



Menopause

Metabolism

A Special Report on
Weight Gain During Menopause



Menopause Metabolism

As a female physician who specializes in weight management, weight gain during menopause and peri-menopause is the most common condition I deal with.

So many women share the history of actively managing their weight until, all of a sudden with peri-menopause or menopause, it is like a switch has turned off and somehow their metabolism has changed. The history a typical patient will give to me sounds something like, “I have always needed to work on my weight- eat the right things and exercise - and I still do. But now everything I used to do to control my weight no longer works. Instead, I am gaining weight despite being more careful, exercising more and eating less. Help! I am so frustrated.”

Alternatively, women may share the history that their weight has not been optimal over the past several years but they at least were stable with their degree of extra weight. However, with the onset of hormonal changes, their weight is no longer stable but instead is rising fairly rapidly.

Less commonly, I will have a woman share the history that she never even thought about her weight before the hormonal changes of menopause or peri-menopause. She was one of the rare few who could eat whatever she wanted, did not have to exercise excessively and was always normal weight and the envy of her friends. Now with hormonal changes she too has gained weight and it is almost always in her abdominal area.

Is Weight Gain With Menopause Inevitable?

When trying to come up with a solution to the challenge of avoiding the seemingly inevitable weight gain, I thought, “Will I, like most of my patients, be bewildered and gaining weight in several years despite doing all that I can to prevent it?” This was the question I often asked myself during the day-to-day clinical practice of medicine in weight management. It has been one of the driving questions that I seek answers for when I go to conferences or read the scientific literature.

Over the years, almost every article I read about weight gain and menopause acknowledged that it occurs but the reasons given were always that women become less active and eat more as they age. This explanation was highly unsatisfactory to me because I repeatedly heard a similar history from my patients who described the exact opposite behavior with regards to caloric intake and exercise. Were all of my patients wrong? Were they simply confused when they reported that five years ago they exercised maybe twice a week and now they exercise daily and with a personal trainer to boot! Or when they bring in meticulous dietary logs showing they have eaten a 1200 calorie diet for the past three months and have gained weight are they just underestimating all of their portions? I have always believed my patients and knew that there was more going on. Over the years, I have found some very encouraging answers to the dilemma and my patients are very grateful.

Where Am I In This “Change of Life?”

Let’s define what menopause actually involves. Menopause is officially designated when a women has stopped

having menstrual periods for one year or when blood tests show that there are very high levels of pituitary hormones called gonadotropins. Gonadotropins are hormones that are released by the pituitary gland in the brain to signal the ovary to release the appropriate hormones that cause an egg to mature and be released each month. The hormone levels have a patterned rise and fall each month during a woman's reproductive years.

Levels of gonadotropins become very high once the ovary is no longer able to respond to these hormones and ovulation no longer occurs. As ovarian function ceases, the levels of the hormones made in the ovary, estrogen and progesterone, decline.

Peri-menopause is the term given to the years that lead up to menopause. In these years, the ovary is starting to decline in function and an egg is no longer released consistently each month. Hormone levels become erratic and sometimes months go by without a normal ovulation. If hormone levels are checked in these years, the gonadotropins can be normal to mildly elevated. The associated symptoms can be hot flashes, night sweats, fatigue, mood changes and weight gain. Peri-menopause may last for years.

The symptoms of hot flashes and night sweats can be explained by the erratic fluctuations in hormones that occur in these years. Physicians have been able to treat women who seek relief from these symptoms with hormone replacement therapy.

But It's Not Just a Hormonal Change

Many women will do whatever it takes to try to correct hormonal issues to lose

weight. It is typically not an issue of taking the HRT (hormone replacement therapy) or not. I let women know that there is no evidence that taking hormones or not taking hormones affects a woman's ability to control her weight with peri-menopause or menopause. The studies show that during the years after menopause, the average woman will gain thirty pounds. Women who take hormones may experience less initial weight gain, but several years later; women on hormones have gained a similar amount of weight compared to women who have never used hormones. Obviously, replacement of hormones does not resolve the weight gain issue.

Hormone replacement therapy has long been controversial and more so since the Women's Health Initiative (WHI) trial published in 2002 showed that women who took the synthetic hormone Prempro were more likely to experience heart attacks or strokes. Prior to this study, the prevailing thought was that hormones protected a woman's heart because women experience more heart attacks and strokes after menopause as compared to premenopausal women. After menopause, a woman's risk of heart disease approaches that of men, whereas prior to menopause women are much less likely than men to have heart disease.

Since this study, hormone replacement therapy is still prescribed, if needed, during peri-menopause if the physical symptoms like hot flashes are unbearable. However, now physicians typically try to use hormones for as short a time frame as possible. And it is no longer recommended that women take hormone replacement

therapy to prevent heart disease, which was what many physicians had believed and recommended prior to the WHI study trial.

Many women today plan to ride out menopause without HRT using only supplements like black cohosh to ease symptoms. The interesting observation I have made over the past ten years is that the average weight gain in the years after menopause is still thirty pounds. Prior to 2002, many of the women I saw for weight concerns were on hormone replacement therapy and after 2002 very few of the women I saw for weight concerns were on these medications. Clearly, the problem of menopausal weight gain is not solved by adding reproductive hormones.

Research Sheds Some Light

New research on the effects of the female sex hormone estrogen in the brain, lend credence to what my patients have suspected about the hormonal changes that accompany aging — namely that menopause itself causes weight gain. Scientists have long sought to understand how changes in hormones during menopause could account for the increase in appetite and accompanying weight gain that often occurs among women as they age.

Researchers used a series of animal experiments to show how estrogen receptors located in the hypothalamus (a hormone producing organ in the brain) serve as a master switch to control food intake, energy expenditure, and body fat distribution. The research showed that when these receptors are disabled, the animals immediately begin to eat

more food, burn less energy, and pack on pounds.

Using gene-silencing RNA interference, the researchers deactivated the estrogen receptors in the VMN (ventral medial nucleus- an area of the hypothalamus), while the estrogen receptors in other regions of the brain maintained their normal capacity. They found that when estrogen levels in the VMN dipped, the animals' metabolic rate and energy levels also plummeted. The findings show the animals quickly developed an impaired tolerance to glucose and a sizable weight gain, even when their calorie intake remained the same. Additionally, the excess weight went straight to the abdomen, creating an increase in visceral fat which is fat stored around the internal organs.

Please read the above paragraph again! The laboratory animals gained weight even though they were given the same amount of food! My patients were correct. They were gaining weight despite not eating more and often were eating less.

Why Is This Research So Exciting And Such A Breakthrough?

This research is so exciting to me because it explains what I have observed clinically in my practice for the past ten years. Whenever I evaluate a patient who needs help losing weight, I do a thorough history, physical and lab work evaluation. In the laboratory evaluation, I specifically test for insulin resistance and impaired glucose tolerance. For the past ten years I have found that women, men and children who find it difficult to lose weight are almost always insulin resistant. The

degree of insulin resistance is variable and individual for each patient and I structure my successful treatment protocol around reversing this abnormal chemistry.

What Exactly Is Insulin Resistance?

Insulin Resistance is a hormonal condition that I find in 80-90% of all the patients I see. It is a metabolic condition that affects those who have it by making it hard to lose weight and easy to gain weight. When a woman is insulin resistant, her body makes the hormone insulin, but her body does not respond to it normally. Insulin is the hormone that is required for glucose (sugar) to enter the cells of the body and be available for energy. Someone who is insulin resistant has a difficult time moving glucose into the cells so the cells of the body are often deprived of energy. This energy deficiency or cell starvation is highly stressful for the body. Further hormones are released that signal the body to both store more fat and to increase appetite.

Insulin resistance develops due to several factors. These include genetics, aging, abdominal storage of fat and the hormonal changes outlined above that occur in menopause.

One of the great frustrations is that once insulin resistance develops it leads to further and more significant insulin resistance. Fat stored around the organs inside the abdomen secrete hormones called adipokines which increase insulin resistance, which leads to more storage of abdominal fat and hence more insulin resistance. Insulin resistance develops in most people as they age, but women experience the onset more dramatically

than men due to the hormonal changes of menopause. A woman who undergoes a surgical menopause with removal of her ovaries will experience it most abruptly of all. For many years I have identified insulin resistance in my patients and have been able to treat and reverse it with good results. What I did not know was the mechanism of how or why women developed insulin resistance so rapidly after menopause. The animal research study provided scientific evidence to explain what I have observed clinically in my practice for years.

We do see insulin resistance in women before menopause and in children, adolescents and men. In these cases the insulin resistance develops due to genetic predisposition and the abdominal distribution of fat that many people who struggle with weight have.

The accumulation of abdominal fat puts both men and women at a heightened risk for cardiovascular disease, diabetes, high blood pressure, high cholesterol, stroke and several types of cancer. When menopause occurs and body fat shifts to the abdomen, women find themselves no longer protected from these negative consequences as they were in younger years when body fat was primarily carried in the hips and thighs. Women who carry weight in their abdomen will have higher insulin levels in order to overcome the insulin resistance, and eventually higher blood glucose levels consistent with pre-diabetes. The abdominal weight causes her bad cholesterol to increase while lowering her good cholesterol, which is the pattern that contributes to heart disease. Abdominal fat also increases the level

of inflammatory hormones, which also contribute to heart disease. In my opinion, it is the deposition of abdominal fat and not lack of estrogen that is the main reason women experience more heart disease after menopause.

Treating Insulin Resistance with Diet

For ten years I have been able to help my patients reverse their insulin resistance with the proper diet for their metabolism. An important factor I must keep in mind when I create a dietary prescription is each individual's carbohydrate tolerance. Carbohydrate tolerance refers to the ability of the body to metabolize and use nutrients. This is determined by hepatic (which means liver) regulation and peripheral usage, which means how the other cells of the body use energy. The factors which affect carbohydrate tolerance are diet, muscle mass, physical activity, age and gender.

A young male athlete has a high tolerance to carbohydrate. He has a larger muscle mass due to his young age, his male gender and his high level of physical activity. The young male athlete is able to utilize his carbohydrates or glucose right at the level of his muscles as his muscles are very insulin sensitive. The young male athlete would be able to run and perform well with a diet high in carbohydrate so much so that athletes have practiced carbohydrate loading before events of peak performance. This gives cells the fuel needed to supply the large demand for energy.

This high carbohydrate, which is also the backbone of the food guide pyramid, provides optimal nutrition for the athletic male. In fact, the food guide pyramid was

developed from information gathered by active men in the military. But what about the postmenopausal woman

Most women become less active with age and experience a decline in muscle mass. Even women who still continue to exercise experience a decline in muscle mass due to age, but the decline is much less than that seen with sedentary women. If a woman eats a high carbohydrate diet one of two things will occur:

1) utilization of energy by the skeletal muscle

-Or-

2) storage of excess calories into body fat. As a woman's muscle tissue declines, fat tissue becomes the site where her extra dietary carbohydrates will be delivered and stored.

More is going into storage than is being utilized by muscle tissue. She gains body fat, usually in the central or abdominal area of her body. Again, the rise in abdominal fat is one of the triggers of the cascade of the important metabolic hormonal imbalance of insulin resistance. The presence of insulin resistance makes it very, very difficult for high levels of carbohydrates to be used by skeletal muscle tissue. Women find that if they eat the way they did when they were younger, they have ongoing abdominal weight gain. In fact, continuing to eat a very high carbohydrate diet will directly aggravate the insulin resistance which is why weight gain is so progressive and often seems out of control.

A woman who could previously eat a breakfast of cereal and fruit when she was insulin sensitive will find she rapidly gains

weight with the same meal if she is insulin resistant.

Creating a Customized Nutrition Plan

Since women in the peri-menopause or menopause years have a difficult time tolerating a high carbohydrate diet, what is the best diet for them? Post menopausal women do better with a controlled carbohydrate diet which contains adequate lean protein. Controlled carbohydrate does not mean the no carb or even low carb diet that many women think of with regards to the Atkins diet or other similar low carb diets. ‘Controlled carbohydrate’ means that the total amount and timing of the carbohydrates needs to be carefully planned and structured.

Just as important as the balance of carbohydrate is the balance of protein and fat in the diet of women who are experiencing hormonal changes. Many women follow diets that are deficient in protein and this needs to be corrected for weight loss to occur. Often my dietitians spend much more time convincing our patients to eat enough rather than admonishing them for eating too much. Women who work with me learn that adequate protein is not excessive protein and all protein does not have to be sourced from meat. The scientific dietary prescription I recommend needs to be created into a meal plan each patient will enjoy.

Dr. Caroline J. Cederquist is a nationally recognized expert on weight loss and metabolism correction. She is the founder of the Cederquist Medical Wellness Center located in Naples, Florida.

For more health resources, sign up for her newsletter at www.DrCederquist.com.

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