

# Women's Health *REPORT*

A TWICE-YEARLY PUBLICATION OF WOMEN'S HEALTH DIETETIC PRACTICE GROUP

## NUTRITION COUNSELING AND HEALTHY WEIGHT GAIN DURING

### PREGNANCY: A Systematic Review **By Lindsay Thunell, MS; Kathleen E. Davis, PhD, RDN, CSP, LD**



This article is approved for 1 CPEU by the Academy of Nutrition and Dietetics. Please take the quiz at <https://forms.gle/T11zbdjGVtfePFEE6>

#### Introduction:

Currently, over one-third of American adults are obese and another third is overweight.<sup>1</sup> Obesity levels also continue to rise worldwide as Westernized dietary and lifestyle habits are adopted around the globe.<sup>2</sup> The endemic prevalence of excess weight is consequential on both health and economic levels. Obesity is correlated with numerous chronic diseases including cardiovascular disease, diabetes, stroke, and certain types of cancer.<sup>1</sup> In addition to the health risks, it is estimated that obesity contributes \$190 billion per year of fiscal burden.<sup>3</sup> This expense and the disease burden associated with obesity make it a pressing health issue.

Due to the overall high rates of obesity in the US population, more women now carry excess weight as they enter pregnancy.<sup>4</sup> It is currently estimated that over 60% of the four million American women who give birth each year enter their pregnancy being overweight or obese.<sup>5</sup> It is also becoming more commonplace for women to gain excessive amounts of weight during pregnancy.<sup>6</sup> The trend of excessive weight gain during pregnancy may be due in part to the cultural misconception that associates gestation with strong food cravings and over-indulgence.<sup>7</sup> Although some weight gain is necessary to support the growth of the fetus, this weight gain should not be too extreme or occur too quickly. Rapid or excessive weight gain poses a number

of health risks for both the baby and the mother. Both excessive weight gain and pre-pregnancy obesity are associated with heightened risk for Cesarean section delivery, gestational diabetes, preeclampsia, weight retention postpartum, delivery complications, and breastfeeding difficulties.<sup>6</sup> Babies are at an increased risk for macrosomia, stillbirth, and obesity later in life.<sup>5</sup>

Due to these concerning trends in maternal health status, the U.S. Institute of Medicine (IOM) updated their guidelines for weight gain during pregnancy in 2009 for the first time in over 20 years. These updates include more stringent weight gain restrictions for women in higher BMI categories.<sup>6</sup> For example, women classified as having an obese pre-pregnancy BMI were previously recommended to gain at least 15 pounds with no upper limit.<sup>6</sup> This has changed so that now it is recommended that women in this BMI category gain only 11-20 pounds.<sup>6</sup> Such recommendations are reflective of population data, which suggest that women who gain weight within these parameters have better birth outcomes.<sup>8</sup> Despite these new recommendations, the Centers for Disease Control and Prevention (CDC) has found that nearly 50% of all pregnant women still gain too much weight during pregnancy.<sup>8</sup>

To prevent the detrimental consequences of excessive weight gain during gestation, it is crucial that proactive clinical interventions be taken to help women optimize their weight gain. Nutrition counseling has been used as one of these interventions. Various approaches to nutrition counseling exist including personalized sessions with a dietitian, use of social media or other technology platforms for online education, video counseling, community classes, group counseling, meal planning, and others. Nutrition counseling has been shown to be effective in the general population for managing obesity, so its application to pregnancy may also be effective.<sup>9</sup>

The purpose of this review is to systematically evaluate the available literature surrounding nutrition counseling during pregnancy and determine its effectiveness in promoting healthy weight gain. It is hypothesized that nutrition counseling during gestation will help optimize weight gain outcomes for pregnant women.

#### Methods:

The evidence analysis process of the Academy of Nutrition and Dietetics was used to conduct a systematic review of the literature. This process includes five steps: formulate an evidence analysis question, gather and classify evidence, critically appraise each article, summarize the evidence, and write and grade the conclusion statement.<sup>10</sup>

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## FROM THE CHAIR Dawn Ballosingh, MPA, RD, LMNT

Hello Members:

My hope is that you had a fantastic National RDN Day and an equally wonderful month of nutrition activities elevating the profession and our expertise to the public. Please share your photos on the Women's Health DPG Facebook page so we can celebrate and highlight your careers and programs that educate and empower women. I also invite you to join us on our soon-to-launch Instagram account.

As I reflect on the past ten months, I am thrilled about where we are in our journey together! You kept our DPG vibrant and humming. We will soon be launching a Fertility Education module, developed by graduate student Jeani Hunt-Gibbon under supervision of her faculty advisor and our 2018 FNCE® presenter Judy Simon, MS, RDN, CD, CHES, FAND.

You spoke and we listened as evidenced by our growing membership, particularly among students. You increased interactions on our social media platforms. And in this issue, we're placing your interests and impactful careers center stage with our new Trendsetters feature while highlighting our incredible diversity as a group in this issue's series of member mini-profiles.

As we move forward, I am excited to see our DPG grow and flourish. If you have colleagues in women's health that are not yet connected to us, please encourage them to become members and take us to the next level of aspirations and achievements.

Enjoy all this issue has for you!



## FROM THE EDITOR Lee Crosby, RD, LD

At long last, spring is here! In honor of the new season, I'm excited to share two new newsletter sections I think you'll love:

**NEW:** Trendsetters and Trailblazers. See the new and exciting things your colleagues are up to--and share your own achievements.

**NEW:** Feel-Your-Best Recipe. Each issue, you'll receive a seasonal recipe featuring foods with special health benefits for women. (This month: kale and mango salad with ginger dressing to boost bone and breast health!)

Your feature article is a systematic review of the effects of nutrition counseling on gestational weight gain--along with five evidence-based tips for working with clients. (Take and pass the online 5-question quiz for 1.0 hours of CPE credit.) And if you think your job is tough, read on to learn about the challenges facing dietitians counseling women...inside the prison system.

Also inside, you'll find three diversity mini-profiles featuring advice from members with a variety of backgrounds, a handy list of resources available free with your membership, a book review of *Body Kindness*, and recent research in women's health nutrition.

Wishing you a healthy, happy spring!

### Research Question:

The population-intervention-comparison/intervention-outcome of interest (PICO)<sup>10</sup> format was used to devise a formal research question. A PICO worksheet was used to evaluate this topic for the four areas of the PICO acronym. Using this method, the following research question was developed: “does nutrition counseling help promote healthy weight gain during pregnancy?”

### Search Strategy:

After the research question was formulated, a thorough electronic literature search was performed using PubMed and Scopus databases. Search terms included: (“dietary counseling” or “nutrition counseling”), (“dietary intervention” or “nutrition intervention”), (“pregnancy” or “pregnant” or “gestation”) and (“weight gain”). In addition to these search terms, the reference index of each pertinent study was evaluated to ensure that no studies were missed.

### Inclusion and Exclusion Criteria:

All included studies examined the relationship between a nutrition counseling intervention and weight gain during pregnancy. Studies considered eligible for inclusion also possessed the following criteria: studies published in English between January 2007 and July 2017, included healthy pregnant women between the ages of 18 and 35, more than 25 women in each study group, study dropout rate less than 20%, and an outpatient care setting. Randomized controlled trials (RCTs), nonrandomized controlled trials, cohort studies, and case control studies were all accepted. Studies were excluded if participating women had a health condition that affected their ability to successfully carry the baby to term including gestational diabetes and preeclampsia. However, despite the known health risks of obesity, studies including overweight and obese women (BMI  $\geq$  25 kg/m<sup>2</sup>) were included.

### Data Extraction:

Each study identified using the search criteria was assessed based on title and abstract. Any studies determined to be possibly relevant were flagged. The full text of each flagged study was then obtained and reviewed to determine if it fit the inclusion criteria. A final list of studies was determined with the reasons for inclusion or exclusion noted.

Key data points were then collected from each study and compiled into an Evidence Analysis Library Worksheet. Main data points included: the author’s name(s), year of publication, type of study, class of study, study purpose, population characteristics, interventions and controls, key outcomes (gestational weight gain and adherence to recommended weight gain for BMI), and study limitations. The collected data was then condensed into a summary table for ease of use (Table 1). Finally, a Quality Criteria Checklist was completed for each study to assess for bias and overall quality. Each study was assigned a rating of positive, negative, or neutral based on the Academy’s established criteria.

### Results:

The search results presented 303 potential studies, of which ten were ultimately included in this systematic review.<sup>13-20</sup> By screening the titles and abstracts, 282 of these were determined not to be relevant to the research question (Figure 1). Upon more detailed review of the full-text versions of potential studies, additional articles were excluded for reasons such as not being published in English, includ-

ing only a summary of methods of a study not yet completed, and not addressing maternal weight gain, among others (Figure 1).

### Study Characteristics:

Of the studies included, six were randomized controlled trials (RCTs)<sup>12,14,15,17-19</sup> and four were non-randomized controlled trials<sup>11,13,16,20</sup> (Table 1). Five of the six RCTs received a positive quality evidence analysis rating.<sup>11,14,15,18,19</sup> The other RCT received a neutral rating due to recruitment of women late in their pregnancy and use of assessment tools that were not validated.<sup>17</sup> All four of the non-randomized controlled trials received neutral ratings due to lack of randomization, late enrollment of participants, unmatched controls, or a high dropout rate.

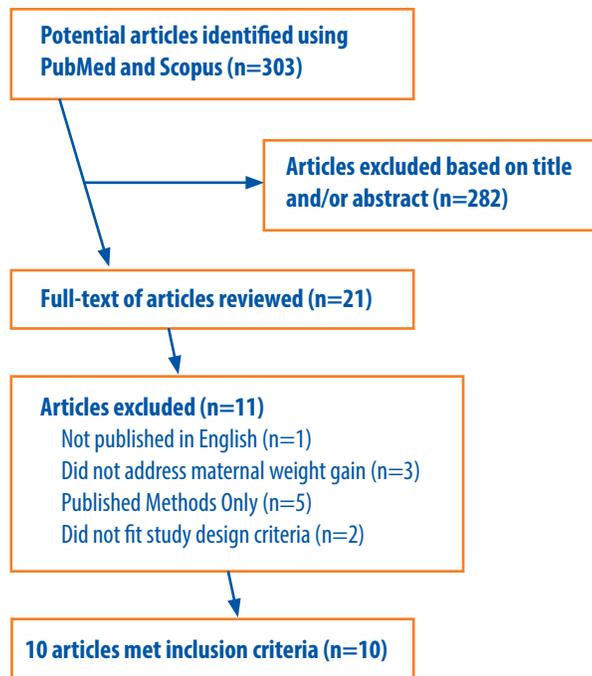
The studies included 1351 total pregnant women with individual study populations ranging from 50<sup>12,14</sup> to 327<sup>17</sup> participants. Six studies<sup>11,12,14-16,20</sup> included only women who were overweight or obese prior to becoming pregnant while three studies included women who were obese, overweight, and normal weight pre-pregnancy.<sup>13,18,19</sup> One study also included women who were underweight pre-pregnancy.<sup>17</sup> The intervention in six of the studies involved individualized nutrition counseling with a registered dietitian nutritionist (RDN) or other qualified dietitian (in countries without the RDN credential).<sup>11,14,16,18-20</sup> Three of these studies paired dietitian counseling with physical activity advice.<sup>11,19,20</sup> One study provided both nutrition and physical activity counseling delivered via multiple modalities over a mobile phone.<sup>15</sup> Two studies involved nutrition counseling delivered by a public health nurse<sup>13</sup> or nurse midwife.<sup>12</sup> One study provided nutrition advice via a pre-recorded “Video Doctor”.<sup>17</sup>

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## 5 TIPS FOR RDNS TO OPTIMIZE WEIGHT GAIN IN PREGNANCY

- 1 Providing pregnant women with a meal plan as part of nutrition counseling is an effective way to both manage weight and ensure the nutritional adequacy of the diet.<sup>18</sup>
- 2 Helping women set simple, attainable lifestyle goals can help improve the quality of the diet, even if weight gain goals are not met. For example, set a goal for daily servings of fruits and vegetables, servings of high-fiber carbohydrate foods, or limits for sugary snacks.<sup>13</sup>
- 3 Recommending daily physical activity (30 to 60 minutes per day) in combination with nutrition counseling can help women meet their weight gain goals during pregnancy.<sup>11-13, 28</sup>
- 4 Initiating nutrition counseling as early as possible in pregnancy is the most beneficial way to help women meet their overall weight gain goals. Dietetic referrals should be initiated at the initial checkup (around eight weeks gestation).<sup>17, 20</sup>
- 5 A variety of delivery modalities are effective for administering nutrition counseling. If a woman is unavailable for traditional face-to-face sessions, consider sending educational text messages or using alternative communication options.<sup>15</sup>

**Figure 1:** Flow chart of article selection for systematic review of evidence.



All studies examined the gestational period, which lasts a total of 40 weeks; however, because of the dynamic nature of prenatal care, not all studies recruited women at a consistent point during pregnancy. Most studies recruited women at their first prenatal checkup (occurring at approximately 12 weeks gestation), so the maximum length of any study in this systematic review was 28 weeks.

The primary outcome investigated by this systematic review is whether dietary counseling reduces overall gestational weight gain (GWG). Six of the 10 studies showed a statistically significant reduction in GWG between the nutrition intervention and control groups.<sup>11,12,14,15,18,19</sup> In these studies, the reduction in GWG ranged from 1.6 kg<sup>11</sup> to 6.7 kg.<sup>14</sup> Four of the six studies in which an RDN delivered nutrition counseling showed decreases in GWG.<sup>11,14,18,19</sup> One of these studies, however, discovered that the reduction in GWG was only significant for women of a normal pre-pregnancy BMI.<sup>19</sup> Reductions in GWG in overweight women were not significant in that study.<sup>19</sup> Three studies demonstrated no effect of the intervention in lowering GWG<sup>13,16,17</sup>. One study did not report GWG between the intervention and control group, but did report “80% healthy weight gain” in the intervention group, which they attributed to the intervention.<sup>20</sup>

The two studies with the greatest reductions in GWG involved only nutrition counseling with a dietitian with an individualized meal plan and were high-intensity interventions (ten 1-hour sessions<sup>14</sup> and one session with monthly follow-ups<sup>18</sup>). The study with the third greatest reduction in GWG involved midwife-led nutrition counseling and physical activity advice with the option to participate in dietitian-led food discussion groups.<sup>12</sup>

The secondary outcome evaluated by this review is whether the reduction in weight gain was enough to allow women to meet weight gain recommendations based on BMI. Unfortunately, this outcome was measured heterogeneously between the studies.

Only eight studies included information about women meeting their target weight recommendations. Of these studies, only three found that nutrition counseling was correlated with more women meeting their weight gain goals.<sup>11,12,18</sup> Three studies demonstrated no difference between the intervention and control in meeting weight gain goals.<sup>13,16,17</sup> One of these studies reported that women in the control group better met weight gain recommendations than women receiving the nutrition counseling.<sup>13</sup> Some studies reported about changes in nutrition knowledge, birth outcomes, or pregnancy outcomes. In one of these studies, Opie et al.<sup>16</sup> noted that while weight gain within recommendations were not different between the groups, diet improved in the intervention group, and rates of gestational diabetes were lower.<sup>16</sup>

### Discussion:

Using the Academy’s Evidence Analysis Process and grading system, the evidence in this systematic review was determined to support the following statement: Nutrition counseling by a RDN during pregnancy is helpful in promoting healthy weight gain. (Grade 1: Strong). This conclusion was supported by the evidence reviewed for this systematic review of the literature in spite of significant limitations of the studies because of the number of studies, the consistency of their findings, and the good quality of several of the studies reviewed.

As obesity continues to be a pressing public health issue, management options need to become more widespread. This is especially pertinent during pregnancy, a time when excessive weight gain can place both a mother and her baby at heightened risk for serious health issues. There are many benefits to optimizing weight gain during pregnancy. Women who gain a healthy amount of weight birth healthier babies, have lower risk deliveries, and have lower rates of serious pregnancy complications.<sup>8</sup> Additionally, gaining a healthy amount of weight during pregnancy helps women return to their pre-pregnancy weight more quickly and decreases the risk for weight retention postpartum.<sup>8</sup>

The results of this systematic review of the literature suggest that nutrition counseling with a dietitian is effective at promoting healthy pregnancy weight gain and that higher intensity nutrition counseling appears to be associated with better outcomes. Studies that were very low intensity did not show a benefit.<sup>13,17</sup> A higher-intensity intervention that did not focus on controlling calorie intake or provide a meal plan showed no benefit in overweight women.<sup>19</sup> In terms of technologically-based approaches, a low-intensity Video Doctor approach was not effective,<sup>17</sup> but a mobile-phone based, higher intensity intervention was effective.<sup>15</sup> In addition, interventions that did not incorporate physical activity advice were also effective.<sup>14,18</sup> This is clinically relevant because it means that a woman has options when it comes to managing her health during pregnancy. A variety of nutrition counseling methods can be tailored to meet the woman’s individual schedule demands, family needs, lifestyle habits, or personal preferences.

However, despite the intervention’s success at lowering GWG, the clinical implications may not be as significant. The data suggests that a large proportion of women still did not meet their target weight gain as determined by their pre-pregnancy BMI. Although weight

gain was reduced with use of nutrition counseling, it may not have been reduced enough to reach the point where birth outcomes and long-term health risks are improved.

There were several limitations to the studies. There was inconsistency in which organization's recommendations were used, with some studies using outdated recommendations (i.e. the 1990 IOM recommendations). Several studies were limited by lack of randomization<sup>12,13,16,20</sup>, which may have caused selection bias or mismatched study groups.

All of the studies recruited women at the end of the first trimester with several studies recruiting women much later. Significant weight may have been gained before the nutrition intervention began, making it more challenging to meet weight gain recommendations throughout the rest of the pregnancy. In some cases, the weight gained before beginning the intervention even made healthy weight gain impossible.

Several studies reported only on the nation in which the study was conducted and failed to provide data on the race/ethnicity of the participants<sup>11-13,18-20</sup>. Only one study involved a diverse population of US women.<sup>17</sup> This study involved the least intense intervention, a Video Doctor or video-based computer program that had "learned" to interact with participants, even providing motivational interviewing techniques; however, participants had only one session with the Video Doctor plus a brief follow-up.<sup>17</sup> This lack of diversity (or at least known diversity) and lack of US studies makes the generalizability of the results to the US population less certain. However, most intense interventions were very consistent in the size and direction of the results, making it possible to say that it is at least very likely that this type of intervention would be effective in a US population.

Several studies combined nutrition counseling with physical activity advice<sup>11-13,15,16,19,20</sup>. The use of multiple interventions makes it impossible to distinguish which intervention exerted the beneficial effects. However, because of the importance of exercise during pregnancy, it would be unethical to withhold activity counseling. A good alternative for future studies would be provide physical activity advice to both control and intervention groups, making it possible to study the effectiveness of the dietary intervention for its additive efficacy.

In addition, it is important to note that while nutrition counseling is an effective intervention, women may have barriers to seeking or being referred to nutrition care during pregnancy. One barrier is the increasing prevalence of weight discrimination in the healthcare setting. Negative stereotypes such as laziness, lack of will power, and perceived inability to change are often erroneously associated with overweight people.<sup>21</sup> This is an especially pressing issue in maternity care as high BMI and excessive weight gain become more commonplace during pregnancy. Studies of generalized healthcare have demonstrated a strong relationship between increased patient BMI and both negative provider interactions and perceived lower quality of care.<sup>22</sup> Although the study of weight discrimination is new to maternity care, preliminary evidence suggests the same trends are visible. Pregnant women with higher BMIs are more likely to report negative pregnancy and postnatal experiences.<sup>23</sup> Consequently, overweight or obese pregnant women may feel dissuaded from seeking out nutrition counseling due to fear of discrimination. This becomes a cyclical problem as lack of nutrition education leads to

increased weight gain during pregnancy and increased retention of weight in the postnatal period.<sup>24</sup> It is extremely important that perceived or actual inequality of maternity care based on weight be eliminated. Every woman, regardless of size or weight, is entitled to high quality healthcare and adequate support during pregnancy and the postpartum period.

Since this systematic review of the evidence was conducted, a few studies have been published which support its findings.<sup>25-27</sup> One is a meta-analysis of 36 randomized trials conducted between 1990 and February 2017, which involved 36 trials with 12,526 women (80% white).<sup>25</sup> It found that diet and physical activity based interventions resulted in significantly less GWG (Mean difference: -0.7 kg).<sup>25</sup> Another was a follow-up on the Haby et. al. Mighty Mums pilot study. This non-randomized, controlled trial involving 438 obese, Swedish pregnant women and 871 controls (100 concurrent, 771 historical).<sup>26</sup> In this study involving dietitian visits, aquatic exercise, and frequent midwife follow-up, GWG was lower among the intervention group (8.9 kg vs 11.2 kg, respectively;  $P=0.03$ ).<sup>26</sup> Finally, a randomized controlled trial by Abdel-Aziz, et. al. conducted in 200 Egyptian women showed a higher proportion of women in a nutrition counseling intervention group who had GWG within IOM recommendations (42.7% vs. 13.9%, respectively;  $P<0.001$ ).<sup>27</sup>

The evidence analysis statement created based on this systematic review of literature was given a Grade I-Strong recommendation based on the number of studies, number of participants, and consistency of the findings. In addition, studies published since this review have supported its findings. However, further studies in diverse US populations are recommended. These studies should seek to recruit women as early in pregnancy as possible (by six or seven weeks). Future studies also need to include a larger sample size. Finally, the studies should be better controlled. Although there are many interesting areas of health counseling that apply to pregnant women, it is important to study each factor independently. Women in future studies should be counseled only in nutrition while proper controls over physical activity are simultaneously imposed. Finally, future research should establish whether birth outcomes (macrosomia, shoulder dystocia, hypoglycemia) and pregnancy outcomes (Caesarean section, gestational diabetes, hypertension, preeclampsia) are reduced in women and their offspring receiving nutrition counseling and meal planning.

In conclusion, nutrition counseling administered by a variety of modalities was effective at reducing GWG in comparison to women receiving standard PNC. These results have significant implications because of the health consequences associated with excessive weight gain during pregnancy. Nutrition counseling may be a cost-effective, versatile, and easy to implement way to improve health outcomes for pregnant women and their unborn babies. Thus, while prenatal nutrition care often consists of a physician-provided handout or a single class, this review of research suggests that MNT visits should be a part of routine prenatal care.

### **Author Contributions:**

LT used the evidence analysis process to perform the systematic review of the literature. She wrote the first draft of the manuscript and edited subsequent drafts. KD reviewed the articles and worksheets and provided feedback on the systematic review. She co-wrote subsequent drafts of the manuscript.

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**Table 1:** Summary of Trials

Authors, Year, Study design	Class, Rating	Study Purpose	Study Populations	Intervention	Outcomes	Limitations
Kinnunen TI, Pasanen M, et al, 2007 Non-randomized controlled trial	C, /	To investigate whether individual counseling on diet and physical activity during pregnancy can have a positive effect on diet and leisure time physical activity and prevent excessive gestational weight gain.	105 pregnant, Finnish women (49 intervention; 46 control) Normal, overweight, and obese Mean Age: 27.6 intervention; 28.8 control Mean Pre-pregnancy BMI: 23.7 intervention; 22.5 control	Standard PNC versus 1, 20-30 minute dietary counseling delivered by public health nurse with 3 booster sessions (instructed in meal patterns, fruit and vegetable consumption, sugar restriction, and high fiber bread use); physical activity advice (instructed to exercise 30 minutes per day on 5 days of the week)	Gestational weight gain: 14.6kg intervention; 14.3 control (P=0.77) Weight gain within recommendations (IOM): 21% intervention versus 43% control	Lack of randomization; Small sample size; 15% attrition of women recruited for reasons other than miscarriage, relocation; Self-reported weights
Wolff S, Vangsgaard K, et al, 2008 RCT	A, +	Determine if 10-hours of dietary consultations can restrict weight gain to 6-7kg and reduce the pregnancy-induced increases in insulin, leptin, and glucose in obese pregnant women.	50 pregnant, Danish, Caucasian women (23 intervention; 27 control) Obese Mean age: 28 intervention; 30 control Mean Pre-Pregnancy BMI: 34.9 intervention; 34.6 control	50 pregnant, Danish, Caucasian women (23 intervention; 27 control) Obese Mean age: 28 intervention; 30 control Mean Pre-Pregnancy BMI: 34.9 intervention; 34.6 control	Standard PNC versus 10, 1-hour consultations with RDN (instructed in appropriate caloric intake; macronutrient recommendations)	Gestational weight gain: 6.6kg intervention versus 13.3kg control (p=0.002)
Mottola MF, Giroux I, et al, 2010 Non-randomized controlled intervention	C, /	To determine the effect of the Nutrition and Exercise Lifestyle Intervention Program (NELIP) on weight gain, birth weight, and maternal weight retention in overweight and obese pregnant women.	65 pregnant, Canadian women and 260 matched, historical controls Overweight or Obese Mean Age: 32.4 intervention; 31.9 control Mean Pre-pregnancy BMI: 32.1 intervention; 33.4 control	Standard PNC versus one dietary counseling with dietitian (instructed on the NELIP Meal Plan eating guide) also physical activity advice (pedometer, and weekly group exercise classes)	Gestational weight gain: 12kg intervention with control weight gain not reported Weight gain within recommendations: 80% intervention *Based on recommendation of 7-11.5kg	Not a randomized controlled trial; Volunteers for the study may be more health conscious than general population; Women recruited late in pregnancy and some had gained substantial weight prior to recruitment; Control was not used for assessing weight gain outcomes
Vinter CA, Jensen DM, et al, 2011 RCT	A, +	To study the effects of lifestyle intervention on gestational weight gain and obstetric outcomes.	304 pregnant, Danish women (150 Intervention; 154 Control) Obese Mean Age: 29 (both groups) Mean Pre-pregnancy BMI: 33.4 intervention versus 33.3 control	Standard PNC versus 4 dietary counseling sessions delivered by RDN; physical activity advice (instructed to exercise 30-60 minutes per day, pedometer, gym membership), and meetings with physiotherapist	Gestational weight gain: 7.0kg intervention versus 8.6kg control (p=0.014) Weight gain within recommendations (IOM): 65% intervention versus 53% control (p=0.058)	Although data was statistically significant, may not have been clinically significant because obstetric outcomes were not improved; Low compliance with physical activity requirements
Jackson RA, Stotland NE, et al, 2011 RCT	A, /	To determine if an interactive, computerized Video Doctor counseling tool improved self-reported diet and exercise in pregnant women.	327 diverse, pregnant US women (163 intervention; 164 usual care) Underweight, normal weight, overweight, and obese Mean Age: 26.1 intervention; 28.2 control Mean Pre-pregnancy BMI: 27 (44% overweight or obese)	Standard PNC versus Video Doctor interactive video dietary counseling 1 session with brief follow-up booster session (instructed on increasing fruits and vegetables, whole grains, healthy fats, and limiting sugar)	Gestational weight gain: No difference 33.4lbs intervention versus 33.6lbs control (P=0.95) Weight gain within recommendations (IOM): No difference Improvements in whole grain, fruit, veggie intake	Enrolled women late in pregnancy; Women had gained substantial weight by enrollment; Short follow-up period; Assessment tools were not validated prior to use
Di Carlo C, Iannotti G, et al, 2014 RCT	A, +	To compare the efficacy of personal dietary intervention on gestational weight gain control with a general intervention promoting healthy eating through educational handouts.	154 pregnant, Italian women (77 intervention; 77 usual care) Normal, overweight, and obese Mean Age: 31.3 intervention; 28.2 control Mean Pre-pregnancy BMI: 26.5 intervention; 25.0 control	Standard PNC with handout on diet versus dietary counseling with dietitian (instructed in customized, meal plan) with monthly follow-ups with dietitian	Gestational weight gain: 8.2kg intervention versus 13.4 control (p<0.001) Weight gain within recommendations: 95.1% intervention versus 41% control (p<0.001) *Based on recommendation of less than 12 kg which is for women of NORMAL prepregnancy BMI	Conducted on Italian population who regularly practice a health, Mediterranean diet
Hui AL, Back L, et al, 2014 RCT	A, +	To assess the efficacy of lifestyle intervention on gestational weight gain in pregnant women with normal and above normal body mass index (BMI).	113 pregnant, Canadian women (57 intervention; 56 control) Normal and overweight Mean Age: 29 intervention; 31 control Mean Pre-pregnancy BMI: 25.6 intervention versus 26.1 control	Standard PNC versus dietary counseling with RDN (instructed in Health Canada guidelines) at baseline and 2 months after; Participation in an exercise program (either community based or DVD workouts for 30-45 minutes, 3-5 times per week)	Gestational weight gain: 12.9 kg intervention; 16.23 control (p<0.05) in NORMAL BMI WOMEN No difference in overweight women.	Small sample size which was exacerbated by division into subgroups; Few women lacked record of pre-pregnancy weight
Haby K, Glantz A, et al, 2015 Non-randomized controlled trial	C, /	To evaluate the effects of behavioral intervention program for women with BMI greater than or equal to 30, with emphasis on nutrition and physical activity, with regards to gestational weight gain and effect on weight at the post-partum check-up.	50 pregnant, Swedish women matched with 50 historical controls Obese Mean Age: 31.7 intervention; 31.5 control Baseline BMI: 33.1 intervention; 32.6 control	Standard PNC versus dietary counseling with midwife, two 30-minute visits early in pregnancy, and 5 minutes per month in remainder; physical activity advice; option to participate in three, 90 minute food discussion groups with dietitian or individual visits	Gestational weight gain: 8.6kg intervention versus 12.5 kg control (p=0.001) Weight gain within recommendations: 36% intervention versus 16% control (p=0.039)	Multiple interventions; Use of interpreters; Not randomized Historic controls; Only half of intervention participants participated in dietitian-led food discussions.
Opie RS, Neff M, et al, 2016 Non-randomized parallel controlled intervention	C, /	To implement an individually tailored nutrition program for obese pregnant women to reduce the rates of gestational diabetes, improve diet quality, achieve weight gain targets, limit gestational weight gain, and reduce complications for mother and child.	92 pregnant, Australian and Asian women matched with 125 historical controls Obese Mean Age: 32.2 Intervention; 33.4 Control Mean Pre-pregnancy BMI: 32.9 Intervention; 30.3 Control (P<0.001)	Standard PNC versus one, 1-hour dietary counseling session with dietitian with phone call follow-ups every 3-4 weeks (instructed on the Australian Guide to Health Eating, weight gain recommendations, and nutrient targets)	Weight gain during study: No difference 10kg intervention versus 9.7kg control (p>0.05) Weight gain within recommendations: No difference 25.6% intervention versus 28.8% control were within recommendations Diet was improved in the intervention group and GDM rates were lower	Not a randomized, controlled trial; Small sample size; Groups were unmatched etiologically; Many women enrolled late in pregnancy caused lack of adequate follow-up appointments BMI different at the start of the study despite the use of historical controls
Willcox JC, Wilkinson SA, et al, 2017 RCT	A, +	To determine the feasibility and effectiveness of a health intervention at promoting healthy diet, physical activity, and gestational weight gain in pregnant women	91 pregnant, Australian women (45 Intervention; 46 Control) Overweight or Obese Ethnicity: 77% Australian Mean Age: 33.0 Intervention; 32.0 Control Mean Pre-pregnancy BMI: 32.5 Intervention; 29.6 Control	Standard PNC versus dietary counseling or physical activity advice delivered via text message on mobile phones (instructed to restrict sugar sweetened beverages, increase fruit and vegetable intake) also physical activity advice (instructed to exercise 30 minutes per day on most days of the week) Mean: 4-5 texts per week Supplemented with written booklet, Website.	Gestational weight gain: 11kg intervention; 13.6 kg control (P=0.039) Weight gain during study: 7.8kg intervention versus 9.7kg control (p=0.041) Weight Gain within IOM recommendations: No difference	Self-reporting; Limited resources of assessing dietary intake; Small sample size; Expect women to be proficient with technology



**Lindsay Thunell, MS**, earned a bachelor's degree in nutritional science from Brigham Young University and a master of science in nutrition from Texas Woman's University. Her primary interests lie in women's health with a specific focus on the unique nutritional needs of pregnancy, lactation, and the postpartum period. As a mother of two young boys, Lindsay is currently taking a career sabbatical but plans to complete her dietetics internship and become a lactation consultant in the near future. Lindsay has lived all over the country, but currently calls west-ern Idaho home.



**Kathleen Davis, PhD, RDN, CSP, LD**, has been a registered dietitian for almost 19 years, working in a variety of settings. She started off as a clinical dietitian in acute care settings. She has worked in adult and pediatric nutrition care and in both in-patient and out-patient settings as well as having a private practice and working for Early Childhood Intervention. She also helped launch and then taught a pediatric weight management program at a local children's hospital. In 2013, she obtained her doctorate in nutrition from Texas Woman's University in Denton, Texas and began a career in teaching and research. She is currently an assistant professor at Texas Woman's University. Her research focuses on preventing early obesity by providing feeding advice to parents of infants using text messaging. She hopes to apply this approach in the future to provide nutrition information to pregnant women.

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**Mark your calendars:**  
**National Women's Health Week is May 12-18, 2019!**

Learn more on at the U.S. Department of Health and Human Services Office on Women's Health website here: <https://www.womenshealth.gov/nwhw>



From left to right: Dr. Angela Thayer, Ginger Carney, Judy Simon, Katie Leahy

**The WH DPG Spotlight at FNCE® 2018** in Washington, DC, "Integrating Nutrition in Fertility Treatment: The Dietitian's Role in Reproductive Medicine" was packed full of attendees! The talk was moderated by Katie Leahy, MS, RDN, CDN our WH DPG Past Chair. Presenters included our own WH member and Academy Fellow Judy Simon, RDN, CD, CHES, FAND and Angela Thyer, MD, a founding partner of Seattle Reproductive Medicine and expert in polycystic ovary syndrome, reproductive aging and fertility preservation. During this presentation we learned that diet affects the ability to conceive and results in fewer complications, better outcomes and less complicated pregnancies for patients who do require IVF. In fact, for healthy reproduction, even men need to eat well, and a Mediterranean Diet pattern appears to be beneficial.

Ginger Carney, MPH, RDN, IBLC, RLC, FILCA, FAND, our WH DPG Award Coordinator presented the following awards:

*Excellence in Practice in Women's Health*  
**Jean Tiffany Cox, MS, RD, LN**

*Emerging Professional in Women's Health*  
**Lauren Manaker, MS, RDN, LD, CLEC**

**eat right.** Academy of Nutrition and Dietetics

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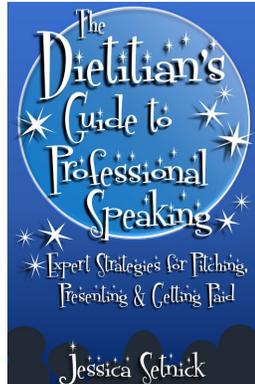


**Jessica Setnick, MS, RD, CEDRD-S**

Jessica Setnick recently published her third book, *A Dietitian's Guide to Professional Speaking: Expert Strategies for Pitching, Presenting and Getting Paid*. She describes the book as "everything you wanted to know but didn't know who to ask" about the business of public speaking. Topics include pitching yourself to event planners, drafting proposals, pricing and negotiating fees, logistics

and travel, planning your own events, weathering rejection, saying no nicely and other wisdom compiled over 20 years in the spotlight.

*The Dietitian's Guide to Professional Speaking* is available on Amazon.com and UnderstandingNutrition.com.



**Dawn Ballosingh, MPA, RDN, LMNT**

In October 2018, current Women's Health DPG Chair Dawn Ballosingh was selected to represent the Academy of Nutrition and Dietetics on the United States Breastfeeding Committee (USBC). The mission of the USBC, a national coalition of nonprofits and U.S. government agencies, is to promote policies and practices that support breastfeeding across the nation. In November 2018, Ms. Ballosingh

was also selected to serve on the National WIC Association's Leadership Academy Development Advisory Committee.

**Judy Simon MS, RDN, CD, CHES, FAND**

Judy Simon has specialized in women's reproductive health for the past 15 years. She owns Mind Body Nutrition PLLC, serves as a clinical dietitian in Women's Health at the University of Washington-Seattle, and is adjunct faculty in the school's Graduate Coordinated Program in Dietetics. Simon and reproductive endocrinologist Angela Thyer, MD, developed a successful Food for Fertility class and support series 8 years ago for women to optimize their fertility.

Simon was faculty at the American Society of Reproductive Medicine October 2018 daylong pre-congress session "Interactions between

Environmental Chemicals and Diet and Implications for Fertility." She presented two sessions. Simon was also an invited speaker at FNCE® 2018 with Thyer and co-presented "Integrating Nutrition in Fertility Treatment: The Dietitian's Role in Reproductive Medicine" sponsored by the WH DPG.

You can hear a two-part interview about Simon's work with women and fertility on the Food Sleuth Podcast: <https://exchange.prx.org/series/32432-food-sleuth-radio>

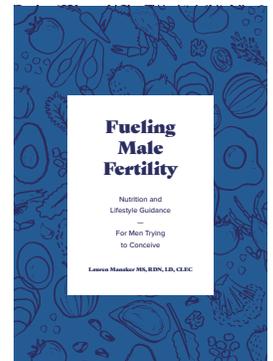


**Lauren Manaker MS, RDN, LD, CLEC**

Lauren Manaker recently published her book, *Fueling Male Fertility*. While conventional wisdom suggests that fertility is a women's issue, Manaker notes that research now suggests that some 40% of infertility issues are male-factor. One of the goals of this guide is to demonstrate to couples how men can support fertility goals. For clinicians who work with clients struggling with infertility, an awareness of the most recent research on male fertility will ultimately support their female client by helping couples "share the pressure"

of conceiving, and ultimately support their goals of a successful pregnancy. This evidence-based guide is written in everyday language that will be helpful to clients and clinicians alike.

*Fueling Male Fertility* is available on Amazon.com.



## FINAL REPORT FOR THE WOMEN'S HEALTH BREASTFEEDING STUDY PROJECT

*The Academy of Nutrition and Dietetics Health Informatics Infrastructure (ANDHII) was developed to provide RDNs a mechanism to collect nutrition related outcomes utilizing the standardized Nutrition Care Process (NCP) and its accompanying terminology NCPT. These outcomes can be leveraged to demonstrate effectiveness of RDN care at the local, national and international levels. Through a generous contribution from the Women's Health DPG, Research, International, and Scientific Affairs (RISA) Team performed an analysis of the current ANDHII Dietetics Outcomes Registry (DoR) related to RDN practice related to breastfeeding. Results from the ANDHII DoR queries show that insufficient data are available within the registry to assess current breastfeeding practices. Due to the limited data related to breastfeeding currently available in the DoR, RISA recommends the development and funding of a registry study to capture data related to women's health and breastfeeding practices. For more information, please refer to the full report here; <http://womenshealthdpg.org/mdocs-posts/risa-bf-andhii-registry-final-project-report-2019/>*

## PROFILES OF DIVERSITY IN WOMEN'S HEALTH



**Engondu M. Onuoha, MS, RDN, CDN, IBCLC, RLC, CDE, GPC, FAND**

*Engondu specializes in women's health and pediatrics. She brings diversity to dietetics and women's health through her Nigerian origins and experience with diverse clientele in NYC.*

### What are your areas of expertise within the field of nutrition?

As an international board-certified lactation consultant, my expertise is in women's health and pediatrics. I am also a certified diabetes educator. I have completed the certificate of training in weight management for both adults and children/adolescents.

### How did you become interested in dietetics and women's health?

My mom was a nurse midwife, so the health field was an area of interest growing up. I have always been interested in healthy eating, so nutrition and dietetics was an easy choice.

As a practitioner, I realized after venturing into a variety of specialties that I really enjoyed women's health and pediatrics. Community and public health have also become a passion. The WIC program provides me the everyday joy of working with women, infants and children.

### Briefly describe your training, nutrition relation jobs and current role.

I have a bachelor's degree in nutrition and dietetics and a master's degree in food science and technology. I am a registered dietitian, a certified diabetes educator, a Fellow of the Academy of Nutrition and Dietetics, and Grant Professional Certified (GPC).

I have worked as a clinical dietitian in various settings – hospital, health-care centers and nursing homes.

I have also worked in food service and more recently in public health.

### Please expand upon your work in an administrative role.

I have been at the Brooklyn Hospital Center in New York City for over 18 years and have been the administrator/director of several programs and/or departments during this time. My responsibilities for the past years have been overseeing the prenatal care assistance program (PCAP) at seven sites – two hospitals and five clinics. I have also been the Administrator for the Nurse-Family Partnership (NFP) – a home visiting program that utilizes registered nurses and nurse midwives to provide education to low-income, first-time pregnant mothers.

I have also been in charge of the Diabetes Program overseeing multiple grants for diabetes management. I currently oversee the WIC program at several sites with a caseload of 24,000 participants monthly.

My administrative role has given me the honor of overseeing multi-disciplinary teams as well as the opportunity to hire a large number of nutritionists and registered dietitians.

### How do you add diversity within the field of dietetics?

I was born in Nigeria and working in NYC has provided me with a huge opportunity to work with diverse groups of people with multi-lingual, multicultural backgrounds and diverse socioeconomic statuses. Having clinics in various communities in Brooklyn has helped me incorporate diversity in staffing so that our hiring practices require that we engage dietitians and nutritionists who reflect the diversity, culture and languages of the communities we serve.

Through advocacy and volunteerism, I encourage diversity in the field and encourage students from diverse backgrounds to consider a career in nutrition and dietetics. Through mentorships, we provide opportunities for young practitioners to expand their knowledge and skills so they can move up the career ladder in the field.

We create open communication that is accessible across different generations (traditionalists, baby boomers, generations X, Y, and Z). Fostering an environment of inclusion where employees can connect and collaborate has helped increase our engagement of diverse staff.

### What differences do you see in women's approaches to their health-care? Does this differ by ethnicity or generation?

Briefly, there are differences that apply to women based on socioeconomic status – lower income women are at higher risk of obesity, heart disease and diabetes. Older women are vulnerable due to age-associated changes and sometimes economic disadvantages. Older women face certain barriers that include lack of transportation, low literacy levels and inadequate income to pay for medications. Younger women are more likely to research their options and interact more with their physicians.

### What do you see as the biggest challenges and opportunities for future RDNs who want to work in this field?

Some of the challenges RDNs will face in the future will be appropriate salary/compensation and reimbursement.

The biggest opportunities will be in areas of nutrition beyond clinical nutrition. RDNs must acknowledge the important roles and opportunities that exist in the areas of public health, global health, risk management, quality and healthcare management, wellness and prevention, and technology and population health. These are the emerging areas that will provide RDNs with the appropriate skills, flexibility and vision to make a significant impact in the world.

### What advice would you give students and RDNs interested in pursuing a career in women's health?

Have an open mind and be flexible, creative and adventurous. Do not be afraid to take on new challenges even in areas that are not directly in the field of nutrition. Be willing to work hard and be committed. Above all, do your part to make the world a better place. Embrace servant leadership, and do not think "clinical nutrition" only.



**Padmini Balagopal, PhD, RDN, CDE, IBCLC**

*Padmini has worked in the U.S. for 45 years and for short stretches in India since 2002. Her focus areas include chronic disease management and prevention, and wellness promotion.*

### What are your areas of expertise within the field of nutrition?

I am a certified diabetes educator and an international board-certified lactation consultant. I practice medical nutrition therapy in the areas of wellness, preventive health, and disease management with a holistic and functional approach that also includes yoga, exercise, and meditation.

### How did you become interested in dietetics and women's health?

I studied food and nutrition as part of my postgraduate studies and decided I wanted to work in the field to help prevent and manage disease through diet. I wanted to become involved in women's health specifically,

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as I saw an increase in breast cancer and other cancers related to women. I wanted to know whether chronic and devastating diseases could be prevented and/or managed with lifestyle choices and if so, how.

### **Please briefly describe your training, nutrition related jobs and current role.**

In my current role as a clinical nutritionist with additional training in diabetes and lactation, I work with clients of all ages, from kids in the early intervention program, to adults with weight issues or metabolic problems, as well as pregnant women and postpartum women with breastfeeding issues. I enjoy the wide variety of conditions and ages, as they bring their own challenges.

### **Please expand upon your work with the diabetic population and in India.**

I was born in India, where type 2 diabetes and hypertension are on the rise. As part of my doctoral research, I conducted a study on the effectiveness of a non-pharmacological educational program on a rural community population. This program studied the effects of a structured lifestyle intervention, including diet and physical activity, on risk factors for type 2 diabetes and hypertension using metabolic parameters as indicators before and after. Parameters for diabetes and hypertension improved as a result of the three-month educational intervention. It was designed for one particular segment of the Indian population but was successful in reaching all segments and ages as was shown by the improvement in risk factors at the end of the study. It further showed that educational interventions were effective in bringing about meaningful lifestyle changes.

### **What differences do you see in women's approaches to their health-care in India? Does this differ by ethnicity or generation?**

In India, prenatal care is costly and not always available or utilized. As a result, women can have a multitude of problems rooted in habits, customs, misinformation and poor nutrition--and not know how to address them. These problems can include hyperemesis, swelling of feet, hyperglycemia, constipation, inadequate intakes of critical nutrients like protein, iron, and folic acid, and excess intake of refined carbohydrates. Such problems, if uncorrected, can affect the health of both the fetus and the mother.

Furthermore, for the postpartum mother and baby dyad, breastfeeding initiation and subsequent support are sorely needed and are not as readily available as they should be. Cultural customs, including diet, greatly influence postpartum care and can impact breastfeeding practices. For example, colostrum, which has now been shown to promote immunological health of the newborn and successful breastfeeding, used to be discarded.

Other cultural factors like multi-generational family dynamics, wherein some older family members wield a domineering influence on the decisions a new mother can make, may need review and educational intervention, especially if the dynamics negatively impact health and wellness.

Generational differences are also becoming more prevalent in another area. The younger generations are increasingly adopting a Westernized, highly processed, high-fat diet and a more sedentary lifestyle. They often abandon the age-old traditions of yoga, emphasis on a plant-based diet, attention to health and wellness, and simple, mindful living.

### **What advice would you give students and RDNs interested in pursuing a career in women's health?**

I strongly recommend that anyone interested in becoming an RDN do field work in nutrition before applying for a dietetic internship. This experience will give them a big-picture view of the areas that most need qualified help, in addition to helping them identify their own areas of interest and passion.



**Dawn Balloosingh, RD, LMNT, MPA**

*Dawn is the current WH DPG Chair and a clinical dietitian specializing in maternal and infant nutrition. Dawn brings diversity to women's health with her background from Trinidad and Tobago.*

### **What are your areas of expertise within the field of nutrition?**

My specialty areas are maternal and infant nutrition, community nutrition, and public policy and administration.

### **How did you become interested in dietetics and women's health?**

My parents were pastors in a rural area of my country, and feeding the poor was part of their purpose. Additionally, my mother Selma Balloosingh (my icon and hero) has been recognized by the UN for her work with women's issues in many countries at a time when women's roles were still growing and evolving. My father worked as a pastor, a public administrator, and human resources and industrial relations officer and was a brilliant visionary and strategist.

### **Please briefly describe your training, nutrition related jobs and current role:**

I received my education at the Miami-Dade Community College before transferring to University of Nebraska for a degree in human resources and family sciences with a dietetic emphasis, followed by my dietetic internship and master's in public administration. I began with the OneWorld Community Health Center as a WIC dietitian, then returned to Florida for a position with Kids Connected By Design. There, I developed a community nutrition intervention program that embedded RDNs in obstetricians' offices to facilitate "soft handoffs" for high-risk pregnant women. The program was successful and received local recognition.

Upon returning to Nebraska, I ran the WIC program at OneWorld Community Health Center, which has seen recognition for the work the RD team has done, including implementation of a "Toddler Learn & Play" program, a dietary acculturation approach and piloting MNT programming, now integrated as part of the Diabetes Prevention Program.

### **Please expand upon your work within an administrative role:**

As a WIC Clinic Manager, I manage the contract for the OneWorld Community Health Center clinics, collaborate with the local health department and contribute to the vision and strategy to meet the program's desired population health outcomes. I manage a 12-person staff and have developed the budget for the contract. I also write the departmental strategic plan, as well as grants.

As a representative for the program and the health center, I advocate at both local and national legislative levels. I have delivered presentations to lawmakers on the program, women's and population health issues, and the objectives and importance of the role of the RDN in health benefits for the lower SES population and for the fiscal solvency of state budgets and safety net programs.

### **Why is diversity within the field of dietetics important?**

Ethnic diversity is crucial for connecting with the client and the community. Diversity helps ensure familiarity with both dietary and cultural practices for a more customized approach to patient care. Likewise, professional diversity is also crucial. Dietitians with second languages, administration skills, marketing skills, early childhood education and

**Continued on page 12**

other such skills can evolve their practices to meet patient needs and maintain sustainable practices and incomes.

**What is your country of birth?**

Trinidad and Tobago (twin islands, one state)

**What are the differences you see in women's approaches to their healthcare?**

Women in the islands are typically not as proactive in their own healthcare due to issues of wait time and cost. Thus, many women access care as they need it. Likewise, the Carnival season provides the beauty and cathartic release of the parades but also high incidence of post-Carnival unplanned pregnancies, high STIs, and sex trafficking. This is further complicated by poor political will and management that leaves vulnerable groups like the poor and elderly seeking alternative health options or living with chronic disease. The food culture is multiethnic and delicious but high in processed and starchy foods, like white-flour roti (an Indian flat bread). This leaves the population susceptible to heart disease and obesity-related comorbidities.

**Does this differ by ethnicity or generation?**

The younger generation tends to be more focused on healthy eating and exercise, but there are multivariate factors in regard to ethnicity and preferred body image as well as socioeconomic status and outside influences.

**What do you see as the biggest challenges for future RDNs who want to work in this field?**

One of the biggest challenges is marketing. In this digital age, people are inundated with information, making it challenging for them to determine what is evidenced based and healthy, versus what is trending. Likewise, mixed messaging is an issue: evidence-based information is sometimes

coupled with information that is anecdotal or unproven. This is where our profession must come together and message with one voice.

**What do you see as the biggest opportunities?**

I believe the move towards personalized nutrition and nutrigenomics will impact the future of nutrition therapy.

**What advice would you give incoming RDNs who are interested in pursuing a career in women's health?**

Think big and think outside the box. From environmental factors to mitochondrial make up, the impact of maternal health on the lifespan is great, and impactors are varied depending on where people live. See the big picture, but also focus on the immediate need where you can make a difference. A small intervention taken to its global potential can help women of all ages in all parts of the world.

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Plan on joining us in Washington, D.C., July 11 and 12 for the Academy's **Nutrition and Dietetics Advocacy Summit**, formerly called Public Policy Workshop.

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## INCARCERATED MOTHERS AND SUPPORT FOR BREASTFEEDING

By Ginger Carney, MPH, RDN, LDN, IBCLC, RLC, FILCA, FAND

### BACKGROUND

The criminal justice system currently controls more than one million women, more than at any other point in U.S. history. Many have a history of substance abuse as well as being physically or sexually abused themselves. A large proportion of these women are mothers of young children, and possibly up to about 10% are pregnant as they enter prison. The average time of incarceration for U.S. women is 6-12 months which means that many experience birth and the beginning of their mothering experience during this time. Approximately 1400 babies are born each year inside the prison system.

Most mother-baby dyads are separated after the postpartum hospital stay and then denied any opportunity to establish successful breastfeeding after discharge. Women inmates are forced to give up many of their rights, but there is no thought about the rights of their infants such as the right to receive their mothers' milk. Few facilities offer any accommodations to new mothers to express milk to provide for their infants' feedings when separated. Moreover, female prison employees are rarely accommodated with resources to express their milk while on the job. Although common, this scenario runs counter to recommendations from the American Academy of Pediatrics and the Academy of Nutrition and Dietetics, among many other professional health-related organizations.

### BREASTFEEDING AS A HEALTH EQUITY ISSUE

Breastfeeding rates among incarcerated women are likely substantially lower than the national average given the disproportionate representation of women from high-risk backgrounds in the criminal justice system. Significant racial, economic, and geographic disparities in breastfeeding rates have been identified, including racial and ethnic minority groups, low income women, and those that have experienced adverse life events, including homelessness and previous incarceration of themselves or their partners. History of sexual trauma and substance use disorders, common among incarcerated women, also create barriers to successful breastfeeding.

Considering the WHO's recommendation that "all mothers should be shown how to breastfeed and how to maintain lactation even if separated from their infants," lactation support is crucial for these mothers to initiate and maintain milk production. Considering the low breastfeeding rates among these mothers, this support appears to be minimally existent, if at all. Even when breastfeeding or lactation is initiated, barriers to continue could be overwhelming without the continued support of a healthcare professional trained in lactation care. Poor lactation support leads to lower breastfeeding rates among disadvantaged women which ultimately affects health outcomes in this population. Breastfeeding provides immediate physical benefits including decreased postpartum bleeding, lower rates of postpartum depression, and even decreased neonatal need for pharmacological treatment in the case of an addicted mother. Because incarceration undermines breastfeeding most in communities already experiencing significant health disparities, it is truly a health equity issue. Increased breastfeeding support could be considered a cost-effective measure since prolonged breastfeeding (or breastmilk feeding) could lead to lower health care costs for these women and children and therefore reflect a cost savings to taxpayers.

### CURRENT STATE AND FUTURE OPTIONS FOR INCARCERATED MOTHERS

Research shows that many incarcerated women have the desire to breastfeed which can offer psychosocial benefits in the short time they have with their babies. Studies show that women who bond with their infants through breastfeeding become more empowered in their role as mothers and increase their confidence in connecting with their children upon release. Good data also reveals that recidivism is reduced significantly when mothers and infants are kept together. Ultimately, breastfeeding can help these women break the cycle of incarceration and provide a pathway to rehabilitation for families.

Currently, only nine states in the U.S. have prison nursery programs. Although a few programs may allow infants to remain with their mothers, significant challenges such as limited knowledge about breastfeeding management and lack of social support, most mothers are unable to continue the relationship for long. Currently, many facilities only allow the woman to "pump and dump" just to maintain a milk supply if the time to be served is short (i.e. less than 3 months); most facilities do not have the capacity to allow storage or shipping of the milk to the child. Even if milk could be sent out for infant feedings, much coordination and support would be needed for breast milk feedings to occur. Considering all these challenges, very few women behind bars even go as far to consider any breastfeeding (or breast milk feeding) at all. Since many women are released from prison during the infant's first year of life, lactation support could provide a mother the opportunity of maintaining her milk supply while providing her milk to her baby until she is free. The possibility of resuming breastfeeding upon release could then be an option.

### DIRECTION FOR PERINATAL PROFESSIONALS

Health care providers working in the perinatal field can make a difference in the lives of women facing incarceration during the prenatal and postpartum period. Education about breastfeeding and parenting should be provided so that these new mothers can make informed decisions about the future of their health and that of their children. It is also important to educate judges, attorneys, wardens, parole boards and prison health staff on the risks of not breastfeeding or the complications of disrupted lactation. Perinatal professionals can work to influence policy that helps to change current practices that could encourage and support the establishment and continuation of breastfeeding while a new mother faces a prison sentence. Advocacy is needed to help optimize breastfeeding outcomes for vulnerable babies and their mothers. As a rehabilitative environment, lactation support in prison could help empower these women with the tools needed to turn their lives around. Some recommended actions to help improve situations for incarcerated mothers who wish to breastfeed include:

- Improve pumping, milk storage and transfer in jails and prisons, including accommodations for female employees
- Educate colleagues in the criminal justice system about risks of not breastfeeding for babies and their mothers
- Advocate for sentencing alternatives that protect breastfeeding and bonding, such as community-based or deferred sentencing, addiction treatment, prison nurseries, and visitation
- Advocate in the community for humane birth care for inmates

Continued on page 14



### **Tell Your Members of Congress to Support the Reintroduction of TROA!**

As a member of the Academy of Nutrition and Dietetics, please urge your policymakers to co-sponsor the reintroduction of Treat and reduce Obesity Act (TROA) of 2019. It is a bipartisan, bicameral bill introduced in this 116th Congress by Representatives Ron Kind (Wis.) and Brett Guthrie (Ky.) and Senators Bill Cassidy (La.) and Tom Carper (Del.). This legislation will remove unnecessary barriers to obesity treatment and prevention by allowing a variety of qualified practitioners, including registered dietitian nutritionists, the authority to effectively treat obesity through intensive behavioral therapy (IBT). Expanding Medicare coverage of IBT to RDNs is a clinically- and cost-effective solution to addressing the obesity epidemic. Take action today: <https://www.eatrightpro.org/action-center>.

### **INCARCERATED MOTHERS** Continued from page 13

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**Congrats to our very own Kathleen Pellechia,** MS, RDN, Nutrition Knowledge Management Specialist, FHI 360 for receiving the Outstanding Preceptor Award from NDEP!

Preceptors are inspired by students on the forefront of change.

*Thank a Preceptor Today!*

Tak Grazias, Merc, Gracias, Дякуємо, Bedankt, 고마워.

**NATIONAL PRECEPTOR MONTH 2019**



## RESEARCH BRIEF: Does Produce Promote Wellbeing?

By Lee Crosby, R.D., L.D.

*Featured article: Ocean N, Howley P, Ensor J. Lettuce be happy: a longitudinal UK study on the relationship between fruit and vegetable consumption and well-being. Soc Sci Med. 2019;222:335-345.*

Globally, women are nearly twice as likely to suffer from anxiety disorders as men over the course of their lives,<sup>1</sup> and have been found to have a 67% higher prevalence of major depressive disorder than men.<sup>2</sup> Dietary interventions that could improve mental health may therefore be of special importance to women.

Recent research shows that higher intakes of fruits and vegetables are linked to improved mood and wellbeing. However, the data has often been cross-sectional,<sup>3,4</sup> making it difficult to determine cause and effect: Does eating fruits and vegetables make people happier? Or do happy people eat more fruits and vegetables?

A recent study conducted by researchers in the United Kingdom (UK) sheds light on the answer.

### Putting Produce to the Test

To get at cause and effect, investigators examined both the quantity and frequency of fruit and vegetable intake over time in more than 45,000 individuals ages 15+ enrolled in the UK Household Longitudinal Survey. Data on fruit and vegetable intake and wellbeing were gathered annually for three years from participants in multiple waves.

Quantity of fruit and vegetable consumption was measured with a survey question asking people how many portions they consumed on a day they ate any fruits or vegetables at all. (Portion sizes were clearly defined.) To get at frequency of intake, researchers asked participants how often they consumed fruit in a usual week, and how often they consumed vegetables in a usual week.

The main outcome variable was mental well-being. It was measured using a shortened version of the General Health Questionnaire (GHQ) known as the GHQ-12. This questionnaire assesses happy or depressed feelings, purpose and self-worth, and anxiety. Self-reported life satisfaction was also assessed as a “robustness check” for the GHQ-12.

Authors controlled for numerous potential confounders. These included socioeconomic variables like age, gender, household income, and education, etc.; the presence of chronic health conditions; smoking; and frequency of walking. Researchers also controlled for indicators of an overall healthy diet.

### How Much Produce do People Eat?

In results unlikely to surprise an RDN, 78% of people surveyed across various time points (of a total of 90,448 observations) did not consume the recommended five or more portions of fruits and vegetables daily. Interestingly, while those with higher incomes tended to consume more fruits and vegetables than those with lower incomes, the differences were negligible, suggesting that reasons beyond income (e.g. a lack of time) contributed.

In terms of frequency of consumption, 50% of people ate at least one portion of vegetables daily, and 46% of people had at least one serving of fruit daily. However, 2% of people reported they never consumed vegetables in a typical week and 7% said the same for fruit. Both the quantity and frequency of fruit and vegetable intake rose with age. However, once people reached age 64, quantity of produce intake fell, while frequency of intake continued to increase until age

80. In line with previous studies, women tended to eat more fruits and vegetables than men: about 0.3 more servings per day ( $p < 0.00005$ ).

### Can Fruits and Veggies Make People Happy?

Data from this study suggest that, yes, eating more fruits and vegetables can lead to greater wellbeing.

To help ascertain this, researchers looked at “within-person” effects (a fixed-effects model), following the same individual over multiple time points. They found that when individuals increased their fruit and vegetable intake, their mental wellbeing rose. This held true even in models controlling for socioeconomic factors, lifestyle and health, and other dietary choices viewed as “markers” for a healthy diet: specifically, consuming whole-grain as opposed to white bread and low-fat instead of full-fat milk. Interestingly, these markers did not have a significant relationship with wellbeing, suggesting that wellbeing-enhancing effects of fruits and vegetables are somehow unique to these foods.

In fact, the authors reported that for every additional portion of fruits and vegetables consumed daily, people experienced a 0.133 unit increase in mental wellbeing ( $p < 0.01$ ). In “real-world” terms, a five-portion increase in fruits/vegetables is linked to a 0.67-unit increase in wellbeing. In terms of magnitude, the authors point out that this is the same as the estimated drop in wellbeing as living as a widow (-0.68) or one-third of the drop seen with unemployment. In more manageable terms, increasing fruit and vegetable intake by a single portion daily may give approximately the same boost in wellbeing as adding 10+ minutes of walking two days per week. Not bad for eating an apple.

A similar pattern held for frequency of intake of fruits and vegetables, with the effect being larger for frequent vegetable intake. To illustrate, the authors note that if someone who ate vegetables daily stopped eating them altogether, they could expect a loss in wellbeing equivalent to half of the wellbeing hit of unemployment.

Attesting to the robustness of the effect, the same pattern was seen when using “life satisfaction” as a measure.

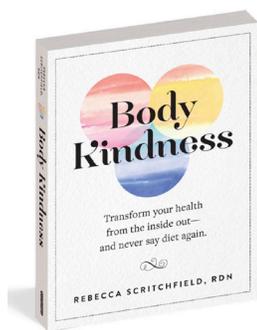
### Limitations

While this study utilized a large, representative sample, followed individuals over time, and controlled for many confounders, it’s still possible that “reverse causality” could be in play; wellbeing could drive increased fruit and vegetable intake. Authors also used self-reported measures of fruit and vegetable consumption.

### Why might fruits and vegetables boost wellbeing?

Despite its limitations, this study suggests that fruits and vegetables can indeed enhance wellbeing. The authors note a number of possible explanations. Fruits and vegetables are rich in antioxidants, which help decrease oxidative stress and inflammation—both of which are linked to onset of depressed mood. They contain B-vitamins needed to prevent mitochondrial dysfunction, which has links to stress and anxiety. Fruits and vegetables are often high in complex carbohydrates, which can boost mood, and consuming more produce may also crowd out foods like meats, sweets, and sugary drinks.

Regardless of the mechanism, this study makes an even stronger case for increasing fruit and vegetable intake—not just for good health tomorrow, but for happiness today.



**Title:** Body Kindness  
**Author:** Rebecca Scritchfield  
**Price:** \$1.99 Kindle, \$13.46 Hardcover (Amazon)

“Body Kindness” is a practical guide that gives readers the tools they need to be loving towards their own body while giving the body what it needs to thrive. The book is written by Rebecca Scritchfield, a registered

dietitian, well-being coach, American College of Sports Medicine certified exercise physiologist and author.

While body kindness may seem like a straightforward topic, there are many ways in which one can approach the body with kindness, and RDNs are in an ideal role for helping others nourish, accept, and joyfully move their bodies. Scritchfield aims to help people create healthier lifestyles through an anti-diet, self-care approach.

In the first section of “Body Kindness,” Scritchfield emphasizes that treating the body with kindness is a personal choice. Through the choices people make on a daily basis, they can shift their minds and bodies into constantly practicing kindness. Scritchfield offers seven ways to start the day by what she refers to as “spiraling up.” Spiraling up is the process of choosing actions, activities and thoughts that lift one upwards throughout the day. Scritchfield’s recommendations for spiraling up include striking a power pose, taking deep breaths, spreading gratitude, practicing stillness, doing inversion therapy, letting the sun shine in, and seeking to be inspired.

Next, Scritchfield explains how to eat with body kindness. Instead of viewing foods as “good” or “bad,” “Body Kindness” urges the reader to view food through a more flexible lens and to consider how food can positively affect people’s health and lives. Scritchfield encourages people to let go of food rules, explore their food preferences, listen to their hunger cues, and eat intuitively.

Fitness and movement are also part of body kindness. Scritchfield recommends choosing movement that brings joy and not allowing body image to be the primary motivator for exercise. In order to achieve this, people should create Zen within their motions and remove personal roadblocks, like not having enough time, thinking that working out isn’t fun, and believing that it doesn’t count if it doesn’t hurt. Instead of these thought patterns, which can cause someone to spiral down, the author suggests engaging in movement mindfully. This can create a sense of rejuvenation instead of dread or exhaustion.

After exercise, Scritchfield delves into the topic of sleep. She states that sleep is important, as it’s much harder to think clearly, eat well, and practice body kindness when sleep deprived. Some of her sleep tips include reserving the bedroom for sleep and sex, making sure the bed is comfortable and clean, setting a bedtime, keeping the nightstand clear, keeping the room dark and cool, and wearing pajamas that bring joy.

The second section of “Body Kindness” is all about emotions. How people feel and what they eat are directly connected, as people are more likely to engage in emotional eating if they are not in tune with their feelings, Scritchfield notes. She recommends acknowledging

both good and bad feelings and trying to spiral up with self-care when feeling down. One example of self-care is expressive writing, which allows people to put emotions to paper and address them one by one.

Next, Scritchfield recommends finding the ‘fun’ in daily routines like cooking and exercising. It can be easy to get into a slump and spiral down until there’s little fun left in the day-to-day. Instead, she suggests that people find fun in cooking by addressing the desire for the occasion (perhaps throwing a dinner party or making a romantic dinner for someone special), the function (such as getting more of a nutrient), the season, cravings, available resources, weather and guests. By adding more fun through contemplating these aspects of cooking, something as simple as making dinner can go from being a burden to being a joyful experience.

Next, the book discusses bouncing back from challenges and getting stronger. If someone finds that their stressors and traumas are preventing them from practicing body kindness, Scritchfield recommends that people give themselves permission to feel pain and to feel better, try daily sacred pauses, forgive themselves and others, and to be patient through the healing process.

Scritchfield invites readers to become who they are through the use of her three body kindness pillars: love, connect, and care. Through loving, connecting and caring for themselves, people can identify their values, discover the true meaning of these values and set goals to become the person they want to be.

To conclude “Body Kindness,” Scritchfield encourages people to befriend themselves and nurture connections that provide happiness and love. Surrounding oneself with uplifting, caring friends makes the practice of body kindness easier.

On the whole, the book is a how-to manual that is straightforward and can benefit dietitians across multiple specialty areas. However, the RDNs likely to benefit most from this book are probably those who work with clients with eating disorders, poor body image, or general self-esteem issues. Note that this book can be difficult to digest if trying to read cover-to-cover; it’s set up as more of a road-map than a narrative chapter book.

Overall, “Body Kindness” provides simple, implementable tools and habits that RDNs can use to help their clients achieve more self-love and acceptance.



**Reviewed by Jordan Taffet,**  
Assistant Publications Editor, WH DPG

our vision

*“Optimizing the future of  
women’s health at all ages.”*



## HOUSE OF DELEGATES “DELEGATE DISH”

By Kathleen Pellechia, MS, RDN, WH DPG Academy House of Delegates Representative

Hello WH members! I have just come off participating in the House of Delegates (HOD) virtual spring meeting from March 30-31. It was amazing how web conferencing technology allowed us to be “moved” in and out of large and small group sessions without us having to do anything. Thank goodness for the mute button though for when my three kids came screaming down the hallway during the meeting.

The “mega issue” for the spring meeting was consumer awareness and changing drivers of food choices. The topic was selected based on conversations during the fall HOD meeting at FNCE and a survey of members. Fifty-nine delegates completed a survey to rank three choices (consumer awareness and changing drivers of food choices (26 votes), collaborative ready practice (17 votes), and technology in dietetics practice (16 votes)). Specific data around members’ perceived confidence in this area was gathered via a Member Pulse Survey. There were 2,100 responses received, and WH DPG had 150 members complete the survey. This was a great response rate and helped inform the HOD and the Academy of Board of Directors (BOD).

During the virtual meeting, we heard from RDN leaders in the field of food and sustainability. We brainstormed in small groups on strategies for increasing competence of the RDN and strengthening the position of the RDN as an expert and leader to guide consumers in making food choices in a rapidly changing food environment.

Small groups were formed around the areas of education, practice, and research, and I participated in the education group. Our discussions centered on increasing exposure of existing resources that the Academy already has, ensuring that students and interns participate in face-to-face opportunities with community and small farms, farm to table, etc.; helping RDNs better navigate the ever-changing research around food and health; and determining whether there should be required continuing professional education (CPE) around

this topic, similar to the currently required ethics CPE. We ended day 2 with a report from Academy President Mary Russell, MS, RDN, LDN, FAND, as well as Academy committee reports and a presentation from representatives of the HOD Evolution Designers Team. This group of delegates was tasked with coming up with recommendations on changing the culture and function of the HOD. Here are a few highlights from their report:

- The HOD should have decision making authority at all levels of the process.
- There needs to be a grassroots step to ensure that input is received from both member and non-member RDNS.
- The HOD process needs to be open and transparent with clear communication between the HOD and BOD.
- Delegates should be grouped in workgroups or taskforces and outside subject matter experts/stakeholders should be brought in to consult.
- There should be discussion and action on strategic issues which could impact the profession within the next three years and professional issues which are impacting the profession now.
- Diversity and inclusion can be increased through inclusion of additional at-large delegate positions.

These are just some of the recommendations from the report. The full report and other materials from the spring meeting will be available on the WH website in the newsletter section. I am excited for the direction we are moving in. As your delegate, I want to ensure that I am meeting your needs and sharing your concerns with the Academy leadership. Any questions or comments can be sent to me at [kmpellechia@gmail.com](mailto:kmpellechia@gmail.com). Or if you want to drop me an anonymous message, visit <https://goo.gl/forms/105UCoeVTXIQsb7y2>.

### REIMBURSEMENT TIP: Are You Using this Go-To Resource?

By Rita Kashi Batheja, MS RDN CDN FAND AFMCP  
Reimbursement Representative, WH DPG

Are you being fully reimbursed for your expertise? If you aren’t sure, I suggest familiarizing yourself with an invaluable Academy resource: the MNT Provider newsletter. It’s packed with articles on billing, coding and coverage; CMS updates and releases; practice and business management info; and Medicare, Medicaid and private insurance reimbursement. Best of all, it’s free to Academy members.

Brush up on insurance verification, 2019 Medicare billing and payment rates, and the Quality Payment Program in the [January](#) issue, and recent Medicare billing updates and increasing access to obesity care through the STAR program in the [February](#) issue.

Find past editions of the MNT Provider newsletter here:  
<http://www.eatrightpro.org/resources/news-center/in-practice/mnt-provider>

### QUICK-AND-EASY GUIDE TO YOUR WH DPG RESOURCES

**Women’s Health DPG Website:** Access webinars, past newsletter issues, the latest updates, and more. Logging in is easy: Your username is your email address and your password is your Academy Number. <http://www.womenshealthdpg.org>

**Social media:** Connect with your women’s health colleagues:

- Facebook: <https://www.facebook.com/WHDPG/>
- Twitter: <https://twitter.com/WomensHealthDPG>
- Instagram: <https://www.instagram.com/womenshealthdpg/>

**Webinars:** Earn FREE continuing education webinars in women’s health nutrition:

- Menopause and Successful Body Mass Change (January 2019)
- Environmental Toxicity and Women’s Health (March 2019-No CPEU available)

If you missed recent webinars, view recordings here: <http://womenshealthdpg.org/webinars/>.

**Newsletter archive:** Read about women’s health topics in the newsletter archive: <http://womenshealthdpg.org/newsletters/>

**Annual women’s health nutrition awards:** Nominate a colleague for Excellence in Practice in Women’s Health, Emerging Professional in Women’s Health, and Outstanding Student in Women’s Health: <http://womenshealthdpg.org/members-awards/>

**Electronic mailing list:** Join for updates and breaking news: <http://womenshealthdpg.org/electronic-mailing-list/>

**Member Marketplace:** Publicize a product of interest to members of the WH DPG: <http://womenshealthdpg.org/member-marketplace-product-submission/>

**E-Blasts:** Receive updates with the latest news and resources from the WH DPG



## Easy Kale and Mango Salad with Ginger Dressing

Dark leafy greens in the cruciferous family—think kale, collard greens, and turnip greens—are women’s health powerhouses. Kale and collard greens contain 177 mg and 268 mg of calcium per cup cooked, respectively.<sup>1</sup> These dark leafy vegetables are also rich in vitamin K and contain ample amounts of magnesium and potassium for strong, healthy bones.

Moreover, cruciferous vegetables contain a special group of phytochemicals called glucosinolates. Once converted to their active forms, these substances can help women’s bodies dial down the production of “bad” estrogen (16α-hydroxyestrone) while increasing levels of “good” estrogen (2-hydroxyestrone). This is great news, because 16α-hydroxyestrone has been shown to promote the growth of estrogen-sensitive breast cancer cells in lab studies.<sup>2</sup>

Glucosinolate derivatives have also been found to trigger breast cancer cell death in the lab.<sup>2</sup> However, the enzyme needed to activate glucosinolates is deactivated at higher temperatures. So enjoying cruciferous veggies raw or lightly cooked may offer the most benefit.

Luckily there are lots of delicious ways to enjoy leafy greens—including this delightfully addictive kale salad! It pairs fresh kale with a lightly sweet almond-ginger dressing and juicy mango, giving you a colorful, flavorful salad that’s sure to please.

**Ingredients:** Serves 4 (~2 cups of salad per serving)

**Dressing**

- ¾ c pineapple or apple juice (plus more to thin as needed)
- 2 Tbsp lemon juice
- ¼ c almond butter
- 2 Tbsp (packed) raisins
- 1 Tbsp ginger paste or fresh chopped ginger
- 1 clove garlic, chopped

**Salad**

- 1 large bunch kale (or 1 bag prewashed/chopped kale, thick stems removed)
- 2 large or 4 small mangoes (or 2-3 cups thawed frozen mango chunks)

**Directions**

1. Place dressing ingredients in a high-speed blender and blend until smooth. You can also use a regular blender or immersion blender, but the dressing won’t be as smooth. Add more juice as needed to thin.
2. Wash and chop kale. Shake or pat dry.
3. Peel and chop mangoes.
4. Toss kale and mangoes with ½ cup sweet ginger dressing, adding more to taste.

**Notes**

- You’ll have leftover dressing; it’s delicious on nearly any kind of salad or slaw.
- Recipe from [www.Veggie-Quest.com](http://www.Veggie-Quest.com), developed by Lee Crosby, R.D., L.D.

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