



overview

Women's Health Overview

Diabetes Over a Woman's Reproductive Lifespan

"If not well controlled, diabetes can lead to complications affecting quality of life and lifespan."

Diabetes is a disease associated with abnormal blood sugar. Most of us have been affected by diabetes in some way, whether we struggle with it personally or have a friend or family member with the disease. It is extremely common, affecting 30.3 million people in the United States. There are many different types of diabetes, but the most common is Type 2 diabetes, which accounts for over 90% of cases.

Managing blood sugars can have a significant effect on a person's day-to-day routine. If not well controlled, diabetes can lead to complications affecting quality of life and lifespan. Women in particular have unique challenges in managing diabetes,

which are related to fluctuating hormone levels throughout their reproductive lifespans.

Once a woman goes through puberty, she experiences monthly changes in her hormone levels that prepare her body for pregnancy and ultimately result in menstrual bleeding if pregnancy does not occur. Some women with diabetes experience fluctuations in their blood sugars that mirror the changes in their hormone levels. At times, medication doses need to be adjusted around the time of a woman's period in order to maintain good blood sugar control.

It is important for a woman of child bearing age who has diabetes to be thoughtful in her plan for pregnancy. Normal blood sugars are recommended prior to conceiving to reduce the risk of miscarriage and birth defects in the baby. For most women, diet and exercise are

see Diabetes pg. 4

Bariatric Surgery Effects on Type 2 Diabetes

Obesity is the primary cause for Type 2 diabetes and the alarming rise in diabetes prevalence throughout the world has been in direct association with increased rates of obesity worldwide.

Nearly all individuals who have bariatric surgery show improvement in their diabetic state. Bariatric surgeries performed in more than 135,000 patients were found to affect Type 2 diabetes in the following ways:

- Lowering blood sugar
- Reducing the dosage and type of medication required
- Improving diabetes related health problems

Learn how the Bariatrics Center at Nebraska Medicine can help you reach your weight loss goals by calling 402.559.9500.

Information courtesy of the American Society for Metabolic and Bariatric Surgery
asmbs.org



From the chairman

Nearly 100 years ago, a drug was discovered that forever changed the life of patients with diabetes. The high mortality rates in patients with diabetes effectively precluded pregnancy, as most with the disease died before becoming pregnant. For patients considering pregnancy, insulin made it possible.

There are many examples of important drug discoveries that were as life altering as insulin. Pharmaceutical companies (collectively referred to as pharma) developed most of these. Pharma has supported many drug trials in academic medical centers over the years. This partnership has been beneficial for all parties. The expense, however, is frequently passed on to the consumer.

The net effect of this investment has been to increase the price of drugs to levels that create problems for our patients. It is estimated that the price of insulin has risen 11 fold since it was first made commercially available. This has led to patients rationing their supplies and using less than the recommended amounts. This of course leads to poorer control of diabetes and more long and short term complications.

The bottom line is that the cost of health care, now 20% of our GDP, is simply unaffordable. Providers, health systems, patients and politicians must work together to reduce cost and increase access. Expansion of Medicaid may affect access but is an incomplete solution to the problem.

I encourage all of us to get involved in the political process. As one of our faculty recently said, "Think about these things when you vote in the upcoming elections."

Carl V. Smith, MD, FACOG

Chairman

Department of Obstetrics and Gynecology

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Women's Health Overview

newsletter is published quarterly for health care professionals and the general public with special interest in women's health issues by the Olson Center for Women's Health.

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Uterine Fibroids: An Important Women's Health Issue

Uterine fibroids occur in approximately 70-80% of women and occur more frequently in African-American women. Uterine fibroids, referred to as leiomyomas, are benign tumors that develop in the smooth muscle cells of the uterine wall.

Most fibroids are asymptomatic, but 20-30% of women experience symptoms that can impair daily activities and quality of life. Fibroid-related symptoms depend on the size and location of the tumors. Large fibroids can create an enlarged uterus, which results in bowel and bladder dysfunction, increased urinary urgency and frequency, abdominal protrusion and constipation. Additional symptoms include painful periods and heavy menstrual bleeding, which may lead to severe blood loss. Fibroids may impair fertility and are associated with several pregnancy related complications including infertility and recurrent miscarriage.

In patients with severe symptoms, uterine fibroids are often surgically removed and remain the leading reason for hysterectomy in the United States. Approximately

200,000 hysterectomies and 30,000 myomectomies are performed annually due to symptoms associated with fibroids. The annual cost of fibroids is estimated at \$34.4 billion, more than breast cancer, colon cancer or ovarian cancer. Accordingly, there is a clear need for long-term noninvasive treatment options.

The underlying cause of uterine fibroids is unclear. A large number of studies now suggest specific genetic mutations and environmental factors are correlated with increased risk of fibroids. Maternal history, vitamin D deficiency, diet, lack of exercise and obesity are known to increase risk. Pregnancy has a protective effect, decreasing the risk of developing fibroids, although underlying mechanisms remain unclear.

Fibroids are sex-steroid responsive tumors, which are stimulated by estrogen and progesterone. Therapies to counter the stimulatory effects of estrogen and progesterone on fibroid development complicate fertility and are approved only for short-term usage due to long-term side effects.

There is currently no approved drug for long-term treatment of fibroids, which stems from a poor understanding of molecular mechanisms that initiate or promote the growth of uterine fibroids.

Investigators in the Olson Center for Women's Health research laboratories have received an SRI and Bayer Discovery/Innovation Grant from the Society for Reproductive Investigation (SRI) and Bayer Health care LLC to investigate uterine fibroids. The proposed study will broaden our understanding of the factors that cause uterine fibroid development. A goal of the project is to reveal new therapeutic interventions for fibroids, with the hope of reducing surgical procedures and hysterectomies.

Contributed by John S. Davis, PhD
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the preferred ways to achieve control of blood sugar. If medications are needed as well, insulin and an oral drug called metformin are the only medications considered to safe for use in pregnancy. All other agents should be discontinued.

Once pregnant, a woman usually sees blood sugars rise over the course of pregnancy. This is because the baby requires sugar to grow and gets all necessary nutrients from mom. Hormones released by mom and the placenta intentionally cause her blood sugar to rise for this purpose. If they rise too much, however, the baby may become too big, which can result in complications with delivery. It can also cause mom to develop dangerously high blood pressure. To reduce the risk of these complications, strict blood sugar control is needed all throughout pregnancy. Women will also undergo increased monitoring of the baby as a precaution. After delivery, blood sugar and medication requirements tend to return to pre-pregnancy levels.

Some women with no prior history of diabetes will develop gestational diabetes during pregnancy. This temporary form of diabetes occurs when a woman's body is unable to compensate for the rise of blood sugar that naturally occurs during pregnancy. Because 6 to 9% of pregnancies are affected by gestational diabetes, it is routinely screened for around 24 to 28 weeks of pregnancy. High risk patients should be screened immediately at diagnosis of pregnancy. Once a woman is diagnosed with gestational diabetes she should meet with a nutritionist to review blood sugar monitoring, dietary modifications and activity recommendations for managing high blood sugar in pregnancy. Women with gestational diabetes are at high risk of developing diabetes outside of pregnancy, so ongoing monitoring is recommended throughout her lifetime.

Once a woman's childbearing years have come to an end, she enters menopause and is at greater risk of osteoporosis. Osteoporosis occurs when the bones become thinner and more fragile, increasing the likelihood of breakage. Diabetes also causes bones to become more fragile. Complications of diabetes such as damage to the eyes and the nerves in the feet can increase the risk of falling and breaking a bone. It is important for women with diabetes to build and maintain good bone health starting at a young age. This can be achieved with good control of blood sugars, adequate calcium in the diet, supplemented vitamin D levels if needed, and the performance of regular weight bearing and resistance exercises. A woman should also undergo routine testing of her bone density at the age of 65 or sooner if indicated based on her other risk factors.

It is clear that diabetes influences health in a number of ways and women have additional considerations related to their reproductive life. Navigating through these changes is made easier by taking charge of your health. Know your blood sugar targets and where you stand. Work on a healthy diet and slowly increase physical activity to at least 150 minutes per week. Remember, small changes add up over time! Plan ahead with regards to building a family and work closely with your health care provider to achieve and maintain control over blood sugars to help reduce the risk of complications throughout pregnancy. Start thinking about your bone health now and take the steps necessary to optimize your bone strength to reduce the risk of breaking a bone later in life.

If you feel you are not achieving your goals regarding diabetes management and would like additional assistance, please call 402.559.8700 to schedule with our team at the Nebraska Medicine Diabetes Center.

**Contributed by Lisa Carter, PA-C
Lynn Mack, MD**

*Department of Internal Medicine
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Mission Statement

The mission of the Olson Center for Women's Health is to provide a national comprehensive health science center at the University of Nebraska Medical Center (UNMC). Based in the Department of Obstetrics and Gynecology, the center enables UNMC to make distinctive strides in education, research, and service through innovative approaches to women's health issues.

Want More Information?

Visit our website: **OlsonCenter.com**

Learn more about our health care providers, services, and programs available at the Olson Center for Women's Health. Our website also offers women's health information. Here are a few topics:

- Breastfeeding
- Breast Health and Disease
- Cardiovascular Health
- Gastrointestinal Health
- Gynecologic Health
- Reproductive Endocrinology/Infertility
- Pregnancy
- Wellness
- Incontinence

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Expanded Behavioral Health Offerings Benefit Broader Patient Base

The Olson Center recently received one-time funding to allow psychiatrists to continue counseling patients within our ambulatory settings. Our patients have a high level of unmet need for these services, and the UNMC Psychiatry Department faces a chronic funding challenge in order to meet those needs. This funding enables the center to offset financial challenges and continue to offer these important services to patients within our clinics.



Dana Raml, MD, runs the Perimenopausal Psychiatric clinic at the Olson Center. Perimenopause is the period of a woman's life just before menopause, or the stopping of her periods. During this time, women may experience hormonal shifts that create changes in their moods, including developing anxiety symptoms. They may also experience sexual difficulties. This clinic is designed to help women through this transition. Raml is a member of both the North American Menopause Society and the International Society for Study of Women's Sexual Health.



Meghan Sheehan, MD, is a subspecialist focused on the care of complex patients with both psychiatric and medical conditions. She provides psychiatric inpatient consultation throughout the hospital. She has particular expertise in reproductive psychiatry, psycho-oncology, ICU psychiatry, and transplant psychiatry. She is passionate about integrating and consolidating medical and psychiatric treatments for some of our most vulnerable patients, including patients with cancer and pregnant and post-partum mothers. Sheehan is a member of the American Psychiatric Association and the Academy of Consultation-Liaison Psychiatry.



Thomas Magnuson, MD, is a psychiatrist trained at UNMC who is board certified in both adult and geriatric psychiatry. He has worked across campus providing care for neurology, psychiatry and internal medicine patients. In addition, he has developed a telepsychiatry network across the state involving over 80 community sites. He is excited to now be part of the Nebraska Medicine Transgender Care Clinic due to the need for mental health care in this patient population.



Marley Doyle, MD, is the Associate Director of the Women's Reproductive Program at UNMC. Doyle competed a fellowship in Women's Mental Health at Brigham and Women's Hospital and is an expert in the treatment of mood disorders in times of hormonal transition. She provides consultation to the Olson Center for Women's Health and is particularly interested in perinatal obsessive compulsive disorder (OCD) and substance use disorders.



Madeline West, MD, specializes in child and adolescent psychiatry. She is interested in cultural psychiatry and outreach to various communities, including the transgender community. She received her degree from the University of Nebraska Medical Center.



Megan Smith-Sallans, MS, LIMHP, LIPC is the Director of Behavioral Health at the Transgender Care Clinic. She brings 20 years of experience working with the transgender community and has received and administered training both nationally and internationally. At the clinic, Smith-Sallans provides gender health planning for youth, fertility counseling, letter of support for surgical services and runs a support group for parents and caregivers raising gender expansive youth. She is a member of the World Professional Association for Transgender Health.



OLSON CENTER FOR WOMEN'S HEALTH

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featured recipe

Carrot Muffins

- | | |
|---|-------------------------------|
| 2 tablespoons ground flax | 1/2 cup rolled oats |
| 5 tablespoons water | 1 teaspoon baking soda |
| 3/4 cup almond milk or other plant-based milk | 1 1/2 teaspoons baking powder |
| 3/4 cup applesauce, unsweetened | 1/2 teaspoon salt |
| 1/2 cup maple syrup | 1 teaspoon ground cinnamon |
| 1 teaspoon vanilla extract | 1/4 teaspoon ground ginger |
| 1 1/2 cups whole-wheat flour | 1 cup grated carrot |

Preheat oven to 350 F. Place the ground flax in a small bowl and pour the water over it. Mix with a fork to incorporate and let stand for 5 minutes.

Add almond milk, applesauce, maple syrup, and vanilla extract to the bowl with the water and flaxseed mixture. Mix well. In a large bowl, add whole flour, rolled oats, baking soda, baking powder, salt, ground cinnamon, and ground ginger. Mix well.

Pour the milk and flaxseed mixture into the large bowl with the flour. Mix until all has been incorporated. Add the grated carrot. Mix to incorporate.

Empty the mixture into the muffin molds by filling up to 3/4 capacity. Bake 20 minutes or until a toothpick is inserted into the muffin and comes out clean. Makes 12 muffins.

Per serving (one muffin)

- | | |
|----------------------|----------------------|
| Calories: 119 | Sodium: 234 mg |
| Cholesterol: 0 mg | Fat: 1.3 g |
| Carbohydrate: 25.5 g | Potassium: 579 mg |
| Fiber: 2.9 g | Saturated Fat: 0.2 g |
| Protein: 4 g | Sugar: 10 g |

Source: Physicians Committee for Responsible Medicine

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