

Metabolic Syndrome Therapy

Metabolic syndrome encompasses a collection of health conditions that puts a person at high risk for developing heart disease and/or suffering a stroke. In addition, some studies have shown that metabolic syndrome may increase the risk of certain cancers (breast, uterus, prostate, and colon), kidney damage, and perhaps Alzheimer's disease.

The risk factors developed by the World Health Organization (WHO) are:

- Type 2 diabetes, impaired fasting glucose, impaired glucose tolerance, or insulin resistance
- Waist hip ratio >0.9 for males or >0.85 for females and/or a BMI of >30
- Triglycerides of ≥ 150 milligram (mg)/deciliter (dL)
- High density lipoprotein (HDL) cholesterol of <35 for males or <39 for females
- Blood pressure $\geq 140/90$
- 30 mg albumin/gram (g) creatinine, indicating microalbuminuria

WHO calls for the diagnosis of metabolic syndrome if a person has type 2 diabetes, impaired glucose tolerance, impaired fasting glucose, or insulin resistance and two or more of the other previously listed risk factors. In females, polycystic ovary syndrome and infertility are correlated to metabolic syndrome. Reports indicate that nearly 25% of the total American population has metabolic syndrome.

Recommended therapy

The following therapy is recommended:

- Eating healthfully by including:
 - Soy protein
 - Omega-3-rich fish and flaxseed
 - Whole-grain foods
 - Plenty of fruits and vegetables
 - Moderate amount of dark chocolate, red wine (may continue drinking one glass/day for females and two glasses/day for males, if already doing so), and/or purple grape juice
 - Low-fat or nonfat dairy products
 - Decreased sodium intake of 2000-3000 mg/day
- Incorporating the principles of carbohydrate counting or using of the glycemic index when planning your diet, if recommended
- Losing weight—weight loss of even 10% can decrease risk of heart disease/stroke
- Doing regular or moderate physical activity, including both aerobic and anaerobic exercise
- Taking blood pressure medications, if recommended
- Taking medications to lower cholesterol and triglyceride levels, and to increase HDL levels if too low, if recommended
- Using insulin sensitizers, such as metformin, if recommended
- Taking omega-3 fatty acid supplements
- Using fiber supplements, if recommended
- Getting adequate sleep, which is considered very important, because insulin resistance worsens with sleep deprivation
- Using relaxation techniques, such as meditation, deep breathing, etc

References and recommended readings

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