The Metabolic Syndrome And Stress

The Metabolic Syndrome refers to a condition characterized by abdominal obesity, hypertension, elevated blood sugar and lipid abnormalities. It is not a specific metabolic disorder or disease but rather a cluster of components that have been recognized for at least 75 years under various names, including Syndrome X, the Deadly Quartet and the Insulin Resistance Syndrome. In an effort to be more specific, the NIH recently defined Metabolic Syndrome as being present when at least three of the following are found:

- A waist measuring 40 inches or more for men and at least 35 inches for women
- Levels of triglycerides of 150 mg./100 cc. or higher
- HDL levels of less than 40 mgs. in men and less than 50 mgs. in women
- Blood pressure of 135/80 or higher
- Fasting blood sugar over 110 mg./100 cc.

Metabolic Syndrome is associated with an increased risk for diabetes, coronary heart disease and premature death that now affects more than one in five American adults. It is believed to result from a combination of genetic and lifestyle factors that include overeating and not enough exercise. What seems to connect these seemingly unrelated components is a reduced ability of insulin to transport glucose into cells and tissues to provide energy. The body attempts to overcome this resistance or insensitivity to insulin by pushing its production. Type 2 diabetes eventually results when the pancreas can't continue to maintain its increased production of insulin since blood sugar rises even though insulin levels are actually elevated.

The presence of any single component of this "Deadly Quartet" raises the risk of coronary heart disease and mortality significantly. However, when more than one coexist these risks are greatly magnified and are much more than would be anticipated from a simple additive effect. This is particularly true when other aggravating influences like heredity, smoking, sedentary lifestyle, aging and particularly stress are superimposed.

In one study designed to delineate the significance of different Metabolic Syndrome components for coronary disease, 3000 men were followed for over four years. The presence of diabetes or high blood pressure alone increased the risk of a heart attack by 2.5 times and when both were present the risk was increased 8 times. When abnormal lipid levels were present together with high blood pressure and/or diabetes the risk of a heart attack was 20 times higher.

Stress, and particularly feelings of anger may also contribute to the development of this syndrome. In one study, 541 healthy premenopausal females aged 42-50 years were followed for approximately 11 years. Of the 37 women who satisfied the criteria for Metabolic Syndrome on entry, all scored high on anger measurement scales. In addition, each of the 96 women who subsequently developed the syndrome also showed increasing anger measurement scores during the course of the study in contrast to controls who showed no rise. Researchers also found that women who had experienced a progressive decline in social support over the duration of the study were twice as likely to eventually develop Metabolic Syndrome compared to others in whom the degree of social support was stable.

Another study attempting to relate Type A traits in healthy young adults to the subsequent development of Metabolic Syndrome came to a similar conclusion. High Aggression-Hostility ratings and high anger scores had the greatest predictive power but how anger contribute to each of the components of this syndrome is not clear. A key factor appears to be the relationship of stressful emotions to the development of insulin resistance, as effects on blood pressure, blood sugar and lipid levels. It should be noted that although not specifically mentioned, Metabolic Syndrome is also associated with a tendency to quicker coagulation and clot formation as well as the promotion of inflammatory responses. Both of these activities, which could favor the development of certain cardiovascular complications are influenced by stress hormones.