

Is Your Expanding Waistline Due to a Metabolic Disease?

Learn about the research and how you can fight back!

Has your cholesterol and those nasty triglycerides in your bloodstream skyrocketed since you developed FMS/CFS? Even if you have not gained much weight, does it seem as though all of the fat cells in your body have migrated to your midline? Or, maybe you have been told by your doctor that you are insulin resistant ... or worse yet, diabetic. These are some of the signs of a medical condition called metabolic syndrome (MBS). While the term has been used for years, criteria for diagnosing it was not established until 1999.

New research shows that patients with FMS and CFS may be at greater risk for MBS, but there are many treatments available these days to reverse it.

What is MBS?

The diagnostic criteria for MBS are highlighted in the box below. Understandably, elevated cholesterol and triglycerides—fat compounds that behave like “sludge” in your bloodstream—would contribute to high blood pressure. But how does this relate to blood sugar (or glucose) levels and insulin resistance?

Your pancreas secretes insulin to help your cells draw in and use glucose from the bloodstream. When you go without food (e.g., fast), your blood glucose should be greatly reduced unless your ability to use insulin for regulating glucose levels is impaired. The excess glucose is converted to fat (such as triglycerides) and typically gets stored around the midriff. Ironically, increased fat interferes with the muscle’s ability to use insulin to draw glucose into the cells, which could make it harder to exercise. A lack of activity further impairs the muscle’s ability to consume glucose. The result is decreased

energy to the muscles, increased conversion of glucose to fat, elevated blood pressure, and a malfunctioning glucose/insulin system (causing insulin resistance).

Fortunately, insulin resistance can be reversed with diet, exercise, and medications. That’s why it is important to catch the early signs of MBS before it progresses to type 2 diabetes, a condition in which the cells ignore the insulin.

Aside from the increased odds of developing type 2 diabetes, MBS is also a risk factor for cardiovascular disease. And recent research in both FMS and CFS patients indicates a high likelihood of developing MBS.

Link Between MBS and FMS

A sedentary lifestyle and sleep disorders are both risk factors for MBS, and are common in FMS patients. This led **Barbara Loevinger, M.D.**, at the University of Wisconsin, to investigate whether FMS patients are at a greater risk for developing MBS.¹ She hypothesized that increased activation of the sympathetic nervous system and reduced adrenal function, which have both been documented in FMS patients, may set the stage for MBS in women with FMS. Unfortunately she did not study men.

Norepinephrine is the key neurotransmitting messenger for the sympathetic system (released from the brain stem), while epinephrine and cortisol are the secondary transmitting hormones secreted by the adrenal glands (see diagram on next page). Too much norepinephrine is

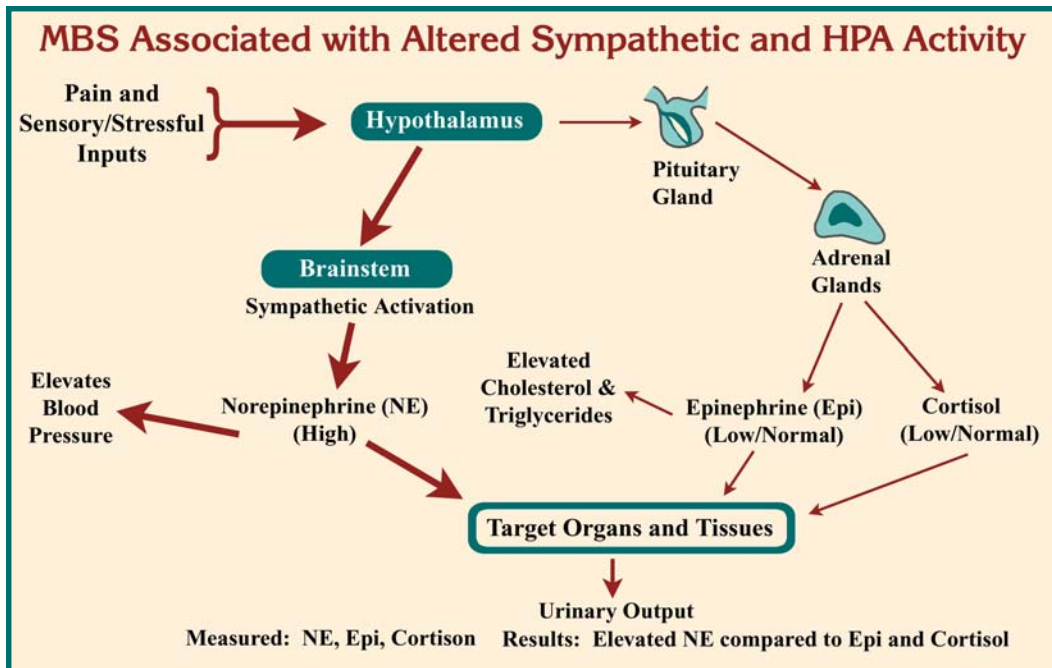
thought to contribute to hypertension, and low levels of epinephrine are associated with elevated cholesterol and triglycerides. Loevinger suspected the urinary norepinephrine-to-epinephrine ratio was skewed in women with FMS, placing them at higher risk for developing metabolic diseases.

Loevinger recruited 109 FMS patients and 46 controls from the community using newspaper ads. The patients were “fairly high functioning” with an average age of 37. All five of the possible diagnostic parameters for MBS were elevated in the group average for FMS patients compared to the averaged values for the healthy controls. Upon statistical analysis, women with FMS were 5.5 times more likely than healthy controls to have MBS. In fact, 20% of the FMS patients met the criteria for MBS. In this subgroup of patients, Loevinger found that their sympathetic system was dominant while their adrenal output was weak compared to FMS patients who did not meet the criteria for MBS. This was reflected by higher urinary norepinephrine-to-epinephrine

Metabolic Syndrome Criteria

You must meet any three of the following:¹³

- ◆ waist greater than 35 inches for women and 40 inches for men
- ◆ elevated triglycerides (over 150 mg/dL)
- ◆ high-density lipoprotein (HDL) or the “good” form of cholesterol is low (less than 50 mg/dL for women and 40 mg/dL for men) or currently taking a cholesterol-lowering medication
- ◆ elevated blood pressure (over 130/85 mm Hg) or currently taking medication for hypertension
- ◆ elevated level of fasting blood glucose (over 110 mg/dL)



compared to healthy women. Male CFS patients were 1.6 times more likely to have MBS compared to controls, but this was not statistically significant.” Maloney added that the nearly fourfold increased risk factor for MBS among women with CFS was not related to body mass index.

While some researchers debate whether FMS and CFS are similar syndromes or related variations of the same condition, both share the same metabolic abnormalities. With regards to Maloney’s finding that male CFS patients were not at risk for developing

ratios and the same was found in norepinephrine-to-cortisol ratios.

Referring to her findings, Loevinger states they “suggest the possibility that the elevated risk for MBS in patients with FMS may be related to sympathetic nervous system activation in conjunction with relatively low-to-normal epinephrine and cortisol.” Most importantly, she found that MBS in women with fibromyalgia was not due to increased weight or inactivity, and concluded, “fibromyalgia per se ... may be a risk factor for MBS.”

Similar Data in CFS

At the International Association for CFS Conference held in January, **Elizabeth Maloney, Ph.D.**, of the Centers for Disease Control in Atlanta, GA, presented data on MBS in both men and women with CFS. Initially, she was interested in a more general measure called allostatic load, which assesses the body’s ability to bounce back to normal after various physiological impacts, such as infections, injuries, disruption in everyday events, and environmental factors. These stressful insults lead to higher allostatic load, and are associated with activation of the sympathetic system and suppression of the hypothalamic-pituitary-adrenal (HPA) system

(similar to the diagram for the FMS study). She looked at heart rate, blood pressure, age, height, waistline and hip circumferences, weight, body mass index (BMI, a lower number corresponds to less body fat), c-reactive protein levels (elevated during inflammation), in addition to all of the metabolic factors that are needed for assessing MBS.

Subjects were recruited from the community by randomly calling people from the phone book and asking them questions about their health. People who were suspected of having CFS, along with those who appeared healthy, underwent a physical examination to provide 113 CFS patients and 264 healthy controls. Almost 90% of the participants were female. A relative allostatic load was computed for each person, ranging from 0 to 6. Higher values reflect a greater inability of the body’s systems to bounce back from stressful insults.

“Women with a high allostatic load were 2.7 times more likely to have CFS,” says Maloney, “yet among men this relationship was not there.” Maloney then looked at MBS because so many of the measures of allostatic load overlap with the criteria for this syndrome. “Females with CFS were 3.7 times more likely to have MBS

MBS, keep in mind that the number of men in her study was small (only ten). However, Loevinger’s theory that MBS is related to the degree of hyperactivity of the sympathetic nervous system may help explain the female predominance, because even at rest, this system is more active in women. Men with FMS may still possess a greater than normal risk factor for developing MBS, just not to the same extent as women.

MBS Treatments

If you have done everything you can to control MBS by reducing the factors that promote this condition (box on next page), research suggests you may do best on a combination of medications as opposed to a single statin-type drug.¹¹ While the statins alone may reduce cardiovascular risks, they do not substantially improve your cholesterol values.

- ◆ **Weight loss meds.** Xenical (orlistat) or Meridia (sibutramine) are two prescription meds that may help you shed pounds.¹⁴ Phentermine may also work, but due to the Phen-Fen diet controversy, there are now limits on how long you can take this drug.
- ◆ **Fibrates (gemfibrozil, fenofibrate and bezafibrate).**

MBS-Promoting Factors

Factors that may contribute to your risk or severity of MBS include:

Certain Antidepressants - Tricyclic antidepressants are often the first meds prescribed to FMS/CFS patients for treating pain and other symptoms. Studies show they cause weight gain in roughly 60% of patients.² Selective serotonin reuptake inhibitors (SSRIs) produce fewer side effects, but also may cause weight gain, especially Paxil (paroxetine).³ These meds stimulate the production of cholesterol and triglycerides.⁴

Poor Sleep Quality - Based on the findings that sleep apnea is a risk factor for developing MBS, a research team looked at the relationship between sleep (using the Pittsburgh Sleep Quality Index, PSQI) and the five parameters for diagnosing MBS.⁵ All subjects were middle-aged and generally healthy, but the higher their PSQI score (reflecting poorer sleep), the greater likelihood of MBS. For every 2.6 increase in the score, the odds of MBS increased 44%. The average PSQI for a group of 30 FMS patients was 12, while the typical score for healthy people would be 2-3.⁶ Based on the high PSQI score, the risk ratio of developing MBS in FMS patients is close to 5—similar to the finding by Loevinger.

Stress - Any form of stress, which includes the horrible pain you feel all over, will activate your sympathetic nervous system. Loevinger showed that FMS patients with a greater activation of this system, were at increased risk of developing MBS.

Inactivity - Exercise and activity will consume any excess sugar in your bloodstream and it will also improve the ability of insulin to work.

High Fat Diet - Saturated fats and cholesterol will increase your risk of MBS and should be avoided, if possible. Try to adhere to a diet moderately high in lean protein and high-fiber carbohydrates (such as cereal grains), while low in fat.⁷ Omega-3 fatty acids (fish oils) can be used as a supplement to reduce triglycerides in doses of 0.5-3 grams/day.⁸

Advancing Age - Although there is nothing you can do about getting older, bear in mind that the prevalence of MBS increases with age.

Low Growth Hormone - One-third of FMS patients meet the criteria for adult growth hormone deficiency, and almost all show a reduction in this hormone.⁹ Growth hormone helps the muscles use the available energy (glucose) and increases the development of muscle mass. Deficiency of this hormone in adults is linked to MBS, but administration of very low doses (0.1 mg/day) effectively improves insulin responsiveness in people who do not produce enough growth hormone.¹⁰

These agents decrease triglyceride levels, increase HDL-cholesterol (the good form), while slightly decreasing the LDL-cholesterol.

◆ **Treating glucose intolerance.**

Glucophage (metformin) can reduce impairments in glucose metabolism and minimize the progression to type 2 diabetes. It also works to reduce the incidence of cardiovascular disease.¹³

◆ **Cholesterol absorption inhibitor.**

Ezetimibe (Zetia) blocks the

absorption of dietary cholesterol. It is also available in Vytorin, which contains the statin simvastatin.

◆ **Reducing LDL cholesterol.**

Drugs in the statin class are fairly effective at lowering LDL cholesterol, but many FMS patients complain about severe muscle pain with these meds. Statins interfere with the production of Co-Enzyme-Q₁₀, a vital enzyme required for muscle function. If you are

prescribed a statin, try minimizing painful side effects by taking it with Co-Enz-Q₁₀ (100-200 mg).

◆ **Lowering blood pressure.**

Beta-blockers, such as Inderal-LA (propranolol), may be useful (see October 2006 issue for details).

◆ **Growth hormone stimulation.**

Mestinon (pyridostigmine) has been shown to increase growth hormone production in FMS patients, especially when taken prior to light exercise.¹³ Start at a low dose of 30 mg (half a tablet) and work up as tolerated. It's much cheaper than growth hormone injections, although not as effective.

Taking Action

If your body dimensions or blood tests are leaning toward the criteria for MBS, take measures now to minimize your risk of developing it and preventing the onset of diabetes. For starters, you will want to correct as many of the factors shown to increase MBS. Also, talk to your doctor about treatment options. Keep in mind that your expanding waistline is probably not your fault, and there are approaches that can help you. **END**

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