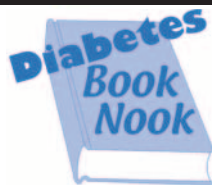


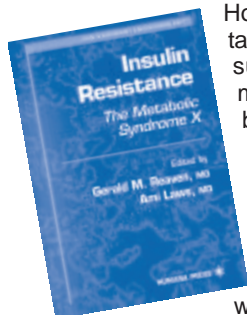
# DiabetesSource™

News For The Diabetes Specialist

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*Insulin Resistance: The Metabolic Syndrome X*: Gerald M. Reaven.

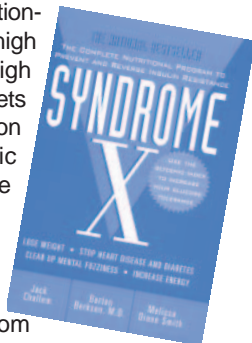


How insulin resistance and hyperinsulinemia play a major role in high blood pressure, cardiovascular disease and the metabolic syndrome X. Available online at:

[www.amazon.com](http://www.amazon.com)

*Syndrome X*: Jack Challem.

Compares nutritional aspects of high protein vs. high carbohydrate diets and its effects on the metabolic syndrome (Syndrome X).



Available on-line at [www.amazon.com](http://www.amazon.com)



## The WebMaster

Website Options For Inquiring Minds

Find more Info on the Metabolic Syndrome:

[www.livingheart.com](http://www.livingheart.com)

This site offers a section on lowering triglycerides and *The Metabolic Syndrome: An Unsuspected Killer*.

### Share your Story

Share your GLUTOSE 15™ story with us on-line at: [www.paddocklabs.com](http://www.paddocklabs.com)

or mail to:

Paddock Laboratories  
Attn. DiabetesSource™  
3940 Quebec Ave. N.  
Minneapolis, MN 55427

We would love to share your success stories with other educators. Sharing is caring and caring saves lives.

## Metabolic Syndrome

Phyllis Bruno, RN,CDE  
Weston, Florida



Metabolic Syndrome, a new phenomenon or just another name for an old disease? In either case, Metabolic Syndrome is known by other names such as Syndrome X and Dysmetabolic Syndrome. Lately, it has been getting so much attention that it has now been given it's own Internal Classification of Disease (ICD) 9 (9th revision) code.

First recognized in the 1920's, Metabolic Syndrome (Syndrome X) is a term used to define a group of presenting factors that include central obesity, dyslipidemia (elevated triglyceride levels and low HDL), hyperinsulinemia, hypertension and hyperglycemia. According to the National Institute of Health a patient must have three or more of these symptoms to be diagnosed with Metabolic Syndrome. Some physicians have also recognized abnormalities in blood clotting in persons diagnosed with Metabolic Syndrome.

The percentage of obese people has dramatically increased in our society. Approximately 20% of adult Americans are clinically obese. Now more than ever the need for weight loss and reeducation on healthy eating is crucial. Obesity is defined as a waist measurement at least 40 inches for men and 35 inches for women. With Metabolic Syndrome, the fat is located in the abdominal area and has the appearance of a "spare tire" or "beer belly" shape.

Dyslipidemia is defined as abnormal lipid levels. According to the National Institutes of Health, triglyceride levels equal to or over 150 mg/dL and HDL (high density lipoproteins) less than 40 mg/dL in men and less than 50 mg/dL in women are considered abnormal. Dyslipidemia is found in individuals with type 1 and type 2 diabetes. Insulin therapy lowers levels of triglycerides and low-density lipoproteins (LDL). Because type 1 diabetics must use insulin, the lipid levels of these individuals are usually lower. Type 1 diabetics who have abnormal blood glucose levels may even find that their lipid levels return to normal levels with adequate insulin therapy. Type 2 individuals are more likely to have elevations of LDL cholesterol and triglycerides, be hypertensive and overweight.

Hyperinsulinemia (elevations in circulating insulin in the blood stream) contributes to obesity, atherosclerosis and hypertension (blood pressure equal to or over 135/80). Hyperinsulinemia is the result of insulin resistance at the cellular level and affects both type 1 diabetics who inject insulin and type 2 who experience an increase in insulin levels. In type 2 diabetes the increase in insulin levels are caused by either the increased production of insulin by the pancreas (endogenous) or higher doses of injected insulin (exogenous).

Hyperinsulinemia plays a key role in Metabolic Syndrome and contributes to hypertension. Insulin is a vasoconstrictor and as such, elevates blood pressure. Hyperglycemia is defined as circulating fasting blood glucose equal to or over 110 mg/dL.

Evaluation of the patient with suspected Metabolic Syndrome includes weight and BMI measurements, blood glucose values, lipid levels, blood pressure readings and the assessment of the individual's lifestyle.



## Mark Your Calendar!

Upcoming Meetings

### AADE 2002 Annual Meeting

◆ August 7-11, 2002  
Philadelphia, PA

One session available at the 2002 meeting is "The Metabolic Syndrome Manager- It's More Than Blood Glucose!": presenter: Catherine Gray, MSN, RN, BC-ADM, CDE. For complete meeting information, visit [www.aadenet.org](http://www.aadenet.org) Stop by Paddock's booth #824 to hear about our new product and for a free sample of Glutose 15™!



## Staying in the loop...

### ✓ Checklist for the Metabolic Syndrome

Three or more of the following conditions indicate high risk for Syndrome X:

1. Abdominal obesity as determined by waist measurement  
40 + inches in men  
35 + inches in women
2. Fasting triglyceride value of 150 mg/dL or higher
3. HDL-cholesterol value of  
Less than 40 mg/dL in men  
Less than 50 mg/dL in women\*
4. Blood pressure value at or above 130 mm Hg for the top number (systolic)-OR-85 mm Hg for the bottom number (diastolic) (either one or both count as one condition)
5. Fasting blood glucose value of 110 mg/dL or higher

Metabolic syndrome is very common in the United States and other developed countries. It affects many adults, most of whom are not even aware they have this syndrome.

Weight control for those who are overweight and increased physical activity are fundamental therapy for the metabolic syndrome.

\* Women tend to have higher HDL-cholesterol levels than men, and HDL-cholesterol may be a particularly strong risk factor in women.

-- [www.livingheart.com](http://www.livingheart.com)

The treatment of Metabolic Syndrome is aimed at lifestyle change. Nutritional intervention focuses on limiting cholesterol intake, decreasing calories and saturated fat, and increasing soluble fiber. Weight loss and restricting fat in the diet decreases plasma triglycerides and may lower plasma LDL. A weight loss of approximately 10% can significantly reduce insulin resistance, improve overall health and decrease risk of co-morbid conditions. Weight loss should be targeted for maintenance, rather than quick weight loss using fad diets that may eventually cause rebound weight gain.

For extremely obese people, surgical intervention may be considered. Gastric banding or gastric bypasses are two possibilities for individuals with a BMI equal to or over 35. Non-surgical treatment with prescription medication such as Xenical® or Meridia® may also be helpful. Any side effects the patient experiences while on these medications should be reported to their physician.

Sedentary lifestyles contribute to weight gain and insulin resistance. Exercise may be the easiest way to increase high-density lipoprotein (HDL). Exercise needs to be tailored to the individual. Most overweight persons have difficulty with exercise due to the increased weight and strain on the joints. They may also have difficulty with their respiratory system, and may become out of breath with exertion. Because of the increased workload on the heart, the individual should have a physician evaluate him or her before any form of physical exertion is attempted. Gaining knowledge of the persons lifestyle can help in developing an exercise plan that is tolerable and achievable.

Metabolic Syndrome's components are major risk factors for coronary artery disease and can lead to premature death. Major risk factors of Metabolic Syndrome are a history of Type 2 diabetes in the family, sedentary lifestyle, smoking and obesity. Once recognized, Metabolic Syndrome's treatments can reduce the complications associated with the disease. The patient's physician may order an oral anti-diabetic agent or insulin therapy to help decrease blood glucose levels. Blood pressure and cholesterol medications the physician prescribes target these specific symptoms. However, nutritional intervention and lifestyle change is crucial to therapy success.

Primary prevention tactics are weight loss with associated lowering of calories and cholesterol intake, adequate exercise, smoking cessation and the possible prophylactic use of aspirin therapy in those patients at risk for the disease.

The American Diabetes Association estimates that at least 47 million American adults have Metabolic Syndrome. The presence of Metabolic Syndrome increases the individual's risk of developing diabetes, heart attacks and strokes.

Metabolic Syndrome (Syndrome X) is recognized as a disease and has it's own ICD 9 code: 277.7 and description, Dysmetabolic Syndrome X. As stated previously, the diagnostic criterion is unique and is distinguishable from other known types or causes of diabetes. Metabolic Syndrome is preventable with lifestyle change. Those persons who progress to a diagnosis of type 2 diabetes will need additional intervention and education by the physician and clinician. The addition of blood glucose monitoring and anti-diabetic pharmaceuticals for blood glucose control to the individual's daily routine may be necessary.



Submit items of interest for upcoming issues to: Paddock Laboratories, Inc.  
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