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2020

## Menopause and Diabetes? No Sweat!

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# MENOPAUSE AND DIABETES? NO SWEAT!

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DOI:  
<http://dx.doi.org/10.17125/plaid.2016.83>

## ABSTRACT

For women, menopause is not an option. There is a finite end to our reproductive life, but modern women live as much as one third of their lives past menopause. Women with diabetes are no exception, but they do have their own special concerns. Armed with current up-to-date medical knowledge, women with type 1 diabetes (T1D) or type 2 diabetes (T2D) can make informed decisions about how they approach menopause, its symptoms, and body changes.



People Living with And Inspired by Diabetes

## DEFINITION OF MENOPAUSE

Reproductive aging is a process that begins at birth with a finite amount of oocytes or eggs. With monthly menses, the steady loss of eggs ends with egg depletion [1]. Menopause marks the end of a woman's natural reproductive life and can be defined as the permanent cessation of menses for twelve months with no menstrual bleeding [2].

Menopause transition, sometimes called perimenopause, is the months and years leading up to menopause, and is characterized by fluctuating hormones. Fluctuations in estrogen production result in the bothersome symptoms common in midlife women. Most notably during the transition, menses change and become longer, more frequent, and often heavier. Hot flashes, night sweats, and sleep disturbances also begin during this time and can continue for many years past the final menstrual period. Other symptoms include vaginal dryness; skin, hair, and nail changes; as well as alterations in mood and memory. In many women, these symptoms are mild and temporary, but for others they persist. Women with persistent symptoms should seek advice on options to improve their quality of life [3].

The average age of menopause in the United States is between the ages of 50 and 52 years old, with 95% of women experiencing menopause between ages 44 and 55. With increasing lifespan, many women are surviving well into their ninth decade and spending roughly one third of their lives in menopause [4]. As life expectancy continues to increase, menopause may one day be looked upon as truly a midlife event.

## T1D AND T2D DEMOGRAPHICS

The Center for Disease Control (CDC) study of diabetes across the lifespan [5] indicates that diabetes increases with age, and the chance of diagnosis doubles as women transition from reproductive years to middle years. Furthermore, as diabetes diagnoses increase in all populations, the care of postmenopausal women with diabetes has become an extremely common occurrence in the doctor's office [5]. The reproductive change, as well as the symptoms and concerns that come with menopause, can be challenging for any woman, but there are certain aspects of menopause unique to women with diabetes. Women with diabetes should be aware of these issues before beginning the meno-

pause transition years [6]. While T1D and T2D women experience many common concerns, their concerns are discussed separately in this article.

## TYPE 2 DIABETES: WHAT YOU NEED TO KNOW

### 1. Blood Glucose Monitoring

Hot flashes, or vasomotor symptoms (VMS), are the most common symptom with the transition into the middle years. VMS can often be mistaken for symptoms of hypoglycemia, leading to overeating and eventual weight gain. Alternatively, hypoglycemic episodes can be mistaken for VMS, which can result in the delay of treatment for hypoglycemia [7]. Women with diabetes, therefore, should monitor blood sugar more often during this transitional phase. Even if the previous treatment regimen has worked for many years, adjustments may be needed to accommodate for the changes associated with menopause.

### 2. Menopause Symptoms

Women with T2D can experience an increase in the severity of menopausal symptoms that directly correlate to the level of glycemic control. When compared to menopausal women without diabetes, T2D menopausal women with increased HgbA1c exhibit more occurrences of mood swings, headaches, anxiety, sleep disturbances, and depression [7]. If menopause symptoms increase in severity, consider checking blood sugar level and HgbA1c to ensure adequate glycemic control.

### 3. Sexual Changes

Although vaginal dryness and decreased libido are common symptoms of injury to blood vessels and nerves in women with diabetes, vaginal dryness and decreased libido are also common to menopause [8]. Thus, preexisting vaginal dryness and/or low libido can worsen during menopause for women with diabetes [5]. The physician is a great resource to discuss treatments for any vaginal dryness, increase in pain during intercourse, or changes in sex drive. Many treatments are available with or without hormones. Local vaginal estrogen has been shown to decrease vaginal dryness [9]. Additionally, ospemifene, an oral, non-estrogen treatment,

has been approved by the Food and Drug Administration for moderate to severe painful sex after menopause [10]. Many options exist and should be discussed with your physician or mid-level provider.

#### 4. Osteoporosis

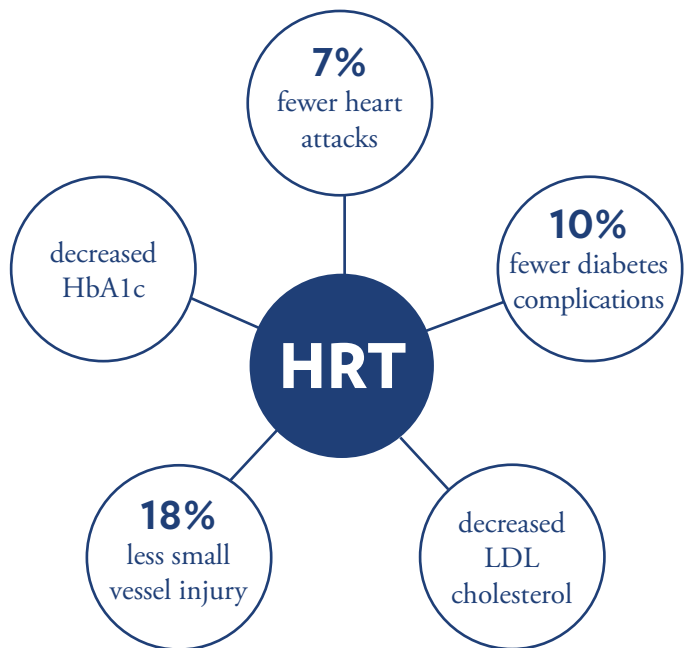
Menopause is a known risk factor for increasing osteoporosis or brittle bones. Brittle bones are very easy to break and can lead to crippling injuries. Studies show that postmenopausal T2D women experience a more rapid loss of bone when compared to women without diabetes. The rate of osteoporotic fractures is also two times higher for postmenopausal women with diabetes [11]. Prevention of bone loss is the best medicine. Weight-bearing exercise, calcium and vitamin D supplementation, as well as regular monitoring with DEXA scans are of utmost importance for the midlife T2D patient. Prescription medications can also be used to reduce the risk of fractures.

#### 5. Hormone Replacement Therapy

Changes in the body's hormone levels, fat storage, and insulin breakdown are commonly associated with menopause [6]. The body is less sensitive to insulin and alters blood glucose levels. These midlife changes present an added challenge to the management of adequate glycemic control in postmenopausal T2D patients. Several studies suggest that the use of hormone replacement therapy (HRT) in postmenopausal women with diabetes may not only improve the symptoms associated with menopause, but may also improve overall glycemic control. HRT-treated women with diabetes were shown to have higher levels of metabolism and increased insulin sensitivity [12]. These changes can translate into a reduction in overall HbA1c, LDL cholesterol, small blood vessel injury, incidence of myocardial infarction (MI), and overall diabetes complications (DC) [13]. If your glucose control becomes increasingly complicated and refractory to other forms of medical management, HRT may be beneficial [6] (Figure 1).

#### 6. Non-Hormonal Options

There are a number of non-hormonal medical treatment options for menopausal concerns for all women, including women with type 2 diabetes. As with any medication, risk, benefits, and alternatives should be considered. VMS have been successfully treated with antidepressants, blood



**Figure 1:**

Benefits of hormone replacement therapy (HRT) for women with T2D when compared to women with T2D not using HRT [13].

pressure, and seizure medications. Behavioral modification such as avoiding spicy foods and alcohol, wearing layered clothing, and exercising routinely have been shown to decrease menopausal symptoms [14].

## TYPE 1 DIABETES: WHAT YOU NEED TO KNOW

### 1. Reproductive Life Plan

A reproductive life plan is a personal set of goals that addresses the decision to have or not have children. While it has not been definitively proven, some recent studies suggest that T1D patients may experience an earlier onset of menopause compared to the general population [15]. Early menopause means ovarian failure occurs earlier, decreasing the number of years available to have children. Fertility and pregnancy can be challenging for T1D women, and with the possibility of early menopause, planning pregnancy is important. All women with type 1 diabetes should have early discussions with their care providers and life partners about their goals for family planning. Many options

are available for women who may have concerns for early menopause. Among these options, cryopreservation (egg freezing) has recently gained buzz among the academic community [16].

## 2. Blood Glucose Monitoring

Like women with T2D, women with T1D are also at risk for poor glycemic control caused by changes in insulin sensitivity during perimenopause and menopause. It is important to stay on top of blood glucose monitoring and adjust insulin regimen accordingly.

## 3. Osteoporosis

Women with T1D are at much higher risks for osteoporosis and osteoporotic-related fractures, most notably hip fractures, compared to their T2D counterparts [17]. Thus, weight-bearing exercise, calcium and vitamin D supplementation, and regular DEXA scans are a top priority to prevent osteoporosis and osteoporosis-related complications in T1D patients.

## 4. Sexual Dysfunction

Vaginal dryness and decreased libido are common in all menopausal women with diabetes and are closely related to glucose control. Sexual problems for women with T1D begin before menopause, and the symptoms of vaginal dryness and vaginal inflammation increase with the loss of estrogen [5]. Over a quarter of all women with T1D report sexual problems [18]. Nerve damage, decreased blood flow, and hormonal changes are the basis for many of the complaints. The treatments are the same as those for women with T2D [9, 10] and should be discussed if bothersome.

## 5. Hormone Replacement Therapy (HRT)

HRT can be used in women with T1D to the extent of T2D. Studies show that if the benefits outweigh the risks, HRT can be used with the lowest possible dose for the shortest possible duration. T1D menopausal women with preexisting heart disease should not receive HRT without very careful counsel. Research recommends careful monitoring of women with diabetes [19] (Figure 2).

- ➔ HgbA1c Every 6 Months
- ➔ Lipid Profiles Annually
- ➔ Liver Function Tests Annually
- ➔ Fundoscopy Annually
- ➔ DEXA Scan Based on Individualized Risk
- ➔ Blood Pressure Checks Every 6 Months
- ➔ Screening for Microvascular Disease Annually

### Figure 2:

Suggested protocol for monitoring women with diabetes on HRT [19].

## 6. Non-Hormonal Options

The non-hormonal options are the same for all women as described above for T2D women. As with any medication, risks, benefits, and alternatives should be considered [14].

## CONCLUSION

Menopause happens. Women with both T1D and T2D will experience these changes, and there will be challenges. Experts have determined best practices for monitoring midlife women living with diabetes [17]. Armed with knowledge and strategies, menopause with diabetes is no sweat!

## CONFLICT OF INTEREST DISCLOSURES

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. The authors have no disclosures to report.

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