

# Type II Diabetes in American Women over 40: Obesity and Menopause

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## Citation

J Revis, S Keene. *Type II Diabetes in American Women over 40: Obesity and Menopause*. The Internet Journal of Health. 2006 Volume 6 Number 1.

## Abstract

There are millions of Americans diagnosed with type II diabetes each year; a large number of these are post menopausal women. Most women are diagnosed with type II diabetes over the age of forty. There are many reasons why postmenopausal women are diagnosed with type II diabetes. Lower levels of the hormones estrogen and progesterone, and human growth hormone contribute to lower metabolism and obesity which is the major cause of type II diabetes. Physical activity and a healthy diet can help reverse the affects of type II diabetes. Menopause can also cause many other problems for women with type II diabetes. Post menopausal women should be routinely screened for diabetes to allow facilitate early detection and treatment. Studies have shown that early management of the disease along with lifestyle change can increase quality of life and limit the level of debilitation of the disease.

## INTRODUCTION

Each year 1.3 million people age twenty years or older are diagnosed with diabetes. It is estimated that 18 million people in the United States have diabetes, and 5.2 million of those people have not been diagnosed. Roughly 1.8 million women in the United States have diabetes. The majority of women diagnosed with type II diabetes are over the age of forty. Type II diabetes, also known as insulin-resistant diabetes mellitus, is the most common form of diabetes. In type II diabetes the patient's body either cannot produce insulin or cannot effectively use the insulin it produces (<sub>(1)</sub>). There are many reasons why women over forty are most likely to be diagnosed with type II diabetes. Lower metabolism that results in weight gain and obesity is the main cause of type II diabetes in women over forty. Resolving obesity can have reverse affects of type II diabetes in the majority of patients. Menopause is another major contribution to type II diabetes. Lower levels of the hormones estrogen and progesterone can cause many complications in the control of a patient's blood sugar levels. Postmenopausal type II diabetic women are also at higher risk for certain diseases including cardiovascular disease and osteoporosis.

## LITERATURE REVIEW

Advances in the medical world have shown that type II diabetes is unhealthy in many ways and can put patients at

risk for developing many other diseases. Medical advances have also helped to determine the many reasons why women over the age of forty have a higher risk for developing type II diabetes.

## METABOLISM/WEIGHT CONTRIBUTION TO TYPE II DIABETES

There are many causes of type II diabetes, but "being overweight or obese with an abnormal fat distribution probably accounts for eighty to ninety percent of all patients with type II diabetes" (<sub>(1)</sub>). Weight gain is one of the easiest recognized symptoms of type II diabetes. When a patient is unaware that they have diabetes they are not able to treat it so therefore they have excess insulin. This excess insulin can increase appetite, so patients eat more to try to maintain a balance (<sub>(10)</sub>). The increase in appetite can only cause more weight gain and increase the severity of the unsuspected type II diabetes. A patient is considered to be obese when they weigh twenty percent or more over their desired body weight. A patient's desired body weight is determined by their age and height, the best measurement for this is the body mass index. "The body mass index is calculated by dividing your weight (in kilograms) by your height (in meters) squared"(<sub>(11)</sub>). Body fat encourages resistance to insulin. Obese patients that have excess body fat above the hips are more likely to get type II diabetes. A poor diet and low activity levels can also be a cause of type II diabetes.

These two concepts can lead to obesity which is one of the main causes of type II diabetes (<sup>13</sup>). Women that are over the age of forty are at a higher risk for becoming obese, so therefore they are at a higher risk for developing type II diabetes. “The majority of women with type II diabetes (eighty percent) struggle with obesity” (<sup>11</sup>). The risk for obesity is due to the fact that as a woman ages her metabolism begins to slow down allowing for weight gain to become more of a problem. The decrease in a woman's metabolism can cause weight gain even if there are no changes in diet or exercise. Other factors that could contribute to weight gain in women over forty include pre-existing weight gain from an earlier pregnancy that grew with age and genetic factors. The genetic tendency to gain weight is due to a “thrifty gene” that is thought to contribute to higher rates of obesity and obesity related conditions (<sup>11</sup>). Other causes of type II diabetes that relate to obesity can be high blood pressure, cholesterol, and triglyceride levels (<sup>7</sup>). Type II diabetes patients that are obese also put themselves at high risk for developing poor circulation, heart attack, nerve damage, and stroke. (<sup>4</sup>). “Not only does obesity make diabetes worse, but it also increases the incidence and severity of high blood pressure, heart disease and resistance to infection” (<sup>12</sup>).

### **OBESITY AND THE EFFECTS ON TREATMENT**

Another aspect of this subject that is of interest is the effects of low metabolism and obesity on the treatment of diabetes. The treatment of type II diabetes is used to prevent the complications of an increase of sugar in the blood with the loss of sugar in the urine (<sup>6</sup>). The goal of treating type II diabetes is to stabilize the amount of glucose in the bloodstream. There are several treatments for type II diabetes. These treatments include insulin therapy, oral diabetes medication, a healthy diet, and physical activity. The main goal for a type II diabetes patient is to learn how to regularly check their blood glucose levels and record them properly. “The key to managing type II diabetes for most women is losing roughly twenty pounds, which is about five percent body fat” (<sup>11</sup>). A healthy diet and physical activity are two treatments for patients with type II diabetes that are highly effective and are recommended by physicians for all patients with the disease. A healthy diet and regular exercise combined can help a patient lose weight which is one of the first steps in controlling the levels of glucose in the bloodstream. These two treatments can also help to lower the body's insulin resistance. “Amazingly, diabetes experts have noted that when their patients lose just five pounds, the body

begins to use insulin more effectively” (<sup>11</sup>). Regular exercise is effective because the body takes some of the glucose out of the blood and uses it for energy. This concept keeps on working even after a patient is done exercising. Eating healthy and eating low-fat foods can help lower the amount of glucose in the bloodstream. An increase level of physical fitness improves with a healthy diet and physical activity which can lower a patient's sensitivity to insulin (<sup>13</sup>). New research for reducing the risk of developing type II diabetes has found the importance of regular diet and exercise. The new studies show that after engaging in at least thirty minutes of exercise each day that a patient can reduce their risk for developing type II diabetes by fifty eight percent (<sup>5</sup>). With significant weight loss type II diabetes patients that are obese can reserve the effects that diabetes has on them (<sup>2</sup>).

### **MENOPAUSES CONTRIBUTION TO TYPE II DIABETES**

Women are usually diagnosed with type II diabetes beyond the age of forty. Taking this fact into consideration menopause can play a role in complicating type II diabetes. Menopause usually occurs between the ages of forty-eight and fifty-two (<sup>11</sup>). We already know that obesity is a problem in postmenopausal women this fact is due to the decline in growth hormone and the loss of estrogen. The decrease in these two hormones may explain the rapid increase of fat (<sup>8</sup>). Menopausal women with type II diabetes are at a greater risk for developing heart disease, which is the number one killer of women in America. The risk for developing heart disease in a diabetic patient is two to three times higher than the risk for patients without diabetes. Another complication with type II diabetes is that menopause causes estrogen and progesterone levels to drop. This decrease in hormones can cause fluctuations in blood sugar levels and episodes of low blood sugar. Estrogen triggers insulin resistance, so low estrogen takes the opposite effect and allows the body to quickly use up insulin. With these low blood sugar levels a patient could possibly have to adjust their diabetes medications and diet so regular blood sugar checks should be administrated. Extreme fatigue and drowsiness are also symptoms of type II diabetes in postmenopausal women. These symptoms usually occur at times when a patient should not be feeling tired or drowsy (<sup>10</sup>). This feeling of drowsiness is due to low levels of estrogen that can also cause patients to become more vulnerable to stress, depression, and anxiety. This is due to the fact that estrogen affects rapid eye movement sleep. When a patient is not able to sleep well they become fatigued which makes it more

difficult to deal with stress, depression, and anxiety which can increase blood sugar levels (11). Many women that are menopausal decide to use hormone replacement therapy. Hormone replacement therapy is when a patient takes oral supplements of estrogen and progesterone to replace the loss of these hormones caused by menopause. Diabetic women that choose to take hormone replacement therapy will have changes in their insulin requirement. Changes in a patient's insulin requirement will depend on how well the hormone replacement therapy meets the hormone level need of that particular patient. "High doses of estrogen and progesterone require larger doses of insulin than low doses of estrogen and progesterone"(9). It is recommended that if a diabetic woman chooses to use hormone replacement therapy she should not consider this a long term option. This is due to the fact that in a long term study it was concluded that chronic hormone replacement therapy could actually increase a patient's risk of developing heart disease, stroke, cancer, and blood clots (11).

Type II diabetes is a serious disease that can cause other diseases and complications, especially if left untreated. Blood vessel damage is one problem that can occur in postmenopausal patients with diabetes, specifically if they are overweight. The damage is caused because the blood vessels become weak, narrow, and/or blocked. These factors cause less blood flow to some parts of the body thus they may receive less oxygen resulting in poor circulation.(4). Menopausal women with type II diabetes are also at greater risk for cardiovascular disease and osteoporosis (3). "Cardiovascular disease is the number one killer of women with diabetes, suppressing both breast and ovarian cancer"(3). The greater risk for cardiovascular disease is due to the decrease in estrogen and can also be due to blood vessel damage. To reduce the risk of cardiovascular disease a women with type II diabetes should reduce her intake of certain fats including saturated fats and triglycerides and increase the intake of other fats including unsaturated fats and omega-3 oils. Osteoporosis is a disease in which bone mass is lost. Postmenopausal women are at a greater risk for this due to the decrease in estrogen and progesterone which interferes with the body's calcium absorption. The concern for women with type II diabetes is not osteoporosis itself but the risk of fractures and breaks. Type II diabetes puts patients at risk for recurrent infections and slower healing rates, which can cause severe complications when a patient fractures or breaks a bone. It is very important that postmenopausal women take extra caution and "fall proof" their homes to avoid any fractures or breaks.

Postmenopausal women with type II diabetes should also consider taking a calcium supplement to help build bone strength and prevent bone loss (11). Postmenopausal women with type II diabetes are also at high risk for gum disease, retinopathy, cataracts, glaucoma, and kidney diseases.

### **CONCLUSION**

Type II diabetes is a serious disease with many complications that can occur if not properly managed. Postmenopausal women are at higher risk for developing type II diabetes due to many factors. Lower metabolism that can lead to obesity is the main cause of type II diabetes in women over forty. Diabetic women that are obese can reduce complications of the disease with regular diet and exercise. Menopausal women can also experience many complications with type II diabetes due to decreases in estrogen and progesterone. Low levels of estrogen can cause fluctuations in blood sugar levels which require constant monitoring of blood sugar. Hormone replacement therapy, which is used to treat menopause, is not recommended to women with type II diabetes. Other complications of type II diabetes in postmenopausal women include stroke, cardiovascular disease, and osteoporosis. There is no cure for diabetes, but new research is constantly continuing on ways to manage already diagnosed type II diabetes. Research has developed new ways to monitor blood sugar levels including the development of the insulin pump. New research is also constantly continuing on ways to reduce the risk of developing type II diabetes and on the importance of regular diet and exercise.

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