT OBSERVATIONAL RESEARCH ON PLANT-BASED DIETS

Obesity and Diabetes

Prevalence of type 2 diabetes and distribution of BMI by diet

Prevalence of Type 2 DM (%)
Weight gain (g/year) over 5 years in 21,966 men and women in EPIC-Oxford by groups of diets as compared to reference group of meat eaters

Vegetarian diets and cardiovascular risk factors in black members of the Adventist Health Study-2

<table>
<thead>
<tr>
<th>Vegetarian/vegan (reference: Non-vegetarian; Adjusted for BMI; n=592)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>0.73</td>
<td>0.46, 1.16</td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.60</td>
<td>0.29, 1.25</td>
</tr>
<tr>
<td>'High cholesterol'</td>
<td>0.44</td>
<td>0.28, 0.70</td>
</tr>
<tr>
<td>High LDL-C</td>
<td>0.61</td>
<td>0.36, 1.03</td>
</tr>
<tr>
<td>Low HDL-C</td>
<td>0.88</td>
<td>0.47, 1.66</td>
</tr>
<tr>
<td>High TAG</td>
<td>1.27</td>
<td>0.66, 2.45</td>
</tr>
</tbody>
</table>

Dietary pattern and Metabolic Risk Factors. Mean-centered values are shown with whiskers representing SE. ANCOVA was used in comparing risk factors stratified by dietary patterns.
Metabolic Syndrome

- Goal: to examine the association of plant-based dietary approaches with metabolic syndrome.
  - eight observational research studies
  - no intervention studies
- Most compared vegan or vegetarian diet to omnivorous diet
- Conducted mostly in Asian populations

From this review of studies on Metabolic Syndrome

- Vegan and vegetarian diets appear to have the most significant impact on:
  - blood pressure and fasting glucose
  - followed by waist circumference
- Vegan and vegetarian diets appear to have less impact on:
  - triglycerides and HDL cholesterol

Why would a vegan or vegetarian diet be potentially beneficial for Metabolic Syndrome?

- Some dietary components that are lower in the diets of vegetarians may influence metabolic syndrome risk:
  - energy intake
  - saturated fat
  - heme iron
  - red and processed meat
- In addition, plant-based diets may be higher in foods that are protective against the development of metabolic syndrome:
  - fruits and vegetables
  - fiber
Vegetarian diets and cancer

"For cancer, there is some evidence that the risk for all cancer sites combined is slightly lower in vegetarians than in non-vegetarians, but findings for individual cancer sites are inconclusive."

Systematic review with meta-analysis of observational studies: 86 cross-sectional and 10 cohort prospective studies were included
Review of all Adventist Health Studies

All-cancer and cancer-specific sites among vegetarian and non-vegetarian Adventists

<table>
<thead>
<tr>
<th>Cancer Sites</th>
<th>Person of Risk</th>
<th>No. of Events</th>
<th>Parameter Reference</th>
<th>RR in HR (95% CI)</th>
<th>Vegetarian</th>
<th>Reduction (prostate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon</td>
<td>26,196</td>
<td>617</td>
<td></td>
<td>1.12 (1.05-1.19)</td>
<td></td>
<td>~50% reduction</td>
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<tr>
<td>Gastrointestinal Tract</td>
<td>69,128</td>
<td>450</td>
<td></td>
<td>1.77 (1.43-2.19)</td>
<td></td>
<td>~50% reduction</td>
</tr>
<tr>
<td>Lung</td>
<td>26,196</td>
<td>175</td>
<td></td>
<td>1.86 (1.42-2.47)</td>
<td></td>
<td>~50% reduction</td>
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<tr>
<td>Breast</td>
<td>26,196</td>
<td>108</td>
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<td>1.20 (1.03-1.39)</td>
<td></td>
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<tr>
<td>All-cause Cancer</td>
<td>26,196</td>
<td>358</td>
<td></td>
<td>1.56 (1.32-1.84)</td>
<td></td>
<td>48% reduction</td>
</tr>
<tr>
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All-cause and cause-specific mortality among vegetarian and non-vegetarian Adventists.

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<th>Reduction (breast cancer)</th>
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Those were all observational studies...  
• What about the gold standard?

15 trials (17 intervention groups), of which 4 included untreated controls.

Figure 3. Forest plot of all (nine) study groups reporting variance data for weight changes in clinical trials of vegetarian diets. Barnard ND, Levin SM, Yokoyama Y. Journal of the Academy of Nutrition and Dietetics. 2015;115:954–969.

• Prescription of vegetarian diets was associated with a mean weight change of $-3.4$ kg (95% CI $-4.4$ to $-2.4; P<0.001$) in an intention-to-treat analysis and $-4.6$ kg (95% CI $-5.4$ to $-3.8; P<0.001$) in a completer analysis (omitting missing post-intervention values).
Meta-analysis included 12 randomized controlled trials.

### Meta-analysis: Weighted mean difference (kgs) among diets

- **Vegan/Veg:** -2.02
- **Vegetarian:** -2.52
- **Overall:** -1.48

Overall, individuals assigned to the vegetarian diet groups lost significantly more weight than those assigned to the non-vegetarian diet groups.

- **95% CI:** -2.80, -1.23
- **95% CI:** -3.02, -1.98
- **95% CI:** -3.43, 0.47

### Original Article

Vegetarian diets and glycemic control in diabetes: a systematic review and meta-analysis

Consumption of vegetarian diets was associated with a significant reduction in HbA1c [−0.39 percentage point; 95% CI, −0.62, −0.15; P=0.001], and a non-significant reduction in fasting blood glucose concentration (−0.36 mmol/L; 95% CI, −1.04, 0.32; P=0.301), compared with consumption of comparator diets.

The current Canadian Clinical Practice Guidelines recommend plant-based diets for the management of type 2 diabetes because of their potential to improve:
- body weight
- A1C
- cholesterol levels (LDL, total, and non-HDL)
- reduce need for diabetes medications

Review complements those guidelines and provides further evidence of the acceptability and buy-in of plant-based diets from patients’ perspectives.

Clinicians should be aware that not all patients may choose to follow a plant-based diet.
- Clinicians should be aware that some positive benefits can still occur through diet modifications that include fewer processed meats or to move closer on the spectrum to a complete plant-based diet.
WEIGHT LOSS INTERVENTIONS USING PLANT-BASED APPROACHES

Low glycemic index vegan or low calorie weight loss diets for women with Polycystic Ovary Syndrome: A Randomized Controlled Feasibility Study

- HER Health: Healthy Eating for Reproductive Health Study
  
  

HER Health

- The purpose of the Healthy Eating for Reproductive Health (HER Health) study was to examine the effectiveness of two dietary approaches for weight loss among women with PCOS who were trying to conceive:
  - a low-fat, low-glycemic index (GI) vegan diet with no caloric restriction (vegan)
  - a standard, low-calorie diet (low-cal)
HER Health

• Why we conducted this study:
  – It is unknown whether this type of dietary approach may be useful for the treatment and management of PCOS.
  – To date, no studies have examined the impact of a vegan diet on weight loss and fertility outcomes among women with PCOS.

HER Health

• Overweight women with PCOS who were experiencing infertility were recruited to participate in a 6-month randomized weight loss study (n=18).

The HER Health study population
Baseline eating-related behaviors

- The 26-item Eating Behaviors Inventory (EBI) was used to assess behaviors associated with weight loss, weight gain, and weight loss maintenance
  - EBI scores range from 26 (very few eating behaviors supporting weight loss) to 130 (many eating behaviors related to weight loss).
- The Three-Factor Eating Questionnaire (TFEQ) was used to assess
  - Dietary restraint
  - Disinhibition
  - Susceptibility to hunger

EBI and TFEQ

Baseline Quality of Life

- The PCOS Health-Related Quality of Life Questionnaire (PCOSQ) was used to assess five domains related to quality of life among women with PCOS:
  - Emotional health
  - Body hair
  - Infertility
  - Weight
  - Menstrual problems
How this population differs from a similar population free of PCOS

- Examine if BMI, energy expenditure, EBI score, and dietary intake of HER Health participants differs from overweight women without PCOS who are not trying to conceive.
- Data from two previous weight loss interventions was used.
  - Female participants ages 18-35 were included (n=28)
  - Free of PCOS or other endocrine-related disorders (e.g., diabetes) and were not trying to conceive, were not pregnant, and were not breastfeeding.

How this population differs from a similar population free of PCOS

- There were no differences in EBI or reported energy expenditure from physical activity.
- Participants in HER Health had a significantly greater BMI (39.9±6.1 kg/m²) than the comparison participants (33.4±5.7 kg/m², P=0.001).
Diet: How this population differs from a similar population free of PCOS

<table>
<thead>
<tr>
<th></th>
<th>HER Health</th>
<th>Comparison</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate (g/day)</td>
<td>196.1±87.8</td>
<td>248.4±76.4</td>
<td>0.04</td>
</tr>
<tr>
<td>Fiber (g/day)</td>
<td>12.2±6.2</td>
<td>16.6±8.2</td>
<td>0.06</td>
</tr>
<tr>
<td>Iron (mg/day)</td>
<td>10.5±4.0</td>
<td>14.6±4.0</td>
<td>0.01</td>
</tr>
<tr>
<td>Whole grains (servings/day)</td>
<td>0.1±0.3</td>
<td>1.0±1.3</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Main trial: HER Health

• Lots of work to do and lots of room for improvement!

HER Health: Methods

• Six month randomized weight loss intervention:
  – a low-fat, low-glycemic index (GI) vegan diet with no caloric restriction (vegan)
  – a standard, low-calorie diet (low-cal)
• Intervention delivery:
  – Nutrition counseling with an RD (2 sessions)
  – Weekly e-mail messages tailored to their weight loss
  – Weekly lessons on diet-related topics
  – Private Facebook groups
  – Provided with Luteinizing Hormone (LH) and pregnancy test strips
Intervention dietary recommendations

- Vegan:
  - Exclude all animal products (meat, fish, poultry, eggs, or dairy) and emphasize plant-based foods, such as fruits, vegetables, whole grains, and legumes/beans
  - Low Glycemic Index
  - Low fat
  - No restrictions on energy intake

- Low-cal:
  - Daily caloric goal based on their current weight
  - Provided a book containing calorie and fat grams of common foods and instructions on self-monitoring diet

HER Health Demographics

<table>
<thead>
<tr>
<th></th>
<th>Vegan</th>
<th>Low calorie</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Age (mean years ± SD)</td>
<td>28.1 ± 4.4</td>
<td>27.4 ± 5.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>4 (44%)</td>
<td>5 (55%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0 (0%)</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤High school graduate</td>
<td>6 (67%)</td>
<td>6 (67%)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married</td>
<td>3 (33%)</td>
<td>3 (33%)</td>
</tr>
</tbody>
</table>

Diagnosed with insulin resistance with PCOS

- Vegan: 4 (44%)
- Low calorie: 7 (78%)

Number of months trying to conceive prior to study enrollment

- Vegan: 34.9 ± 30.9
- Low calorie: 31.6 ± 18.5

Number of pregnancies

- Vegan: 0.2 ± 0.4
- Low calorie: 0.6 ± 0.7

Number of live births

- Vegan: 0
- Low calorie: 0.2 ± 0.4
HER Health: Results

- Modest weight loss
- 3 months median
  percent weight loss
  (p=0.04):
  - Vegan: -1.8 (-5.0, -0.9)%
  - Low-calorie: 0 (-1.2, 0.3)%
- 6 months (p=0.39)—no difference

Median % weight loss: 3 months

HER Health: Results

Median change in energy intake at 6 months
(interquartile range)

P=0.02 for difference between groups

HER Health: Results

Median change in % energy from fat at 6 months
(interquartile range)

P=0.02 for difference between groups
Social support via social media

- Use of Facebook groups was significantly related to weight loss at 3 (P<0.001) and 6 months (P=0.05).

HER Health: Strengths and Limitations

**Strengths**
- One of the most diverse samples ever used in a PCOS dietary intervention.
- Used a very minimal intervention approach, delivering the content mainly via e-mail and Facebook.

**Limitations**
- Small sample size (n=18)
- High attrition rate (67% attrition)
  - Usual attrition in weight loss studies is <30% at 12 months


HER Health: Conclusions

- Compared to a standard low calorie dietary approach, a low-fat, low-GI vegan diet produced:
  - significantly greater weight loss at three months
  - greater improvements in dietary intake at six months
- Adopting new diets may need greater support than was provided in this study.
- Important to find ways to allow for dissemination (technology approach) but provide the support and guidance patients need to make dietary changes.
Objective

• Objective was to use a randomized design to test the effects of five different plant-based dietary approaches on body weight and dietary intake.

• The New Dietary Interventions to Enhance the Treatments for weight loss (New DIETS) study was a 2-month weight loss intervention with a 4-month follow-up period.
INTERVENTION

Randomized to one of five groups:

- Omnivorous
  - ≤ 1 serving red meat/week
  - ≤ 5 servings poultry/week
- Semi-veg
- Pesco-veg
- Vegetarian
- Vegan

Low-fat and low-glycemic-index diets

Intervention: Months 0-2

All groups:
- Orientation and overview of diets in group meeting
- Diet information handouts
- Recipe books

- Vegan, vegetarian, pesco-veg, and semi-veg:
  - Weekly group meetings (8 total)
- Omnivorous group:
  - Monthly meetings (3 total)
  - Weekly newsletters
  - Weekly e-mails
Intervention: Months 3-6

- All groups, including the omnivorous group, met monthly face-to-face.
- All groups were provided with a private Facebook group for social support in between meetings.
- Classes based on topics from Diabetes Prevention Program and framed around Social Cognitive Theory.

Methods: Assessments

- Assessments at baseline, 2 months, and 6 months:
  - Body weight (digital scale)
  - Height, baseline only (stadiometer)
  - Dietary intake (two days of unannounced 24-hour dietary recall using ASA24)

RESULTS
Demographics

- 79% white
- 73% female
- 94% with a college degree
- Mean BMI: 35.0 kg/m²
- Mean age: 48.7 years (range 42.7-53.0 years)
- P=0.02 difference among five groups

Results: Attrition

Completion rates at 2 months
- Completed: 90%
- No weight results: 10%

Completion rates at 6 months
- Completed: 89%
- No weight result: 11%

Attrition didn’t differ by diet group but those who did not complete the study at 6-months were significantly younger (44.5±10.4 years) than those who completed (49.5±7.4 years; P=0.049).

Results: Percent weight loss (SE) during 6-month New DIETs trial by diet group

- Vegan: diff from Omni (P=0.01)
- Vegetarian
- Pesco-Veg
- Semi-Veg
- Omnivore

2 months: Vegan sig diff from Omni (P=0.01)
Conclusions of New DIETs

• The findings point to a potential use of plant-based eating styles in the prevention and treatment of obesity and related chronic diseases.

• Significant weight loss occurred without the need for caloric restriction or dietary self-monitoring.

Beyond weight loss

There are lots of ways to lose weight and prevent and treat chronic disease.

Important to look beyond the scale...
DIET QUALITY

Dietary Quality as Measure for Chronic Disease Prevention

• Alternate Healthy Eating Index (AHEI): predictor of risk of cardiovascular disease and other major chronic diseases.

• AHEI score food categories:
  - servings/day
  - servings/day
  - ratio of white to red meat (grams)
  - (grams/day)
  - (% of energy)
  - ratio of polyunsaturated to saturated fatty acids (grams)

Dietary Quality of Popular Weight Loss Plans (out of 70)

Are there differences in diet quality among therapeutic diets for type 2 diabetes?

- 22-week randomized clinical trial of adults with type 2 DM
  - Vegan, low-fat, low-GI diet (n = 49)
  - Diet based on ADA guidelines (n = 50)

**Dietary Quality (AHEI index)**

<table>
<thead>
<tr>
<th>Change in AHEI Score</th>
<th>Vegan (n=49)</th>
<th>ADA (n=50)</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td>-5</td>
<td>-0.9 ± 18.12</td>
<td>-0.9 ± 18.12</td>
<td>0.0001</td>
</tr>
<tr>
<td>0</td>
<td>22.5 ± 18.7</td>
<td>22.5 ± 18.7</td>
<td></td>
</tr>
</tbody>
</table>

AHEI score was modestly negatively correlated with changes in weight (r = -0.27, P<0.01).

**Dietary Inflammatory Index**

The following were used to calculate the Dietary Inflammatory Index (DII):

- Energy
- Carbohydrates
- Protein
- Total fat
- Unsaturated, monounsaturated, and polyunsaturated fat
- Omega 3 and omega 6 fatty acids
- Grams of alcohol
- Fiber
- Cholesterol
- Vitamins B-1, B-2, B-6, B-12, A, C, D, and E
- Iron
- Magnesium
- Zinc
- Selenium
- Folate
- Beta-carotene
- Caffeine

Dietary Inflammatory Index in New DIETs (adjusting for baseline)

The Inflammation Management Intervention System (IMAGINE) intervention
- NIH/NIDDK-funded SBIR intervention
- Testing use of an anti-inflammatory diet (based on the DII), stress management, and physical activity intervention on inflammation, body weight, and other outcomes.
- Self-selection intervention trial
  - Intervention group (n=59, 36% AA, 17% men, mean BMI 32.4; 88% completed 3 month)
  - Control group (n=34 control, 41% AA, 24% men, mean BMI 29.2, 79% completed 3 month)

The Inflammation Management Intervention System (IMAGINE) intervention (medians and IQR)
Practice applications:
I know what you’re thinking...

No one would ever like or stick to a vegan diet.

Percentage of participants in each group meeting diet adherence criteria and 2 and 6 months

Dietary Adherence & Acceptability

• Dietary Adherence
  – Weight loss trial
    • 1 and 2 years: 61% vegan; 55% Step II
  – DM trial
    • 22 weeks: 67% vegan; 44% ADA
    • 74 weeks: 51% vegan; 58% ADA
• Hunger
• Acceptability
  • Food preparation

I’d have no energy on a vegan diet.

RUNNER Research

• Research Understanding the Nutrition of Endurance Runners (RUNNER) study
• Survey of 422 distance runners (n=125 ultramarathon, n=152 full marathon, n=145 half marathon).
Ultramarathon runners were almost twice as likely to report following a vegan/vegetarian diet than HALF and FULL marathoners combined ($\beta=1.94$, 95% CI=1.08, 3.48).

Vegan and vegetarian runners had higher diet quality scores than non-vegetarian runners (P<0.001) (as assessed by the Rapid Eating and Activity Assessment for Patients).

Vegan diets cost too much money.
Changes in weekly household grocery spending (adjusted for marital status)

- Vegan
- Veg
- Pesc-veg
- Semi-veg
- Omni

2 months: P=0.84
6 months: P=0.10

But how will people get their protein, iron, calcium, ....

Nutrient intakes for the New DIETs study
- All participants in New DIETs had adequate protein, zinc, and vitamin B-12 at each time point, regardless of diet assignment.
- Calcium: All participants had diets low in calcium at every time point, with the exception of the vegetarian group at two months.
- Iron: Iron intake was low among all groups but did not differ by group.
  - Both randomized trials and observational studies have not found vegetarians and vegans to have lower iron intakes than omnivores.
You only get “certain people” into a vegan diet study.

New DIETS vs. Traditional diet intervention

Research report

Does the type of weight loss diet affect who participates in a behavioral weight loss intervention? A comparison of participants for a plant-based diet versus a standard diet trial.²

Gabrielle M. Turner-McClellan,¹ Charis R. Davidson,² Sara Wilson³

New DIETS vs. Traditional diet intervention

No differences in sex, race, education, or marital status between groups

<table>
<thead>
<tr>
<th></th>
<th>Traditional low calorie diet n=POD</th>
<th>Plant-based diets n=DIETS</th>
<th>P-value for difference between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>63</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Study location</td>
<td>Chapel Hill, NC</td>
<td>Columbia, SC</td>
<td></td>
</tr>
<tr>
<td>Age (mean years ± SD)</td>
<td>44.9 ± 11.2</td>
<td>48.5 ± 8.3</td>
<td>P=0.001</td>
</tr>
<tr>
<td>BMI (kg/m² ± SD)</td>
<td>26.6 ± 4.4</td>
<td>35.2 ± 5.3</td>
<td>P=0.001</td>
</tr>
</tbody>
</table>
### New DIETS vs. Traditional diet

<table>
<thead>
<tr>
<th>Dietary intake</th>
<th>MPOD</th>
<th>NewDIETS</th>
<th>P-value for difference between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy intake (kcal)</td>
<td>1998.3 ± 82.3</td>
<td>2240.3 ± 102.6</td>
<td>P=0.08</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>14.2 ± 1.6</td>
<td>14.5 ± 1.8</td>
<td>N/A</td>
</tr>
<tr>
<td>Saturated Fat (% kcal)</td>
<td>11.6 ± 0.3</td>
<td>14.5 ± 0.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Monounsaturated Fat (% kcal)</td>
<td>18.6 ± 0.6</td>
<td>16.6 ± 0.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Polyunsaturated Fat (% kcal)</td>
<td>15.5 ± 1.0</td>
<td>15.6 ± 1.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Cholesterol (mg/day)</td>
<td>280.7 ± 18.1</td>
<td>313.3 ± 22.6</td>
<td>N/A</td>
</tr>
<tr>
<td>Fiber (g/day)</td>
<td>10.2 ± 0.8</td>
<td>10.4 ± 1.0</td>
<td>N/A</td>
</tr>
<tr>
<td>Magnesium (mg/day)</td>
<td>3.6 ± 9.4</td>
<td>3.4 ± 8.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Iron (mg/day)</td>
<td>13.8 ± 0.7</td>
<td>14.4 ± 0.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Vitamin A, RAE (mcg/day)</td>
<td>604.2 ± 36.0</td>
<td>414.3 ± 44.3</td>
<td>N/A</td>
</tr>
<tr>
<td>Vitamin C (mg/day)</td>
<td>85.6 ± 5.9</td>
<td>93.4 ± 7.4</td>
<td>P=0.02</td>
</tr>
<tr>
<td>Alkaline sugar (tablespoons/day)</td>
<td>1.7 ± 0.1</td>
<td>1.6 ± 0.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Fish (tablespoons/day)</td>
<td>0.5 ± 0.1</td>
<td>0.6 ± 0.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Vegetables (tablespoons/day)</td>
<td>1.6 ± 0.1</td>
<td>1.7 ± 0.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Servings of meat (tablespoons/day)</td>
<td>4.2 ± 0.3</td>
<td>5.3 ± 0.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Servings of dairy (servings/day)</td>
<td>1.7 ± 0.1</td>
<td>1.8 ± 0.2</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### WHY ADD PLANT-BASED APPROACHES TO YOUR PRACTICE TOOLBOX?

**Appeal of plant-based dietary approaches**

- No need for dietary self-monitoring
- Participants can eat until they are full
- Improvements in diet quality
- Complete adherence may not be necessary
Appeal of plant-based dietary approaches
- No need for dietary self-monitoring
- Participants can eat until they are full
- Improvements in diet quality
- Complete adherence may not be necessary

Changes in 6-month cholesterol intakes among only **non-adherent** participants

- Vegan/Veg
- Pesco-veg/Semi-veg
- Omni

P=0.02 Difference between Vegan/Veg (n=16) and pesco-veg/semi-veg (n=15)

P=0.04 Difference between Vegan/Veg and omni (n=7)
Percent weight loss at 6 months among only non-adherent participants

![Graph showing percent weight loss among participants]

- P<0.06 Difference between Vegan/veg (n=16) and pesco-veg/semi-veg (n=15)
- P=0.04 Difference between Vegan/veg and omni (n=7)

Working with patients/clients

Keep it simple and don’t let them leave empty handed

- Provide:
  - grocery shopping list
  - sample meal plans
  - food samples
  - recipes
  - eating out tips
  - grocery store tour handouts
Be firm, but not forever

- Never say forever.
  - Forever may feel too long so tell patients to adhere to diet until next HgbA1C, weight, or lipids check.

Provide support

- Listservs
- Group meetings
- E-mail tips
- Buddy systems
- Social media

Social Network support

Engagement with Facebook was significantly associated with weight loss during the 4-month maintenance period ($\beta = -0.09, P = 0.04$).

Not a matter of which diet won.

- Plant-based diets are another tool in our toolbox for helping people achieve healthy body weights and prevent and treat chronic diseases.

Come work with me at USC!

- Several tenure-track faculty positions open at the University of South Carolina
- Come be my student!
  - MPH
  - MSPH
  - PhD
Thank you!

- New DIETs Collaborators
  - Sara Wilcox, PhD
  - Charis Davidson, DrPH, MPH
  - Ellen Wingard, MSPH, RD
  - Edward Frongillo, PhD

Brie Turner-McGrievy, PhD, MS, RD
brie@sc.edu

Sara Wilcox, PhD
Charis Davidson, DrPH, MPH
Ellen Wingard, MSPH, RD
Edward Frongillo, PhD

Evaluations and CE Certificates

- Those completing the webinar will be emailed a link to the evaluation.
- The email will be sent to the email address that you used to register for the webinar.
- Complete the evaluation soon after you receive the email. The evaluation does expire after 3 weeks. Once expired, you cannot obtain a certificate.
- Once the evaluation is completed, the certificate will be emailed separately within 2 or 3 business days.

Upcoming FREE COPE Professional Webinar

Babette Zemel, PhD.
Professor of Pediatrics
Director, Nutrition and Growth Lab
Children’s Hospital of Philadelphia

Measuring excess adiposity in children: What’s the best method?

Wednesday, May 3, 2017
12:00 PM - 1 PM EST
1.0 Contact Hour, 1.0 CPEU

To register: villanova.edu/cope
Upcoming FREE COPE Professional Webinar

Jena Shaw Tronieri, Ph.D.
Assistant Professor of Psychology
Director of Clinical Services
Center for Weight and Eating Disorders
Department of Psychiatry
Perelman School of Medicine at the University of Pennsylvania

Can Acceptance and Commitment Therapy (ACT) Improve Adherence to Weight Loss Goals?

Monday, June 26, 2017
12:00 PM - 1 PM EST
1.0 Contact Hour, 1.0 CPEU

To register: villanova.edu/cope

Questions and Answers

Moderator: Lisa K. Diewald MS, RD, LD/N
Email: cope@villanova.edu
Web site: www.villanova.edu/COPE
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Thank you for your time and interest.