

Metabolic Syndrome: The Importance of Healthy Lifestyle and Healthy Diet

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Definitions of metabolic syndrome vary slightly, but they always include obesity (usually measured by waist circumference), insulin resistance (typically identified by hyperglycemia), hypertension, and dyslipidemia – sometimes with elevated triglyceride levels, but always with reduced HDL cholesterol.

All these parameters can be influenced by diet or are negatively affected by poor dietary habits.

A recent umbrella review evaluated 17 systematic reviews focusing on metabolic syndrome as an endpoint. The median number of participants per study was 19,897, with a total of 6,870 cases.¹ The analyses primarily compared groups with the lowest versus highest intake of specific food groups.

Although the overall evidence level was low due to study heterogeneity, dairy products, fish, and nuts were associated with a reduced risk of metabolic syndrome. A smaller but more consistent effect, supported by moderate to high evidence, was found for fruit, legumes, vegetables, and whole grains. The consumption of eggs showed no significant effect (high evidence), whereas high intake of sugar-sweetened beverages (SSBs), red and processed meat, and refined grain products (white flour) was strongly associated with an increased risk of developing metabolic syndrome (high evidence).

Accordingly, plant-based dietary patterns are at the core of dietary interventions. Studies demonstrate that diets rich in fiber, polyphenols, and healthy fatty acids improve inflammatory markers, cardiovascular parameters, and glucose metabolism.² The effect is significantly enhanced when accompanied by increased physical activity.

Conclusion:

The plant-forward dietary pattern, currently recommended by numerous international scientific societies, combined with regular physical activity, reduces the risk of developing metabolic syndrome and forms the foundation of therapeutic intervention.

References

¹ Banjarnahor RL et al.: Umbrella Review of Systematic Reviews and Meta-Analyses on Consumption of Different Food Groups and Risk of Type 2 Diabetes Mellitus and Metabolic Syndrome. *The Journal of Nutrition* 2025; 155: 1285-1297

² Stavitz J et al.: The Role of Plant-Based Nutrition and Exercise in Metabolic Syndrome: A Narrative Review. *Nutrients* 2025; 17: 1498

