

Lifestyle Medicine-The Key to Prevent the Mass Killer Called Metabolic Syndrome

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ABSTRACT

Metabolic syndrome-MetS is a serious health condition caused because of wrong lifestyle which puts people at higher risk of heart disease, diabetes, stroke and diseases related to fatty buildups in artery walls (atherosclerosis). In this article, the available scientific evidence on the associations between lifestyle changes and MetS and its components is reviewed to derive recommendations for MetS prevention and management. Various lifestyle studies undertaken across the country have consistently shown a high prevalence, which is likely to be as much as one by fourth of adult population, with increasing female and male being at higher risk. The occurrence has also been recorded among to become a priority issue for both gender and their health issues. The public health providers as well as clinicians in our country must encourage losing weight/fat based on right diet and daily physical activity/scientific exercise regime for every human being to counter and prevent metabolic syndrome effectively.

Keywords: Medicine; Metabolic syndrome; Diabetes; Stroke

INTRODUCTION

It is very important to keep body weight as near to normal as possible for both prevention and treatment of MetS because its pathophysiology relates to a positive energy balance, with surplus fat stored in adipose tissue and ectopic tissues such as the liver, pancreas, skeletal muscle, and around upper airways and inner organs. Right energy balance

can be maintained through a balanced diet like Mediterranean diet, the term Mediterranean diet refers to the traditional dietary pattern of countries in the Mediterranean basin. It is a plant-based diet, including sizable quantities of fruits, vegetables, whole-grain cereals, legumes, nuts, and olive oil as the principal source of fat. It also includes fish and poultry in low to moderate amounts, a relatively low amount of red meat, and moderate consumption of red wine ^[1].

Recently medical experts feels easy and says it is possible that confounding factors like more diseases among abstainers and heavy drinkers may influence the prevalence of MetS and alcohol exposure. Thus, intervention studies are needed to evaluate the potential benefit of reducing alcohol intake in mitigating (metabolic syndrome) MetS and the associated increased risk of mortality, CVD, T2DM, and some types of cancer. The prevalence of MetS risk factors (except impaired fasting glucose) differs among current, former, and nonsmokers ^[2].

In overweight or obese individuals, weight loss through calorie restriction/right diet and increased physical activity/specific scientific exercises, which must be individualized or personalized based on the persons current medical status, physical/fitness levels and comorbidities, is essential for preventing MetS or treating the condition when present. Regarding the dietary approach to prevention and treatment, over the last decade, research in nutritional epidemiology has moved from the single food approach to the dietary pattern strategy, which better reflects the complexity of interactive effects of multiple nutrients on health status ^[3]. A strong scientific relationship exists between physical activity and health; physical activity and scientific exercises are the key components of energy expenditure and thus plays a key role in energy balance and altering the fat mass, the beneficial effects are greater when exceeding minimum recommendations. Similarly, treatment should be based on the promotion of effective weight loss based on scientific exercise and right diet, but attempts at engaging patients in healthy lifestyles and at maintaining the results require specific strategies. The intensity of physical activity or scientific exercises required to improve metabolic parameters is not defined. But even low-intensity exercise training for a 2-month period improved some metabolic abnormalities but an exercise dose–response was reported on the components of MetS^[5].

CASE STUDY

Metabolic syndrome (MetS) is a group of five conditions that can lead to heart disease, diabetes, stroke and other health problems caused mainly because of wrong lifestyle. Metabolic syndrome(MetS) is diagnosed when someone has three or more of these risk factors:

- High blood glucose (sugar)
- Low levels of HDL (good) cholesterol in the blood
- High levels of triglycerides/LDL cholesterol in the blood(heart problems)
- Large waist circumference (apple-shaped) body
- High blood pressure(Cardiovascular diseases)

Although each of these is a risk factor for cardiovascular disease, when a person has three or more and is diagnosed with metabolic syndrome, the chance of developing a serious cardiovascular condition increases. For example, high

blood pressure is an important risk factor for cardiovascular disease, but when combined with high fasting blood sugar levels and abdominal obesity (large waistline), the chance for developing cardiovascular disease is even higher [6].

Underlying causes of metabolic syndrome include overweight and obesity, insulin resistance, physical inactivity, genetic factors and increasing age. Although metabolic syndrome is a serious condition, you can reduce your risks significantly by losing weight; increasing your physical activity/scientific exercises; eating a heart-healthy diet that's rich in whole grains, fruits, vegetables and fish; and working with your health care team to monitor and manage your blood glucose, blood cholesterol and blood pressure [7]. The importance of metabolic syndrome (MetS) lies in its associated risk of cardiovascular disease and type 2 diabetes, as well as other harmful conditions such as nonalcoholic fatty liver disease. Weight loss through an energy-restricted diet together with increased energy expenditure through physical activity/scientific exercises contributes to the prevention and treatment of MetS [8].

A Mediterranean-type diet, with or without energy restriction, is an effective treatment component. This dietary pattern should be built upon an increased intake of unsaturated fat, primarily from olive oil, and emphasize the consumption of legumes, cereals (whole grains), fruits, vegetables, nuts, fish, and low-fat dairy products. Other dietary patterns (Dietary Approaches to Stop Hypertension, new Nordic, and vegetarian diets) have also been proposed as alternatives for preventing MetS. Quitting alcohol, smoking and reducing intake of sugar-sweetened beverages and meat and meat products are mandatory [9].

Nevertheless, there are inconsistencies and gaps in the evidence, and additional research is needed to define the most appropriate therapies for MetS. In conclusion, a healthy lifestyle is critical to prevent or delay the onset of MetS in susceptible individuals and to prevent cardiovascular disease and type 2 diabetes in those with existing MetS. The recommendations provided in this article should help patients and clinicians understand and implement the most effective approaches for lifestyle change to prevent MetS and improve cardio metabolic health. Most people who have metabolic syndrome have insulin resistance. The body makes insulin to move glucose (sugar) into cells for use as energy [10].

Obesity, commonly found in people with metabolic syndrome, makes it more difficult for cells in the body to respond to insulin. If the body can't make enough insulin to override the resistance, the blood sugar level increases, causing type 2-diabetes. Metabolic syndrome may be a start of the development of type 2 diabetes. Losing weight, working on your diet, and getting more exercise is going to be the key strategy to manage MetS. Losing weight increases HDL ("good") cholesterol and lowers LDL ("bad") cholesterol and triglycerides. Losing weight also reduces the risk for type 2 diabetes. Changes in diet are important in treating metabolic syndrome. In general, the best way to treat insulin resistance is by losing weight and getting more physical activity/scientific exercises [11].

CONCLUSION

Lifestyle modification programs will play an imperative role in the management of metabolic syndrome and it will be more effective if supported by public health programs & government policies to change the unhealthy environment and promote healthy lifestyle. Only through the synergy of individuals and a societal global response, the maximum benefit for patients with MetS can be achieved, thus reducing the burden of global health care

budgets, advanced chronic diseases and premature death. Lifestyle modification programs in the management of MetS should stimulate physicians to adopt a clear cut lifestyle medicine strategies. General practitioners, as well as physicians working in metabolic units and treating patients with MetS, should receive adequate training and education in cognitive behavioral therapy and evidence based lifestyle medicine to engage patients for sustainable lifestyle modifications based on physical activity/scientific exercises and right diet leading to weight loss which inevitably leads to effective management and prevention of metabolic syndrome-MetS.

REFERENCES

1. Aadahl M, Kjaer M, Jorgensen T. Influence of time spent on TV viewing and vigorous intensity physical activity on cardiovascular biomarkers. The Inter 99 study. Eur J Cardiovasc Prev Rehabil. 2007;14:660–665.
2. Berlin I, Lin S, Lima JA et al.. Smoking status and metabolic syndrome in the multi-ethnic study of atherosclerosis. A cross-sectional study. Tob Induc Dis. 2012;10:19.
3. Steffen LM, Van Horn L, Daviglius ML et al.. A modified Mediterranean diet score is associated with a lower risk of incident metabolic syndrome over 25 years among young adults: the CARDIA (Coronary Artery Risk Development in Young Adults) study. Br J Nutr. 2014;112:1654–1661
4. Farras M, Valls RM, Fernandez-Castillejo S et al.. Olive oil polyphenols enhance the expression of cholesterol efflux related genes in vivo in humans. A randomized controlled trial. J Nutr Biochem. 2013;24:1334–1339.
5. Perez-Martinez P, Phillips CM, Delgado-Lista J et al.. Nutrigenetics, metabolic syndrome risk and personalized nutrition. Curr Vasc Pharmacol. 2013;11:946–953
6. Al-Odat AZ, Ahmad MN, Haddad FH. References of anthropometric indices of central obesity and metabolic syndrome in Jordanian men and women. Diabetes & Metabolic Syndrome: Clinical Research & Reviews 2012; 6(1):15-21.
7. Matsuzawa Y. Adipocytokines and metabolic syndrome. In Seminars in vascular medicine 2005;5(1):34-39.
8. Vijay-Kumar M, Aitken JD, Carvalho FA, Cullender TC, Mwangi S, et al. Metabolic syndrome and altered gut microbiota in mice lacking Toll-like receptor 5. Science 2005;328(5975):228-231.
9. De Sousa SM. Metabolic syndrome, diet and exercise. Best Practice & research. Clinical Obstetrics & Gynaecology 2016;37:140-151.
10. Watt KD. Metabolic syndrome: is immunosuppression to blame?. Liver transplantation: official publication of the American Association for the Study of Liver Diseases and the International Liver Transplantation Society 2011;17:S38-42.
11. Carrera-Lanestosa A, Moguel-Ordóñez Y, Segura-Campos M. Stevia rebaudiana Bertoni: a natural alternative for treating diseases associated with metabolic syndrome. Journal of medicinal food 2017;20(10):933-943.