

# Women's Health & Reproductive Nutrition Report

A Quarterly Newsletter

Winter 2006

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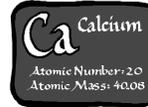
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## Eating Disorders Throughout the Lifespan

Jessica Setnick, MS, RD, LD

Eating disorders were once exclusively thought to be afflictions of young, affluent women (1). More recent research, as well as the real-life experience of clinicians in the field, has toppled this belief in favor of a more equal opportunity epidemiological profile. Dietetics professionals must be aware of this, and assess patients of all ages for the precursors and risk factors of eating disorders, so that those suffering receive the care they need.

### Childhood

Eating habits begin to form in infancy and early childhood (2), so what later presents as an eating disorder often has roots in the child's experience. Many adult patients can remember dysfunctional eating behaviors they participated in as children (for example, overeating when sad) and report altered eating habits in response to stress--the hallmark of all eating disorders--as early as age 2. Any situation that exceeds a child's ability to cope can cause an alteration in eating habits. There are many things beyond a

young child's control, but usually they have control of their eating. Because food is a mood-altering chemical, it is used to calm frayed nerves, soothe uncomfortable emotions, and quiet unhappy children. Whether children are taught to use food in this manner or discover the power of food themselves, responding to stress with food can lead to true eating disorders later in life.

According to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, a child under the age of 6 exhibiting ED-type behaviors would be in the Feeding Disorders category (3), meaning that the child is less in control of his or her behaviors than the caregiver. However, children under the age of 6 have been observed to mimic eating disordered behaviors they have witnessed, such as inducing vomiting after meals, and have reported restricting food due to "dieting," even if they don't sincerely know what that means. Children whose parents suffer from eating or exercise disorders may consider disordered eating to be "normal" and thereby develop abnormal weight standards or eating habits. Children raised in a very authoritarian environment, such as a home with extremely strict mealtimes or rules, may be unable to deviate from

routine without guilt, leading to distress over any variation, ignorance of hunger or satiety cues, and/or purging.

Children raised in a dysfunctional manner, ie where eating patterns and schedules are erratic due to an unstable caregiver, may lack the ability to structure mealtimes, grocery shop, or plan ahead for appropriate eating.

Children raised in poverty or neglect may experience food insecurity, and feel compelled to eat as much as possible when food is available. Children who have been injured or abused in the oral area or at meal time (including children who are forced to eat) may become averse to eating certain foods or may refuse to eat at all (2).

Children who were labeled or teased at a young age as unacceptably sized may develop a distorted sense of their size and shape that persists beyond weight normalization (1). As these children grow older, unless these distortions/misconceptions are corrected, eating behaviors become more and more entrenched. They may not be recognized until the child is considered severely under or overweight, or until the eating behaviors are considered problematic

(Continued on page 3)

## Women's Health & Reproductive Nutrition Report

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## From the Chair

Dear Members and Colleagues,

The WHRN DPG is looking for members who are interested in forming a breastfeeding task force. Although the mission and goals of the group would ultimately be defined by those who participate, interest has been expressed in the following areas:

1. Creating an evidence based analysis workgroup which would work to provide evidence-based practice guidelines with regard to breastfeeding. The questions and answers would be available to members through ADA's evidence-based analysis library on the web. (Check it out to see what has happened with other areas).
2. Influencing dietetic internship and didactic program content. The task force could use an already established module or create a module that could be employed by programs to include basic breastfeeding skills in these settings.
3. Recommending topics and authors regarding breastfeeding for inclusion in the newsletter.
4. Identifying resources that can be made available to our members via the website.
5. Identifying key issues of policy and promotion within ADA and working with the PID (Professional Issues Delegate) as our voice to the House of Delegates (HOD).

This list is a sample of potential areas of influence that a task force might address. A strategic plan and united front can lead to many changes!

Please send an e-mail to [jbship@att.net](mailto:jbship@att.net) if you are interested in participating or call 530-754-5844.

I hope to hear from many of you soon!

*Jeanne Blankenship, MS, RD*

## From the Editor

I'm a little embarrassed to admit that I was a WHRN member for nearly three years before I realized we had a listserve. But I suspect I'm not the only one who was missing out. At press time, just 152 people--a mere fraction of our DPG membership, were signed up (see how to join on page 4). It's a great resource, thanks to member queries and posts on everything from lactation and celiac disease to CE's and new studies. But what I've found most exciting is that it has been a forum for action. The Chair's column call for breastfeeding task force members originally ran on the listserve, and generated tremendous response. Maternal weight gain guidelines were a hot listserve topic this winter, and WHRN members raised many of the questions you'll read about in our coverage of ADA's action to reevaluate those guidelines.

As a counterpoint to the maternal weight gain articles, Jessica Setnick provides an important overview of eating disorders throughout the lifecycle. The risks of obesity receive constant media and clinical attention, yet eating disorders are often shrouded in silence. Setnick attunes us to their overlooked signs, and blasts assumptions about the "classic" patient profile.

On another note, please join the executive board in wishing heartfelt thanks to Theresa Romano for her years of steadfast service. Passionate about WHRN, Theresa volunteered untold hours to the DPG, and held nearly every leadership position within it. When she changed gears professionally, taking a position outside of nutrition, her commitment to WHRN continued, and she led the DPG as Chair until March 2006. Concerned about best serving the DPG's needs as her professional demands increased, Theresa recently resigned her WHRN post. New Chair Jeanne Blankenship put it best, writing, Theresa "will continue to hold the most meaningful title of all, 'friend.'"

*Miri Rotkovitz, MA, RD*

*(Eating Disorders, continued)*

to caregivers or health professionals (food is missing or found hidden; the child is sneaking, begging for, or avoiding food, or throwing tantrums at mealtimes; etc). If the child is able to maintain a “normal” weight (per societal standards), the disordered eating may not be recognized by others at all... treatment may have to wait until the child observes others eating differently or experiences distress and ties it to eating. Entering school may be the first time a child realizes he or she doesn’t “fit in” with fashionable size or body shape standards. Some schools weigh and measure children in front of their peers without explanation of normal size differences, causing discomfort, insecurity, and competition.

School sports often endorse certain body types, eating styles, or even weight ranges for optimal performance. Some cheerleaders and dancers, for example, must maintain a certain weight to be allowed to perform, and “flyers,” the girls who are thrown in cheerleading stunts, must remain abnormally small or lose their prized position. Wrestlers and rowers often compete in “weight classes,” intended to equalize competitors based on their size and strength. However many athletes restrict their intake of food and fluids in order to “weigh in” in a lower weight class, and therefore compete against smaller athletes. When parents accept these weight or size stipulations without regard for their child’s health, children may adopt dysfunctional eating habits to meet inappropriate goals.

School age may be the first time a child cannot eat at will when he or she feels hungry. Many schools do not allow snacks or even water in the classrooms, and lunchroom schedules may require abnormally short or long times between meals. If a child does not like the food provided by the school, he or she may go hungry throughout the day. If recess is only allowed during lunchtime students may race through their meals in order to have some free time. And if physical education is immedi-

ately before or after lunchtime, this may interfere with a child’s normal eating patterns.

**Adolescence**

Anorexia nervosa is often reported in adolescence, with the average age of onset commonly reported at 14 to 18 years old (4). It is unclear if this is the age that dysfunctional eating behaviors begin, the age that they became “out of control,” or the age of first diagnosis. More research is needed in this area to determine what contributes to eating disorders at this stage of life. Many hypotheses have been made, attributing eating disorders to everything from social pressure to hormonal imbalance (1). Some children are first exposed at this age to peers dieting, “diet” foods and beverages, and peer or parental pressure to “fit in.” Boys and girls also start to notice each other developing during adolescence, and body consciousness, teasing, and hormones all increase. In adolescence, girls may grow taller than boys, leading to self-consciousness and wanting to be “smaller.” As opportunities increase, so do disappointments and pressures, including dating snafus, sports tryouts, competition for grades, and cliques. In a society that teaches that beauty equals happiness, unhappy teens may assume they are ugly or fat. Whether or not they are overweight, dieting increases their risk of developing eating disorders, especially if weight loss is noticed and complimented by peers (5).

Sadly, sexual abuse, assault, and adverse sexual experiences such as date rape and unplanned pregnancy are not uncommon for adolescent girls (1). All of these can cause unmanageable stress if not addressed immediately and with compassion. Research indicates connections between eating disorders and sexual abuse, but the exact mechanism is not understood (1,2,4).

Late adolescence is considered the age of onset for Bulimia Nervosa, specifically between ages 18 to 22 (2,3). It is possible that girls who have been restricted or self-restricting in high

school may “lose control” when they arrive in college. Trying to lose “the freshman fifteen” may cause problems (in the form of restrictive diets and/or excessive exercise) for young women in their first year or two of college, and accessibility of food in dorms and cafeterias can lead to overeating, confusion, guilt, or all of the above.

**Adulthood**

Young adulthood is certainly fraught with the stress of first jobs, relationships, and possibly marriage. Many women attempt to return to their adolescent weight “in time for the wedding.” For some, this may entail an unsuccessful but harmful restriction of calories, and for others it may trigger a full eating disorder. The combination of stress and dieting creates an inability to manage either.

Pregnancy is another dangerous zone for women insecure with their bodies (6). The weight gain and/or eating changes required to support a healthy pregnancy can seem unpalatable to a woman whose body shape and size control her self-esteem. Popular culture promotes immediate weight restoration after delivery as possible and desirable, when in fact it may be dangerous for a woman to attempt to lose weight and/or exercise immediately. Research shows that a woman with a history of an eating disorder is most at risk of relapse in the post-partum period (6). She also has a five-fold risk of post-partum depression compared with other new mothers (6), although the exact connection is not understood.

Working life can also be a factor in the development of eating disorders. Women who work long hours and skip meals, and women who work a night-time shift are all at risk of bingeing, unconscious eating, and using food for comfort. Changing jobs and interviewing, in addition to increasing stress, can add to the societal pressures of “image” and competence as supposedly reflected by weight and size. A woman may feel she can’t seek a better job “until I lose weight,” at the same time her job stress may cause binge-eating,

a cycle that keeps her overweight and unhappy.

The empty nest and menopause can also affect a woman's eating. A mother who has cooked for five for many years may be cooking too much for only two. The lack of structure when children leave home may leave a woman lonely, confused, and looking for comfort. Or a woman may not feel it's worthwhile to "cook for one." Recent news media reports have suggested that social pressures to look young and fit are causing an increase in eating disorders during middle age. Because any stressor can cause eating issues, it's certainly possible that these eating disorders develop for the first time at midlife. However it is also possible that women in this stage have never had truly normal eating habits, but this is the first time in their lives that they have addressed them, sought treatment, and/or recognized the problem. Traumatic divorce, illness, or loss of a spouse can also cause stress and doubt about attractiveness and desirability. Dating as an adult can be fraught with the same pitfalls and self-doubt as adolescence, with the same social pressures to meet a standard of beauty and shape. A major difference is that an older body may not be able to be molded and shaped quite the way it once was, causing disappointment, body dissatisfaction, and shame, and leading to more extreme manifestations of eating disorders.

Our culture does not respect the aging process, so there is no reason to think that older women are immune to the concerns of beauty and youth that can lead to eating disorders. If aging is also associated with lack of control--over living arrangements, finances, or bodily functions--eating or not eating remains a token of control, a way for a woman to express her autonomy. If not recognized and soothed, an older woman's eating disorder may take the form of a hunger strike, compulsive overeating, or refusal to adhere to a medically prescribed diet. This may be interpreted as a wish to die, but as with the many other manifestations of eat-

ing disorders, it may simply be an indication that the woman is suffering, that she does not have the tools to cope with her situation.

Eating disorders can appear, resolve, and recur at any time in a woman's life. The competent dietetics professional will be alert for life cycle issues affecting women (and men) of all ages, especially those which cause alterations in eating. Nutrition education alone cannot prevent or cure all eating disorders. But compassion, respect, and appreciative inquiry can allow a woman to understand her choices, reach out for help, and make changes that ultimately improve the rest of her life.

### References

1. Piran L, Levine M, Steiner-Adair C. *Preventing Eating Disorders: A Handbook of Interventions & Special Challenges*. Brunner/Mazel; 1999.
2. Berg, Frances. *Afraid to Eat: Children & Teens in Weight Crisis*. Healthy Weight Publishing Network; 1997.
3. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*; 2000.
4. Woolsey, Monika. *Eating Disorders: A Clinical Guide to Counseling and Treatment*. American Dietetic Association; 2002.
5. Berg Frances. *Women Afraid to Eat: Breaking Free in Today's Weight-Obsessed World*. Healthy Weight Network; 2000
6. Setnick, Jessica. Eating disorders and pregnancy. *Developmental Issues*. 2003; 22(2).

### Join Our Listserve!

Connect with your colleagues on WHRN's listserv. It's a great way to stay current with the latest women's health-related news, post questions, or discuss concerns. Join at:  
[WHRN\\_list-subscribe@yahoogroups.com](mailto:WHRN_list-subscribe@yahoogroups.com)



Interested in learning more about eating disorders? Hoping to develop or hone your counseling skills in this challenging practice area? Explore these resources:

### Jessica Setnick's Eating Disorders Boot Camp & Molly Kellogg's Counseling Intensive Workshops for Dietitians and other Healthcare Professionals

#### 2006 Workshops

Portland, OR, May 5-7, 2006  
 Durham, NC, July 28-30, 2006  
 Austin, TX January 19-21, 2007

Attend one or both workshops, and earn up to 18 CEUs in one weekend!

Can't attend? The program is also available for home study.

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[www.understandingnutrition.com](http://www.understandingnutrition.com) or  
[www.mollykellogg.com](http://www.mollykellogg.com)

**E-mail:** [molly@mollykellogg.com](mailto:molly@mollykellogg.com) or  
[info@understandingnutrition.com](mailto:info@understandingnutrition.com),

**Phone:** 214-503-7100

**Fax:** 214-221-6510

Also available:

*The Eating Disorders Clinical Pocket Guide: Quick Reference for Health Care Providers* by Jessica Setnick

*The Eating Disorders Book of Hope and Healing.*

### Helpful Websites

[www.TheElisaProject.org](http://www.TheElisaProject.org)  
[www.renfrew.org](http://www.renfrew.org)  
[www.nationaleatingdisorders.org](http://www.nationaleatingdisorders.org)  
[www.aedweb.org](http://www.aedweb.org)  
[www.4woman.gov/bodyimage](http://www.4woman.gov/bodyimage)  
[www.edreferral.com](http://www.edreferral.com)  
[www.angenetics.org](http://www.angenetics.org)

## WHRN Gets Involved in Maternal Nutrition Public Policy

Jeanne Blankenship, MS, RD, CLE

Maternal weight gain recommendations and their application in clinical practice have been frequent points of discussion for members of WHRN. Many practitioners have questioned the current validity of the Institute of Medicine (IOM) recommendations for weight gain during pregnancy given the considerable changes in medicine, advances in scientific knowledge, and population demographics since they were published in 1990.

The landmark reference *Nutrition During Pregnancy* was the product of a study on maternal nutrition commissioned in by the Bureau of Maternal and Child Health and Resources Development of the US Department of Health and Human Services with the National Academy of Sciences. The questions raised by IOM committees in the late 1980's are not significantly different from those WHRN members are asking today about maternal weight gain (1).

Considerable dialogue on WHRN's electronic mailing list (EML) over the last year had addressed several aspects and practice issues related to maternal weight gain. Several members provided both positive and negative feedback about the current weight gain recommendations and expressed concern and professional frustration. Given the level of interest, WHRN leaders suggested the formation of a WHRN task force to investigate the topic and to determine what could be done at a grassroots level to readdress the recommendations and need for possible policy change.

The resulting topic issues were reposted to the EML for clarification and comment. A literature search was conducted by task force members Jeanne Blankenship and Miriam Erick to gather preliminary data, and to prepare a summary of the questions raised by

WHRN members. Once the initial concept paper was drafted, ADA Practice Manager Aiysha Johnson recommended that WHRN work with ADA's Policy Initiative and Advocacy team to ensure that the appropriate steps were taken and to strengthen the WHRN's position in requesting a review of the IOM guidelines. Mary Hager, PhD RD, FADA, Senior Manager for Regulatory Affairs at the ADA's Washington, DC office, worked side by side with WHRN to look for the appropriate venue for moving the topic forward.

In September 2005, Dr. Hager suggested that WHRN consider submitting the topic for consideration to the Agency for Healthcare Research and Quality (AHRQ) which works to bridge the gap between effective translation of research findings and sustainable improvements in patient outcomes. The Evidence-based Practice Centers (EPC) of the AHRQ produce evidence reports and technology assessments "that provide public and private organizations the foundation for developing and implementing their own practice guidelines, performance measures, educational programs, and other strategies to improve the quality of health care and decisionmaking"(2).

The systematic reviews conducted by the EPC Program are designed to determine whether an intervention for a specific disease or health problem works. In this case, do the maternal weight gain recommendations set forth by the IOM really optimize maternal and infant health outcomes?

The task force met with Dr. Hager at FNCE in St. Louis, MO to formulate specific questions appropriate for submitting the topic. Based on the discussion at the meeting, the questions were revised, reformatted and prioritized to meet submission requirements. ADA worked with the Lewin Group, a consulting organization, to further refine the questions and to prepare the document for formal submission. Dr. Hager completed and submitted the topic for

AHRQ consideration in early December 2005.

In March, WHRN Legislative Coordinator Selina Mkandwire enthusiastically presented the WHRN Case Study to attendees of ADA's Public Policy Workshop held in Washington, DC. This presentation was a chance to showcase the positive experience that WHRN had working with ADA and to share the project outcomes.

Outcomes of the project were extremely positive and the overall experience was valuable to WHRN members who participated in the process, and felt that both the DPG and ADA listened and responded to their practice concerns. Several task force members echoed feelings of unity, and appreciated being able to make a professional difference in maternal nutrition policy. Communication about this topic and other topics has also increased on the EML. Ultimately, WHRN has a better understanding of the process for communication and exploration of policy change within ADA and other governing organizations.

Future goals for WHRN as a result of this project include the following: 1) to identify areas of interest to DPG members 2) include activities related to policy change in the strategic plan of the DPG and 3) to re-examine the role and duties of the legislative coordinator to encompass identifying opportunities for collaboration, strengthening the relationship with ADA and giving the DPG members an active voice.

### References

1. Institute of Medicine. *Nutrition during pregnancy*. Report of the Committee on Nutritional Status During Pregnancy and Lactation, Food and Nutrition Board. Washington DC: National Academy Press, 1990.
2. EPC Partner's Guide. Accessed online at [www.ahrq.gov/clinic/epcpartner/](http://www.ahrq.gov/clinic/epcpartner/) on 10/19/2005.

Following is a copy of the letter sent to the AHRQ on behalf of WHRN by ADA's Dr. Mary Hager:

December 1, 2005

To:  
Center for Outcomes and Evidence  
Agency for Healthcare Research and Quality

On behalf of the American Dietetic Association, I am nominating a topic titled: "Adverse Maternal and Child Health Outcomes Associated with Maternal Weight Gain."

This topic was identified by ADA's Women's Health and Reproductive Nutrition Dietetic Practice Group (WHRN DPG). The Women's Health and Reproductive Nutrition DPG addresses women's nutrition care issues during the reproductive period—including preconception, prenatal, postpartum and lactation—until the onset of menopause. Members provide education for healthy women of reproductive age and deliver medical nutrition therapy (MNT) to women with obstetrical or medical complications. Members of the WHRN DPG are also recognized for their research and publications, including two published by ADA: *ADA Guide to Gestational Diabetes Mellitus*, by Alyce Thomas, RD and Yolanda M. Gutierrez, PhD, RD, and the *Nutrition Practice Guidelines for Gestational Diabetes Mellitus* developed with Diabetes Care and Education DPG. This evidence-based practice guideline is available at [www.guidelines.com](http://www.guidelines.com).

It is the position of the American Dietetic Association that women of childbearing potential should maintain good nutritional status through a lifestyle that optimizes maternal health and reduces the risk of birth defects, suboptimal fetal development, and chronic health problems in their children. Among the key components of a health-promoting lifestyle during pregnancy is appropriate weight gain. Members of ADA are concerned that the widely used IOM guidelines for pregnancy weight gain do not adequately address emerging US health demographics. The American College of Obstetricians and Gynecologists (ACOG) in two new ACOG Committee Opinions published in 2005 also recently expressed concern that obesity presents a hazard to the health of women during pregnancy.

With approximately 65,000 members working in a diverse arena of food, nutrition and health services, the American Dietetic Association (ADA) is the nation's largest organization of food and nutrition professionals in the United States. ADA is renowned for its grounding in sound science, particularly in the areas of human nutrition and food safety, and for its expertise in translating science on nutrition, disease states and health into information that consumers can understand and apply to self-directed goals to improve their nutritional health.

Thank you for considering ADA's topic nomination, which is attached for your review. Please do not hesitate to contact me for additional information or clarification.

Best regards,  
Mary H. Hager, PhD, RD, FADA  
Senior Manager, Regulatory Affairs, ADA

Highlights from the supporting documentation to AHRQ:

*In the section on the rationale for evidence analysis of maternal weight gain guidelines, it is noted that current recommendations are based on the 1990 Institute of Medicine Report (IOM) Nutrition During Pregnancy, and are linked to maternal BMI:*

<b>BMI</b>	<b>Total Recommended Weight Gain</b>	<b>Rate of Gain (kgs/week after 12 weeks)</b>
<b>&lt;19.8</b>	12.5 to 18.0 kg (28-40 lb)	0.5 kg (~ 1.0 lb)
<b>19.8 to 26.0</b>	11.5 to 16.0 kg (25-35 lb)	0.4 kg
<b>&gt;26.0 to 29.0</b>	7.0 to 11.5 kg (15-25 lb)	0.3 kg
<b>&gt;29.0</b>	At least 7.0 kg (15 lb)	N/A

*The document goes on to note significant changes in environmental, health, and social factors impacting women of reproductive age since the IOM guidelines were published over 16 years ago. These include:*

- ❖ The inclusion of reproductive issues in major public health initiatives including the Healthy People 2010 Report. Prenatal care, and reduced infant morbidity and mortality are addressed in these initiatives, and maternal weight gain is a relevant factor.
- ❖ In 1990, the median weight gain for all pregnancies was 30.5 pounds. By 2003, more than 30% of mothers under- or over-gained per IOM guidelines.
- ❖ In 2003, 27.3% of adult women were overweight and 31.6% were obese; rates varied by race and ethnicity. Non-Hispanic Black women were likeliest to be overweight or obese and to retain weight postpartum. Hispanic women likewise had high rates of overweight and obesity. Statistics, however, were based on the National Heart, Lung, Blood and Institute (NHLBI) BMI classifications (Obesity = BMI>30). The 1990 IOM cutoff for obesity was >29, suggesting possible higher obesity rates.
- ❖ Overweight and obesity rates have risen sharply, as have pregnancy rates among women with higher BMI's. This correlates with recent increases in caesarean deliveries.
- ❖ Demographic changes occurred in the United States since 1990. Greater racial and ethnic diversity among women exists, with a growing proportion of Hispanic and Asian/Pacific Islanders. Birth rates among these groups has also increased.

*(Continued on page 9)*

## Obese Women Can Deliver Normal Birthweight Infants with Minimal Weight Gain

Jeanne Blankenship, MS, RD

### Introduction

The Institute of Medicine's (IOM), *Nutrition During Pregnancy*, (1) has been widely used to develop clinical practice models and has been the foundation of public health policy for maternal nutrition since 1990. However, environmental and social factors affecting women of reproductive age have changed considerably, leading some experts to suggest that the guidelines may need significant revision. Recent attention has been given to the IOM's guidelines for weight gain during pregnancy according to Body Mass Index (BMI) classification and their utility in optimizing birth outcomes. There has been limited information about the validity of the guidelines in clinical practice with regard to actual maternal weight gain and birth outcome, especially for obese pregnancies.

The known risk of low birthweight (LBW) due to inadequate weight gain makes it challenging to conduct ethical prospective research on energy-restriction and restricted weight gain during pregnancy. While randomization to a control group is not feasible in most settings, there is a subset of medical conditions that effectively limit energy restriction in the obese gravida. These include women who are prescribed energy-restricted diets to control gestational diabetes and those who become pregnant after surgical weight loss procedures. The pregnancies of such women yield meaningful information about the safety of limited maternal weight gain and subsequent infant birthweight and are logically a good starting point in the examination of obesity and maternal weight gain recommendations. It is hypothesized that obese women (BMI > 29 kg/m<sup>2</sup>) can deliver normal birth weight infants (>2500 g) with weight gains below the 6.8 kg (15 pound) minimum recommendation proposed by the IOM. This article will briefly evaluate the evidence as it relates to this hypothesis.

### Methods

A literature search was conducted using PubMed and the Cochrane Database. Keywords searched included: pregnancy, weight gain, obesity, BMI, and Institute of Medicine. The search was limited to papers written in the English language and to human studies. Although a time limit was not utilized, the search focused on papers written after the release of the IOM guidelines. In addition to electronic searches, the bibliographies of key publications were reviewed for relevant non-indexed articles.

### Results

One retrospective study examined the effect of maternal weight gain on infant birthweight in term infants (n = 2946) and found that pregravid BMI and weight gain significantly influenced infant birthweight—but only for those who were not obese (2). This early data suggested that newborn weight is not decreased in obese women who do not gain weight or who gain below the recommended minimum of 15 pounds during pregnancy. Gestational weight gain and pregnancy outcomes of obese women (n = 481) in four Danish university centers found that increased weight gain was associated with increased pregnancy complications (3). The study design included testing for glucose intolerance and excluding women with abnormal results. Women were assigned to one of four groups based on weight gain: < 5.0 kg (n = 93), 5.0 to 9.9 kg (n = 134), 10.0 to 14.9 kg (n = 132) and ≥ 15 kg (n = 122). Subjects who gained < 5 kg had a mean maternal BMI of 34.3 kg/m<sup>2</sup> and mean infant birth weight was 3,500 g. Maternal complications in the lowest gain group compared to the other three groups were significantly reduced. The group with < 5 kg weight gain had less hypertension, less large for gestational age (LGA) infants and were less likely to require labor induction or Cesarean section. The rate of small for gestational age (SGA) infant birth was similar for all four groups. In this study, “inadequate” weight gain in obese women did not result in a higher prevalence of LBW. Prevalence of macrosomia in the < 5 kg weight gain group

was 19.4 percent compared to 35.3 percent in the group whose weight gain exceeded 15 kg. The authors concluded that gaining < 5 to 10 kg is beneficial with regard to pregnancy outcome and that weight gain restrictions may be useful in obese women, which supports the proposed hypothesis.

Morbidly obese women who have undergone surgical weight loss procedures are likely to remain above the BMI cut-off for obesity (≥30 kg/m<sup>2</sup>) after weight loss ceases. An observational study of pregnancy after Laparoscopic Adjustable Banding (LAGB) combined with a case-control study of subjects with parity prior to the LAGB also found that obese women could have positive birth outcomes with limited weight gain (4). Four-four women (80 pregnancies) were evaluated. The mean BMI after LAGB was 32.8 kg/m<sup>2</sup>. Twenty-two of the women had pregnancies prior to undergoing LAGB and could act as their own controls in the case-control study. In this series, those with LAGB had a mean weight gain of 3.7 kg during pregnancy. The mean for the non-LAGB pregnancies was found to be 15.6 kg. The mean fetal weight for the LAGB group was 3310 g while that of the non-LAGB group was 3530 g. The mean birthweight of infants in this study is similar to that described in the previous study. Again, maternal complications including diabetes and hypertension were reduced in the LAGB group compared to the non-LAGB group. This study showed that limited weight gain did not increase LBW; however, the comparison group of non-LAGB may have included more nulliparous women making it possible that the treatment groups did not have similar relative risk.

A third study examining weight gain during pregnancy did not support the hypothesis that limited gain is safe. In a retrospective review of birth certificates linked to the Pregnancy Risk Assessment Monitoring System (PRAMS) in South Carolina, the prevalence of LBW was compared to pre-pregnancy BMI and to weight gain (5). In the study, two sub-categories of

LBW were defined. The very low birth weight (VLBW) group included infants that weighed 500 to 1,499 g at delivery. The moderately low birth weight (MLBW) group included infants that weighed 1,500 to 2,499 g. Women that were obese before pregnancy were 1.8 times more likely to deliver a VLBW baby than those with normal pre-pregnancy BMIs. A unique aspect of the study design included the use of population-attributable risk (PAR) in order to take into account both the prevalence and the severity of relative risk. Twenty-one percent of obese women had inadequate weight gain. Obese women with adequate weight gain were found to have an adjusted odds ratio (OR) for VLBW of 1.25. The odds ratio of MLBW was 1.09. This study included women with inadequate prenatal care and with lower socioeconomic status. It is possible that the obese women cited in the previous studies were affluent and with more racial homogeneity. This study was designed to determine the economic risk and consequence of LBW in South Carolina. Defining the risk of perinatal complication by examining pregravid BMI and weight gain individually and then collectively demonstrated that the prevalence of LBW in obese women of lower socioeconomic status warrants careful consideration of weight gain recommendations.

### Discussion

Obese women are at increased risk for pregnancy-related morbidity, as are their fetuses. While there is little data on pregnancies of the morbidly obese, results of a multi-center trial ( $n = 16,102$ ) showed that pre-term delivery, intrauterine growth retardation (IUGR) and risk of macrosomia were higher for both obese and morbidly obese women than for those with normal BMIs (5). The relative risk of gestational diabetes, gestational hypertension and preeclampsia were also significantly higher in obese women (6). Despite the increased risk of pregnancy in an obese state, more obese women are bearing children. The prevalence of US women who become pregnant and weigh 250 pounds or more has increased from two

percent of all pregnancies in 1980 to more than ten percent of pregnancies in 2000 (7).

Weight gain recommendations were originally established to protect fetal development; however, weight gain during pregnancy also impacts maternal health. Studies have found that excessive weight gain during pregnancy may lead to weight retention postpartum and thus contribute to obesity (8). In addition, obese women have an increased prevalence of gestational diabetes mellitus (GDM), gestational hypertension (GHTN), and preeclampsia. Although these conditions occur during pregnancy, they may have an impact on maternal lifetime morbidity. Similar to the fetal origins theory, complications during pregnancy may also have negative implications for maternal health including increased risk of diabetes, hypertension, obesity and cardiovascular disease later in life. Dietary treatment of gestational diabetes often includes restrictions on energy intake. There is concern by some that such restriction may lead to increased urinary ketones and SGA infants. A restriction of 33% of energy needs has been found to be a safe treatment of GDM while a restriction of 50% of needs does result in ketonuria (9). Although normal metabolism is disrupted as a result of GDM, these findings may be meaningful in determining the role of energy restriction for specific categories of women during pregnancy.

The studies presented earlier demonstrate that it is possible in certain conditions to have normal birth outcomes with limited weight gain, although perhaps other socioeconomic and variables may make some groups at increased risk of LBW deliveries. Given the increase in obesity in the US, it is prudent to examine the impact of weight gain during pregnancy—and weight retention—on women's health in subsequent years. While it may seem reasonable to conclude that intensive counseling to prevent excessive weight gain during pregnancy should be given to obese women, one study found that

such counseling has the opposite effect—women given intensive counseling actually gain more weight than those who did not receive the counseling (10).

In summary, obese women have unique circumstances that may mean conventional approaches to weight loss before pregnancy and conservative weight gain during pregnancy are difficult to achieve. Additional research regarding the safety of conservative weight gain during the obese pregnancy is needed along with a comprehensive evaluation of treatment methods and effectiveness in this population, but preliminary results support limited weight gain in some populations.

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*(AHRQ highlights, continued)*

❖ Continued racial and ethnic disparities in healthcare access, despite an overall increase in women receiving first trimester prenatal care.

❖ Poverty, known to be correlated with both suboptimal prenatal care and obesity, has risen among women of childbearing age, and particularly among single heads of households.

❖ Births among unmarried women have reached record highs, with nearly 1.5 million births in 2004.

❖ While birth rates among 15-19 year-olds hit a record low in 2004, rates increased among 10-14 year-olds. Birth rates in other age groups continue to increase--including among 40-44 year olds, who have significantly different nutritional needs and health risks than their younger counterparts.

❖ Type 2 diabetes and pre-diabetes are becoming more prevalent. Metabolic syndrome has been reported in adolescents, and Type 2 diabetes is increasingly diagnosed during prenatal care among teenage girls.

*Below, we've reprinted the focus questions posited by Dr. Hager in the supporting documentation to AHRQ. Many of these questions were raised by WHRN members on the DPG listserv during the initial plannign phase of this action.*

**Focus Questions:**

1. What is the evidence that (a) total weight gain or (b) the rate of weight gain during pregnancy has a beneficial or

harmful effect on infant birth weight and/or health outcomes relative to maternal pre-gravid weight? What is the validity of these measures as indicators of pregnancy outcomes?

2. What is the evidence that certain population characteristics (e.g., socio-economic status, race/ethnic background, pre-gravid weight or BMI, repeat pregnancies, closely-spaced pregnancies, pregnancies with multiple fetuses, age, concurrent chronic conditions such as HIV infection, PCOS and gestational diabetes of pregnant women contribute to (a) ante-partum/post-partum or (b) longer-term maternal and fetal complications, including development of adult obesity?

3. What is the evidence that (a) weight gain above, (b) weight gain below or (c) weight loss below thresholds defined in the 1990 Institute of Medicine (IOM) BMI Guidelines contribute to ante-partum/post-partum or longer-term maternal and fetal complications? Are these outcomes influenced by certain population characteristics?

4. What are the harms or benefits of offering the same caloric or weight gain recommendations to all pregnant women, irrespective of age and body weight considerations (e.g., pre-gravid weight, actual body weight at a particular time point, optimal body weight)?

5. What are the main tools for determining adiposity and the validity of their application in pregnancy? What are the risks and benefits of measuring adiposity for (a) clinical management of weight gain during pregnancy? (b) evaluating the relationship of weight gain and outcomes of pregnancy?

*The number and complexity of these questions underscores the need to thoroughly evaluate the research on maternal weight gain, to reconsider current recommendations, and to develop evidence-based practice guidelines for maternal weight gain. To that end, the ADA described its plan of action to AHRQ.*

**Plans for Translation/Use:**

❖ In 2001, ADA approved the Explicit Evidence-Based Grading System. ADA's Quality Management Committee worked toward the system, designed to guide the development and implementation of medical nutrition therapy (MNT) for various disease states and conditions.

❖ The resulting ADA MNT Evidence-Based Guides for Practice can be accessed on AHRQ's National Guideline Clearinghouse Website.

❖ ADA will publicize the guides to its members, DPG's, and networking groups. Evidence-based maternal weight gain guidelines will be vital to practice across the dietetics spectrum.

*Finally, supporting documentation concluded with the following impact measure, reprinted below.*

**Impact Measure:**

Levels of both inadequate and excessive weight gain have increased since 1989 for almost all racial and Hispanic origin groups. Excessive weight gain has increased among mothers of singleton deliveries at the same pace (27 %) as that for pluralities, and thus is not attributable to the sharp rise in multiple birth rates. Evidence suggests that excess weight gain over 1990-2000 independently increased caesarean delivery rates.

Studies report that approximately one-third of women gain weight within IOM recommended ranges. Intended to resolve conflicting opinion about appropriate weight gain during pregnancy, the IOM report has instead created new questions and controversy. Further, the increase in overweight and obesity among women of all ages, races, and ethnic background raises concerns whether guidelines developed on twenty-year old data are still appropriate.

It is the position of the American Dietetic Association that women of childbearing potential should maintain good nutritional status through a lifestyle that optimizes maternal health and reduces the risk of birth defects, suboptimal fetal development, and chronic health problems in their children. Among the key components of a health-promoting lifestyle during pregnancy include appropriate weight gain. Members of ADA are concerned that the widely used IOM guidelines for pregnancy weight gain do not adequately address emerging US health demographics. The American College of Obstetricians and Gynecologists (ACOG) in two new ACOG Committee Opinions published in 2005 also recently expressed concern that obesity presents a hazard to the health of women during pregnancy.

## Oral Health and its Relation to Pre-mature, Low Birth Weight Infants

Anny Uddin



For many years researchers have known that smoking, drug use, and alcohol use are linked to pre-term, low birthweight babies. Healthcare professionals and the pregnant population alike are aware of these potential hazards. Today, new evidence points to a “silent,” lesser-known risk factor directly related to premature delivery.

A myriad of complex biochemical and hormonal changes occur during pregnancy, some of which may increase susceptibility to periodontal disease. Studies now suggest periodontal disease is a risk factor for pre-term, low birthweight (PLBW) babies (1). Establishing a healthy oral environment prior to and during pregnancy is therefore beneficial to the pregnant mother and her fetus.

Periodontal disease is a chronic, low-grade infection characterized by inflammation and eventual loss of tooth-supporting tissues. Periodontitis during pregnancy was found to increase the risk of preterm birth and intrauterine growth restriction (IUGR) (1). Microbiologic and immunologic markers of periodontal infection were also associated with adverse pregnancy outcomes, and researchers have found that periodontitis is independently associated with both pre-term birth (PTB) and low birth weight (LBW) (1,3,4).

The American Academy of Periodontology found that pregnant women with periodontal disease may be seven times more likely to have a baby that's born too early and too small. The likely culprit is a labor-inducing chemical found in oral bacteria called prostaglandin. High levels of prostaglandin found in women with severe cases of periodontal disease can induce premature labor.

Periodontitis can be affected or worsened by various systemic influences. Type 1 and type 2 diabetes mellitus, smoking, stress, osteopenia, osteoporosis, immune status of the host, and presence of pathogens associated with periodontitis in the subgingival flora can worsen the condition. Malnutrition can also impact the physiochemical properties of saliva (1).

Pregnancy may trigger feelings of frequent hunger and the urge to snack between meals, but frequent consumption of sweet or sticky foods increases the risk of tooth decay. Nutritionists should instead encourage healthy, non-cariogenic snacks, including fruits and vegetables. Common complaints of nausea and vomiting in pregnancy may likewise impact dental health, as exposure to stomach acid can damage tooth surfaces.

Early intervention and basic periodontal therapy—including adequate plaque control (brushing and flossing), and professional prophylaxis including coronal scaling, root planning, and polishing—significantly reduces the incidence of PTB and LBW (3). The entire health care team must emphasize the importance of maintaining overall dental health. Referrals for dental care should become a component of prenatal practice.

Most important in the intervention process is to maintain good nutritional status and dietary practices while removing inflammatory stimuli to diminish the severity of periodontal disease. Dietetics professionals should explain not only how hormonal changes of pregnancy can impact gum health, but that tooth decay is also affected by food choices, frequency of intake, and length of contact between food and teeth. Pregnant women should be counseled that intake during the gestational period can impact the development of the unborn infant. This includes oral health, since early dentition in the fetus starts approximately between five and six weeks gestation. Sufficient early intake of calcium, phosphorus, vitamins A, C, D, B, and protein are important on a regular ba-

sis, and adequate nutrient intake in the pre-, peri-, and postnatal period should be encouraged (5).

For the past two decades the rate of pre-term, low birthweight (PLBW), infants has remained virtually unchanged. The national low-birthweight incidence is currently 7.8% (2). Identifying new risk factors to help prevent PLBW babies and encourage early intervention is vital.

Studies have demonstrated that oral health is a risk factor for pre-maturity. Future research should consider oral health in relation to gestational stage, among various ethnic and racial groups, and across diverse socioeconomic groups. In the meantime, it is essential to encourage pregnant women to eat nutritious meals and snacks, to visit their dentist frequently, and to continue life-long follow-ups to ensure positive oral health.

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## The Calcium Controversy

Heather Baden, MS, RD, CDN

*Burn more fat, lose weight with three servings of dairy everyday.* As most are aware, there have been recent rumblings in the weight loss community concerning calcium. The dairy controversy is the result of a few small studies that found greater weight loss when participants consumed three servings of dairy per day. Although there are no conclusive studies concerning calcium's ability to promote weight loss, this has not stopped some from touting it as the next big thing.

The American Dairy Association's website, [www.3aday.org](http://www.3aday.org), lists the benefits of consuming the nationally recommended amount of dairy per day. In addition to discussing the benefits associated with increased dairy consumption, the website has a link to studies discussing dairy's potential role in weight reduction. In sum, the dairy association's web-site cites these studies and suggests that increased dairy consumption with overall caloric reduction may speed weight loss.

Physicians Committee for Responsible Medicine (PCRM) has taken issue with the dairy association's recommendation and the studies themselves. They filed suit against Kraft, General Mills, Dannon, and dairy trade groups for false dairy weight-loss claims. A multi-million dollar ad campaign claiming that milk facilitates weight loss resulted from the dairy studies. PCRM feels that the studies relied upon by the dairy association are deceiving and find problem with the fact that the studies showing benefit were in fact funded by the dairy industry. A detailed analysis of each study and the potential flaws is beyond the scope of this article. However, the points that PCRM make are substantial.

Both web-sites offer valuable and thought provoking information concerning dairy consumption, and in particular calcium, and the potential interplay with weight loss. For a synopsis of each study and more detailed information visit: [www.3aday.org](http://www.3aday.org), and [www.pcrm.org](http://www.pcrm.org). They are both recommended, but not one without the other. As an aside, it should be noted that PCRM is a group that advocates vegetarian or vegan diets and animal rights.

*Editor's Note: PCRM opposes wholesale animal testing on both ethical and technical grounds. PCRM maintains that anatomical, physiological, and biochemical differences between animals and humans, and stress responses in lab animals during experimentation may render extrapolations from animal studies to human applications inaccurate or invalid.*

## Calendar of Events

May 1-3, 2006. 3rd Annual Nutrition and Health: State of the Science & Clinical Applications. New York, NY. [www.columbiaCME.org](http://www.columbiaCME.org)

June 7-10, 2006 AED International Conference on Eating Disorders. Barcelona, Spain. [www.aedweb.org](http://www.aedweb.org)

July 13-14, 2006. International Research Conference on Food, Nutrition and Cancer. Washington, DC. [www.aicr.org/conference](http://www.aicr.org/conference)

July 26-28, 2006. National Maternal Nutrition Intensive Course. (Distance Education Opportunity Available.) Minneapolis, MN. [www.publichealthplanet/mnic.html](http://www.publichealthplanet/mnic.html)

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Thoughts?  
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