Welcome to the COPE Webinar Series for Health Professionals!

February 22, 2017
12 Noon-1 PM EST

Diet Modification as a Novel Therapeutic for Cancer Treatment: When Less is More

Moderator: Lisa Diewald, MS, RD, LDN
Program Manager
MacDonald Center for Obesity Prevention & Education

Handouts of the slides are posted at: www.villanova.edu/COPE

MacDonald Center for Obesity Prevention and Education (COPE) Goals

- Promote Continuing Education
- Partner with Community and Organizations
- Participate in Research
- Enhance Education

Diet Modification as a Novel Therapeutic for Cancer Treatment: When Less is More

Objectives:
1. Understand the current metabolic landscape of the United States.
2. Identify the implications of weight change on cancer outcome.
3. Explain how modifications in diet and exercise, in conjunction with radiation, may enhance the effectiveness of cancer treatment.
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). Provider #698849

Credits:
- This webinar awards 1 contact hour for nurses and 1 CPEU for dietitians
- Suggested CDR Learning Need Codes: 2000, 5000, 5150, 9020

Diet Modification as a Novel Therapeutic in Cancer Treatment: When Less is More

Nicole L. Simone M.D.
Margaret Q. Landenberger Associate Professor
Sydney Kimmel Medical College
Thomas Jefferson University
Radiation Director, Jefferson Breast Center
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.

Diet Modification as a Novel Therapeutic for Cancer Treatment:

When Less is More

Nicole Simone, MD
Margaret Q. Landenberger, Associate Professor Radiation Oncology
Co-Leader, Breast Cancer Research Program
Director of Radiation, Jefferson Breast Center
Sidney Kimmel Medical College at Thomas Jefferson University
nicole.simone@jefferson.edu

Disclosures

None
Objectives

1. Understand the metabolic landscape of America
2. Understand the implications of weight change on cancer outcomes
3. Explain how modifications in diet and exercise, in conjunction with radiation, may enhance the effectiveness of cancer treatment

Commonalities of all cancer phases

- Diagnosis
- Treatment
- Survivorship

Common links
Common links in breast cancer phases

Cancer Treatment

Tenet of living well:
TAKING CARE OF YOURSELF AND YOUR BODY

Healthy Diet
Decrease Stress  Exercise
Why it’s important to live well:
It’s biology

Premenopausal

Postmenopausal

Estrogen

Inflammation

Aromatase

Altered insulin signaling

Adipokine signaling

Problem 1: Cancer Survival Improvement Has Stalled
DESPITE MOLECULAR ADVANCES

Problem 2: Patient population has significantly changed
PARADIGM NEEDS TO SHIFT TO FOCUS ON THE CHANGING PATIENT POPULATION

Obesity Trends

68% of Americans are overweight

Weight gain linked to WORSE CANCER OUTCOMES

− Most patients gain an average of 10 lbs in first year after treatment

Cancer therapies contribute to weight gain

− Breast: anti-estrogen therapies
− Prostate: hormonal therapy
• Obesity is an epidemic in America
  – 68% of all Americans are overweight
  – Close to 34% are obese – increasing with time
Obesity Trends* Among U.S. Adults
BRFSS, 1989
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

<table>
<thead>
<tr>
<th>Year</th>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>No Data</td>
<td>&lt;10%</td>
<td>10%–14%</td>
<td>15%–19%</td>
</tr>
<tr>
<td>1990</td>
<td>No Data</td>
<td>&lt;10%</td>
<td>10%–14%</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>No Data</td>
<td>&lt;10%</td>
<td>10%–14%</td>
<td>15%–19%</td>
</tr>
</tbody>
</table>
Obesity Trends* Among U.S. Adults
BRFSS, 1992
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

<table>
<thead>
<tr>
<th>Year</th>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>No Data</td>
<td>&lt;10%</td>
<td>10%–14%</td>
<td>15%–19%</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Obesity Trends* Among U.S. Adults
BRFSS, 1998
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

*Obesity Trends* Among U.S. Adults
BRFSS, 1999
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

*Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2001
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14% 15%–19%           20%–24% ≥ 25%

Obesity Trends* Among U.S. Adults
BRFSS, 2002
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14% 15%–19%           20%–24% ≥ 25%

Obesity Trends* Among U.S. Adults
BRFSS, 2003
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’ 4” person)

No Data          <10%           10%–14% 15%–19%           20%–24% ≥ 25%
Obesity Trends* Among U.S. Adults
BRFSS, 2004
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’4” person)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
<th>20%–24%</th>
<th>≥25%</th>
</tr>
</thead>
</table>

Obesity Trends* Among U.S. Adults
BRFSS, 2005
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’4” person)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
<th>20%–24%</th>
<th>25%–29%</th>
<th>≥30%</th>
</tr>
</thead>
</table>

Obesity Trends* Among U.S. Adults
BRFSS, 2006
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’4” person)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
<th>20%–24%</th>
<th>25%–29%</th>
<th>≥30%</th>
</tr>
</thead>
</table>
Obesity Trends* Among U.S. Adults
BRFSS, 2007
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5' 4" person)

No Data          <10%           10%–14% 15%–19%           20%–24%          25%–29% ≥ 30%

Obesity Trends* Among U.S. Adults
BRFSS, 2008
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5' 4" person)

Obesity Trends* Among U.S. Adults
BRFSS, 2009
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5' 4" person)
Obesity Trends* Among U.S. Adults
BRFSS, 2010
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Metabolic Landscape

• Obesity is an epidemic in America
  – In 2011, 85,000 cases of cancer were attributable to obesity
  – In 2030 – projected to exponentially rise to 500,000

Metabolic Landscape: Clinical Implications

• Worse clinical outcomes: linked to obesity
  – If overweight at presentation → increased risk of recurrence, metastases and cancer-related death
  – Weight gain after diagnosis = poor outcomes
    • >50% of breast cancer survivors gain weight after initial treatment
    • Average weight gain over 10 lb (postmenopausal 20lb)
Metabolic Landscape: Biology

<table>
<thead>
<tr>
<th></th>
<th>Premenopausal</th>
<th>Postmenopausal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrogen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflammation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aromatase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altered insulin signaling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adipokine signaling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

503 Women with Breast Cancer
As BMI Increases – more hormones made that can feed cancer

<table>
<thead>
<tr>
<th>BMI</th>
<th>&lt;22</th>
<th>22-25</th>
<th>25-27.5</th>
<th>27.5-30</th>
<th>&gt;30</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrone (pg/mL)</td>
<td>19.7</td>
<td>22.3</td>
<td>21.2</td>
<td>22.7</td>
<td>26.5</td>
<td>0.005</td>
</tr>
<tr>
<td>Estradiol (pg/mL)</td>
<td>4.7</td>
<td>8.3</td>
<td>8.0</td>
<td>10.6</td>
<td>10.7</td>
<td>0.002</td>
</tr>
<tr>
<td>DHEAS (ng/dL)</td>
<td>50.5</td>
<td>53.2</td>
<td>55.6</td>
<td>60.0</td>
<td>69.3</td>
<td>0.21</td>
</tr>
<tr>
<td>SHBG (nmol/L)</td>
<td>73.9</td>
<td>66.2</td>
<td>52.1</td>
<td>43.4</td>
<td>38.1</td>
<td>.0001</td>
</tr>
<tr>
<td>Testosterone (pg/mL)</td>
<td>94.5</td>
<td>188.1</td>
<td>127.4</td>
<td>126.0</td>
<td>176.5</td>
<td>.0001</td>
</tr>
<tr>
<td>Free estradiol (pg/mL)</td>
<td>0.10</td>
<td>0.18</td>
<td>0.20</td>
<td>0.28</td>
<td>0.28</td>
<td>.0001</td>
</tr>
<tr>
<td>Free testosterone (pg/mL)</td>
<td>2.1</td>
<td>2.9</td>
<td>4.0</td>
<td>4.6</td>
<td>7.8</td>
<td>.0001</td>
</tr>
</tbody>
</table>


Metabolic Landscape: Molecular Effectors

- Tamoxifen
  - Increased metabolic syndrome
  - Population study: TAM associated with higher risk of diabetes (2.36, P = .002)
  - Reversed when TAM was discontinued

- Chemotherapy/Steroids
  - Premature menopause
  - Steroids
  - Lack of exercise: due to the fatigue, nausea, and pain from treatment

- Metformin studies: Direct relationship between metabolic syndromes and cancer outcomes
Metabolic Landscape: Clinical Implications

- Nurses Health Study: 5000 women
  - Weight gain = increased breast cancer recurrence and mortality

Weight Gain - ↓Survival

<table>
<thead>
<tr>
<th>Category of BMI Change</th>
<th>BMI loss</th>
<th>Maintain</th>
<th>Gain 0.5-2.0 kg/m²</th>
<th>Gain ≥ 2.0 kg/m²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never smokers</td>
<td>514</td>
<td>677</td>
<td>712</td>
<td>272</td>
<td></td>
</tr>
<tr>
<td>Breast cancer death</td>
<td>38</td>
<td>48</td>
<td>77</td>
<td>46</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Kroenke CH, J Clin Onc 2005;23: 1370

Metabolic Landscape: Clinical Implications – WINS study

Mature Analysis From the Women’s Intervention Nutrition Study (WINS) Evaluating Dietary Reduction and Breast Cancer Outcomes

Eligibility Criteria:
- Women 48-79 years
- Early breast cancer
- Primary surgery & RTx
- Systemic therapy (ER+ tamoxifen/chemotherapy; ER- chemotherapy)
- Dietary fat intake > 20% of calories

Randomization 60:40 within a year from primary surgery

Dietary intervention: reduced fat intake (n = 975)

Control (n = 1462)

Primary endpoint: Recurrence free survival

Metabolic Landscape: Clinical Implications – WIN5 study

Follow-up 5.8 years, median

<table>
<thead>
<tr>
<th>Er+/Pr+</th>
<th>Er-/Pr-</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR 0.79; 95% CI, 0.62-1.00</td>
<td>HR 0.46; 95% CI, 0.26-0.80</td>
</tr>
</tbody>
</table>

Physical Activity and Survival after Breast Cancer Diagnosis

- 2987 female registered nurses in the Nurses’ Health Study
  - Stage I, II, or III breast cancer between 1984-1998
- Tracked physical activity and breast cancer mortality (metabolic equivalent task [MET] hours/week)
  - 3 MET hrs = 1 hour average paced walking 2-2.9 mph

From: Physical Activity and Survival After Breast Cancer Diagnosis
JAMA. 2005;293(20):2479-2486. doi:10.1001/jama.293.20.2479

Metabolic Equivalent Conversion

<table>
<thead>
<tr>
<th>METS for 1 hour of that activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal pace walking (2-2.9 mph)</td>
</tr>
<tr>
<td>Brisk pace walking (3-3.9 mph)</td>
</tr>
<tr>
<td>Very brisk pace walking (4+ mph)</td>
</tr>
<tr>
<td>Jogging (slower than 10 minutes/mile)</td>
</tr>
<tr>
<td>Running (faster than 10 min/mile)</td>
</tr>
<tr>
<td>Bicycling</td>
</tr>
<tr>
<td>Tennis, squash, racquetball</td>
</tr>
<tr>
<td>Lap swimming</td>
</tr>
<tr>
<td>Calisthenics, stair machine, other aerobic</td>
</tr>
<tr>
<td>Yoga, stretching, lower intensity exercise</td>
</tr>
<tr>
<td>Other vigorous activities (lawn mowing)</td>
</tr>
</tbody>
</table>
Physical Activity Results

![Kaplan-Meier Survival Curves](image)

**METs**
- METs: 86%
- ≥ 9 METs: 92%

Physical Activity Results: Patients with High BMI benefit most

| Table 2. Multivariable-Adjusted Relative Risk of Breast Cancer Death According to Activity Category Prior to Breast Cancer Diagnosis and BMI |
|---|---|---|---|---|---|
| | Total | <3 | METs | ≥9 METs | P for Total |
| No. of deaths/No. of participants | 109/127 | 24/49 | 11/49 | 23/49 | 24/49 |
| Multivariable-adjusted RR (95% CI) | 1.30 (0.65, 2.61) | 1.36 (0.68, 2.74) | 1.56 (0.82, 2.96) | 1.01 (0.57, 1.78) | 1.21 (0.67, 2.17) |
| No. of deaths/No. of participants | 125/185 | 5/92 | 5/92 | 5/92 | 10/107 |
| Multivariable-adjusted RR (95% CI) | 1.30 (0.65, 2.61) | 1.39 (0.72, 2.68) | 1.75 (0.94, 3.27) | 0.72 (0.07, 7.06) | 2.18 (0.19, 21.02) |

Metabolic Landscape

- Are the ill-effects of obesity modifiable?
  - Limited data to support
  - Case-control human studies
    - Decreased incidence of cancer in obese patients who underwent bariatric surgery compared with matched controls
  - NCI has estimated if each adult decreased their BMI by 1 kg/m², the incidence of cancer would decrease by 100,000 cases per year.
Vision:
To change the landscape of cancer care by empowering patients to use dietary interventions to improve outcomes

Caloric Restriction - Introduction
- Caloric restriction (CR):
  - associated with decreased cancer risk
  - 20-40% reduction in diet
- Preclinical models
  - Slow or even prevent tumor growth
  - Dietary intervention causes tumor regression and increased OS compared with western diet

Can CR be used as an addition to standard treatment?

Use of diet to improve outcomes:
WITH RADIATION

Primary tumor gets much smaller when caloric restriction is added to radiation

Tumor Regression:
2 Methods of Diet Modification

Mouse Weights:
2 Methods of Diet Modification
Use of diet to improve outcomes:
WITH CHEMOTHERAPY

Primary tumor gets much smaller when caloric restriction is added to chemotherapy

Use of diet to improve outcomes:
HELPS METASTASES

Caloric Restriction + Radiation Decreases Metastatic Burden in Several Models of Metastases

Use of diet to improve outcomes:
MOLECULAR CHANGES

Reduces Proliferation

Increases Apoptosis

Downregulates IGF-1R pathway
Prostate Cancer: Caloric Restriction Decreases Tumor Size

Caloric Restriction Increases Survival and Decreases Weight by 10%

Approach: Transitioning the breakthrough results to immediate clinical impact that empowers patients

Our lab has already shown that caloric restriction augments:
- Radiation
- Novel Inhibitors (IGF-1R inhibitor)

Dietary intervention can be used for all stages of disease – EMPOWERING OUR PATIENTS
First in human clinical trial

1° Endpoint - Compliancy:

Overall Patient Compliance

- Overall Compliance: 92%
- Percentage compliance to entered dates: 85.5%
- 1 week ≤ 3 entries: 7.7%

*Compliance defined as a successful reduction of 25% of total calories based on diet journals in at least 80% of the logged events

2° Endpoint - Weight Loss:

BMI trend All Patients

- Percent ΔBMI

Rate of Weight Loss

- Initial Nonsmokers: 3.8%
- Initial Nonsmokers: 3.6%
- Initial Nonsmokers: 3.4%
- Initial Nonsmokers: 3.2%
- Initial Nonsmokers: 2.8%
- Initial Nonsmokers: 2.6%
- Initial Nonsmokers: 2.4%
- Initial Nonsmokers: 2.2%
- Initial Nonsmokers: 2.0%
- Initial Nonsmokers: 1.8%
- Initial Nonsmokers: 1.6%
- Initial Nonsmokers: 1.4%
- Initial Nonsmokers: 1.2%
- Initial Nonsmokers: 1.0%
- Initial Nonsmokers: 0.8%
- Initial Nonsmokers: 0.6%
- Initial Nonsmokers: 0.4%
- Initial Nonsmokers: 0.2%
- Initial Nonsmokers: 0.0%

- Current Smokers: 3.2%
- Current Nonsmokers: 2.8%
- Current Nonsmokers: 2.4%
- Current Nonsmokers: 2.0%
- Current Nonsmokers: 1.6%
- Current Nonsmokers: 1.2%
- Current Nonsmokers: 0.8%
- Current Nonsmokers: 0.4%
- Current Nonsmokers: 0.0%

- Current Nonsmokers: 2.8%
- Current Nonsmokers: 2.4%
- Current Nonsmokers: 2.0%
- Current Nonsmokers: 1.6%
- Current Nonsmokers: 1.2%
- Current Nonsmokers: 0.8%
- Current Nonsmokers: 0.4%
- Current Nonsmokers: 0.0%

- Initial Nonsmokers: 3.2%
- Initial Nonsmokers: 2.8%
- Initial Nonsmokers: 2.4%
- Initial Nonsmokers: 2.0%
- Initial Nonsmokers: 1.6%
- Initial Nonsmokers: 1.2%
- Initial Nonsmokers: 0.8%
- Initial Nonsmokers: 0.4%
- Initial Nonsmokers: 0.0%

- Current Nonsmokers: 2.8%
- Current Nonsmokers: 2.4%
- Current Nonsmokers: 2.0%
- Current Nonsmokers: 1.6%
- Current Nonsmokers: 1.2%
- Current Nonsmokers: 0.8%
- Current Nonsmokers: 0.4%
- Current Nonsmokers: 0.0%

- Initial Nonsmokers: 3.2%
- Initial Nonsmokers: 2.8%
- Initial Nonsmokers: 2.4%
- Initial Nonsmokers: 2.0%
- Initial Nonsmokers: 1.6%
- Initial Nonsmokers: 1.2%
- Initial Nonsmokers: 0.8%
- Initial Nonsmokers: 0.4%
- Initial Nonsmokers: 0.0%
CaReFOR Trial:
First Trial is Positive and a Success!

CaReFOR Trial:

<table>
<thead>
<tr>
<th>Race/Ethnicity (%)</th>
<th>Caucasian</th>
<th>AAF</th>
<th>Hispanic*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age, yrs (SD)</td>
<td>All 56.00 (6.76)</td>
<td>Caucasian 57.46 (6.41)</td>
<td>Non-Caucasian 54.42 (7.04)</td>
</tr>
<tr>
<td>BMI (SD)</td>
<td>All 1.64 (1.24)</td>
<td>Caucasian 1.89 (1.41)</td>
<td>Non-Caucasian 1.36 (1.00)</td>
</tr>
</tbody>
</table>

Our Future Studies:
Precision Medicine Guiding Precision Nutrition

Tumor
Diet modification targets unique molecular driver of patient’s tumor

Patient
Diet customized to target molecular and metabolic profile of patient
Our Future Studies:
Precision Medicine Guiding Precision Nutrition

EXAMPLE Myc overexpressing tumor:
Diet enriched in pectin (oranges, carrots), choline (egg yolk, yogurt, almonds) and turmeric (add spice to food, mustard)

Tenet of living well:
TAKING CARE OF YOURSELF AND YOUR BODY

Healthy Diet
Decrease Stress   Exercise

Mindfulness-based Stress Reduction (MBSR)

- MBSR is a well-researched, standardized eight-week program that utilizes mindfulness meditation techniques and gentle Hatha Yoga to teach participants the skills to better cope with life stressors.
- Learn to be present, in the moment, non-judgmentally. Learn how to breath, learn how to relax.
- Use mindfulness to facilitate connection to that which has personal meaning.
**Mindfulness-based Stress Reduction (MBSR)**

Differences between Post-training and Pre-training resting scans

*Monti et al, Stress & Health (2013)*

![Brain scans](image1)

Mindfulness group (p<0.001) Control group (p<0.005)

---

**Mindfulness-based Stress Reduction (MBSR)**

Stressor task post minus stressor pre-training program

*Monti et al, Stress & Health (2013)*

![Brain scans](image2)

Mindfulness group (p<0.005) Control group (p<0.005)

---

**Thank you!**

Patients!

Collaborators

- Radiation Oncology: Rani Anne, Linda Ferguson
- Breast Surgery: Adam Berger, Theodore Tsangaris, Melissa Lazar
- Integrative Medicine: Dan Monti, Andy Newberg
- Pathology: Juan Palazzo

Lab Members

- Tu Dan
- Ajay Palagani
- Tiziana DeAngelis
- Robert Gitman
- Kamila Nowak

---
Questions??

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

To Register:
Villanova.edu/cope

Brie Turner-McGrievy, PhD, MS, RD
Assistant Professor
University of South Carolina

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

Wednesday, March 29, 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, LDN
Email: cope@villanova.edu
Website: www.villanova.edu/COPE

To receive monthly emails on upcoming COPE events, please join COPE’s
Contacts on our website.
Thank you for your time and interest.