



A General View on Metabolic Syndrome

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Description

Abdominal obesity, high blood pressure, high blood sugar, high serum triglycerides, and low serum high-density cholesterol are the five medical disorders that comprise metabolic syndrome. Diabetes mellitus, metabolic syndrome, and prediabetes are all closely linked and share some characteristics. The illness is thought to be caused by an underlying difficulty with energy utilization and storage. The reason of the condition is still being investigated by specialists. The intricate pathways of metabolic syndrome are being investigated for their mechanisms. The pathology is incredibly complex, and only a fraction of it is understood. The majority even those affected is older, fat, inactive, and have some kind of insulin resistance. Stress is another issue that can play a role. Diet, genetics, ageing, sedentary behavior or low physical activity, altered chronobiology/sleep, mood disorders/psychotropic drug use, and excessive alcohol use are the most major causes.

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, and other markers of systemic inflammation are frequently increased. Several theories have been proposed, including increased uric acid levels as a result of sugar consumption. The heavy consumption of food that is not molecularly adapted to humans is a role in the development of metabolic syndrome, according to research. Metabolic syndrome is linked to weight gain. The key clinical component of the condition is visceral and/or ectopic fat, rather than overall adiposity, and insulin resistance is the primary metabo-

lic problem. Unmatched by physical activity/energy demand, the persistent 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.

The growing adiposity commonly reflected in a high waist circumference could both originate from and contribute to diabetes, making central obesity a major aspect of the syndrome as both a sign and a cause. Despite the relevance of obesity, people of normal weight who are affected by the syndrome may also be insulin-resistant. According to new research, persistent stress might cause metabolic syndrome by disturbing the hypothalamic-pituitary-adrenal axis' hormonal balance. High cortisol levels circulate as a result of a dysfunctional HPA-axis, which raises glucose and insulin levels, causing insulin-mediated effects on adipose tissue, promoting visceral adiposity, insulin resistance, dyslipidemia, and hypertension, with direct effects on bone, causing "low turnover" osteoporosis. The documented link between abdominal obesity and cardiovascular disease, type 2 Diabetes, and stroke may be explained by HPA-axis malfunction. Cardiovascular disease has also been linked to psychosocial stress. Physical inactivity is linked to cardiovascular disease and mortality. A sedentary lifestyle is linked to several aspects of metabolic syndrome, including increased adipose tissue, lower HDL cholesterol, and a trend toward higher triglycerides, blood pressure, and glucose in genetically sensitive people. Those who watched television or movies or used their computers for more than four hours in a day have a two-fold higher risk of metabolic syndrome compared to those who did so for less than one hour per day.