

A Report on Metabolic Syndrome

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Brief Report

A clustering of at least three of the following five medical disorders is known as metabolic syndrome: abdominal obesity, high blood pressure, high blood sugar, high serum triglycerides, and low serum high-density lipoprotein (HDL). Metabolic syndrome has been linked to an increased risk of cardiovascular disease and type 2 diabetes. In the United States, metabolic syndrome affects around a quarter of the adult population, with the percentage rising with age, especially among racial and ethnic minorities. Insulin resistance, metabolic syndrome, and pre diabetes are all tightly linked and share some characteristics. An underlying problem of energy usage and storage is assumed to be the cause of the syndrome. The cause of the condition is still being investigated by doctors [1-3].

Central obesity, also known as visceral, male-pattern, or apple-shaped adiposity, is a significant symptom of metabolic syndrome. It is characterised by the accumulation of adipose tissue, primarily around the waist and trunk. High blood pressure, low fasting serum HDL cholesterol, high fasting serum triglyceride level, impaired fasting glucose, insulin resistance, or pre diabetes are all indications of metabolic syndrome. Hyperuricemia, fatty liver (particularly in conjunction with obesity) developing to non-alcoholic fatty liver disease, polycystic ovarian syndrome in women and erectile dysfunction in men, and acanthosis nigricans are all associated disorders.

The mechanisms of metabolic syndrome's complicated pathways are being researched. The pathophysiology is extremely complicated and only half understood. The majority of those affected are older, fat, inactive, and have some kind of insulin resistance. Stress is another issue that can play a role. Diet (especially sugar-sweetened beverage consumption), genetics, ageing, sedentary behaviour or low physical activity, altered chronobiology/sleep, mood disorders/psychotropic medication usage, and excessive alcohol use are the most major risk factors. The excessive enlargement of adipose tissue that occurs as a result of continuous overeating has a pathogenic function in the condition.

Obesity and insulin resistance are debated as to whether they are the cause of the metabolic syndrome or if they are symptoms of a more serious metabolic disorder. C-reactive protein, fibrinogen, interleukin 6, tumour necrosis factor-alpha (TNF-), and other markers of systemic inflammation are

frequently elevated. Various explanations have been suggested, including elevated uric acid levels due by eating sugar. The heavy consumption of food that is not biochemically adapted to humans is a role in the development of metabolic syndrome, according to research. Metabolic syndrome is linked to weight gain. The major clinical component of the condition is visceral and/or ectopic fat (fat in organs not meant for fat storage), rather than overall adiposity, and the primary metabolic abnormality is insulin resistance [4]. Unmatched by physical activity/energy demand, the constant availability of energy from dietary carbohydrate, fat, and protein fuels builds a backlog of mitochondrial oxidation products, a process linked to increasing mitochondrial dysfunction and insulin resistance.

To avoid the onset of metabolic syndrome, a number of interventions have been recommended. Increased physical exercise (such as walking 30 minutes per day) and a healthy, low-calorie diet are two of them. Many research back up the importance of leading a healthy lifestyle. However, according to one study, these potentially beneficial strategies are only successful in a minority of persons, owing to a lack of adherence to lifestyle and dietary adjustments. According to the International Obesity Taskforce, measures on a socio-political level are essential to prevent the metabolic syndrome from developing in populations [5].

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