

Women's Health *REPORT*

A QUARTERLY PUBLICATION OF WOMEN'S HEALTH DIETETIC PRACTICE GROUP

RECOGNITION AND TREATMENT APPROACHES FOR POLYCYSTIC OVARY SYNDROME

By Angela Grassi, MS, RD, LDN

Polycystic Ovary Syndrome (PCOS) is a complex endocrine disorder that often goes undiagnosed. Women with PCOS are at risk for chronic diseases and infertility later in life so early recognition and treatment is key. This article provides a general overview of PCOS including diagnosis, treatment, and unique concerns during pregnancy and lactation. Dietitians should be screening all patients of reproductive age for PCOS and recommending further diagnostic testing with a physician as well as proper dietary management once diagnosed.

What is Polycystic Ovary Syndrome?

PCOS is an endocrine disorder affecting 5% to 10% of women of reproductive age (1). First recognized in 1935 by Stein and Leventhol for its relationship to menstrual disturbances, PCOS is characterized by high levels of androgens (male hormones such as testosterone) from the ovary and is associated with insulin resistance. Tiny cysts ("poly cysts") usually, but not always, surround the ovaries and appear as a strand of pearls on ultrasound. The cysts are actually a result of hormonal imbalances, rather than the cause of them.

The overproduction of androgens in females can result in hair loss from the scalp (alopecia) and excessive hair growth on the face, chest, back, stomach, thumbs or toes (hirsutism), acne, other skin problems (such as oily skin, skin tags, dandruff and skin discoloration) and irregular or absent periods. Women with PCOS, who are insulin resistant as in the majority of cases, will experience weight gain in the abdominal area, difficulties losing weight, intense cravings for carbohydrates and hypoglycemic episodes.

Many of the symptoms described are common conditions "normally" experienced during adolescence and young adulthood and can easily be overlooked. In fact, due to the vast array of symptoms and because not every woman may recognize them, PCOS can be very difficult to diagnose. Dietitians, because of their ongoing relationships with patients, may be able to help connect the pieces of the puzzle by recognizing the symptoms patients experience and encouraging further diagnostic testing.

Table 1 Who to suspect may have PCOS:

- Anyone with a family history of PCOS, especially mother, sister, or grandmother
- Anyone with excessive abdominal weight (WH ratio > 35 inches)
- Difficulties losing weight despite diet and exercise
- Heavy, irregular (> 40 days or frequent bleeding) or absent menses
- Intensive carbohydrate cravings
- Hypoglycemic episodes
- Male pattern hair growth (chest, face, back, lower abdomen, fingers, toes)
- Hair loss from head

What Causes PCOS?

The cause of PCOS is unknown however much research is directed at finding out why it develops. Nonetheless, there does appear to be a strong genetic component (2). Researchers have found polycystic appearing ovaries in young girls even before puberty, which suggests the possibility of some girls being born with polycystic ovaries (3). Other theories suggest that women may develop PCOS from being exposed to high androgen levels in the womb (2, 4).

The Importance of Early Recognition and Treatment of PCOS

PCOS is linked to the development of chronic diseases later in life such as type 2 diabetes, heart disease, hypertension and endometrial cancer, so early recognition and treatment is critical in the prevention of these conditions. Because most adult women with PCOS get diagnosed only after seeking help with infertility, early detection could help in preventing unnecessary financial and emotional hardship. Furthermore, many of the signs and symptoms of PCOS can be very detrimental to a woman's body image, most notably weight gain, excessive hair growth on the face and body, dirty looking patches on skin (acanthosis nigricans which are clinical markers of hyperinsulinemia) and acne. Depression is common among women with PCOS (5,6) either from hormonal imbalances or struggles with body image and attempts at weight loss that can lead to distorted eating practices or eating disorders.

Diagnosing PCOS

The current diagnostic criteria agreed upon for PCOS is two of the following three: (1) oligomenorrhea (period intervals of > 40 days) or amenorrhea (2) clinical and/or biochemical signs of hyperandrogenism, and (3) polycystic ovaries on an ultrasound, with exclusion of other causes (7). Insight into the possibility of a client having

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from the chair **Jamillah Hoy-Rosas, MPH, RD, CDN, CDE**

Welcome to all new and returning members! It is with a grateful spirit that I write my first column as Chair of the Women's Health DPG. I have been involved with this DPG in a number of ways over the years, first as a student member on the Membership Committee, as Treasurer and finally, Chair-Elect. In fact, I remember quite fondly visiting the member showcase of this DPG at my first FNCE several years ago, as a new graduate student. At that time, I met Alyce Thomas, RD, one of the DPG's founding members, who has been a tireless supporter of this DPG over the years. She offered me my first chance to be involved and I have taken every opportunity since then to grow with and within this DPG. I owe a lot to this DPG as I credit it with key areas of my development in this field and I am grateful to be able to serve as your Chair this year. My goals are to encourage the active engagement of as many members as possible through the enhanced website at www.womenshealthdpg.org, the listserv and the recruitment of members to participate on various committees, task forces and special projects. I want this DPG to give to every member as much as it has given to me. Special thanks to Past Chairs Alyce Thomas, RD, Jeanne Blankenship, MS, RD, CLE and Cathy Fagen, MA, RD for their years of mentorship and support that have allowed me to reach this stage successfully.

I am very proud to be at the helm at a time when this DPG is truly striving to fulfill our mission to lead the future of dietetics in women's health. Please be sure to read Cathy Fagen's article on public policy and our DPG's role in getting the Institute of Medicine's Prenatal Weight Gain guidelines revised. According to Dr. Mary Hager, PhD, RD, Director of Regulatory Affairs at ADA, our DPG really made a difference through our efforts with her office. Our group has also been recognized for helping to review the ADA position paper, "Nutrition and Lifestyle for a Healthy Pregnancy Outcome," published in the March 2008 *Journal of the American Dietetic Association*. Our DPG is especially grateful to Erin Paris, RD who was willing to accept this responsibility on behalf of our practice group.

The future for our DPG is bright and there is room at the table for all members looking to be actively engaged. FNCE is arriving in a few short months and our DPG has an exciting priority session planned entitled "Hormonal Help: Functional Foods for Women of Reproductive Age" to be presented on Tuesday Oct 28, 2008 from 9:45 AM - 11:15 AM. Featured speakers are Siddika Kasim-Karaka, MD and Gita Patel, MS, RD, CDE. We look forward to seeing many of you there. Personally, I am looking forward to a great and productive year with all of our members and our newly elected leaders: Chair-Elect Denise Andersen, MS, RD, LD, Secretary Laura Couillard, MS, RD and Nominating Chair-Elect Suzanne Haydu, MPH, RD. Newly appointed volunteer leaders include Megan Tubman, MS, RD, our new Research Coordinator and Shoshana Weber, MS, RD, CDN who will be helping out the Membership Committee. Opportunities abound for you to get involved, make a difference and share your views, please feel free to contact me at any time for more information at whdpgchair@gmail.com.

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from the editor **Olivia Bletsos, MPH, RD, CLC**

While finishing the final edits on this newsletter I had the opportunity to attend a fascinating meeting in New York City sponsored by the Perinatal Forum. This organization draws together city and state government, health care providers and community organizations to establish best practices in perinatal health with a particular focus on reducing the still remarkable disparities that exist in maternal and birth outcomes amongst women.

The speakers at this meeting brought to light a new concept (at least for me) in women's health – the idea of pre-conception and inter-conceptual care. Granted, as health providers we would agree that any woman thinking about getting pregnant should visit her doctor and perhaps more importantly her dietitian! The reality is that the vast majority of women, and especially those of lower socio-economic status, rarely see their doctors until weeks and even months into their pregnancy. At a time, when adopting even the best health habits; such as quitting smoking, not drinking alcohol, eating more fruits and vegetables and taking a prenatal vitamin and folic acid, can't undo the years of poor health that have proceeded conception. The newest theory on the block looks at preparing women to meet their reproductive goals long before a woman is actually ready to get pregnant. With the focus on eliminating or controlling pre-existing medical conditions such as hypertension, diabetes, obesity and even chronic stress before a fetus begins its' development.

As you learned in our Spring 2008 newsletter, research into epigenetics has exploded in the last few years. Epigenetics is in part based on Barker's theory, that poor fetal and postnatal nutrition, along with exposures in the intrauterine environment can play a large role in the subsequent development of chronic diseases. The fact that chronic diseases, like diabetes and hypertension, once associated with older adults now significantly impact adolescents and women of childbearing age means we have to rethink how to maximize the potential for overall good health in mothers prior to conception, thereby protecting the next generation from potentially adverse health consequences.

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undiagnosed PCOS can be obtained by asking a few simple questions (Table 2), while Table 3 lists the common labs physicians order to help detect PCOS. Sometimes simply asking a patient if they have ever been told by a health care provider that they have any abnormal lab results can reveal possible signs of PCOS.

Table 2 Questions to ask a patient suspected with PCOS:

- "Tell me what your periods are like. Are they heavy, irregular, absent, etc.?"
- "Do you ever feel lightheaded, dizzy, or irritability that gets better when you eat?"
- "Have you ever been told by your physician or healthcare provider that you have any abnormal lab values?"
- "Do you struggle with excessive facial hair?"
- "What types of foods do you crave and when do you crave them?"
- "Do you have dry/rough elbows or any dark patches that look dirty on your body?"

Table 3 Labs used to test for PCOS:

Lab Tests	Notes
Lutenizing Hormone (LH) Follicle Stimulating Hormone (FSH)	Many (but not all) women with PCOS have an abnormal LH to FSH ratio. Normally this ratio is about 1:1 - meaning the LH and FSH levels in the blood are similar. In women with polycystic ovaries the LH to FSH ratio is often higher - for example 2:1, or even 3:1. FSH and LH are often both in the range of about 4-8 mIU/ml in young fertile women. With PCOS FSH typically remains in that same range - but with LH levels of 10-20 mIU/ml.
DSHEA Sulfate	To rule out adrenal problems which can have similar symptoms to PCOS.
Total and Free Testosterone	High levels of androgens.
Fasting Glucose & Fasting Insulin (Usually part of OGTT)	To confirm insulin resistance and test for diabetes or a pre-diabetic condition. The ratio of fasting glucose to fasting insulin may also provide insight. A glucose to insulin ratio of less than 4.5 is suggestive of insulin resistance.
HgbA1c	In contrast to fasting glucose, glycohemoglobin A1C (HbA1C) is a longer-term measure of blood sugar levels. This test measures average glucose levels over the past 3 months.
Thyroid Function Tests	Used to rule out thyroid dysfunction as a cause of menstrual irregularity.
Transvaginal Pelvic Ultrasound	Can show enlarged ovaries or more eggs than normal on the ovaries - signs of PCOS

Treatment of PCOS

Symptoms of PCOS can be alleviated with diet, exercise and insulin-lowering medications such as Metformin and Byetta or Rosiglitazone (8). Oral contraceptives may be used to restore and regulate menstrual function and hormone levels as well as decrease acne and hirsutism (5). Androgen lowering medications such as

spironolactone may also be prescribed but may take many months to see improvement in hirsutism symptoms (5). The main goals of treatment are to regulate menstrual function, reduce androgen and insulin levels and improve dermatological symptoms. Often times, as insulin levels are reduced, androgen levels will also be lowered and menses may become more regulated. Evidence suggests that a moderate weight loss of 5-7% of total body weight may significantly improve symptoms and regulate menstrual function (5, 9).

Dietary Management for PCOS

Women with PCOS tend to crave carbohydrates more than perhaps someone without PCOS (10), therefore, some women may find that severely limiting carbohydrates may be too difficult to follow and could contribute to binge eating and weight gain in the long-term. The majority of evidence suggests that the most beneficial diet for PCOS is one low in saturated fat and high in fiber with predominantly low-GI carbohydrates (9). Eating often (every 3-4 hours) and including protein with meals and snacks can help manage blood sugar levels and prevent hypoglycemia. Physical activity should be encouraged as it can help to lower insulin levels and manage weight. However, the provider or counselor should keep the patient's struggle with body image and possible resistance to exercise in mind, and be sensitive in recommending activities that are size appropriate and comfortable for her to do with excess abdominal weight.

Special Concerns during Pregnancy and Lactation

There are many factors to take into consideration when a woman with PCOS becomes pregnant. Some women who have undergone fertility treatments may be carrying multiple babies and will have special dietary and medical concerns. Also, because many women with PCOS have hormonal imbalances and are overweight or obese, they are at a higher risk for miscarriage and complications such as gestational diabetes (GDM) and hypertensive disorders during pregnancy (10, 11, 12). Proper medical management and medical nutrition therapy are imperative to prevent the onset of these complications and to optimize fetal growth and development. Metformin is recommended to women with PCOS during pregnancy as it can reduce the incidence of pre-eclampsia, macrosomia, GDM and the risk of miscarriage (10, 11). At dosages between 1.5 and 2.55 g/day, Metformin was not shown to affect the birth weight, length, growth or motor-social development of 126 studied infants compared to their normal counterparts (13).

Body image issues can also be a concern during pregnancy as those who have struggled with their weight most of their lives may feel that the weight gain will get out of control. They may also have difficulties accepting weight gain and getting larger in general. Proper education of "where the weight goes" during pregnancy can be very helpful to reassure clients that weight gain is necessary and healthy if gained in reasonable amounts. These women also carry their weight in their mid-section and may not look pregnant until their third trimester causing some to struggle with body image issues of failing to look pregnant.

Because of the many hormonal imbalances associated with PCOS, it has been speculated that some women with the syndrome may

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have difficulty breastfeeding and producing an adequate milk supply. The hormonal aberrations in PCOS involve insulin, progesterone and estrogen, all of which are also important to breast development and milk secreting ability (14). Some women with PCOS may have more difficulty producing adequate milk because the breast tissue fails to undergo the normal physiological changes during pregnancy needed to prepare for lactation, or perhaps not enough breast tissue existed prior to pregnancy (14). It is known that women with PCOS have low levels of progesterone which is needed for alveolar growth and development in breast tissue. Insulin also plays a role in milk production and having insulin resistance may contribute to lactation problems in women with PCOS (14).

For these reasons it may be beneficial for women with PCOS to pump after feedings for at least 10-15 minutes on each breast to help establish an adequate milk supply in the first 2 weeks of initiating nursing. Frequent feedings with full drainage as well as maintaining an adequate diet and fluid intake can help maximize milk production. Establishing early intervention strategies during pregnancy including obtaining resources for local breastfeeding support groups, and preparing to work with a board-certified lactation consultant soon after giving birth is recommended. Medications such as Reglan can be prescribed to boost the milk supply (14). Interestingly, as some women with PCOS experience low milk supply, others are reporting an overabundance of milk production. Obviously, this is an area that needs much more research.

*Angela Grassi, MS, RD, LDN, is a speaker, author, and consultant in Haverford, PA. She is the author of **The Dietitian's Guide to Polycystic Ovary Syndrome**. She is currently working on her next book, **The PCOS Workbook** due out this fall. Sign up for her FREE PCOS Nutrition Tips at www.PCOSnutrition.com.*

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So, when your new chair, Jamillah Hoy-Rosas, MPH, RD, CDN, CDE approached the Publications team with the idea of a whole issue dedicated to Polycystic Ovary Syndrome (PCOS) – we jumped on it. Like many things in health care today, the effects of PCOS ripple out across a lifespan. Prevention (if possible), early diagnosis and treatment are key to ensuring that women are able to decide upon and positively impact their reproductive futures.

To introduce the issue of PCOS to you, we are privileged to have Angela Grassi, MS, RD, LDN, author of *The Dietitian's Guide to Polycystic Ovary Syndrome*, contribute a thorough overview of the condition from symptoms to diagnostic tests to nutritional management tips. You will also find a great article by Monika Woolsey, MS, RD who draws on her own experience with PCOS patients and brings together a list of ten less well known aspects of the syndrome. In addition, Debra Waldok, MPH, RD brings us an intriguing look at various lactation scenarios of women with PCOS. We hope that you enjoy this issue and the long, hot days of summer.

NEWSLETTER REMINDERS!!

To join the Women's Health listserv
send an email to:

WH_list-subscribe@yahoogroups.com

The Fall 2008 issue of the Women's Health
Report will be online. It can be accessed at

www.womenshealthdpg.org

Look for it in October!

PCOS: Breastfeeding Case Study By Debra A. Waldoks, MPH, RD

Associate Director, Breastfeeding Promotion Initiative/Breastfeeding Facilitator, Lincoln Medical and Mental Health Center, NYC Health and Hospitals Corporation

This case study will present 3 scenarios involving postpartum women with Polycystic Ovarian Syndrome (PCOS).

Scenario #1

You receive a call from a doctor in the pediatric clinic at your hospital, who states that Lisa's baby seems to be dehydrated and Lisa does not want to supplement with formula. Upon examination, you notice that Lisa's breasts feel soft and she has a moderate amount of hair on her areola. Lisa's baby latches on effectively, sucking strongly for a few minutes with no evidence of effective milk transfer and then comes off still showing signs of hunger. She states that she knew her baby was not getting a lot of milk because he was always sucking on his fingers, but she read that frequent breastfeeding will help to make more milk. Therefore, she was resistant to giving any formula so that she would not miss an opportunity to breastfeed. During your conversation, Lisa realizes that she has not been providing her baby with enough milk and reveals to you that she is particularly sad since it took her many years to get pregnant and she wanted to do the best for this baby.

Breastfeeding Management: Scenario #1

- An effective latch was still insufficient to provide enough milk
- The mother should pump or hand express milk to provide milk for supplementing at the breast
- It is likely that she will not be able to express a significant amount of breast milk. Therefore, the clinician should praise the mother for any amount of milk she is able to produce and support her decision if she chooses not to pump.
- Use the expressed breast milk/formula to supplement at the breast. Use a #5-French feeding tube threaded through a bottle nipple with an enlarged hole or a commercial supplementing aid. If using a #5-French feeding tube, slide the tube into the corner of the infant's mouth when latched on. Milk should immediately come up through the tube if the baby is latched on well. Follow the manufacturer's directions for commercial supplementing aids.
- Encourage the mother to supplement at the breast for all feedings until her milk supply is established.
- It may take many weeks for her to build her milk supply.
- If her milk supply never increases, she has the option of continuing to supplement with human pasteurized donor milk or formula at the breast or using a bottle. Supplementing at the breast will enhance any milk that she is able to produce, enable her to breast feed for a longer duration, and will increase the likelihood of her being able to breastfeed future children.
- Provide emotional support to a mother who did not intend on using artificial supplements. Mothers can feel disappointed that their body cannot provide the total nutritional needs of the baby. Human pasteurized donor milk or formula will provide a nutritionally adequate supplement.

Scenario #2

Michelle calls a lactation consultant because she is concerned that her baby is not getting enough milk since he only takes her right breast at each feeding. He will latch on to the left side but quickly comes off. Michelle states that her baby seems satisfied from one side, but she grew concerned when she heard that her friend always nursed on both sides at each feeding. Upon examination, you notice that her left breast has evidence of hypoplasia (underdevelopment).

Breastfeeding Management: Scenario #2

- Educate the mother on her hypoplasia condition in her left breast
- Explain that she can produce enough milk in one breast to ensure proper nutrition and growth. Her breast should drain fully at each feeding session.
- Teach the mother how to ensure that the infant is latched well, is swallowing rhythmically, and is satisfied after feeds. Her breast should feel soft after feedings.
- Monitor infant's weight (re-gain birth weight by 2 weeks; then gain 4-7 ounces/week or 1 pound/month) and output (5-6 wet diapers and 3-4 dirty diapers after the first week).

Scenario #3

At a breastfeeding support group, Maria seems worried about the way her baby eats. She doesn't understand why he is having difficulty because she knows that she "has a ton of milk." In fact, she reports that she has so much milk that she "switches sides after ten minutes because otherwise my breasts get too engorged." Her baby gags, pulls off her breast, spits up after feedings, and seems hungry shortly afterwards.

Breastfeeding Management: Scenario #3

- It is estimated that one-third of women with PCOS actually have problems with milk overproduction, rather than insufficient milk supply (1).
- First, investigate infant health issues such a suck/swallow/breathe coordination and/or gastric reflux.
- If it appears that she has a true oversupply issue, explain that while her baby may seem hungry because he comes off the breast, he may be coming off the breast too early due to an uncomfortably fast flow, or because he is drinking a lot of foremilk. Foremilk is rich in carbohydrates and protein, while hindmilk, which comes towards the end of the feeding on each side, is rich in fat. Fat will help to keep the baby full and prevent spitting up.
- The usual guidelines for oversupply should be employed(2):
 - Instead of timing her feedings, the mother should feed her baby on one side at each feeding.

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- Tell the mother to hand-express or pump the other breast between feedings if she is uncomfortable. She should express only enough milk to feel comfortable. She should not fully drain the breast because emptying the breast will only reinforce an oversupply problem by increasing milk production.
- Milk supply usually adjusts to match the infant's needs at about 6 weeks postpartum. At this point the infant may want to nurse at both sides again. It is also possible the infant will have a growth spurt at 6 weeks, causing the infant to want to nurse on both sides. The mother should make sure to fully drain the first side before offering the second side.

Discussion

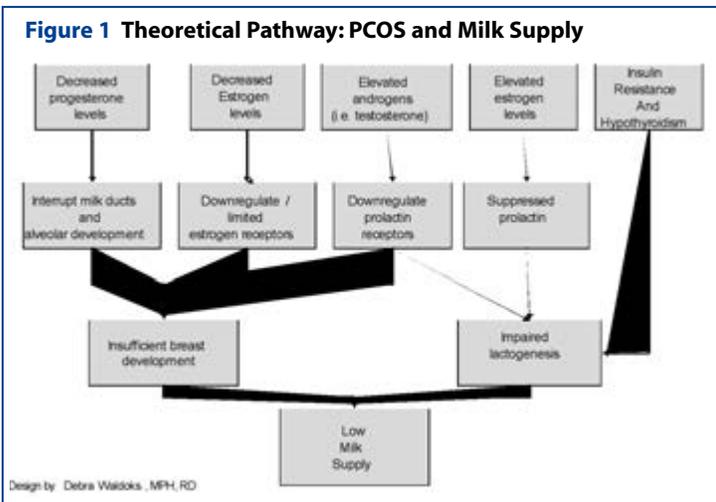
Above are three different scenarios involving women with PCOS, a complex condition in which severity is measured by the extent of symptoms experienced. Women may experience all, some, or no symptoms. Symptoms may include obesity, elevated testosterone, ovarian cysts, menstrual abnormalities, hirsutism (excessive hair growth in unusual locations), skin problems, infertility, hypothyroidism, insulin resistance, or breast hypoplasia. PCOS is of unknown origin and affects 10% of reproductive-age women (1,2,3). PCOS disrupts a delicate balance of hormones that affect milk sup-

women. Some of these women will have low milk supply due to a hormonal imbalance such as PCOS. A woman with a true low milk supply should be questioned about her medical history as it relates to PCOS symptoms. The same recommendations that should be made to all breastfeeding women (breastfeed early, breastfeed often, with an effective latch and swallowing) is even more important for the woman with PCOS. Keep in mind that a woman might not be aware that she has PCOS, and the lactation consultant might be the first health care professional to realize that the woman is affected by this condition.

If a pregnant mother is aware that she has PCOS, she should choose her obstetrician and pediatrician wisely, to ensure supportive providers in the event that she has a low milk supply or delayed lactogenesis. If a mother with PCOS needs to use artificial supplements, reassure her that some breast milk is better than no breast milk because it provides unmatched immunity and protection against disease in her and her baby. Supplementing at the breast is the best way to provide nutrition. Encourage first time moms who are experiencing milk supply issues to continue to breastfeed and supplement at the breast, as this will increase her chance of being successful with her next baby. Multiparous women can develop more prolactin receptors and have a better milk supply. The usual methods described above to improve milk supply should be utilized. A mother who intended to breastfeed exclusively will need an extra dose of compassion to help guide her through the first few weeks.

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ply (Figure 1)(3,4). Medications, such as progesterone and metformin, and some galactologues have been shown to improve milk supply in women who have PCOS without breast hypoplasia. However, the usual practices that lactation consultants employ to improve milk supply in woman without PCOS are indicated as the initial treatment for women with PCOS as well. Most importantly, these include frequent feedings with an effective latch. In fact, if it is known that a woman has PCOS, her prenatal care and immediate postpartum health care providers should strongly encourage an early latch with frequent feedings or pumping/hand expressing. Postpartum health care providers should teach and show a mother what an effective latch looks like and how to identify milk transfer. Skin-to-skin contact should be encouraged to increase milk supply.

Low milk supply issues are often incorrectly perceived as being the cause rather than the result of unsuccessful breastfeeding. However, a true milk supply issue is a real concern in a small percent of

WH DPG NOMINATIONS !

Nominations for Chair-Elect, Treasurer and Nominating Committee for the 2009-2010 year are being accepted now. Please contact the Nominating Committee Chair at whdpgnominations@gmail.com for more information if you are interested.

our mission

"Leading the future of dietetics in women's health."



Second Row: Jeanne Blankenship, MS, RD, CLE and Cathy Fagen, MA, RD

Jeanne Blankenship, MS, RD, CLE and Cathy Fagen, MA, RD both attended the ADA Public Policy Workshop held in Washington, DC on February 3-6, 2008. They experienced firsthand how to represent ADA's interests by going to Capitol Hill and meeting with Congressional members and/or their legislative staff to discuss the Farm Bill and the expansion of Medical Nutrition Therapy in Medicare.

WH DPG has shown that it can be effective in promoting Public Policy for women's health issues. It was under Jeanne Blankenship's direction as WH DPG Chair in 2006 that the WH DPG in collaboration with Dr. Mary Hager, ADA Director of Regulatory Affairs

nominated to the Agency for Healthcare Research and Quality (AHRQ) the topic "Outcomes of Maternal Weight Gain" with the goal of updating the Institute of Medicine (IOM) weight gain recommendations for pregnant women. The topic was selected and AHRQ released this past spring their evidence analysis report. The report will be used by the IOM in its work to issue updated revisions of the 1990 nutrition and pregnancy reports. A PDF version of Report No. 168, Outcomes of Maternal Weight Gain is available at <http://www.ahrq.gov/downloads/pub/evidence/pdf/admaternal/admaternal.pdf>. A copy may also be ordered through <http://www.ahrq.gov/clinic/tp/admattp.htm#Report>. The report is more than 100 pages in length.

During their time in Washington, D.C., Jeanne and Cathy met with another WH DPG member, Doreen Chin Pratt, MS, RD of Women and Infants Hospital in Providence, RI to brainstorm on how we can utilize the DPG Public Policy Coordinator more effectively. Since each state dietetic association has a Public Policy Coordinator (PPC) we decided our DPG Public Policy Chair, (PPC) Toni Piechota, MPH, MS, RD could work on building communications between the WH DPG members and their state PPC to ensure that WH DPG interests are represented in every state. Staying abreast of legislative issues pertinent to women's health and having your voice heard by your Congressional representatives and DPG PPC (tpiechota@hotmail.com) can make a difference! And if you'd like to take it to Capitol Hill yourself, make plans to attend ADA's next Public Policy Workshop on February 8-10, 2009.

SAVE THE DATE FOR FNCE EVENTS

Membership Breakfast

Monday, October 27, 2008 from 7:00-9:00 AM
Hyatt Regency on Wacker

DPG Showcase

Monday, October 27, 2008 from 10:30 AM-1:00 PM
McCormick Place West

Priority Research Session

Hormonal Help: Functional Foods for Women of Reproductive Age

Tuesday, October 28, 2008 from 9:45 AM - 11:15 AM
McCormick Place West

Research and Public Policy Session

Maternal Weight Gain: The Scientific Evidence
Tuesday, October 28, 2008 from 12:00 PM - 1:30 PM
McCormick Place West

As usual, the Women's Health DPG will be in need of volunteers to help with the Mother's Room at FNCE. Please contact Maria Pari-Keener, Membership Chair at whdpgmembership@gmail.com if you are interested.

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TEN IMPORTANT THINGS TO KNOW ABOUT POLYCYSTIC OVARY SYNDROME

By **Monika M. Woolsey, MS, RD**

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women; currently it is estimated that 6 to 10% of all women are diagnosed with this complex syndrome (1). Weight gain is a common symptom of PCOS. However, PCOS is associated with a myriad of symptoms, including: infertility, hirsutism, acne, and alopecia (1). Undiagnosed PCOS is often what prevents a woman from having a successful experience with her nutrition therapist. For this reason, dietitians need to recognize common presentations of PCOS and to understand how nutrition advice can promote—or detract—from successful management of the syndrome. This article is intended to highlight ten important issues to know about PCOS that will hopefully provide tools to enhance the reader's confidence in identifying, educating, and managing nutritional aspects of PCOS.

PCOS is not just about insulin resistance.

Because PCOS is often encountered when a patient is first referred from an endocrinology practice, these women are often treated simply as if they are diabetic. While 10% of all women with PCOS (“cysters” as they like to call themselves) will be diabetic by the time they are 40, it is not even necessary to be insulin resistant in order for a diagnosis. The Rotterdam Criteria for diagnosis of PCOS (2), does not even mention insulin resistance. Instead, it states that two of the following three conditions be present in order to consider PCOS:

- Irregular or absent menses.
- Elevated testosterone, evidenced either with a blood test or by symptoms of androgen excess, including facial hair, acne, male pattern baldness, elevated waist-to-hip ratio, etc.
- Presence of ovarian cysts confirmed with an ultrasound.

Once the Rotterdam criteria have been met, 5 additional diagnoses must be ruled out (3):

- Hyperprolactinemia
- Androgen secreting tumor
- Acromegaly
- Nonclassic congenital adrenal hyperplasia
- Cushing's syndrome

If none of these five conditions are found in a woman who has met the Rotterdam Criteria, she is considered to have PCOS (3).

One of the most common questions colleagues ask, likely because there is such an assumption that PCOS is primarily about insulin resistance, is why a woman might be prescribed metformin even if she isn't insulin resistant or diabetic. The traditional indications for metformin use with which dietitians and diabetes educators are most familiar, are important in PCOS management, but there are additional considerations. First of all, metformin helps to reduce androgen production (4). As the Rotterdam Criteria indicate, excess androgens are a primary characteristic of PCOS. Secondly, if a woman is being treated for infertility, metformin can help to reduce the risk of miscarriage (4). While metformin use is practically a standard treatment for PCOS, recent research has questioned these rationales and suggested that new identified risks with metformin use merit revisiting these treatment rationales (5). Regardless of whether or not a “cyster” is insulin resistant or on metformin, nutrition choices consistent with managing insulin resistance are important to reinforce and encourage.

PCOS is not just about ovaries.

This disorder's name distracts from the fact that PCOS is a syndrome of systemic inflammation (6, 7), affecting a myriad of organ systems. In

addition to commonly recognized symptoms of PCOS, a survey of over 1,000 women visiting www.afterthediet.com, reported greater-than-average prevalence rates depression, sleep disorders, anxiety, irritable bowel syndrome, restless legs syndrome, arthritis, respiratory allergies, asthma, and eczema. Given the many potential presentations of this disorder, it can be difficult in a compartmentalized health care system, with such widespread symptomatology, far removed from the ovaries, for a “cyster” to get the proper diagnosis. Once she does, the challenge becomes finding a practitioner who understands and knows how to manage all of the symptoms, not simply the ones that prompted the woman to ask for help. It is important to always keep the big picture in mind, even if there are specific symptoms which the client would like help with.

PCOS is not caused by obesity.

A recent study reported that lean women with PCOS had higher testosterone and prolactin levels and lower levels of sex-hormone binding globulin than their similar weight counterparts (8). It is important to look for symptoms of inflammation and not screen only weight management clients for this syndrome.

When PCOS is in control, but not recognized by a woman's medical caregivers, extreme eating and exercise behaviors are often what are adopted in order to manage weight. Women who drift into this pattern may either look like they have eating disorders, or develop eating disorders in an attempt to control their symptoms. Even if obesity does not cause PCOS, being obese can worsen the symptoms of the syndrome (9). Even in these cases, judicious language when educating about the relationship between PCOS and weight is crucial. A woman who has PCOS who loses weight may feel better, look better, and normalize her metabolic profile, but the PCOS will not go away. Baseline metabolic indicators and signs and symptoms of inflammation should be monitored regardless of weight.

Because obesity is not a criterion for having PCOS, weight loss cannot be the primary recommendation for managing it. A focus on a diet balanced in fatty acids, low in glycemic index, and rich in produce (therefore a variety of anti-oxidants) should be the primary recommendation. Calories can be adjusted within this framework to achieve individual weight goals.

Eating disorders are a common PCOS co-morbidity.

I discovered this by accident, when local eating disorder therapists started referring bulimic clients who had “relapsed” and who, soon after, were diagnosed with PCOS. The link has now been confirmed in the literature (10). One small study, for example, found that in 7 women with bulimia who had sonograms, 6 had polycystic ovaries. The cysts resolved when the bulimia resolved (11).

Women with eating disorders, before entering a primarily behaviorally-based treatment, should always be evaluated for the possible presence of PCOS, and vice-versa. If a woman with an eating disorder participates in traditional psychotherapy without simultaneous management of her hormone imbalance, she is at risk for relapse. And a woman who is given metformin but not helped with emotional eating behaviors that sabotage blood glucose control will struggle to achieve her nutrition goals.

Consider that many of the traditional assessments for PCOS may not elucidate the diagnosis in the presence of an eating disorder. Restrictive eating and excessive exercise may alter lab results in a way that masks

Continued on page 11

MEMBER SPOTLIGHT

This year we have been delighted to feature our very own members, their career paths, their accomplishments and their favorite resources. The wide and varied paths of dietetics from clinical to corporate, community health to self-employment, researcher to public speaker is a true testament to the many talents we each bring to our profession and our creativity in shaping dietetics to meet our own needs and passions.

Grace S. Prince, MS, RD, LDN



Where have you worked? What was your first job?

Moving from the hills of west Tennessee to St. Louis and back again at an early age, shaped my purpose and has driven my life and career. These experiences led me to Barnes Hospital for my dietetic internship and later my first job after graduating from the University of Tennessee at Martin and Knoxville. At Barnes Hospital I was an assistant administrative dietitian responsible for over 120 employees and serving 1200 patients at each meal. After the untimely death of my husband, with two small daughters to raise I took a job with the University of Tennessee Agricultural Extension Department as an Associate Professor where I was in charge of the entire home economics program for Weakly County. I wrote a Home Economics Corner weekly article that was published in five newspapers reaching thousands in the west Tennessee area and beyond and ran a quarterly television program in addition to my responsibilities overseeing 1800 young men and women in the program.

Currently I am the President and CEO of Nutritional Services. The philosophy behind Nutritional Services is that there must be an emotional, spiritual and physical balance for general health and well-being. I believe that when the body is balanced and free of toxins and inflammation, it can heal itself. My work allows me to promote better health and well-being through client education and nutritional management of imbalances with reliance on laboratory tests and interpretation.

Currently I am the President and CEO of Nutritional Services. The philosophy behind Nutritional Services is that there must be an emotional, spiritual and physical balance for general health and well-being. I believe that when the body is balanced and free of toxins and inflammation, it can heal itself. My work allows me to promote better health and well-being through client education and nutritional management of imbalances with reliance on laboratory tests and interpretation.

What do you consider a highlight of your career?

The highlight of my career was helping make the school lunch program a reality through my work with two instructors, Dr. Gertrude Lotwin and Dr. Louise Addis.

What are your favorite tools and resources on women's health?

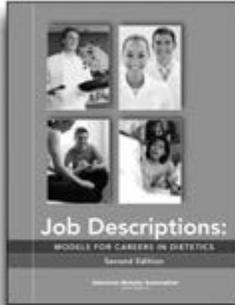
I enjoy taking updated courses and attending conferences on issues related to hormones, blood- functioning chemistry and thyroid function in the body. I also follow the newsletters of doctors who promote nutrition in their practices and follow what they are doing. I became a member of the American Neutriceutical Association and read related journals. My favorite publications are "Nutrition Today" and "Today's Dietitian", "The Journal of the American Dietetic Association" and

"The Journal of Clinical Nutrition". I attend seminars of interest as they become available. The internet is a good source for research too.

What are your recommendations for WH DPG?

- Take advantage of special times like nutrition month to write articles and promote dietetics and what we are doing in our jobs and community so people become aware that we are far more than those people teaching at universities or handing out restrictive diets in hospitals.
- We need to volunteer to provide nutrition education in the community and schools on special occasions so we become better known as the authorities in nutrition.
- Promote nutrition events through mass media.

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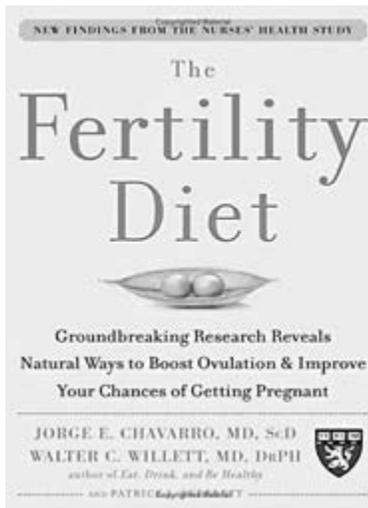
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The Fertility Diet: Ground Breaking Research Reveals Natural Ways to Boost Ovulation and Improve Your Chances of Getting Pregnant By Jorge E. Chavarro, MD, ScD, Walter C. Willett, MD, DrPH and Patrick Skerrett



Dr. Jorge E. Chavarro and Dr. Walter Willett, researchers with the Harvard School of Public Health, analyzed data from the Nurses' Health Study II that began in 1989. Their goal was to investigate reproductive and other health interests not covered in the first study. To learn if there was a connection between diet and fertility, Dr. Chavarro, Dr. Willett and their team assessed the diets of 18,555 pre-

menopausal women who were identified as actively trying to get pregnant between 1991 and 1999. These women were not chosen specifically for their history of infertility, only for their desire to become pregnant. During this time, 3,400 women in the study reported difficulty becoming pregnant and 438 incidents of ovulatory infertility were recorded. A review of the data collected on the study subject's weight, diet, exercise and supplement use helped researchers create a list of ten nutritional changes that may increase the odds of pregnancy for women with ovulation-related infertility.

ful explanations of lab values and how hormones influence one's chances of becoming pregnant. Each chapter takes an in-depth look at the ten recommendations in a very reader friendly manner. The authors give the reader many ideas about how to implement these lifestyle changes. Reading this as a registered dietitian, I appreciated that the Fertility Diet didn't preach, but encouraged women to lead a healthier lifestyle to increase their chances of conceiving. However, I was disappointed that the authors reviewed various diet books and plans as a means of weight loss and never once mentioned working with a dietitian! That's despite the fact that at the end of the book, there are recipes and meal plans designed by a registered dietitian. They look appealing and healthy, though I was surprised to see that their nutritional analysis failed to include carbohydrate content. Since a large percentage of women with ovulatory infertility have PCOS, carbohydrate content would be beneficial. The menus averaged 2,000 calories each, unfortunately this calorie level is not individualized and may be too low or high for many women.

The summary chapter "Putting It All Together" gives readers helpful tips for implementing change. But I question the authors' declaration that if a woman utilized more than five strategies in this book she would have an 84% reduction in infertility compared to those women in the study who did not follow any of the strategies. It is important to note, that the findings of the Nurse's Health Studies are based on epidemiological findings, not causal studies. The problem with such data is that correlation does not imply causation. As such, despite the strong associations between certain habits and fertility, the data could not prove that it was diet that made the real difference to a woman's problems with infertility. Unfortunately, there have been few studies in the area of human nutrition and fertility until recently. Readers really need to question whether there is strong enough evidence to back the claims made by Dr. Willett and his team.

Overall I found the book to be beneficial and thought provoking for women with infertility due to ovulatory disorders. The book offers some good nutritional tips that would benefit many women looking to improve their diets. And certainly, this book has caught the eyes of medical practitioners who are beginning to see the real value of nutrition in dealing with infertility. On the downside, it concerns me that the authors do not recommend working with Registered Dietitians. It is also of worry that women may read the book and skip working with a health care provider to diagnose the cause of her or her partner's infertility.

*Reviewed by Judy Simon MS, RD, CD, CHES
Clinic Dietitian University of Washington Medical Center Seattle, WA and owner of Mind Body Nutrition, PLLC Bellevue, WA*

These changes include:

1. Avoid trans fatty acids.
2. Use more unsaturated oils (such as olive or canola).
3. Eat more vegetable protein, such as beans and nuts and less animal protein.
4. Choose whole grains and sources of carbohydrate that have slower effects on blood glucose and insulin.
5. Drink a glass of whole milk or eat a small dish of ice cream or full-fat yogurt every day - trading in low or no-fat dairy products for their full-fat versions temporarily
6. Take a multivitamin that contains folic acid and other B vitamins.
7. Get plenty of iron from food sources other than red meats including poultry, fish, beans, dark green vegetables and iron-fortified foods.
8. Drink coffee and tea in moderation. Cut back on sugared sodas.
9. Aim for a healthy weight. If overweight, losing 5-10% can start ovulation.
10. Exercise daily (but, not excessively, if thin),

Following an introductory chapter that provides readers with an overview of the findings, chapter two offers readers a review of fertility and infertility basics. Written in easy to understand language, the chapter covers infertility in general and goes into help-

the true predisposing issue. Again, fluency with symptoms of inflammation and a thorough history is more likely, at least initially, to provide relevant information. The reality may be that as we learn more about how these two diagnoses affect each other, there truly are individuals for whom this philosophy and treatment model are counterproductive.

Cravings, cravings, cravings.

I am always amazed at how much time is spent among professionals debating whether women with PCOS should eat more carbohydrates or more fat, and how virtually no one in this debate has questioned why carbohydrates are such an issue in the first place. One of the most basic aspects of PCOS that every nutrition therapist needs to understand is that carbohydrate cravings can be so intense that they are impossible to ignore. I agree that a lower carbohydrate, higher fat diet is probably the best option, but to tell someone not to eat the very thing their brain is screaming for...is to set them up to fail.

The little bit of research that does exist to validate these cravings and to investigate their cause, points to two potential sources: (1) lowered seizure thresholds, not unlike epilepsy, which increase brain and nervous system metabolism and glucose demand, and (2) disrupted endocannabinoid metabolism.

Though little research has been devoted to the appropriate treatment for the cravings themselves, there is data suggesting that a diet high in omega-3 fatty acids and low in omega-6 fatty acids helps to raise seizure threshold (12) and restore appropriate endocannabinoid function (13). When cravings subside, carbohydrate intake automatically drops. The appropriate reduction in carbohydrate intake is achieved, and in a way that doesn't feel counterproductive. With good omega-3 fatty acid balance, the client's appetite often naturally shifts toward the foods she ideally needs to eat.

Mental health issues are a very common—and very ignored—aspect of PCOS.

In the website survey conducted at www.afterthediet.com, over 85% of women with PCOS experienced at least one of the following: anxiety, depression, mood swings. Less than 10% were ever asked about these symptoms, which mean that they likely were also never told what to do about them. Postpartum depression is also an important issue to look for and address.

It is important to know if mood changes exist; they can trigger disordered eating, which in turn can stress insulin function. Mood disorders themselves impose oxidative stress on the brain and nervous system, and diet choices such as high sugar, high saturated-fat foods, impose their own potentially oxidative influences. In many cases, PCOS may not be well managed if a predisposing mood disorder is not first addressed. Hormones and moods originate in the same brain region, the hypothalamus. Anxiety and anger attacks, in many cases, are behavioral reflections of imbalances in cortisol and androgens. Behavioral counseling may help to encourage the use of better stress management techniques which in turn can lessen the physiological impact of stress hormones, but the hormone imbalances will require nutritional and medical therapy in order to truly resolve. Fortunately, the same omega-3 fatty acids that help to reduce carbohydrate cravings have also been shown to benefit every single axis I mental diagnosis currently listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (14-28), further strengthening the argument for a focus on restoring balance to the diet as the primary strategy in PCOS treatment.

Medications intended to help may actually be part of the problem.

Psychotropic medications such as valproic acid (Depakote) and olanzapine (Zyprexa) are examples of medications well-documented to

My Dietary Approach to PCOS

To date, most information on nutrition therapy for PCOS has focused on weight management goals and carbohydrate intake. The approach I use and teach is based on the rapidly growing body of literature pointing to the inflammatory process that PCOS appears to be. Improving omega-3 fatty acid balance and providing a diet high in anti-oxidants are the primary strategies my counseling focuses on. My observation, (which hopefully will be available in peer-reviewed, statistically analyzed fashion sometime in the future), is that this diet helps to reduce the desire for carbohydrates, helping to pull the overall carbohydrate/protein/fat intake into balance.

worsen insulin resistance (29, 30). Again, balancing essential fats can help to manage psychiatric symptoms and lessen the dose of medication needed, which in turn reduces the opportunity these medications might have to interfere with hormone balance.

Most women with PCOS have some kind of sleep disorder.

In addition to sleep apnea, which is well-documented in the literature as a common PCOS comorbidity (31), 65% of the women in my website survey had one or more of the following sleep disorders: sleepwalking, insomnia, restless legs syndrome, and night eating. Poor sleep quality is associated with insulin resistance. Individuals who don't sleep well often skip breakfast and seek energy in sugary and caffeinated drinks, which can worsen insulin resistance and further impair sleep quality the following evening. I have had many clients who could not change their eating until their sleep dysfunction is addressed. Any practitioner who works with PCOS should have contact information for a good sleep specialist handy for referrals.

Women with PCOS are often not taken seriously by the medical community.

Omega-3 imbalance also affects memory, motivation, and sleep patterns, to mention a few. A woman who has had chronic issues with weight, has a long list of other chronic diseases, and is often forgetful when it comes to following medical and nutritional advice, can lose credibility with her caregivers. She can eventually lose faith that there is real help, or that anyone is going to believe her if she tells them her story. It can take a very long time for someone with PCOS to trust that you are going to be the person who is actually going to provide genuine, lasting relief from her symptoms.

Registered dietitians are an important if not necessary resource in the identification, management, and education about PCOS.

The obvious reason cysters need dietitians is that so much of PCOS is about restoring nutritional balance. Secondly, the nature of a nutrition consultation is that it provides sufficient time for adequate history taking to fully assess the client's lifestyle, comorbidities, and need for referral to other specialists. Finally, the dietitian is in the perfect position to act as the client's case manager and care coordinator and to educate other team members about the value of nutrition intervention in managing everything from infertility to mood disorders to skin problems. While it may be distressing to know that PCOS is such a common problem, the good news is that a concerted effort as a profession to provide education and outreach can make a difference in the quality of life of women who have PCOS, not to mention the children they aspire to have.

References are available on the website at www.womenshealthdpg.org

GOALS OF THE WH PRACTICE GROUP

WH DPG promotes the development of dietetics professionals in the specialty area of nutritional care in women's health which includes preconception through pregnancy and lactation and expanded to late menopause.

The objectives of the Women's Health DPG are:

- 1. Build an aligned, engaged and diverse membership.**
- 2. Proactively focus on emerging areas of women's health**
- 3. Impact the research agenda in women's health and nutrition.**
- 4. Identify and influence key food, nutrition and health initiatives specific to women.**
- 5. Increase demand, utilization and reimbursement of services provided by WH members.**

"WH members are the most valued source of nutrition expertise in women's health"

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